Compostable Products/Packaging:

Towards Common Ground

Conseil canadien du COMPOST
Council of Canada

November 2020

The growing presence of products and packaging with stated and certified compostable claims is becoming an issue of ever-greater complexity within the organics recycling industry in Canada.

Brand owners are being surprised and frustrated that, even by undertaking certification for compostability, their products and packaging might not be accepted within the existing organics recycling infrastructure.

Organics recycling facilities are generally reluctant to accept these inputs due to the “unintended consequences” that then impact their compost and digestate quality. The lack of visible distinction between compostable and non-compostable items, vagaries of claims, and often, the disconnect between the current laboratory-based compostable standards and their substantiation in real-world, processing conditions are just some of the issues that are causing frustration.

For the consumer (residents/businesses), it is confusing. They can’t easily differentiate the compostable item from “similar” look-alike plastic products/packaging nor understand the differences between the terms “compostable”, “biodegradable” and “oxo degradable”. As the decision-makers who determine which collection bin (organics, recyclables, garbage) these items are placed, they don’t understand the impact and consequences of inaccuracy. Inadvertent errors create contamination, negatively impacting incoming feedstocks, processing, finished product quality and costs.

In an effort to seek common ground and determine a collective path forward, The Compost Council of Canada conducted a series of one-on-one interviews with brand owners with experience in introducing certified compostable packaging/products as well as organic recycling facility operators who are dealing with-or-refusing-to-deal-with these items (Appendix I).

The following summarizes key comments from these interviews as well as identifies opportunities to work together to improve the current impasse.

From the Perspective of Organic Recycling Facilities

Going beyond the backyard compost bin and on-site programs, the existing processing infrastructure for organics recycling uses both centralized composting and anaerobic digestion technologies.

With the exception of some provincial policy direction, most organic recycling facilities have been established and financed through either a municipal initiative or by a private enterprise. Revenue (or cost avoidance) is based on tip fees for incoming feedstocks as well as sales of soil-destined products manufactured from the process (compost, digestate) with anaerobic digestion facilities also realizing revenue from green energy production.

This financial independence and the absence of any EPR (extended producer responsibility) funding has resulted in the decisions on the type of processing, including equipment selection, being the proponent's choice, influenced by factors such as feedstock inputs, products to be produced, community and economics.

Governed by both provincial/territorial waste management policies and regulations, the soil-destined products manufactured at and sold by the facility also must adhere to the federal *Fertilizer Act and Regulations*.

The amount of foreign matter (overall and sharps) and trace element content are amongst the key environmental health and safety parameters to be tested prior to product sale. The test's results assign the compost to Category A or B status, the former being of higher quality and revenue value with failure to achieve Category B relegating the product produced to landfill.

There is no centralized communication program to educate waste generators (either residential or commercial) on the how-to's of organics recycling nor on the use of the finished product. Any effort is a cost generally only borne by the proponent.

Against the above background, the following interview excerpts reflects some of the thinking of organics recycling facility owners/operators regarding the issues surrounding compostable products and packaging:

i. Overall Perspective

- We are focused on producing products for our soils. We are not a garbage facility.
- We are seeing more and more plastic. This is a problem that we need to fix. Get the whole category to switch to compostables.

- Compostables are better than plastic for our process; would rather see them instead of plastic as they eventually breakdown.
- There is a role for certified compostables but they need to add value and there are issues. Would like everyone in the same room to discuss how we can resolve them.
- The focus should be on products that are part of the food waste stream. Non-food items, other than collection or produce bags, should not be certified compostable. No good reason to have a compostable shampoo bottle.
- Paper works. It is not a problem.
- If you can't take a bite out of it, it doesn't belong in the green cart.

ii. *Identified Problems/Frustrations*

- Our biggest concern when we test our product is that we will fail because of foreign matter. If our compost is degraded, it costs me more. I can't sell my products and I am very concerned about the impact on my municipal contract. It can make all the difference between making dollars or not.
- There are no common standards other than laboratory-based certification which doesn't mean that they will breakdown in our facility. The certification test must make sense. Field testing is important to validate that the lab tests are correct. But it should not replace lab testing.
- A compostable standard with 180 days breakdown is ridiculous. It is screened out in Day 1.
- The compostable items need to continue to better their breakdown time – 12 weeks is too long.
- Lots of false claims. Lots of confusion about terms – photodegradable? Biodegradable? Compostable? Oxo degradable? Biodegradable plastic does not exist. There shouldn't be a label for this. Anything that will leave microbeads behind should not exist.
- The biggest issue is that they (compostables) are not easily identifiable. There is no means to identify or allow in the processing stream. They are screened out upfront and go to landfill.
- Government is not providing a lot of direction. Need strong provincial regulation otherwise we are treading water.
- The organics recycling infrastructure is underfunded. We need additional equipment but this is expensive. Why should we have costs imposed on us? Right now, it is "once they sell it, they have no obligation." If anyone screws up in the process, we take the hit on our quality or costs. We get the burden without any benefit.

From the Perspective of Brand Owners

Design-for-the-environment considerations as to whether the packaging or product is recyclable, compostable or just destined for the landfill are becoming factors within packaging choice and product offerings, influenced by corporate values, consumer demand, government "towards zero plastic waste" policies and international influences such as the *Plastics Pact* (Appendix II).

It is not easy for brand owners to determine whether their product or packaging indeed conforms to the waste management claims intended. The lack of consistent waste management infrastructure across Canada presents problems for national brands. The ever-increasing use of anaerobic digestion technology within the organics recycling infrastructure presents an additional complexity to the selection and validity of claims.

Although the Competition Bureau Canada has issued *Environmental Claims: A Guide for industry and advertisers* (Exhibit IV), it is not apparent that there is any policing or negative legal repercussions on those who are not adhering to its direction.

While a packaging type is theoretically compostable or recyclable, there is no centralized source for information whether it is actually acceptable within local recycling infrastructure nor are brand owners generally aware of how to connect with municipal waste collection programs in advance to alert them to introductions.

Proactive brand owners are investing the time and money to have their packaging tested and certified for compostability through 3rd-party initiatives such as the Biodegradable Products Institute (BPI) and the Standards Council of Canada through the BNQ (Bureau de normalisation du Québec).

The good intent of brand owners to pursue environmental claims and product/packaging selection is often met with significant criticism once launched, belittling efforts and damaging brand reputations, leading to questions as to "why even bother?".

Against the above background, the following are comments offered by brand owners experienced in introducing products/packaging with compostable claims in the Canadian marketplace:

i. Overall Perspective

- The public is demanding environmentally positive alternatives to current packaging.
- We have signed on to the Ellen MacArthur Packaging Commitment to switch our packaging to being either recyclable or compostable by 2025.
- A shame that everyone can't work together to solve the issues.
- What do the composters need to do to change their process? We want to work with the compost facilities to figure this out. How do we get common technology in the marketplace and move together in the right direction?
- It is hugely challenging but we can still make a difference and fundamentally change the market.
- Need to start at the beginning: 1. All packaging is compostable; 2. All packaging is certified; 3. Educate the public; 4. Become vertically integrated; 5. Develop regulations.

ii. Identified Problems/Frustrations

- An outsider would assume that once you get certified, you would be accepted as compostable.
- Introducing a certified compostable product has not been a good experience. It has been a non-stop struggle. We are trying to do things right and we get all the negative attention.
- The organics recycling infrastructure is not homogeneous. A key barrier is the absence of harmonization between municipal collection programs. Very frustrating to figure out what is acceptable. Very difficult to manage locally as a national/international brand.
- Government should be helping.
- There should be national protocols for the terms: recyclability and compostability.
- There is a lack of clarity and a disconnect between certification and practice.

NEXT STEPS RECOMMENDATION

A significant opportunity exists for the organics recycling facilities and brand owners to unite and work together.

The current situation and dynamics impacting the acceptance of compostable products and packaging within the Canadian marketplace needs to be improved. The need is apparent and the urgency to fix the current impasse is high.

The brand owners and organics recycling facilities can find common ground.

- Both are committed to contributing to sustainability.

- Both understand the value of quality products and the need for efficient and effective manufacturing conditions.

- Both see the potential merit for compostable packaging and products within the Canadian marketplace and recognize that the organics recycling infrastructure must receive more support.

- Both have identified the need for the federal and provincial/territorial governments to be involved in claim support, policy and financing.

Key areas which could be addressed together include the development of joint positions on:

I. Claims

Current issues include:

- Absence of claim oversight and consequences for inappropriate use;
- The negative impact of “like-minded” claims and products/packaging such as oxo degradable and biodegradable;
- The scope of the certification dynamics including appropriateness of the current lab-testing parameters, potential incorporation of in-field testing; advent of anaerobic digestion infrastructure.

II. Applications

Current issues include:

- Relevant use of compostable materials to fit/provide value within the organics recycling infrastructure (ie. Collection materials (eg. shopping bags/produce bags); packaging associated with food “waste”

(eg. wraps around vegetables, meat trays, salad bags; fruit & vegetable stickers).

III. Education & Communication

Current issues include:

- Consumer confusion and absence of understanding of the negative impact caused by inaccurately placing the wrong type of packaging/ products in the incorrect collection bin;
- Organics recycling being seen as an alternative to landfilling not as the means to return organic matter back to our soils;
- Inability to differentiate “like-minded” claims such as biodegradable, oxo degradable and compostable.

IV. Technology

Current issues include:

- Heterogenous processing infrastructure and technology (composting/anaerobic digestion; windrow/static aerated pile/in-vessel composting);
- Inability to differentiate between “compostable” and “plastic” packaging formats.

V. Infrastructure Financing

Current issues include:

- Determining the “what” and “who pays” for the costs to adjust the current infrastructure to permit greater acceptance of compostable products/packaging.

VI. Policy and Regulations

Current issues include:

- Absence of direction to move from the existing piecemeal, brand-specific approach to broader, category-wide initiatives.

In sharing these findings with the individuals and organizations involved with our recent interviews, we offer the assistance of our organization to convene a working group to begin tackling these challenges together. And to do so with an urgency and in a collaborative manner to involve government to be of help.

Against this urgency, we are also providing various documents/initiatives found in other parts of the world which we believe can help expedite our discussions and support our collective efforts.

For the Love of the Earth™

Susan Antler, Executive Director
The Compost Council of Canada

cc: Larry Conrad, Chair, National Board of Directors

APPENDICES

Exhibit I

Interviewees

The following individuals, being either brand owners or organics recycling facility operators/owners, were interviewed about their opinion and experience with compostable products/packaging.

Solange Akrill & Chris McKillop, Club Coffee L.P.

Geoff Boyd, Walker Industries

Larry Conrad, Chair, National Board of Directors
The Compost Council of Canada

Peter Duck, Bow Valley Waste Commission

Nicole Fischer, Kraft Heinz Canada

Ian Gordon, Loblaw Companies Limited

Paul Grenier, Clorox Canada

Joe Hruska

Brian King, GFL Environmental

Mike Kopansky, Miller Compost

Isaul Lopez, BASF Canada

Serge Loubier, Englobe Corp.

Donald MacQueen, Nova Scotia Environment

Dan Martens, Novamont North America

Marc Pollard, SC Johnson Canada

Chris Snively, ADI PEI

Mark Walker, Tomlinson Organics

Glenn Watt, City of Hamilton

Rhodes Yepsen, Biodegradable Products Institute

Plastics Pact

A network of national or regional initiatives working towards a circular economy for plastics

More than 450 organisations have signed up to this vision as part of the **New Plastics Economy Global Commitment**. Governments and companies representing 20% of all plastic packaging produced worldwide, many of them well-known international consumer brands, have committed to take action towards it.
Realising this ambitious vision will require unprecedented levels of collaboration, not just globally, but also at national and regional levels to work towards solutions tailored to each and every local context.

The **Plastics Pact** is a network of initiatives that bring together all key stakeholders at the national or regional level to implement solutions towards a circular economy for plastics. Each initiative is led by a local organisation and unites governments, businesses, and citizens behind the common vision with a concrete set of ambitious local targets, for example in the following areas:

- Eliminate unnecessary and problematic plastic packaging through redesign and innovation
- Move from single-use to reuse where relevant
- Ensure all plastic packaging is reusable, recyclable, or compostable
- Increase the reuse, collection, and recycling or composting of plastic packaging
- Increase recycled content in plastic packaging

www.newplasticseconomy.org/projects/plastics-pact

Examples of Compostable/Biodegradable Claims In The Marketplace

I. Logos in the Marketplace

II. Look-alike to Compostable Products

III. Statements

Our pallet stretch wrap is 51% plant-based & contains no chemicals of concern.

Metalized Barrier…This layer is inert and returns to the earth in the same way.

All of the films and inks in the compostable lineup are certified home compostable, and the zippers are certified industrial compostable.

PLUS 14021

Environmental claims: A guide for industry and advertisers

Developed in partnership with

Competition Bureau Canada | Bureau de la concurrence Canada

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CSA Special Publication

PLUS 14021

Environmental claims: A guide for industry and advertisers

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Annexes

Preface

This is the second edition of CSA Special Publication PLUS 14021, *Environmental claims: A guide for industry and advertisers.* It supersedes the previous edition published in 2000, entitled *The CAN/CSA-ISO 14021 Essentials.* The first objective of this Guide is to provide the users of ISO 14021, *Environmental labels and declarations — Self-declared environmental claims (Type II environmental labelling)*, with a best practice guide to the application of the standard and some practical examples of how the standard could be applied to environmental claims in the Canadian marketplace.

The second objective is to provide assistance to industry and advertisers in complying with certain provisions of the *Competition Act*, the *Consumer Packaging and Labelling Act*, and the *Textile Labelling Act*, administered and enforced by the Competition Bureau, an independent law-enforcement agency of the Government of Canada that protects and promotes competitive markets and enables informed consumer choice for the prosperity of Canadians. To achieve both of these objectives, the Bureau has partnered with CSA on this edition to ensure it is offered free of charge to the public and will serve both as an aid to interpreting CAN/CSA-ISO 14021 and as a best practice guide to complying with the provisions of the above statutes that prohibit false or misleading representations.

Adherence to the advice contained in this Guide on environmental claims will enhance the provision of meaningful information to consumers and will assist industry by providing "best practices" for self-declared environmental claims. This Guide provides examples of preferred approaches and discouraged approaches to illustrate commonly used environmental claims; shows how to avoid misleading or deceptive claims relating to an implied or expressed environmental benefit; establishes the guidelines for Mobius loop markings; and suggests methodologies for tests that can be used to clarify claims.

This Guide is primarily based on CAN/CSA-ISO 14021 and thus supersedes *Principles and Guidelines for Environmental Labelling and Advertising* (PGELA), published by Industry and Science Canada in 1993. This Guide is not a regulation. The Competition Bureau considers that the guidelines advocated in this document reflect "best practices". While the Bureau supports the use of voluntary standards, which encourage conformity with the laws and regulations, businesses are free to adopt any business practice they so choose, as long as the claims they are making are not false or misleading. Therefore, while the Competition Bureau will use this Guide as a reference for evaluating environmental claims, deviations from the Guide might not, in and of themselves, represent a contravention of the *Competition Act* and/or the labelling statutes enforced by the Competition Bureau. Environmental claims that raise concerns under these statutes may be examined on a case-by-case basis, and each case will be assessed on its own merits.

If the principles and specific requirements of CAN/CSA-ISO 14021 as recommended in this Guide are complied with, it is unlikely that environmental claims used in the promotion of a product/service or business interest would raise concerns under the statutes administered by the Competition Bureau. The examples of misleading or deceptive claims provided in this Guide are not binding statements of how discretion may be exercised in a particular situation. Guidance may be requested from the Competition Bureau through its Program of Advisory Opinions. Businesses may opt to seek a binding written opinion under this program to determine whether a proposed environmental claim would raise concerns under the *Competition Act*.

June 2008

Notes:

(1) *Use of the singular does not exclude the plural (and vice versa) when the sense allows.*

(2) *Although the intended primary application of this Guide is stated in its Introduction, it is important to note that it remains the responsibility of the users of the Guide to judge its suitability for their particular purpose.*

(3) *Regulatory enquiries regarding regulatory compliance should be addressed to the Competition Bureau. Anyone wishing to obtain additional information about the Competition Act, the Consumer Packaging and Labelling Act, and the Textile Labelling Act should contact the Competition Bureau's Information Centre at*

Information Centre, Competition Bureau Canada
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Gatineau, Québec K1A 0C9
National Capital Region: 819-997-4282
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Requests for interpretation should
(a) define the problem, making reference to the specific clause, and, where appropriate, include an illustrative sketch;
(b) provide an explanation of circumstances surrounding the actual field condition; and
(c) be phrased where possible to permit a specific "yes" or "no" answer.

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PLUS 14021
Environmental claims: A guide for industry and advertisers

1 Introduction

1.1 General

Canadian consumers are becoming increasingly concerned about the environmental performance of products. For example, consumers are concerned about the resources and energy used to produce products, and about the sustainability of the product design (can it be reused or recycled? is it biodegradable? is it made of recycled materials?) among other issues. This has led to an increased demand for environmental information about products from consumers, government, and industry. Industries may choose to communicate environmental benefits through environmental labelling and use advertising vehicles to promote these benefits. There are a wide range of descriptors, logos, vignettes, and other representations used to describe or imply environmental claims for consumer products. This means of communicating environmental claims is often called “green marketing”.

Environmental claims allow consumers to more easily differentiate between products in the market, so consumers can make better purchasing decisions in relation to the environment. In turn, consumers’ purchasing power for such products is a market driver for business to invest in more sustainable environmental practices. Environmental claims, declarations, eco-logos, and other eco-labels have a number of characteristics that allow the receiver to distinguish one kind from another. Eco-labels may be

- self-managed or third-party-managed;
- verified in-house or independently verified and/or certified;
- based on the product life cycle or a single attribute;
- available for single or multiple sectors — product categories; and
- designed to demonstrate environmental leadership, relative performance, or just provide information.

The value of environmental claims rests on the assurance that the information provided is credible, objective, and easily identifiable and understood by consumers. Standards play an important role in providing guidance to ensure responsible claims in industry and advertising. Standards for environmental claims benefit consumers, industry, and advertisers by providing a level playing field and consistency in terms and application. They also provide continual improvement through the maintenance of a standards program that is updated as environmental practices and scientific information evolve. The ISO 14020 Series of Standards on environmental labels and declarations has been developed to help in this regard. This series comprises Type 1 eco-logo labels (CAN/CSA-ISO 14024), Type II self-declared environmental claims (CAN/CSA-ISO 14021), and Type III environmental profile declarations (CAN/CSA-ISO 14025). Those making claims of conformity with the standards for all three types of labels are required to consider the impact of the life cycle of the product or service on the environment and be able to support the claim with verifiable data.

Type I eco-logo labels, which are independently verified by a third party through a testing process at the request of the manufacturer of the product, give consumers an indication of the environmental preferability of a product (or service) within a product category based on product life cycle considerations (environmental performance according to predefined criteria and/or a set of environmental attributes, e.g., “best 20% in class”). Examples of certification labelling

programs include Canada's "Environmental Choice" program where the eco-logo symbol is awarded to top performers: since 1998, over 2000 products and services have met or exceeded the standards of this program. The eco-logo indicates that a product will, for example, improve energy efficiency, reduce hazardous waste by-products, and make use of recycled materials. The Energy Star logo is another type of eco-logo, which is awarded to top products based on energy efficiency (e.g., energy-efficient appliances, equipment, windows, and doors). The consumer should keep in mind that eco-labelling programs or schemes do not assess the whole range of products available in the marketplace; there could be equally "green" products that have not been tested or certified.

Type II self-declared environmental claims, which are the focus of this Guide, are the kind of claims that are made by manufacturers, importers, distributors, or any person who promotes a product/service or business interest who is likely to benefit from the product's environmental claims. These claims are usually based on a single attribute (e.g., a manufacturer's claim that a product is "biodegradable") without taking into account the environmental impact of a product's entire life cycle, and without independent verification or certification by a third party. However, these claims must be verifiable, accurate, meaningful, and reliable if consumers are to understand the value of the environmental information they represent (e.g., their ability to protect the environment). The credibility of these claims can be increased if companies and organizations are able to support their claims by providing reliable information to purchasers or potential purchasers seeking to make more informed purchasing decisions on products or services. Consumer expectation can be raised by such claims, given the heightened public interest and awareness in the environment. These types of claims can also be made on a product that displays an eco-logo or Type 1 label.

As this Guide is based on CAN/CSA-ISO 14021, it is worth recalling that it is concerned only with self-declared environmental claims (Type II). This is not to say that other types of environmental claims are not important or do not fall under the laws administered by the Competition Bureau, but their application is outside of the intended scope of this Guide.

Type III environmental data declarations are comprehensive data lists that profile environmental information on a product throughout its life cycle; their level of detail is similar to that provided on nutrition labels on food. As these claims require disclosure of comprehensive data relating to environmental performance, the consumer might not always have the ability to assess such claims in terms of identifying and weighing the environmental risks related to a product or service.

Other labelling standards form part of the CAN/CSA-ISO labelling series. For summaries of these see Annex A of this Guide. ISO 14021, *Environmental labels and declarations — Self-declared environmental claims (Type II environmental labelling)* was published in 1999. This Standard was reaffirmed in 2004 and is scheduled to be reviewed for the next standards development cycle for a new edition in 2008.

ISO 14021 has been translated into several languages in addition to the official languages of ISO (English, French, and Russian) and is widely used as a voluntary and regulated standard. In 2000, ISO 14021 was adopted by the Canadian Standards Association (CSA) as CAN/CSA-ISO 14021.

1.2 How to use this Guide

Manufacturers, importers, distributors, retailers, or anyone likely to benefit from self-declared environmental claims may make such claims. These claims typically deal with one or more environmental aspects of the product (e.g., recycled material content and biodegradability).

This Guide reflects the most current, internationally accepted, best practice information on the use of environmental claims. Adherence to this Guide by users will

- contribute to a level playing field;
- reduce the risk of communicating misleading environmental claims;
- provide an incentive to improve environmental performance; and
- meet the growing consumer demand for products and packaging to have a reduced environmental impact.

This Guide includes text contained in CAN/CSA-ISO 14021 along with its corresponding ISO clause number. This will help industry to quickly identify the considerations that must be made for developing claims. ISO statements are followed by or introduced with an explanation for clarification where appropriate. Only essential clauses from CAN/CSA-ISO 14021 and other ISO claim and environmental labelling standards are contained in this Guide. Preferred and discouraged statements are provided to illustrate appropriate interpretation of the ISO clause. The preferred examples indicate a best practice approach. General examples are provided to illustrate various ways in which a clause may be applied. In some instances, examples of how an environmental claim might be false, misleading, or deceptive are also provided in order to guide industry as to when they might run afoul of the law.

1.3 The global growth of environmental labelling

The demand for environmental information on consumer products has been growing since the late 1970s. In response, countries developed various schemes and systems for assessing and communicating environmental product information. In 1992, the concept of environmental labelling was endorsed by participating governments at the United Nations Conference on Environment and Development (UNCED) to "encourage expansion of environmental labelling and other environmentally related product information programs designed to assist consumers to make informed choices".

In 1993, ISO established a technical committee to develop international environmental labelling standards. These standards are intended to incorporate requirements for consistency and accuracy, and create fair competition in the marketplace. CAN/CSA-ISO 14021 is one of a family of international environmental labelling standards (see Annex A of this Guide for a complete listing).

Environmental labelling, based on international standards, is recognized as an effective instrument of environmental policy by the World Trade Organization (WTO) secretariat, provided that it does not lead to unfair trade (see WTO Web page on environmental labelling: www.wto.org/english/tratop_e/envir_e/labelling_e.htm).

1.4 History of environmental labelling guidance documents in Canada

In the late 1980s, the federal Competition Bureau examined the issue of environmental labelling and advertising in consultation with industry, consumers, and non-government organizations. This consultation resulted in the formation of a multi-stakeholder working group that developed a guide entitled *Guiding Principles for Environmental Labelling and Advertising* in 1991. This document was subsequently revised and published as the *Principles and Guidelines for Environmental Labelling and Advertising* (PGELA) by the Department of Industry and Science in 1993. PGELA, combined with CSA Z761-93, *Guideline on Environmental Labelling,* provided consumers and industry with guidance on the use of environmental labelling and advertising in Canada.

CSA adopted an internationally harmonized ISO standard in 2000; the adoption was designated CAN/CSA-ISO 14021-00, *Environmental labels and declarations — Self-declared environmental claims (Type II environmental labelling)*. CSA subsequently developed a companion guidance document entitled *CAN/CSA-ISO 14021 Essentials* in 2000.

In 2001, the Commissioner of Competition, head of the Competition Bureau, requested public comments on a proposal to withdraw PGELA as the document to use for guidance when evaluating environmental claims under the *Competition Act* and the *Consumer Packaging and Labelling Act* and to replace it with CAN/CSA-ISO 14021-00. Following the consultation period, the Competition Bureau requested to partner with CSA to create an updated guidance document, free of charge to the public, that would both serve as an aid to interpreting CAN/CSA-ISO 14021 and provide guidance on how to comply with the provisions of the *Competition Act*, the *Consumer Packaging and Labelling Act*, and the *Textile Labelling Act* that prohibit false and misleading representations.

This document, which is based primarily on CAN/CSA-ISO 14021, is now being recommended as the new guide for industry on self-declared environmental claims. It supersedes PGELA, which has been formally withdrawn from use by the Competition Bureau.

2 Applicable acts

2.1 General

Application of this document will assist industry and advertiser compliance with the *Competition Act*, the *Consumer Packaging and Labelling Act*, and the *Textile Labelling Act*. These laws are administered and enforced by the Competition Bureau. This document is not intended to provide solutions to complex scientific and technological issues related to the environment. Since this Guide is based on CAN/CSA-ISO 14021, it is expected that as the standard is updated and maintained, there will be subsequent periodic reviews and updating of the guidance contained herein, based on technology, marketplace needs, and enhanced awareness of environmental concerns. This periodic review will include further consultation with representatives of a broad range of interests, including consumers, the environment, and industry.

Ultimately, the relevant statutes administered by the Competition Bureau will be applied in assessing the appropriateness of an environmental claim. A comprehensive case-by-case examination of all aspects of representations will form the basis of any enforcement and/or compliance action under the appropriate legislation. This Guide is not a legal interpretation but a best practice guide to promote industry compliance and will be used as reference for evaluating environmental claims in the application of the *Competition Act*, the *Consumer Packaging and Labelling Act*, and the *Textile Labelling Act*. A description of some of these provisions is provided below for information purposes only and should not be taken to be a complete statement of the law.

2.2 *Competition Act*

2.2.1 General

The *Competition Act* is a federal law governing most business conduct in Canada. It contains both criminal and civil provisions aimed at preventing anti-competitive practices in the marketplace. The act contains provisions addressing false or misleading representations and deceptive marketing practices in promoting the supply or use of a product (or service) or any business interest.

2.2.2 Criminal regime — False or misleading representations [Subsection 52(1)]

This provision prohibits knowingly or recklessly making, or permitting the making, of a representation to the public, in any form whatever, that is false or misleading in a material respect. Proof that any person was deceived or misled is not necessary in order to establish a contravention of this provision. Subsection 52(4) directs that the general impression conveyed by a representation, as well as its literal meaning, be taken into account when determining whether or not the representation is false or misleading in a material respect.

2.2.3 Civil regime

2.2.3.1 False or misleading representations [Paragraph 74.01(1)(a)]

This provision prohibits the making, or the permitting of the making, of a representation to the public, in any form whatever, that is false or misleading in a material respect. Subsection 74.01(6) directs that the general impression conveyed by a representation, as well as its literal meaning, be taken into account when determining whether or not the representation is false or misleading in a material respect.

2.2.3.2 Performance representations not based on an adequate and proper test [Paragraph 74.01(1)(b)]

This provision prohibits the making, or the permitting of the making, of a representation to the public, in any form whatever, about the performance, efficacy, or length of life of a product, which is not based on an adequate and proper test. The onus is on the person making the

representation to prove that the representation is based on an adequate and proper test. Subsection 74.01(6) directs that the general impression conveyed by a representation, as well as its literal meaning, be taken into account when determining whether or not the representation is false or misleading in a material respect.

2.2.3.3 Untrue, misleading, or unauthorized use of tests and testimonials [Section 74.02]

This provision prohibits the unauthorized use of tests and testimonials, or the distortion of authorized tests and testimonials. The provision also prohibits a person from permitting such representations to be made to the public.

2.3 *Consumer Packaging and Labelling Act*

2.3.1 General

The *Consumer Packaging and Labelling Act* requires that prepackaged consumer products bear accurate and meaningful labelling information to help consumers make informed purchasing decisions. The act prohibits the making of false or misleading representations and sets out specifications for mandatory label information such as the product's name, net quantity, and dealer identity.

2.3.2 Representations relating to prepackaged products [Subsection 7(1)]

This provision prohibits the sale, importation, or advertisement of a prepackaged product that has a label applied to it that contains false or misleading representations relating to, or reasonably regarded as relating to, that product.

2.4 *Textile Labelling Act*

2.4.1 General

The *Textile Labelling Act* requires that consumer textile articles bear accurate and meaningful labelling information to help consumers make informed purchasing decisions. The act prohibits the making of false or misleading representations and sets out specifications for mandatory label information such as the generic name of each fibre present and the dealer's full name and postal address or a CA identification number.

2.4.2 Representations relating to consumer textile articles [Subsection 5(1)]

This provision prohibits the sale, importation, or advertisement of a consumer textile article that has a label applied to it that contains false or misleading representations relating to, or reasonably regarded as relating to, the article.

3 Overall considerations

3.1 Verification

> In self-declared environmental claims, the assurance of reliability is essential. It is important that verification is properly conducted to avoid negative market effects such as trade barriers or unfair competition, which can arise from unreliable and deceptive environmental claims.
>
> *CAN/CSA-ISO 14021, Introduction*

CAN/CSA-ISO 14021 emphasizes in its introduction that, while self-declared environmental claims do not require third-party verification of supporting data, the data must be available and accurate. The purpose of voluntary standards is to facilitate interprovincial and international trade; therefore, it is essential that environmental claims meeting CAN/CSA-ISO 14021 are verifiable.

3.2 Legislative requirements

> This International Standard does not preclude, override, or in any way change, legally required environmental information, claims or labelling, or any other applicable legal requirements.
>
> *CAN/CSA-ISO 14021, Clause 1*

Legislative requirements and regulations for labelling and marking must be followed, in addition to any environmental claim that a business may select to use. CAN/CSA-ISO 14021 provides guidance on internationally accepted best practices.

3.3 Life cycle analysis

> **life cycle**
> consecutive and interlinked stages of a product system, from raw material acquisition or generation of natural resources to final disposal.
>
> [ISO 14040:1997]
>
> *CAN/CSA-ISO 14021, Clause 3.1.8*

A principle of environmental claims is consideration for the life cycle of the product.

CAN/CSA-ISO 14021 does not require a full life cycle analysis to be carried out to verify an environmental claim, but it does require consideration of the life cycle of the product. For a complete listing of life cycle considerations, see Clause 5.9 of this Guide.

3.4 Environmental improvement

> The overall goal of environmental labels and declarations is, through communication of verifiable, accurate information, that is not misleading, on environmental aspects of products, to encourage demand for and supply of those products that cause less stress on the environment, thereby stimulating the potential for market-driven continual environmental improvement.
>
> *CAN/CSA-ISO 14021, Clause 4*

While it is recognized that the use of self-declared claims will not, in itself, do anything to improve the environment, it is hoped that their use will trigger some market-driven improvement. This will happen only if the information is communicated in a way that is accurate and non-deceptive.

Note: *The term "product" refers to any goods or services; "product" normally incorporates the wrapping, container, etc., in which the goods are delivered; however, in the environmental context it is often appropriate to refer separately to the "packaging"; "packaging", then, is taken to mean any material that is used to protect or contain a product during transportation, storage, marketing, or use (ICC* International Code of Environmental Advertising*, Commission on Marketing, Advertising and Distribution, June 2001).*

3.5 Objective of CAN/CSA-ISO 14021

CAN/CSA-ISO 14021 is intended to harmonize the use of terms and symbols that claimants use in making self-declared environmental claims. The anticipated benefits of using CAN/CSA-ISO 14021 are as follows:

a) accurate and verifiable environmental claims that are not misleading;
b) increased potential for market forces to stimulate environmental improvements in production, processes and products;
c) prevention or minimization of unwarranted claims;
d) reduction in marketplace confusion;
e) facilitation of international trade; and
f) increased opportunity for purchasers, potential purchasers and users of the product to make more informed choices.

CAN/CSA-ISO 14021, Clause 4

CAN/CSA-ISO 14021, in conjunction with guidance from Advertising Standards Canada and operating within the framework of the laws administered by the Competition Bureau, is expected to deliver these anticipated benefits in Canada. Use of ISO 14021 when labelling products for export will help deliver the same benefits to other countries that use ISO 14021.

4 General requirements for all claims

4.1 Basic considerations

Any statement or symbol that refers to, or creates the general impression that it reflects, the environmental aspects of any product or service is considered an environmental claim. Environmental claims made about products may take the form of statements, symbols, or graphics on product or package labels, or in product literature, technical bulletins, advertising, publicity, telemarketing, and digital or electronic media such as the Internet.

4.2 Relationship with CAN/CSA-ISO 14020

CAN/CSA-ISO 14020 is a document covering the general principles of all environmental labels and declarations.

> In addition to the requirements of this International Standard, the principles set out in ISO 14020 shall apply. Where this International Standard provides more specific requirements than ISO 14020, such specific requirements shall be followed.
>
> *CAN/CSA-ISO 14021, Clause 5.2*

In most cases, CAN/CSA-ISO 14021 provides more detail than the general explanatory statements supplied in CAN/CSA-ISO 14020, but some areas that have less relevance to a self-declared claim — such as impacts on innovation and creation of trade barriers — are covered in CAN/CSA-ISO 14020. CAN/CSA-ISO 14020 provides useful guidance and general principles to follow for labelling schemes for which international standards have not yet been developed (see Annex B of this Guide).

4.3 Specifics of CAN/CSA-ISO 14021

CAN/CSA-ISO 14021 sets out eighteen specific requirements applicable to self-declared environmental claims, which are listed below.

a) shall be accurate and not misleading;
b) shall be substantiated and verified;
c) shall be relevant to that particular product, and used only in an appropriate context or setting;
d) shall be presented in a manner that clearly indicates whether the claim applies to the complete product, or only to a product component or packaging, or to an element of a service;
e) shall be specific as to the environmental aspect or environmental improvement which is claimed;
f) shall not be restated using different terminology to imply multiple benefits for a single environmental change;
g) shall be unlikely to result in misinterpretation;
h) shall be true not only in relation to the final product but also shall take into consideration all relevant aspects of the product life cycle in order to identify the potential for one impact to be increased in the process of decreasing another;
NOTE This does not necessarily mean that a life cycle assessment should be undertaken.
i) shall be presented in a manner which does not imply that the product is endorsed or certified by an independent third-party organization when it is not;
j) shall not, either directly or by implication, suggest an environmental improvement which does not exist, nor shall it exaggerate the environmental aspect of the product to which the claim relates;
k) shall not be made if, despite the claim being literally true, it is likely to be misinterpreted by purchasers or is misleading through the omission of relevant facts;
l) shall only relate to an environmental aspect that either exists or is likely to be realized, during the life of the product;
m) shall be presented in a manner that clearly indicates that the environmental claim and explanatory statement should be read together. The explanatory statement shall be of reasonable size and in reasonable proximity to the environmental claim it accompanies;
n) shall, if a comparative assertion of environmental superiority or improvement is made, be specific and make clear the basis for the comparison. In particular, the environmental claim shall be relevant in terms of how recently any improvement was made;
o) shall, if based on a pre-existing but previously undisclosed aspect, be presented in a manner that does not lead purchasers, potential purchasers and users of the product to believe that the claim is based on a recent product or process modification;
p) shall not be made where they are based on the absence of ingredients or features which have never been associated with the product category;

q) shall be reassessed and updated as necessary to reflect changes in technology, competitive products or other circumstances that could alter the accuracy of the claim; and
r) shall be relevant to the area where the corresponding environmental impact occurs.
NOTE A process-related claim can be made anywhere, so long as the environmental impact occurs in the area where the production process is located. The size of the area will be determined by the nature of the impact.

CAN/CSA-ISO 14021, Clause 5.7

The implementation of these requirements are addressed in Clause 5 of this Guide.

4.4 Vague and non-specific claims

An environmental claim that is vague or non-specific or which broadly implies that a product is environmentally beneficial or environmentally benign shall not be used.

CAN/CSA-ISO 14021, Clause 5.3

The purpose of being clear and specific is to protect consumers from deception. Environmental benefits need to be specific so there will be no misunderstanding. An environmental claim that is vague or non-specific or which broadly implies that a product is environmentally beneficial or environmentally benign shall not be used unless it is accompanied by a statement that provides support for the claim. Claims that are vague or of a general nature, such as “safe for the environment” or “non-polluting” are likely to require more comprehensive test results than fact-specific claims, such as “contains no chlorine”. Claims under this category may also constitute representations as to the performance or efficacy of a product; by law, such claims should be based on adequate and proper tests (for further details on evaluation and claim verification requirements, see Clauses 8.1 and 8.2 of this Guide). Claims relating to the environmental performance of a product or its features that are not supported by adequate and proper tests or that are false or misleading in a material respect are prohibited in Canada. The general impression conveyed by such a claim, as well as its literal meaning, shall be taken into account when determining whether an environmental claim is false or misleading in a material respect under Canadian law.

Claims such as “environmentally friendly”, “ecological (eco)”, and “green” are examples of vague claims and should be reserved for products/services whose life cycles have been thoroughly examined and verified. For example, labelling a consumer product as “environmentally friendly” or “environmentally safe” implies that a product is environmentally benign or is environmentally beneficial. Without greater specificity with respect to the reduced environmental impact, the environmental feature, or the benefit that the claim refers to, such far-reaching claims could be misleading or deceptive, as every product made is consumable and has an impact on the environment.

If vague claims relating to the environment are used as slogans and are not based on real environmental protection and/or benefit, they could be considered false or misleading. Such claims must be based on adequate and proper tests undertaken prior to making such representations to the public, if they relate or refer to the environmental performance or efficacy of a product.

Environmental claims that are vague, non-specific, incomplete, or irrelevant and that cannot be supported through verifiable test methods should not be used.

Example:

Preferred
This product uses 20% less electricity in normal use than our previous model.

Discouraged
This new and improved product is better for the environment.
This product uses green electricity.

Example:

Preferred
This product has replaced its aerosol ingredients with an alternative that does less harm to the ozone layer.

Discouraged
This product is ozone-friendly.

Note: *While the replacement chemicals in aerosols can be less damaging to the ozone layer, such chemicals should not be labelled "ozone-friendly" if they can harm the atmosphere (either the upper ozone layer or the air at the ground level). Such a label could be false or misleading.*

Example:
The packaging on a fire log claims the log to be "non-toxic". With no supporting statement as to why it is not toxic, this claim could be inappropriate and misleading since fire logs or wood-burning products are likely to generate smoke and particulates in the air, which are pollutants.

4.5 Claims of "...free"

An environmental claim of "... free" shall only be made when the level of the specified substance is no more than that which would be found as an acknowledged trace contaminant or background level.

CAN/CSA-ISO 14021, Clause 5.4

Note: "*Trace contaminant" and "background level" are not precise terms. "Trace contaminant" primarily refers to manufacturing impurity, whereas "background level" is typically used in the context of naturally occurring substances. Claims often need to be based on a specific substance-by-substance assessment to demonstrate the level is below that causing harm. Also, the exact definition of "trace contaminants" may depend on the product area concerned. (Adapted from ICC International Code of Environmental Advertising, Commission on Marketing, Advertising and Distribution, June 2001.)*

Claims of "... free" must not be made based on the absence of ingredients that were never in a product category or which were only ever present at a background level. It is permissible to make a claim of "...free" where trace amounts of an element exist because the element is ubiquitous in the environment but NOT when any trace amount of the element has been added to the formulation.

Note: *Exporters should check local legislation that sometimes does not allow claims of "… free".*

Example:

Preferred

"Lead free" for claims for solder in electronics. (Lead was often used in electronics products, and many manufacturers no longer use lead in their electronics products.)

Discouraged

"Pesticides free" for claims on organic products where pesticides were never used in the first place in that product category.

Note: *Many consumers today are interested in knowing not only the ingredients contained in a product but also the ingredients that are absent or no longer present. It is therefore recognized that "substance-free" claims can provide useful information to consumers when making purchasing decisions. At the same time, it should be noted that while these claims can be literally true, businesses and advertisers should ensure that the general impression conveyed by such claims is not false or misleading.*

Example:

A product is labelled "Free of HCFCs". This claim implies that the product contains no HCFCs (hydrochlorofluorocarbons) and is safe for the entire atmosphere (HCFCs cause harm to the ozone layer). This claim could be considered deceptive if it did not reveal that the product instead contained volatile organic compounds (VOCs), as these contribute to the formation of ground-level ozone or smog and therefore are not safe for the atmosphere. The potential deception is rooted in the non-disclosure of information, and this claim could be material to the consumer if it influenced a purchasing decision. This example would also not meet the requirements outlined in Clause 5.12 of this Guide.

Example:

It could be potentially false or misleading to claim that a brand of paint is "odourless" or "free of odours" when there may be different levels of odour in the paint that could still be detected by human senses.

Regarding "substance-free" claims, see also Clauses 5.12, 5.16, and 5.17 of this Guide.

4.6 Claims of sustainability

The concepts involved in sustainability are highly complex and still under study. At this time there are no definitive methods for measuring sustainability or confirming its accomplishment. Therefore, no claim of achieving sustainability shall be made.

CAN/CSA-ISO 14021, Clause 5.5

Sustainability can be measurable only over a very long period. It is therefore very difficult to make a verifiable claim of sustainability at one point in time. Claims that refer to specific, registered management systems are sometimes acceptable provided that they can be verified.

Example:

Preferred

This wood comes from a forest that was certified to a sustainable forest management standard [i.e., a sustainable forest management standard published by CSA, Sustainable Forestry Initiative (SFI), Forest Stewardship Council (FSC), or the Programme for the Endorsement of Forest Certification schemes (PEFC)].

Discouraged
This wood is sustainable.

A claim about a product's sustainability requires life cycle analysis and cannot be based on a single attribute of the product such as how it was managed and extracted. Hence, claims need to be linked to the achievement. If the wood for a product came from a forest that was certified to a sustainable forest management standard, it is not necessarily true that the entire wood product is sustainable.

4.7 Use of explanatory statements

Self-declared environmental claims shall be accompanied by an explanatory statement if the claim alone is likely to result in misunderstanding. An environmental claim shall only be made without an explanatory statement if it is valid in all foreseeable circumstances with no qualifications.

CAN/CSA-ISO 14021, Clause 5.6

Most self-declared claims will require an explanatory statement, as it can be very difficult to ensure that a claim is valid in all foreseeable circumstances, unless the market for that product is very small and very firmly defined. Any broad claim that is made for a product is unlikely to conform to CAN/CSA-ISO 14021 without a qualifying statement.

Example:
Preferred
This product has been designed to use less raw material than the model we produced last year.

Discouraged
Less material was used in this product.

5 Specific requirements

5.1
All self-declared claims and all explanatory statements are subject to all the requirements of Clause 5.7 of CAN/CSA-ISO 14021 (see Clause 4.3 of this Guide). The eighteen specific requirements are critical to the proper application of CAN/CSA-ISO 14021.

5.2
Self-declared environmental claims and any explanatory statements

shall be accurate and not misleading;

CAN/CSA-ISO 14021, Clause 5.7 a)

Self-declared environmental claims must refer specifically to the product or service to which they are applied. The accuracy of any claim can be challenged, and data may be requested to support the claim.

5.3

Self-declared environmental claims, including any explanatory statement,

> shall be substantiated and verified;
>
> *CAN/CSA-ISO 14021, Clause 5.7 b)*

CAN/CSA-ISO 14021 includes verification methodologies for the specific claims defined in the standard. For other self-declared claims, a hierarchy of test methods is identified in CAN/CSA-ISO 14020. It is also important that all verification be conducted in good faith and meet the requirements of good laboratory practice, be scientifically sound or based on generally accepted accounting principles, and be documented. Where feasible, verification material shall be publicly disclosed or made available to both the purchaser and a potential purchaser, as such material can affect purchasing decisions. It is not necessary to have all data produced or verified by a third party, but the data must be accurate and available in a readily understood form.

Note: *While it is sometimes necessary to make verification via a third party, it is not always feasible to release verification material if it is based on confidential business information. If verification material is not voluntarily disclosed because of the proprietary nature of the information used to support or validate an environmental claim, it should be made available to regulatory authorities upon request. Third-party access to information for verification purposes should also be considered in order to allow market participants to verify and validate such claims.*

5.4

Self-declared environmental claims, including any explanatory statement,

> shall be relevant to that particular product, and used only in an appropriate context or setting;
>
> *CAN/CSA-ISO 14021, Clause 5.7 c)*

Self-declared environmental claims must refer specifically to the product or service to which they are applied. Any environmental claim that does not relate directly to the product or service should not be used as a claim. For example, it is not appropriate to use a declaration of compliance with CAN/CSA-ISO 14001 as an environmental claim. Use of environmental claims related to CAN/CSA-ISO 14001 registration should be confirmed with the registrar and/or the Standards Council of Canada.

For more information on CAN/CSA-ISO 14001 registration, check the ISO Web site at www.iso.org/iso/iso_catalogue/management_standards/certification/publicizing_your_certification.htm.

The context or setting for the claim shall be relevant to the particular product (for example, the reduction in the consumption of water associated with the use of a product performing the function for which it was conceived when compared with the amount of water used by other products performing an equivalent function). This claim should relate to the use of the product and should not include reduction of water in manufacturing processes. Furthermore, this claim is comparative by nature and should fulfill the requirements for such claims (see Clause 9 of this Guide).

Example:
Use of the logo of an environmental association such as an animal or wildlife fund is sometimes not consistent in meaning from product to product. These labels or logos offer no environmental benefits other than signifying a relationship between the association and the business or a monetary contribution to the association.

5.5

Self-declared environmental claims, including any explanatory statement,

shall be presented in a manner that clearly indicates whether the claim applies to the complete product, or only to a product component or packaging, or to an element of a service;

CAN/CSA-ISO 14021, Clause 5.7 d)

It is valid to make an environmental claim for a component of a product, but if that claim is not relevant to the whole product or the product and the package, the claim must clearly identify which parts of the product, package, or service it refers to.

Example:
If a box of cereal is labelled "XX% recycled package" and the package consists of a paperboard box with a wax paper bag inside holding the cereal, the claim "XX% recycled package" must apply to both the box and the bag. If the claim refers only to the box, it should be stated as such.

Example:
An aluminum soft drink can is labelled "XX% recycled". No qualification for this claim is necessary because it is obvious to consumers that the can is recycled — not the contents in the can.

5.6

Self-declared environmental claims, including any explanatory statement,

shall be specific as to the environmental aspect or environmental improvement which is claimed;

CAN/CSA-ISO 14021, Clause 5.7 e)

It is not sufficient to make vague claims of environmental improvement or implying environmental improvement, such as: “green", "environmentally friendly", “forest friendly”, “nature’s friend”, “earth smart”, “ozone friendly”, “environmentally safe”, “eco safe”, etc. Any claim must detail the environmental benefit in such a way that it can be verified (see also Clause 4.4 of this Guide regarding vague and non-specific claims). The environmental benefit or feature might relate to certain attributes of the product or product components, packaging, manufacturing process, or product life cycle considerations. For further details, check the requirements for comparative claims in Clause 9 of this Guide.

Example:

Preferred

By incorporating XX% of recycled material into the design of our product, we have reduced waste at the production phase, compared with our last model (all resource use claims require a comparative statement to qualify the statement, as in the preceding examples).

Discouraged

By incorporating recycled material into our product, we have reduced waste.

Example:

Preferred

This product was not tested on animals.

Discouraged

A symbol displaying a rabbit is portrayed on a product label with no qualifying statement. The significance of this symbol is not known and the consumer can interpret or assume, wrongfully, that the product is not harmful to the environment. Without the use of an explanatory statement, the symbol can actually be misleading or deceptive.

5.7

Self-declared environmental claims, including any explanatory statement,

shall not be restated using different terminology to imply multiple benefits for a single environmental change;

CAN/CSA-ISO 14021, Clause 5.7 f)

It is inappropriate for a claim to overstate the environmental benefits of one environmental change. The claim and the explanatory statement need to be precise about any additional benefits and how they relate to the single environmental change. Further, the terminology used should be consistent.

Example:

Preferred:

By using 65% recycled content, we are reducing waste at the production phase compared with our last model.

Discouraged:

By using 65% recycled content, we are reducing waste at the production phase. Trees are being saved by the use of recycled wood fibres and therefore the air we breathe is cleaner.

5.8

Self-declared environmental claims, including any explanatory statement,

shall be unlikely to result in misinterpretation;

CAN/CSA-ISO 14021, Clause 5.7 g)

It is important that a claimant, in making a claim, avoid possible misinterpretation. External review of a proposed claim is sometimes advisable to ensure that this requirement is met. It will not be possible to avoid all cases of misinterpretation, but any likely or obvious ambiguities should be avoided. Consideration should also be given to literacy levels in the countries where the product is being sold.

5.9

Self-declared environmental claims, including any explanatory statement,

> shall be true not only in relation to the final product but also shall take into consideration all relevant aspects of the product life cycle in order to identify the potential for one impact to be increased in the process of decreasing another;
>
> *CAN/CSA-ISO 14021, Clause 5.7 h)*

All environmental claims should consider the entire life cycle of the product to ensure that there is a net environmental benefit, although it is not necessary to complete a full life cycle analysis for self-declared claims.

The CAN/CSA-ISO 14040 Series of Standards details environmental impact considerations from the "cradle-to-grave" of a product or service (see Clause 3.3 of this Guide).

Such considerations include

- design of the product;
- extraction of any raw materials used in the product or process;
- materials (including energy) used in the production process;
- emissions created during production (air, water, solid waste, etc.);
- toxicity of these materials and emissions;
- environmental impacts of the distribution system (including packaging and transportation);
- environmental impacts that occur during use of the product or service;
- durability, reusability, and recyclability of the product;
- consumer packaging and its disposal; and
- final disposal of the product.

It is not permissible to shift the environmental burden from one stage of a product's life to another and then make a claim concerning the improved stage without considering whether there is, in fact, a net overall environmental benefit. Environmental claims should be based on the best available information in each life cycle phase of the product to assess the net environmental benefit associated with a claim.

Example:
The use of non-ozone-depleting gas for refrigeration can have a negative impact on the energy efficiency of refrigerators. If a claim is made with regards to the use of non-ozone-depleting gas, either the net benefit must be verified or the reduction in efficiency must also be clearly stated.

5.10

Self-declared environmental claims, including any explanatory statement,

> shall be presented in a manner which does not imply that the product is endorsed or certified by an independent third-party organization when it is not;
>
> *CAN/CSA-ISO 14021, Clause 5.7 i)*

It is common practice for companies or products to receive endorsement from groups, including environmental organizations, in exchange for donations. Such endorsements are related neither to the environmental performance of the company nor the environmental impacts of the product. Care must be taken when displaying such endorsement symbols that their format and/or proximity to an environmental claim does not imply approval of the environmental claim.

5.11

Self-declared environmental claims, including any explanatory statement,

> shall not, either directly or by implication, suggest an environmental improvement which does not exist, nor shall it exaggerate the environmental aspect of the product to which the claim relates;
>
> *CAN/CSA-ISO 14021, Clause 5.7 j)*

The size of the environmental improvement to any one product, measured in terms of its impact, must be considered when making claims in order to avoid exaggeration (also see Clause 5.7 of this Guide).

Example:
A product from a company that has reduced its greenhouse gas emissions should not claim to be solving the problem of global climate change, nor should a recyclable package claim to be solving the problem of waste disposal.

5.12

Self-declared environmental claims, including any explanatory statement,

> shall not be made if, despite the claim being literally true, it is likely to be misinterpreted by purchasers or is misleading through the omission of relevant facts;
>
> *CAN/CSA-ISO 14021, Clause 5.7 k)*

Example:
Paper, in most cases, may be disposed of in composting systems. However, to label a paper product as compostable without an explanatory statement regarding the conditions under which paper can be added to compost could be misleading.

5.13

Self-declared environmental claims, including any explanatory statement,

> shall only relate to an environmental aspect that either exists or is likely to be realized, during the life of the product;
>
> *CAN/CSA-ISO 14021, Clause 5.7 l)*

This requirement is particularly relevant when making claims about design for disassembly or compostability of products that require community-composting systems for adequate degradation (see Clauses 10.2 and 10.4 of this Guide).

Example:
Brown bags for garden waste are technically compostable in community systems, but if no city in the vicinity where these bags are sold has, or is planning, collection of garden waste and community composting, the claim should not be made as it is unlikely that such collection and composting sites would be established before the current stock of bags is sold.

Example:
Many electronic products that are imported from Asia are designed to be disassembled. However, the systems are not in place in Canada to either take back the products or deal with the waste from consumers' disassembling of the product. The claim "designed to be disassembled" should not be made unless it is known that those facilities are likely to be established before the end of the product's useful life.

The following example is related to the "reasonableness" of recycling a particular material.

Example:
Non-packaging-related plastics or "engineered plastics" that are part of a product are typically either land-filled or burnt at the end of a product's life because they are expensive to separate, ship, and sort into the different plastic material types. Making a recycling claim for these materials would not be appropriate unless it became feasible in the marketplace to recycle them.

5.14
Self-declared environmental claims, including any explanatory statement,

shall be presented in a manner that clearly indicates that the environmental claim and explanatory statement should be read together. The explanatory statement shall be of reasonable size and in reasonable proximity to the environmental claim it accompanies;

CAN/CSA-ISO 14021, Clause 5.7 m)

It is unacceptable, when following CAN/CSA-ISO 14021, to make a claim and put the explanatory statement in a different location on the product or package. Both the claim and explanation must be of a reasonable size to be easily readable. Colour differences, both in print and in background, should also be designed in such a way as to ensure that the claim and the explanatory statement are clearly connected when read by the purchaser or potential purchaser.

Example:
If a carton has a claim on the front panel that requires an explanatory statement, the explanatory statement should not be on the side or back of the package, even with an asterisk to guide the reader to the other location. The statement should be with the claim.

Note: *For small products or containers, other ways of communicating explanatory statements, such as links to supporting information, providing 1-800 numbers, or Web site information, can be acceptable.*

5.15

Self-declared environmental claims, including any explanatory statement,

> shall, if a comparative assertion of environmental superiority or improvement is made, be specific and make clear the basis for the comparison. In particular, the environmental claim shall be relevant in terms of how recently any improvement was made;
>
> *CAN/CSA-ISO 14021, Clause 5.7 n)*

Comparative assertions make a factual statement that one product is environmentally superior to another. CAN/CSA-ISO 14021 provides detailed instructions on how to make such assertions and supply the data that will be required for verification. When making a claim not defined in CAN/CSA-ISO 14021, one must consider that comparisons must always be accurate and verifiable. Older and current versions of the same product can be compared, but considerations must be made for the relevance of this claim (see Clause 9 of this Guide).

Example:

Preferred
This product uses more recycled material than the same model produced in 2006.

Discouraged
More recycled content.

5.16

Self-declared environmental claims, including any explanatory statement,

> shall, if based on a pre-existing but previously undisclosed aspect, be presented in a manner that does not lead purchasers, potential purchasers and users of the product to believe that the claim is based on a recent product or process modification;
>
> *CAN/CSA-ISO 14021, Clause 5.7 o)*

When new scientific proof reveals that ingredients in some products are harmful and other products in that product category range have never used those ingredients, it is tempting to make an environmental claim based on the absence of those ingredients. Such a claim must always make it clear that this ingredient has never been present in this product and must not imply that this is a recent response to the exposure of the harmful aspects of that component.

Example:

Negative environmental impacts have been associated with phosphates contained in many types of household soap. If soaps used for dishes have never contained phosphate, a simple "phosphate-free" claim attached to the dish soap is inappropriate. The claim should make it clear that the dish soap has never contained this ingredient. Further, it should not imply that the phosphate was removed to address the negative environmental impact.

Preferred
Phosphate-free as always

As always, chlorine-free

Note: *If a business has recently changed its product composition or production process(es) and thereby eliminated the use of a potentially environmentally harmful ingredient (and no new ingredient has been added to the product or used in the modified production process(es) that could cause harm to the environment), then a claim of substance-free for an initial period of one year would be acceptable.*

Example:

Preferred
New phosphate-free formula
With our new production process, this product is now free of chlorine.
Our new fabrication process no longer uses substance X.

Discouraged
Phosphate-free

After the initial one-year period following the change in product composition or production process, an unqualified substance-free claim would be acceptable as long as the claim does not convey the general impression that it is the result of a recent change.

5.17

Self-declared environmental claims, including any explanatory statement,

shall not be made where they are based on the absence of ingredients or features which have never been associated with the product category;

CAN/CSA-ISO 14021, Clause 5.7 p)

This requirement addresses the use of a claim where a feature or ingredient now identified as harmful is not and never has been used in a product or any of its competitor products in that product category. The requirement differs from the restriction discussed in Clause 5.16 of this Guide in that it deals with claims for ingredients and features not normally used in any similar type of product.

Note: *Many consumers today are interested in knowing not only the ingredients contained in a product but also the ingredients that are absent or no longer present. It is therefore recognized that "substance-free" claims can provide useful information to consumers when making purchasing decisions. At the same time, it should be noted that while these claims can be literally true, business and advertisers should ensure that the general impression conveyed by such claims is not false or misleading.*

Example:

Preferred
Like all similar products in its category, this product has always been chlorine-free.
Like all similar products, always chlorine-free.
This product has been painted with lead-free paint.

Discouraged
Chlorine-free

5.18
Self-declared environmental claims, including any explanatory statement,

shall be reassessed and updated as necessary to reflect changes in technology, competitive products or other circumstances that could alter the accuracy of the claim;

CAN/CSA-ISO 14021, Clause 5.7 q)

The application of CAN/CSA-ISO 14021 results in many comparative claims. Comparative claims must convey accurate and verifiable information based on the most recent data available (see Clause 9 of this Guide).

5.19
Self-declared environmental claims, including any explanatory statement,

shall be relevant to the area where the corresponding environmental impact occurs.

CAN/CSA-ISO 14021, Clause 5.7 r)

This clause requires that life cycle impacts of the product be considered in the area in which the impact will occur. The requirement is particularly important when producing products for export. For example, process-related claims and resulting environmental impacts must be made in relation to the areas in which the production facility is located. Claims that concern the "use" or "fuel disposal" phase of the product life cycle must be made in relation to the areas in which the product will be sold.

Disposal claims such as “recyclable” and “refillable” require facilities to be available in the area where the product is to be sold. Collaboration between the manufacturer and distributor to ensure such services exist will help limit inappropriate claims (see Clauses 10.7 and 10.12 of this Guide).

6 Symbols

6.1 General

When a self-declared environmental claim is made, the use of a symbol is optional.

Symbols used to make an environmental claim should be simple, easily reproducible and capable of being positioned and sized to suit the product to which the symbol is likely to be applied.

CAN/CSA-ISO 14021, Clauses 5.8.1 and 5.8.2

CAN/CSA-ISO 14021 considers the general use of symbols with environmental claims. The use of symbols with environmental claims is optional, but if they are used, they must not impede the ability of a claim to meet all the requirements outlined in Clause 5 of this Guide. In addition to the

general requirements discussed in Clause 5, there are some specific instructions for the use of symbols. The only specific symbol addressed in CAN/CSA-ISO 14021 is the Mobius loop (see Clause 7 of this Guide).

6.2 Use of symbols for different environmental claims

> Symbols used for one type of environmental claim should be easily distinguishable from other symbols, including symbols for other environmental claims.
>
> *CAN/CSA-ISO 14021, Clause 5.8.3*

A symbol used with any self-declared claim must refer only to one claim. If more than one environmental claim is made using symbols, each claim (including its respective symbol) must be clearly separated. If both claims use symbols, these symbols shall be clearly distinguishable from each other. This applies to all symbols intended to give an environmental message, whether it be the Mobius loop, a new symbol widely used in a country, or a specifically designed symbol for a product.

There is one exception to this principle of one claim per symbol: the use of the Mobius loop for claims of “recyclable” and “recycled content”. See Section 7 of this Guide.

6.3 Symbol for implementation of an environmental management system

> A symbol used to express implementation of an environmental management system shall not be used in such a way that it could be misunderstood as an environmental symbol indicating the environmental aspects of a product.
>
> CAN/CSA-ISO 14021*, Clause 5.8.4*

This requirement is also addressed in Clause 5.4 of this Guide. Some registrars award a symbol to companies that are registered to CAN/CSA-ISO 14001. If a registrar awards a symbol for CAN/CSA-ISO 14001, it cannot be used as an environmental claim. Always check with either your registrar and/or the Standards Council of Canada for use of CAN/CSA-ISO 14001 registrations in any public communication.

Details on the use of management system registration/certification can be found on the ISO Web site at www.iso.org/iso/publicizing2005-en.pdf (see Clause 4.6 of this Guide regarding sustainability).

6.4 Use of natural objects in symbols

> Natural objects shall be used only if there is a direct and verifiable link between the object and the benefit claimed.
>
> *CAN/CSA-ISO 14021, Clause 5.8.5*

Natural objects such as fish and trees have frequently been used as symbols to accompany vague environmental claims such as "earth-friendly". CAN/CSA-ISO 14021 prohibits that type of usage. There needs to be a clear connection between the product and the symbol.

Example:

Preferred

A tree symbol is acceptable for a wood product claiming to be made from wood derived from a forest that was certified to a sustainable management forest standard (i.e., CSA, SFI, FSC, PEFC).

Discouraged

A fish symbol on a can of lead-free paint. In this example, there is no direct link between the removal of lead from paint and the marine environment.

6.5 Other information or claims

Words, numbers or symbols may be used in addition to environmental symbols to communicate information such as material identification, disposal instructions or hazard warnings.

CAN/CSA-ISO 14021, Clause 5.9.1

Use of an environmental claim does not preclude the necessity to identify any hazardous materials or to identify materials according to their recycling systems. The difference between the environmental claims and material identification symbols shall be made obvious to the purchaser.

Plastic resin identification symbols are examples of material identification symbols. The plastic resin identification coding system uses symbols to identify the various resins found in plastic bottles and rigid containers. These symbols are used for the purpose of sorting materials in collection and recycling markets in Canada. They consist of a triangular-shaped symbol of arrows that encloses a code number in the centre of the symbol. The number is used to designate the plastic material equivalent. The code number and material equivalents used in this coding system are as follows:

- 1 = PETE (polyethylene terephthalate) (PET);
- 2 = HDPE (high-density polyethylene);
- 3 = V (vinyl/polyvinyl chloride) (PVC);
- 4 = LDPE (low-density polyethylene);
- 5 = PP (polypropylene);
- 6 = PS (polystyrene); and
- 7 = other.

These resin code symbols are usually embossed or engraved on the bottom of containers (or as near as possible to the bottom), as recommended by the Society of the Plastics Industry (SPI). The coding is intended to sort homogeneous streams of plastics in sufficient volumes to allow for the highest value of recyclable material for use in end products. For more information about the differentiation of resins and packaging applications, visit www.cpia.ca/files/files/resincode.pdf.

Words, numbers or symbols used for non-environmental claim purposes shall not be used in a manner that is likely to be misunderstood as making an environmental claim.

CAN/CSA-ISO 14021, *Clause 5.9.2*

CAN/CSA-ISO 14021 requires that symbols and codes used for purposes other than environmental claims (such as environmental codes or symbols for sorting materials or for material identification) should not be used to imply any environmental benefit. The environmental claim should be made obvious and should be distinguished from any other codes or symbols. (See Clause 7 of this Guide.)

In order to avoid confusion with the Mobius loop, the plastic resin identification symbol should not be prominently displayed on the product.

Example:
A nationally marketed yogurt container displays the plastic resin identification symbol on the front label of the container, near the product name and logo. In this case, the manufacturer's prominent use of the code could be mistaken for a claim of recyclability. However, if the code were placed in a less visible location it would not be mistaken for a claim.

7 The Mobius loop

> The selection of specific symbols for this International Standard is based on their existing wide use or recognition. This should not be taken to imply that environmental claims represented by these symbols are superior to other environmental claims. Only the Mobius loop is included at present. Other specific symbols which are not provided for in this International Standard will be introduced at an appropriate time.
>
> *CAN/CSA-ISO 14021, Clause 5.10.1*

CAN/CSA-ISO 14021 based the selection of specific symbols on those that are currently widely used and recognized. During the development of CAN/CSA-ISO 14021, the only widely recognized symbol was the Mobius loop, and most consumers understand this symbol only as having "something to do with recycling". For this reason, CAN/CSA-ISO 14021 deals specifically with only the Mobius loop. As new symbols are used, they will be considered in the regular reviews of CAN/CSA-ISO 14021.

There are many advantages to using the same symbol to identify the same environmental aspect on competing products, and it is hoped that manufacturers will adopt a consistent approach and not discourage the use of the same symbol. However, care must be taken not to infringe on intellectual rights by the use of a registered design.

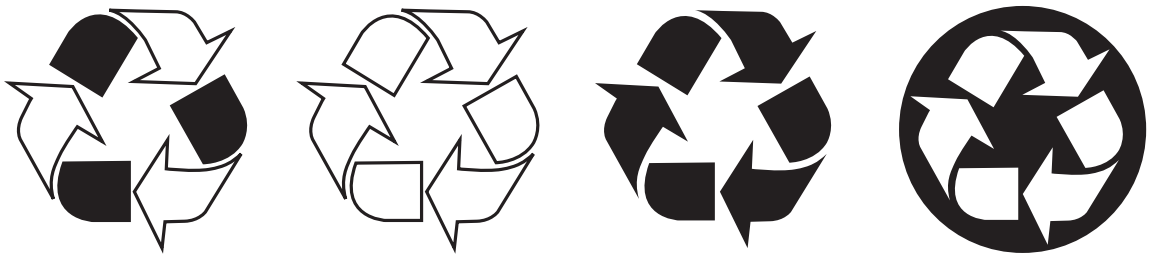


Figure 1 — Examples of the Mobius loop

The Mobius loop is a symbol in the shape of three twisted chasing arrows forming a triangle. Whenever it is used to make an environmental claim, the design shall meet the graphical requirements for ISO 7000, Symbol No. 1135. There should, however, be enough contrast so that the symbol is clear and distinguishable. Some examples of the form of the Mobius loop are provided in Figure 1. Clause 7 provides detailed requirements concerning the use and applicability of the Mobius loop.

The Mobius loop may apply to the product or the packaging. If there is any potential for confusion about whether it applies to the product or the packaging, the symbol shall be accompanied by an explanatory statement.

If a symbol is used for claims of recyclable or recycled content, then that symbol shall be the Mobius loop subject to the requirements of 7.7 and 7.8.

The Mobius loop shall only be used for claims of recycled content and recyclable, as described in 7.7 and 7.8.

CAN/CSA-ISO 14021, Clause 5.10.2

Any of the four versions of the Mobius loop shown above can be used to mean either recycled content or recyclability of the product, provided all the specifications of those two claims are met, as described in Clause 5 of this Guide.

When using the Mobius loop to make the claim of "recycled content", it is necessary to identify the percentage of recycled content in order to avoid the impression that the symbol refers to the recyclability of a product.

An explanatory statement specifying recyclability or recycled content would provide clarification of the meaning of the symbol for consumers.

If an explanatory statement is used with the Mobius loop symbol, it must be positioned near the symbol to show that the statement and symbol should be read together. ISO 7000, which deals with graphical symbols, contains specifications for the Mobius loop (Symbol No. 1135).

The Mobius loop shall only be used for claims of recycled content and recyclable, as described in 7.7 and 7.8.

CAN/CSA-ISO 14021, Clause 5.10.2.4

According to CAN/CSA-ISO 14021, the Mobius loop symbol is to be used only for two specific claims: “recyclable” or “recycled content”. These claims are defined in detail in Clauses 7.7 and 7.8 of CAN/CSA-ISO 14021 and in Clauses 10.7 and 10.8 of this Guide.

Note: *Export products should comply with any additional regional requirements in their intended market.*

The Mobius loop has been widely used in a variety of ways. Some uses of the symbol (e.g., simply to denote participation in an environmental program such as campus recycling or to discourage littering) are considered inappropriate. Placement of a specific number inside the Mobius loop without a percentage sign is also inappropriate, as it is likely to be misunderstood by the public (e.g., the number “1” can be mistakenly assumed to mean 100% recycled content or confused with the plastic resin identification code given the similarity of the symbols).

When using the Mobius loop symbol to designate both recyclability and recycled content simultaneously, the symbol must be accompanied by an explanatory statement supporting both claims in order to provide clarification to consumers as to the dual meaning of the symbol. In this situation, it is necessary for the percentage of recycled content to be accompanied by a statement of recycled content, even if the percentage number appears inside or next to the symbol.

Example:

This product is made of 30% recycled content and is recyclable.

Note: *The material-identifying code symbols for sorting plastic resins in the recycling process is an important part of the recycling system. The use of the plastic resin identification symbol alone does not denote that the product is recyclable or made of recycled content. Therefore the use of the Mobius loop in conjunction with a material identification symbol, such as the plastic resin identification symbol, is recommended. For example, both symbols would be necessary to denote that "this type of plastic container is recyclable in facilities across Canada".*

The Mobius loop should not be used to denote that packaging is degradable or compostable if the packaging is not recyclable. Alternatively, if a package is both recyclable and compostable/degradable, a statement clarifying its compostable/degradable characteristics should accompany the Mobius loop. For example, "this packaging is both recyclable and compostable".

Example:
On biodegradable packaging that is not recyclable, the Mobius loop should not be used. However, a claim of degradability may be appropriate if the packaging meets the requirements of Clause 10.3 of this Guide.

8 Evaluations and claim verification

8.1 Responsibilities of the claimant

The claimant shall be responsible for evaluation and provision of data necessary for the verification of self-declared environmental claims.

CAN/CSA-ISO 14021, Clause 6.1

The intended purpose of self-declared environmental claims is to allow organizations to make claims without the requirement to hire a third party to award a seal or logo. However, this does not lessen the responsibility of the manufacturer, distributor, dealer, retailer, importer, or anyone in the supply chain making the claim to be able to support it with accurate data.

Because the claims covered by CAN/CSA-ISO 14021 are self-declared, it is the sole responsibility of the claimant to produce and provide the data necessary to support the claim being made. While not a requirement, the claimant may choose to have outside agencies (e.g., a recognized laboratory, independent expert, testing facility, etc.) produce or verify this data.

> Prior to making the claim, evaluation measures shall be implemented to achieve reliable and reproducible results necessary to verify the claim.
>
> *CAN/CSA-ISO 14021, Clause 6.2.1*

Although claimants are responsible for producing their own supporting data, the data must be produced using accepted test methods to enable verification of the claim. (See Section 5.3 of this Guide.) Tests should be properly conducted, use appropriate testing methodology, or be based on scientific standards. Evaluation measures undertaken to support a self-declared environmental claim must be concluded prior to making the claim. Claims purporting or relating to an environmental benefit can be false or misleading if they do not properly convey the actual test results or if they are based on poorly designed test methodologies. Moreover, claims should not only be proven under laboratory conditions but also under the conditions of the product's normal, everyday use. A claim should be based on supporting data from adequate and proper tests.

Example:
"This hybrid product achieves 30% better gas mileage than our standard model". Such claims should not be made where the user tests have not been adequate to substantiate the claim. Claims of increased yield should come from careful testing of the product and be of some significance.

8.2 Selection of evaluation and claim verification methods

> Methods for evaluation and claim verification shall follow, in order of preference, International Standards, recognized standards that have international acceptability (these may include regional or national standards) or industry or trade methods which have been subjected to peer review. If there are no methods already in existence, a claimant may develop a method, provided it meets the other requirements of clause 6 and is available for peer review.
>
> *CAN/CSA-ISO 14021, Clause 6.4*

The testing or evaluation methods used shall meet industry standards that are recognized or that are nationally or internationally accepted in an industry or trade. The bibliography of CAN/CSA-ISO 14021 lists works that are helpful in meeting this requirement (this bibliography is appended as Annex D of this Guide). It lists several widely acceptable tests for verifying some of the claims defined in CAN/CSA-ISO 14021. In the absence of such standards or other definitive criteria, a claimant may develop a method of evaluation and verification, provided it meets the evaluation and claim verification requirements under CAN/CSA-ISO 14021.

Some of the selected claims that are defined in CAN/CSA-ISO 14021 cannot be supported by scientific testing and require detailed inventory data to verify their accuracy.

8.3 Access to information

A self-declared environmental claim shall only be considered verifiable if such verification can be made without access to confidential business information. Claims shall not be used if they can only be verified by confidential business information.

CAN/CSA-ISO 14021, Clause 6.5.1

A claim that depends on confidential information for its verification will require third-party audits to confirm that the data presented supports its validity. Claimants should look at other avenues or mechanisms involving a self-regulatory process for verification, allowing third-party access of verification information to purchasers or potential buyers seeking information regarding the validity of such claims.

CAN/CSA-ISO 14021 details the minimum information that is required to document a claim:

a) identification of the standard or method used;
b) documentary evidence, if verification of the claim cannot be made by testing the finished product;
c) test results, where these are necessary for claim verification;
d) if testing is carried out by an independent party, the name and address of the independent party;
e) evidence that the claim conforms to the requirements of 5.7 h) and 5.7 r);
f) if the self-declared environmental claim involves a comparison with other products, then a description of the method used, the results of any tests of those products, and any assumptions made shall be clearly stated;
g) evidence that the claimant's evaluation gives assurance of the continuing accuracy of the self-declared environmental claim during the period over which the product is on the market, and for a reasonable period thereafter, taking into account the life of the product.

CAN/CSA-ISO 14021, Clause 6.5.3

The information that verifies or supports a claim may be voluntarily released at point of sale or disclosed upon request. This information must be available in a format that is reasonably accessible to members of the public, and barriers must not be created to make it difficult for members of the public, including purchasers and potential purchasers, to have access to this information. Verification information must be accurate and available in a readily understood form to purchasers or potential purchasers as such information could potentially be material to purchasers' buying decisions.

Note: *It is recognized that in Canada, businesses or organizations are not required to disclose confidential or commercially sensitive information of a proprietary nature to the public. If information of a proprietary nature is used to support or validate an environmental claim, it should be made available to regulatory authorities and government agencies, upon request. Businesses or organizations are not precluded or restricted from making any type of environmental claim on the basis that the information supporting or substantiating a claim is premised on confidential business or proprietary information. Thus, in keeping with CAN/CSA-ISO 14021, all self-declared environmental claims can be made if they are substantiated and can be verified. See Section 5.3 of this Guide.*

9 Comparative claims

Comparative claims have the greatest potential to mislead purchasers and therefore they need to be approached with special care.

Comparative claims require the most rigorous evaluation and the most explicit description of the evaluation in the explanatory statement. Comparative claims always require an explanatory statement to identify the benchmark against which they have been evaluated.

Comparative claims shall be evaluated against one or more of the following:
a) an organization's own prior process;
b) an organization's own prior product;
c) another organization's process; or
d) another organization's product.
The comparison shall only be made:
— using a published standard or recognized test method (as set out in 6.4); and
— against comparable products serving similar functions, supplied by the same or another producer, currently or recently in the same marketplace.

CAN/CSA-ISO 14021, Clause 6.3.1

This is the verification required to ensure that a self-declared claim meets the requirements of Clause 5.7 (n) of CAN/CSA-ISO 14021.

It is also possible to make a comparative claim based on a particular aspect of the product's life cycle. This would normally be done when making a comparison with an organization's own prior product or process.

Comparative claims involving the environmental aspects of the product's life cycle shall be:
a) quantified and calculated using the same units of measurement;
b) based on the same functional unit; and
c) calculated over an appropriate time interval, typically twelve months.

CAN/CSA-ISO 14021, Clause 6.3.2

These comparisons may be expressed as percentages or as absolute values, but improvements related to a product and its packaging must be verified separately.

Comparative claims may be based on:

a) percentages, in which case they should be expressed as absolute differences; or

NOTE The following example is provided to clarify how relative measurements could be handled:

For a change from 10 % to 15 % recycled content, the absolute difference is 15 % - 10 % = 5 %, in which case, a claim of an additional 5 % recycled content could be made; however, a claim of 50 % increase, while accurate, could be misleading.

b) absolute (measured) values, in which case they should be expressed as relative improvements.
NOTE The following example is provided to clarify how absolute measurements could be handled:

For an improvement that results in a product lasting 15 months instead of the previous 10 months, the relative difference is

$$\frac{15\,\text{months} - 10\,\text{months}}{10\,\text{months}} \times 100 = 50\%$$

in which case, a claim of 50 % longer life could be made. If one of the values is nil, the absolute difference should be used.

As there is a high risk of confusing an absolute claim with a relative claim, the claim should be worded to be clear that it is a claim of absolute difference and not a claim of relative difference.

CAN/CSA-ISO 14021, Clauses 6.3.3 and 6.3.4

Comparisons should be made only for products that have similar functions and marketplace availability.

Example:
A statement such as "This product uses less energy" requires more clarification. You should be precise about the extent of the improvement and the basis for the comparison. "This product uses 20% less energy than our previous model" would be an appropriate way to make such a claim.

Improvements related to a product and its packaging shall be stated separately and shall not be aggregated.

CAN/CSA-ISO 14021, Clause 6.3.5

CAN/CSA-ISO 14021 provides sample equations to assist in the calculation of comparative claims. In using comparative claims, great care must be taken not to use percentages in cases where an absolute value would be more accurate, and vice versa.

10 Details of selected claims defined in CAN/CSA-ISO 14021

10.1 General

10.1.1 Overview

CAN/CSA-ISO 14021 details the usage of twelve claims deemed most commonly found in the marketplace at the time of the standard's development. Manufacturers and/or distributors are not precluded from making other self-declared environmental claims, if such claims meet the requirements of Clause 5.7 of CAN/CSA-ISO 14021 and the general principles set out in CAN/CSA-ISO 14020.

The environmental terms that are dealt with in this clause are arranged in alphabetical order. There is no hierarchical order for these claims. These claims may be applied to any part of the product life cycle — manufacture, distribution, usage, and recovery and disposal — as appropriate.

10.1.2 Selected claims detailed in CAN/CSA-ISO 14021

Detailed instructions are provided on the following terms, numbered according to their sequence in CAN/CSA-ISO 14021:

7.2 Compostable
7.3 Degradable
7.4 Designed for disassembly
7.5 Extended life product
7.6 Recovered energy
7.7 Recyclable
7.8 Recycled content
7.9 Reduced energy consumption
7.10 Reduced resource use
7.11 Reduced water consumption
7.12 Reusable and refillable
7.13 Waste reduction

CAN/CSA-ISO 14021, Clause 7.1.2

10.1.3 Claims of "where facilities exist"

Claims that a product or package is compostable, degradable, designed for disassembly, recyclable, reusable, and refillable might not be met by all facilities collecting materials; therefore, the product claim for collection and processing should be clear.

A claim that a product is compostable, designed for disassembly, or has an extended life sometimes depends on the existence of facilities. Claims that a product is recyclable, reusable, and refillable always depend on the existence of systems and facilities. Further, systems or facilities must be conveniently available to a reasonable proportion of purchasers, potential purchasers, and users in the area that the product is to be sold; otherwise, such claims could be considered false or misleading.

It is not considered adequate to state "where facilities exist" after a claim that is dependent on the existence of such facilities. It is important to obtain information on the availability of the necessary infrastructure from municipalities or distributors before making this claim or any such generalized qualifications, especially on products that may be exported to countries that have incorporated ISO 14021 into their regulations.

“Reasonable proportion” of purchasers, potential purchasers, and users

In Canada, it is recognized that municipalities have jurisdiction over recycling programs. With over 1000 recycling programs across Canada, it is sometimes not practical or feasible to have claims that are based on the availability of various types of local recycling programs. Given this situation, it is recommended that if at least half the population has access to collection facilities, a claim of “recyclable” may be made without the use of any qualification. In the case of limited availability of recycling facilities, or in cases where such facilities are not available to a reasonable proportion of purchasers, potential purchasers, and users, the specific location of the recycling programs or facilities should be identified whenever it is possible and practical to do so.

Generalized qualifications that convey the limited availability of collection facilities are adequate.

Example:

Preferred

This container may not be recyclable in your area.

Discouraged

This container is recyclable where facilities exist.

10.2 Compostable

10.2.1 Usage of term

"Compostable" claims would be appropriate on products or packages that will break down or become part of usable compost (for example, soil-conditioning material or mulch) in a safe and timely manner. For composting, a "timely manner" is approximately the same time it takes for composting organic compounds like leaves, grass, and food.

Specific qualifications are outlined in CAN/CSA-ISO 14021 for the appropriate use of a compostable claim. Each refers to the effect that a product might have on the compost quality.

A characteristic of a product, packaging or associated component that allows it to biodegrade, generating a relatively homogeneous and stable humus-like substance.

CAN/CSA-ISO 14021, Clause 7.2.1

A compostable claim may not be made on any material that

a) negatively affects the overall value of the compost as a soil amendment;
b) releases substances in concentrations harmful to the environment at any point during decomposition or subsequent use; or
c) significantly reduces the rate of composting in those systems in which the product or component is likely to be composted.

CAN/CSA-ISO 14021, Clause 7.2.2.1

10.2.2 Qualifications

All compostable claims normally require an explanatory statement to make it clear whether a home composter or municipal composting facility is required.

All compostability claims shall be clearly qualified as follows.

a) The claim shall specify whether the type of composting facility or process in which the identified component is compostable is a home-composting facility or an on-site or central composting facility, unless the product is compostable in all types of composting facilities, in which case no qualification is necessary.
b) If the entire product is not compostable, the claim shall identify specifically which components are compostable. If the user of the product is required to separate those components, clear direction on how to do so shall be provided.
c) If problems or risks are associated with introducing the product into either a home-composting facility or on-site or central composting facilities, then the claim shall identify which of these types of facility are capable of composting the product.

CAN/CSA-ISO 14021, Clause 7.2.2.2

The qualifying statement should also clearly state whether the whole product or only components are compostable. If the product has to be disassembled in order to compost components, clear instructions should be given on separating those components (see Clause 10.4 of this Guide).

If there are significant risks associated with putting the product or components in the wrong composting stream, these should be identified.

Example:
The pulp in a disposable diaper might be compostable in certain circumstances. The compostability claim should read, "This product can be put into municipal composting programs, provided the plastic layers are removed. The product should be rinsed in the toilet before it is separated for composting, as the human waste could produce ingredients that are incompatible with a municipal composting process".

A product claiming to be compostable in a home composter must meet specific requirements.

If a compostability claim refers to home composting, the following additional requirements shall apply.

a) If significant preparation or product modification is necessary to ensure satisfactory compostability, or if significant additional treatment of the finished compost is required as a direct result of the composting of the product or component, the compostability claim shall not be made.
b) If home composting of the product or component would require materials, equipment (other than a composting unit) or specialized skills that are unlikely to be available in most households, the claim of home compostability shall not be made.

CAN/CSA-ISO 14021, Clause 7.2.2.3

If a compostability claim is made for a product that is not suitable for home composting, the manufacturer should be able to verify that suitable facilities are conveniently available to a reasonable proportion of purchasers, potential purchasers, and users in the marketplace in which the product is to be sold, in order to make an unqualified claim of “compostable”. If, however, these facilities are not conveniently available to a reasonable proportion of purchasers, potential purchasers, and users in the area in which the product is marketed, the claim should be qualified to identify the limited extent of the facilities or infrastructure available for composting. Where feasible, this qualification must be specific. To determine what constitutes a reasonable proportion of purchasers, potential purchasers, and users, see Clause 10.1.3 of this Guide.

Example:

Preferred

This package is compostable in municipal composting programs in Southern Ontario only.

Discouraged

This package is compostable where municipal facilities exist.

As composting involves biodegradation, some of the tests listed for degradability in the bibliography of CAN/CSA-ISO 14021 can be helpful in the verification of compostability claims (see Annex D of this Guide).

If a compostability claim is dependent on processes or facilities other than home composters, then the following shall apply.

a) Such facilities for the purpose of composting the product or packaging shall be conveniently available to a reasonable proportion of purchasers, potential purchasers and users where the packaging or product is sold.
b) If such facilities are not conveniently available to a reasonable proportion of purchasers, potential purchasers and users of the product, explanatory statements shall be used which are adequate to convey the limited availability of these facilities.
c) General qualifications, such as "Compostable where facilities exist", which do not convey the limited availability of facilities are not adequate.

CAN/CSA-ISO 14021, Clause 7.2.2.4

Whether or not a claim is appropriate is dependent on the availability of systems or facilities to enable the environmental benefits suggested by the claim to be realized (see Clause 10.1.3 of this Guide).

Example:

Special leaf bags designed to degrade with the leaves they contain could be identified as "Compostable in municipal facilities in the Greater Vancouver area".

Unless the product is compostable in any facility under any conditions, the claim requires an explanatory statement. The following information must be clear to the purchaser: the type of facility in which the product can be composted (home or community); whether all or part of the product is compostable; and if there are any risks to composting this product. If a product is identified as being suitable for composting at home, the claim must identify the necessary treatment and preparation. If this product requires the use of materials or equipment not normally found in a home, the claim should not be made.

For packaging that is both recyclable and compostable (such as egg cartons, boxboard containers, etc.), the Mobius loop can be shown, but an accompanying qualifying statement should indicate that the package is also compostable. The Mobius loop symbol cannot be used to represent compostability.

10.2.3 Evaluation methodology

See Clause 8 of this Guide and Clause 6 of CAN/CSA-ISO 14021 for further information.

10.3 Degradable

10.3.1 Usage of term

The term "degradable" refers to all types of degradability, such as photodegradability and biodegradability.

> A characteristic of a product or packaging that, with respect to specific conditions, allows it to break down to a specific extent within a given time.
>
> NOTE Degradability is a function of susceptibility to changes in chemical structure. Consequent changes in physical and mechanical properties lead to the disintegration of the product or material.
>
> *CAN/CSA-ISO 14021, Clause 7.3.1*

10.3.2 Qualifications

> The following qualifications refer to all types of degradation, including for instance biodegradation and photodegradation.
>
> a) Claims of degradability shall only be made in relation to a specific test method that includes maximum level of degradation and test duration, and shall be relevant to the circumstances in which the product or packaging is likely to be disposed.
> b) A degradable claim shall not be made for a product or packaging, or component of a product or packaging, that releases substances in concentrations harmful to the environment.
>
> *CAN/CSA-ISO 14021, Clause 7.3.2.1*

All degradability claims must be made using a specific test method in which the maximum level of degradation and the test duration are appropriate to the circumstances in which the material is likely to be disposed or managed through degradation. The bibliography of CAN/CSA-ISO 14021 identifies several recognized tests for the degradation of plastics. See Annex D of this Guide.

In landfills, where most garbage is taken, materials degrade very slowly, if at all. This is because modern landfills are designed, according to law, to keep out sunlight, air, and moisture. This helps prevent pollutants from the garbage from getting into the air and drinking water, and slows the decomposition of the trash.

Example:
Materials such as paper take decades to decompose in a landfill; it is difficult to substantiate a claim that a product normally disposed of in a landfill is "degradable".

Example:
Biodegradable claims for products that go down the drain, like detergents and shampoos, must be substantiated to prove that the product will degrade in a wastewater treatment system.

Example:
Nursery pots made of peat moss or other similar types of planters may be labelled "biodegradable" if, when the planter and tree are planted in the ground, the planter quickly disintegrates and biodegrades, allowing the roots of the tree to reach the surrounding earth. In this case, an unqualified claim is not deceptive.

A claim that a product is biodegradable should be made only if it would be true in the circumstances in which the product is likely to be disposed of and if no substances are released in concentrations harmful to the environment.

Example:
It is unlikely that liquid cleaning spray applied to cleaning wipes that are disposed of in the garbage and invariably end up in a landfill have the ability to degrade, so a claim of "biodegradable ingredients" on the label of the liquid spray bottle or wipes could be considered inappropriate.

Example:
It would be misleading to claim that a refuse bag was biodegradable if it would have to be separated from the waste it contained.

Any limitations or constraints to degradability, biodegradability, or photodegradability in relation to a product or packaging should be indicated in order to avoid deception.

Where appropriate, a claim should qualify which product/package component is degradable and which is recyclable.

Example:
A bathroom hard-surface liquid cleaning product is labelled "biodegradable". The cleaning substance and certain components of the product's packaging are biodegradable, as supported by credible testing methods, but not the spray mechanism. Without being qualified, this claim could be considered false or misleading, given that it implies that the entire product, including the package, is degradable where customarily disposed. In order to avoid deception, this claim should be qualified to indicate which product components have the ability to degrade where it is likely to be disposed.

Note: *On biodegradable packaging that is not recyclable, the Mobius loop should not be used. This is to prevent consumers from placing degradable products in recycling programs where there is risk of contamination in the recycling process.*

If substances that are harmful to the environment are released during the degradation process, the claim of "degradable" should not be made.

Example:
Cleaners containing phosphates biodegrade totally and quickly; however, if they reach rivers and lakes, they can have a serious impact on aquatic life and can promote massive algae growths that can wipe out healthy ecosystems in local waters. A claim of biodegradability on cleaners that have damaging or harmful effects on the environment could be considered deceptive.

Note: *To be biodegradable, degradable, or photodegradable, most substances need either light or oxygen, neither of which is available if the product is placed in a landfill. If a technically biodegradable or degradable product and/or package labelled as such invariably ends up in landfill or in disposal facilities that are deprived of the conditions necessary to the degradation process, the claim of biodegradability or degradability could be false or misleading.*

Note: *It is recognized that a product that is technically biodegradable might not be entirely safe for the environment, as it might, nevertheless, be toxic and harmful to the environment while it is in the process of breaking down. In this situation, if a claim of biodegradability is made and is not qualified, the claim could be considered false or misleading. This applies to claims made for a product, product packaging, or any component of a product or packaging.*

See the bibliography in CAN/CSA-ISO 14021, appended as Annex D to this Guide, for a listing of appropriate tests for degradability.

10.3.3 Evaluation methodology

See Clause 8 of this Guide and Clause 6 of CAN/CSA-ISO 14021, for further information.

10.4 Designed for disassembly

10.4.1 Usage of term

A characteristic of a product's design that enables the product to be taken apart at the end of its useful life in such a way that allows components and parts to be reused, recycled, recovered for energy or, in some other way, diverted from the waste stream.

CAN/CSA-ISO 14021, Clause 7.4.1

This claim must reflect a specific design decision. It is also critical that there are facilities available to process the components and parts of the product after it has been disassembled (see Clause 10.1.3 of this Guide).

An explanatory statement must always accompany a claim that a product is designed for disassembly. This statement should specify the way in which various components or parts can be processed. Where components or parts are identified with another claim, such as recyclability, all the requirements of that claim must also be met.

10.4.2 Qualifications

A claim of designed for disassembly shall be accompanied by an explanatory statement that specifies the components or parts to be reused, recycled, recovered for energy or, in some other way, diverted from the waste stream.

If a claim of designed for disassembly accompanies another claim, such as a claim of recyclable, the relevant requirements applying to the other claim shall also be followed.

All claims that a product is designed for disassembly shall specify whether the disassembly is to be done by the purchaser or user, or whether it is to be returned for disassembly by specialists.

CAN/CSA-ISO 14021, Clauses 7.4.2.1 to 7.4.2.3

If the product requires specialists to perform the disassembly, the collection or drop-off facilities should be conveniently available to a reasonable proportion of purchasers, potential purchasers, and users in the area where the product is to be sold (see Clause 10.1.3 of this Guide). This

requirement is similar to those for refillability and recyclability claims. General qualifications on the limited availability of such facilities are permissible.

Example:

Preferred

This product has been designed to be disassembled into parts that can be recycled. This can be done at our outlets in Montreal, Toronto, or Vancouver.

Discouraged

Product can be disassembled where facilities exist.

10.4.3 Use of a special process

If a special process is required to disassemble the product, then the following shall apply.

a) Collection or drop-off facilities shall be available to a reasonable proportion of purchasers, potential purchasers and users of the product where the product is sold.
b) If such facilities are not conveniently available to a reasonable proportion of purchasers, potential purchasers and users of the product, explanatory statements shall be used which are adequate to convey the limited availability of these facilities.
c) General qualifications, such as "Can be disassembled where facilities exist", which do not convey the limited availability of facilities are not adequate.

CAN/CSA-ISO 14021, Clause 7.4.2.4

The appropriateness of claims “designed for disassembly” is sometimes dependent on the availability of facilities (see Clause 10.1.3 of this Guide).

Example:

A claim on a television set that states "This product has been designed to be disassembled into parts that can be recycled at our outlets in Montreal, Toronto, or Vancouver" would be acceptable.

Each component or part of the product must be clearly identified as to the disposal method that should be used, and any claims that a part is recyclable or reusable must meet all the requirements for such claims (see Clauses 10.7 and 10.12 of this Guide).

10.4.4 Disassembly tools or methods

Products designed for disassembly by the purchaser, potential purchaser or user of the product shall have accompanying information on disassembly tools and methods used.

A claim that a product is designed to be disassembled by the purchaser, potential purchaser or user of the product shall only be made if:

a) specialized tools or expertise are not required; and
b) clear information on the method of disassembly and reuse, recycling, recovery or disposal of the parts is provided.

NOTE Further guidance on provision of consumer information is given in ISO/IEC* Guide 14.

CAN/CSA-ISO 14021, Clauses 7.4.2.5 and 7.4.2.6

**International Electrotechnical Commission.*

A claim is not appropriate unless conditions (a) and (b) above are met. Instructions for disassembly and information on equipment and facilities must be available to purchasers, potential purchasers, and users. If the product is to be disassembled by the purchaser, the instructions must be clear and must identify the tools required (if any are required). The following documents may be helpful in preparing instructions:

- ISO Guide 37, *Instructions for Use* (see www.iso.org); and
- CSA Special Publication PLUS 9901, *Some Assembly Required — A CSA Guide to Writing Instruction Manuals* (see www.csa.ca).

10.4.5 Evaluation methodology

See Clause 8 of this Guide and Clause 6 of CAN/CSA-ISO 14021 for further information.

10.5 Extended life product

10.5.1 Usage of term

> A product designed to provide prolonged use, based on either improved durability or an upgradability feature, that results in reduced resource use or reduced waste.
>
> *CAN/CSA-ISO 14021, Clause 7.5.1*

Although this claim is related to the "use" phase of the product life cycle, it is dependent on a change in the "design" phase. To make this claim, a manufacturer must have made a specific design change for the purpose of improving the durability of a product.

An extended life claim is a comparative claim and should conform to Clause 9 of this Guide, as well as the specific requirements for extended life claims. All extended life claims require an explanatory statement specifying the other products with which the product is being compared.

> All claims regarding extended life shall be qualified. As extended life claims are comparative claims, the requirements of 6.3 shall be met.
>
> Where a claim of extended life is based upon an upgradability feature, specific information on how to achieve the required upgrade shall be provided. An infrastructure to enable upgrading shall be available.
>
> *CAN/CSA-ISO 14021, Clauses 7.5.2.1 and 7.5.2.2*

If the upgrade requires specialized tools, equipment, or expertise, the infrastructure must be in place to enable consumers to access this service, and this must be reflected in the claim, in accordance with Clause 10.1.3 of this Guide.

It is permissible to provide the end user with full information on the environmental benefits of a product, provided data is available to support the additional information.

Example:
Extended life product — This light bulb will last 50% longer than the comparable bulb produced by our competitors. By redesigning this product to have an extended life while you use it, we have

also been able to reduce the amount of resources used by reducing the demand for new light bulbs and the amount of waste created as fewer light bulbs will now enter the waste stream.

> Extended life claims that are based on the improved durability of the product shall state the extended life period or the percentage improvement and the measured value (e.g. repetitive number of operations before breakage) or reasoning that supports the claim.
>
> *CAN/CSA-ISO 14021, Clause 7.5.2.3*

Extensive records and test data will be required to support this claim. If an industry that produces products is considering such a claim, documentation of the durability of the product must be maintained.

10.5.2 Evaluation methodology

An extended life claim must not only identify the product with which the comparison is being made but also specify the feature that extends the life of the product. Point of sale information or bulletins must make it clear to the purchaser how the extended life component of the product can be obtained and installed.

Example:
"This is an extended life computer and will last twice as long as our last model" is an inappropriate claim, despite having the necessary qualifying statement for a comparative claim. This claim requires further information, such as "You can take the hard drive into any of our facilities in the Greater Vancouver area to have the upgrade that extends the life of the computer".

Example:
Electronic components frequently become outdated. Products can be made modular so that upgrade features can be added as needed. Such products may make a claim as follows: "This product is designed to have a life that is 50% longer than last year's model. Upgrade modules that extend the service life of this product are available from local retailers. The locations of stores offering this service can be obtained by calling 1-800-XXX-XXXX".

10.6 Recovered energy

10.6.1 Usage of term

> A characteristic of a product that has been made using energy recovered from material or energy that would have been disposed of as waste but instead has been collected through managed processes.
>
> NOTE In this context, the product can be the recovered energy itself.
>
> *CAN/CSA-ISO 14021, Clause 7.6.1*

Many plants have begun co-generation programs in which waste materials and waste energy are recovered and used to generate energy for operation of the plant. Also, many utilities in Canada now sell power generated from recovered energy.

10.6.2 Qualifications

In order for a claim to be made that a product has been manufactured using recovered energy, the energy used shall meet the following qualifications and shall be evaluated in accordance with 7.6.3.

a) Energy recovery from waste materials refers to the collection and conversion of waste material into useful energy. This includes any collection and conversion of waste materials from industry, home, business or public service facilities.
b) Before a claim of recovered energy can be made, the claimant shall ensure that adverse effects on the environment resulting from this activity are managed and controlled.
c) The type and quantity of waste that has been used for recovery shall be stated.

CAN/CSA-ISO 14021, Clause 7.6.2

If a claim is to be made that a product has been produced using recovered energy, the energy produced must meet qualifications (a), (b), and (c) above.

Evaluation shall be undertaken in accordance with clause 6. In addition, evaluation of recovered energy shall be calculated using the following method:

a) The claim shall only be made if *R* 2 *E* . 0.*

b) A claim of net recovered energy shall be expressed as follows:

$$\text{Net recovered energy (\%)} = \frac{(R - E)}{(R - E) + P} \times 100$$

where

P is the amount of energy from primary sources used in the manufacturing process to produce the product;
R is the amount of energy resulting from the energy recovery process;
E is the amount of energy from primary sources used in the energy recovery process to recover or extract the recovered energy.

CAN/CSA-ISO 14021, Clause 7.6.3

**Correction of Clause 7.6.3(a) of CAN/CSA-ISO 14021: The document should read: R – E > 0.*

The equation to be used in calculating recovered energy in order to validate and substantiate this claim is detailed in CAN/CSA-ISO 14021, Clause 7.6.3, above. The claim must be made only if there is a net environmental benefit demonstrated when the amount of energy resulting from the energy recovery process is greater than the amount of energy from primary resources used in the recovery process.

Adverse effects on the environment resulting from the production of energy from waste shall be managed and controlled before a claim of "recovered energy" can be made to ensure the claim reflects a net environmental benefit over a product's life cycle.

Recovered energy claims are designed for products produced with energy from waste or recovered energy. For example, methane gas can be recovered from the off-gassing of landfill and stored as energy.

Example:
Energy produced from agricultural waste may qualify as recovered energy provided that the energy used to transport and process the waste does not exceed the energy produced from waste.

Example:
Many forest product companies use their waste biomass to generate energy that helps to operate their plants. Wood products from such a plant could carry a claim that they are "processed using 20% recovered energy generated from X tonnes per annum of waste biomass".

10.7 Recyclable

10.7.1 Usage of term

A characteristic of a product, packaging or associated component that can be diverted from the waste stream through available processes and programmes and can be collected, processed and returned to use in the form of raw materials or products.

NOTE Material recycling is only one of a number of waste-prevention strategies. The choice of a particular strategy will depend on circumstances and account should be taken of differing regional impacts in making this choice.

CAN/CSA-ISO 14021, Clause 7.7.1

It is not enough to confirm that there are municipal or industry collection systems where the product is sold in order to make a claim of "recyclable" — there must also be facilities to process the collected materials and reuse them as an input to another product that can be marketed and used (see Clause 10.1.3 of this Guide).

When making a recycling claim, environmental impacts resulting from recycling products should be considered, including collection, transport, processing, proximity to recycling facilities, and type of material, including weight (see Clause 5.9 of this Guide).

10.7.2 Qualifications

If collection or drop-off facilities for the purpose of recycling the product or packaging are not conveniently available to a reasonable proportion of purchasers, potential purchasers and users of the product in the area where the product is sold, then the following shall apply.

a) A qualified claim of recyclability shall be used.
b) The qualified claim shall adequately convey the limited availability of collection facilities.
c) Generalized qualifications, such as "Recyclable where facilities exist", which do not convey the limited availability of collection facilities are not adequate.

CAN/CSA-ISO 14021, Clause 7.7.2

Recycling programs are in place in most major Canadian cities. These programs do not all accept the same products. Local recycling programs can make the consumer aware of the materials they will take back for processing, and a general recyclable claim can be used as a disposal instruction on products. However, claims of recyclability should be qualified to indicate the limitation of facilities. To determine what constitutes a reasonable proportion of purchasers, potential purchasers, and users, see Clause 10.1.3 of this Guide.

Example:

Preferred

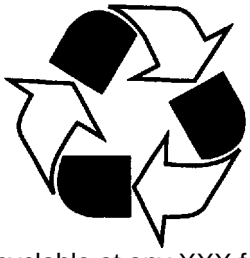
This container is recyclable through the blue box program in Southern Ontario and at recycling depots in Winnipeg and Edmonton.

Discouraged

Recyclable where facilities exist.

When a recyclable claim is made, you may use the Mobius loop symbol with or without words. However, a Mobius loop without any qualifying statement would be inappropriate if infrastructure to collect, process, and remanufacture the material is not conveniently available to a reasonable proportion of purchasers, potential purchasers, and users (see Clause 10.1.3 of this Guide).

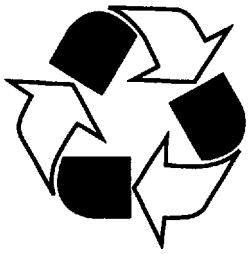
Example:



Recyclable at any XXX facility in Canada.

Material identification can be included in the explanatory statement.

Example:



This polyethylene (PETE) bottle can be recycled in blue box programs in Montreal and Toronto.

Some businesses or sectors with established private recycling programs can make "recyclable" claims for the products they recycle, provided the program is conveniently available to a reasonable proportion of purchasers, potential purchasers, and users where the products are sold. Otherwise, the "recyclable" claim must be qualified to indicate the availability of the recycling program in the specific locations where recycling programs are offered.

Example:
Used motor oil may be recyclable through retailers and dealers in participating locations. The manufacturer recycles it for resale. It is labelled "recyclable" when originally purchased and "recycled" when re-refined and resold. This claim is acceptable, even though the oil is not recyclable through conventional municipal recycling programs but is recyclable at participating stores in locations identified.

Example:
If a manufacturer of toner cartridges for laser printers establishes a recycling program to recover its cartridges exclusively through its nationwide dealership network and the company advertises its cartridges nationally as "Recyclable — Contact your local dealer for details", the "recyclable" claim should be qualified to indicate the limited availability of recycling locations (e.g., "Dealers in major metropolitan areas accept toner cartridges").

Note: *If a container is universally recyclable throughout Canada, through various curbside and drop-off depot recycling programs and processing or recycling facilities, the Mobius loop symbol may be used on the product to make the claim "recyclable". In this case, the claim may be made without the use of any qualifying statements. It would not be false or misleading to make an unqualified claim of "recyclability" if at least 50% of the population in the area where the product is sold have convenient access to these recycling facilities. If the facilities to process and reuse recycling do not exist for the majority, this claim and the use of the Mobius loop symbol on such a container could be considered false or misleading.*

Likewise, if a product is marketed and sold only in a certain region in which consumers have reasonable access to collection and processing/recycling facilities for the container or product package in question, the Mobius loop symbol may be applied, without any explanatory statement, to those products sold in that region.

10.8 Recycled content

10.8.1 Usage of terms

Recycled content and its associated terms shall be interpreted as follows:

a) **Recycled content**

Proportion, by mass, of recycled material in a product or packaging. Only pre-consumer and post-consumer materials shall be considered as recycled content, consistent with the following usage of terms.

1) **Pre-consumer material**

Material diverted from the waste stream during a manufacturing process. Excluded is reutilization of materials such as rework, regrind or scrap generated in a process and capable of being reclaimed within the same process that generated it.

CAN/CSA-ISO 14021, Clause 7.8.1.1

The requirement above is designed to limit the claim to material that has actually left the plant and been deliberately collected and reintroduced into the process. Industrial scrap, rework, and regrind, which are collected in-plant and recirculated through the production process, should not carry a "recycled" claim.

Example:
If rubber shavings from the floor of a tire manufacturer were put into the beginning of the moulding process and immediately reintroduced to the process, a claim of recycled content on the finished tires would not be appropriate as this material is considered to be "industrial scrap".

Example:
If cuttings from a cardboard box manufacturer were collected and returned to the off-site producer of the sheet cardboard for re-inclusion in the process of producing cardboard, it would be considered pre-consumer material, and a "recycled content" claim would be appropriate.

2) **Post-consumer material**

Material generated by households or by commercial, industrial and institutional facilities in their role as end-users of the product which can no longer be used for its intended purpose. This includes returns of material from the distribution chain.

CAN/CSA-ISO 14021, Clause 7.8.1.1

Example:
A paper mill cannot make claims for end rolls reintroduced to the process on-site. However, it can collect the office paper used in running the operation — material for which the mill operation is the end user — and count this as "post-consumer" recycled content.

Example:
Overruns of newspapers collected from retail distributors and returned to the paper mill can be counted as post-consumer recycled content, although they never actually reached the intended end user.

The claimant may identify whether recycled content is pre- or post-consumer material, but it is not required. Pre- and post-consumer content can be aggregated to provide the final percentage of recycled content or can be identified separately.

Example:
If a ream of notebook paper is composed of 20% by weight of post-consumer paper and 30% by weight of pre-consumer paper (that was generated after completion of the paper-making process, diverted from the solid waste stream, and would not normally have been reused in the original manufacturing process), the marketer of the notebook paper may claim that the product contains 50% recycled fibre or identify the specific pre-consumer and/or post-consumer content by stating that the product contains 50% total recycled fibre, including 20% post-consumer material.

b) **Recycled material**

Material that has been reprocessed from recovered [reclaimed] material by means of a manufacturing process and made into a final product or into a component for incorporation into a product.

c) **Recovered [reclaimed] material**

Material that would have otherwise been disposed of as waste or used for energy recovery, but has instead been collected and recovered [reclaimed] as a material input, in lieu of new primary material, for a recycling or a manufacturing process.

NOTE 1 A diagrammatic representation of a material recycling system is given in annex A.*

NOTE 2 For the purposes of this International Standard, the expressions "recovered material" and "reclaimed material" are treated as synonyms; however, it is recognized that, in some countries, one or other of these expressions may be preferred for this application.

Material recycling is only one of a number of waste-prevention strategies. The choice of a particular strategy will depend on circumstances and account should be taken of differing regional impacts in making this choice. Consideration shall be given to the fact that a higher percentage of recycled content does not necessarily imply a lower environmental impact. Because of this, the recycled content claim, in particular, should be used with discretion.

NOTE Attention is drawn to the requirements of 5.7 h).

CAN/CSA-ISO 14021, Clauses 7.8.1.1 and 7.8.1.2

**With regard to NOTE 1 in the above ISO reference, see Annex C of this Guide.*

10.8.2 Qualifications

The percentage of recycled content can be expressed as a written statement, or as a numerical percentage in the Mobius loop or immediately adjacent to the symbol.

Where a claim of recycled content is made, the percentage of recycled material shall be stated.

The percentage recycled content for products and packaging shall be separately stated and shall not be aggregated.

CAN/CSA-ISO 14021, Clauses 7.8.2.1 and 7.8.2.2

Note: *The percentage value combined with the words "recycled content" would enhance consumers' understanding of the meaning of the Mobius loop symbol. Typically, the percentage value is followed by the words (e.g., "30% recycled content").*

Example:

Preferred

A garment has a hang-tag with the claim "Made from 40% recycled polyester".

Discouraged
A garment's hang-tag claims "Made from recycled polyester". Without the percentage, this claim might give the false impression that the garment is made entirely (100%) from post-consumer material (polyester), when this might not actually be the case.

10.8.3 Use of a symbol

When a claim of recycled content is made, the use of a symbol is optional.

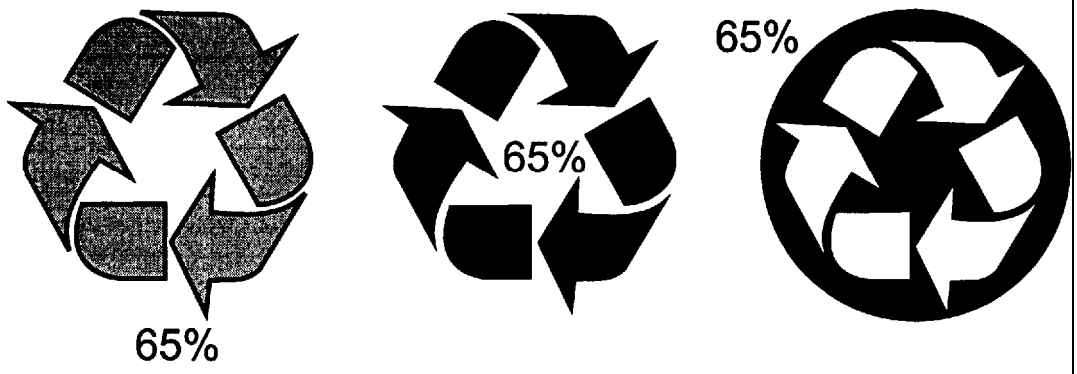
If a symbol is used for a recycled content claim, it shall be the Mobius loop accompanied by a percentage value stated as "*X* %", where *X* is the recycled content expressed as a whole number calculated in accordance with 7.8.4. The percentage value shall be located either inside the Mobius loop or outside and immediately adjacent to the Mobius loop. Examples of acceptable locations of the percentage value are shown in Figure 2. The Mobius loop with a percentage value, stated as "*X* %", shall be taken to be a recycled content claim.

If the percentage recycled content is variable, it may be expressed with statements such as "at least *X* %", or "greater than *X* %".

The use of an explanatory statement is optional, subject to 5.6.

Where a symbol is used it may be accompanied by material identification.

Figure 2 — Examples of acceptable locations of percentage value when using the Mobius loop to make claims about recycled content



CAN/CSA-ISO 14021, Clause 7.8.3 and Figure 2

10.8.4 Evaluation methodology

Evaluation shall be undertaken in accordance with clause 6. In addition, recycled content shall be expressed quantitatively as a percentage, calculated as shown below. As there are no methods available for directly measuring recycled content in a product or packaging, the mass of material obtained from the recycling process, after accounting for losses and other diversions, shall be used.

$$X(\%) = \frac{A}{P} \times 100$$

where

X is the recycled content, expressed as a percentage;
A is the mass of recycled material;
P is the mass of product.

CAN/CSA-ISO 14021, Clause 7.8.4.1

It is usually difficult to analyze a product in order to assess the percentage of recycled content. Therefore, the evaluation must be made using the inventory data for the process. The percentage of recycled content should be calculated using the above formula. The manufacturer must be prepared to verify the source and the quantity of recycled material with purchasing documentation and other available inventory records.

The bibliography of CAN/CSA-ISO 14021 identifies several acceptable tests for the verification of recycled content (see Annex D of this Guide).

If the percentage of recycled content is variable, it may be expressed with statements such as "at least X%" or "greater than X%" recycled content.

Example:
If the seller of paper greeting cards buys paper stock from several sources, the amount of recycled fibre in the stock varies but the cards are labelled as containing about 50% recycled fibre. The claim is appropriate because the 50% figure is based on the lowest amount of recycled material in any month of the rolling annual average. A simplified diagrammatic representation of a recycling system is provided in Annex C of this Guide.

10.9 Reduced energy consumption

10.9.1 Usage of term

Reduction in the amount of energy associated with the use of a product performing the function for which it was conceived when compared with the energy used by other products performing an equivalent function.

NOTE Claims of reduced energy consumption are commonly expressed as energy-efficient, energy-conserving or energy-saving.

CAN/CSA-ISO 14021, Clause 7.9.1

10.9.2 Qualifications and evaluation methodology

A claim of reduced energy consumption is a comparative claim and should always be accompanied by an explanatory statement (see Clause 9 of this Guide). The amount of energy to be saved should be expressed as a percentage or an absolute value, calculated according to the methods provided in CAN/CSA-ISO 14021.

Example:
Comparing the energy use of two transportation methods, such as a bicycle and an airplane, is not reasonable as they do not perform equivalent functions. A claim that a bicycle saves energy when compared with an airplane would be considered misleading.

All claims regarding reduced energy consumption shall be qualified. As reduced energy consumption is a comparative claim, the requirements of 6.3 shall be met.

Claims for reduced energy consumption shall be based on the reduction in energy consumption in the use of products and delivery of services. It shall not include reduction of energy in the processes used to manufacture the product.

Evaluation shall be undertaken in accordance with clause 6. In addition, reduced energy consumption shall be measured in accordance with established standards and methods for each product, and the average value should be calculated by statistical processing. The selection of methods shall be in accordance with 6.4.

CAN/CSA-ISO 14021, Clauses 7.9.2 and 7.9.3

Example:
A four-slice toaster should be compared with another four-slice toaster, not with a two-slice toaster, unless the verification data compare the two-slice toaster making four slices of toast and the explanatory statement clearly identifies that it was the function of making four slices of toast that was compared.

Claims of reduced energy consumption are often expressed as “energy-efficient”, “energy-conserving”, or “energy-saving”. Whichever term is used, the same rules apply.

Reduced energy consumption relates solely to the "use" phase of the life cycle of the product. It cannot be used to refer to reduced energy use in the "production" phase; a reduction at that phase of the life cycle requires a "reduced resource use" claim.

While there are no international standards for measuring energy efficiency, Canadian programs, as described in the *Energy Efficiency Act* and administered by Natural Resources Canada, are well-established and may be helpful in establishing verification data.

10.10 Reduced resource use

10.10.1 Usage of term

A reduction in the amount of material, energy or water used to produce or distribute a product or packaging or specified associated component.

CAN/CSA-ISO 14021, Clause 7.10.1

This claim refers to raw materials, as well as energy and water. Because reduced resources use claims are comparative claims, they must be presented in terms of reduction percentage and must be qualified. Clause 9 of this Guide and Clauses 5.7(n) and 6.3 of CAN/CSA-ISO 14021 detail the requirements for comparative claims.

In addition to satisfying the requirements for comparative claims, reduced resource use claims should also state the type of resource in the explanatory statement.

Resources include energy and water resources in addition to raw materials.

All claims regarding reduced resource use shall be qualified.

Reductions in resource use for products and packaging shall be separately stated and shall not be aggregated.

Reduced resource use claims shall be expressed in terms of reduction percentage (%). As reduced resource use is a comparative claim, the requirements of 6.3 shall be met.

If reduced resource use claims are made, the type of resource shall be stated in an explanatory statement.

If an increase in consumption of other resources occurs as a result of the claimed reduction of resource use, the increased resource and percentage shall be stated in an explanatory statement.

CAN/CSA-ISO 14021, Clauses 7.10.2.1 to 7.10.2.6

Clause 5.7(h) of CAN/CSA-ISO 14021 should receive special attention when making reduced resource use claims; all the environmental impacts throughout the product life cycle should be taken into consideration. This should ensure that the claim reflects a net environmental benefit and that it will meet the requirements of Clause 5.7(a) of CAN/CSA-ISO 14021.

Example:
A new process could enable an appliance to be made from thinner and lighter sheets of steel, but the production of these thinner sheets raises the process requirement for energy. In this case, the claim should state, "This product has reduced its use of steel by X% for a net environmental benefit, although energy used in production was increased by Y%".

When a resource reduction has been achieved, for an initial twelve-month period, a claim may be based on an estimated calculation of reduced resource based on the design or distribution of products or production process.

A change in resource use shall be expressed separately for each resource.

CAN/CSA-ISO 14021, Clauses 7.10.2.7 and 7.10.2.8

“Reduced resource use” is a claim that cannot be verified by testing the end product. Inventory data must be available to support any “reduced resource use” claim made.

10.10.2 Evaluation methodology

Evaluation shall be undertaken in accordance with clause 6. In addition, except as allowed for in 7.10.2.7, the consumed resource per production unit shall be obtained by dividing the gross input of resources during a twelve-month period by the gross production in the same twelve-month period. Reduced resource use rate percentage (*U*%) shall be obtained by the following formula.

$$U(\%) = \frac{(I - N)}{I} \times 100$$

Where
- *U* is the reduced resource use per production unit, expressed as a percentage;
- *I* is the initial resource use, expressed as consumed resource per production unit;
- *N* is the new resource use, expressed as consumed resource per production unit.

CAN/CSA-ISO 14021, Clause, 7.10.3

This formula must be applied to each resource used in the "production" phase of the life cycle and to each increase or decrease identified in the explanatory statement. Other life cycle impacts must also be considered before determining whether a valid claim can be made.

The bibliography of CAN/CSA-ISO 14021 identifies several tests that are acceptable for the verification of reduced resource use claims (see Annex D of this Guide).

10.11 Reduced water consumption

10.11.1 Usage of term

Reduction in the consumption of water associated with the use of a product performing the function for which it was conceived when compared with the amount of water used by other products performing an equivalent function.

NOTE Claims of reduced water usage are commonly expressed as water-efficient, water-conserving or water-saving.

CAN/CSA-ISO 14021, Clause 7.11.1

10.11.2 Qualifications

All claims regarding water efficiency or reduction shall be qualified. As reduced water consumption is a comparative claim, the requirements of 6.3 shall be met.

Claims for reduced water consumption shall be based on the reduction in water consumption in the use of the product. It shall not include reduction of water in manufacturing processes of the product.

CAN/CSA-ISO 14021, Clauses 7.11.2.1 and 7.11.2.2

10.11.3 Evaluation methodology

Evaluation shall be undertaken in accordance with clause 6. In addition, water consumption shall be measured in accordance with established standards and methods for each product, and the average value should be calculated by statistical processing. The selection of methods shall be in accordance with 6.4.

CAN/CSA-ISO 14021, Clause 7.11.3

These are comparative claims and require an explanatory statement. Claims of reduced water consumption are applicable to the use phase of the life cycle of a product. Claims of reduced water usage are often expressed as "water-efficient", "water-conserving", or "water-saving". Whichever term is used to make the claim, the requirements of this clause apply.

Example:
A plumbing supply company may make a claim that "Our low-flow shower head uses less water per 15-minute shower than that produced by our competitors".

Reduced water consumption in the material extraction or production phase is covered under claims of "reduced resource use".

10.12 Reusable and refillable

10.12.1 Usage of terms

10.12.1.1 Reusable

A characteristic of a product or packaging that has been conceived and designed to accomplish within its life cycle a certain number of trips, rotations or uses for the same purpose for which it was conceived.

CAN/CSA-ISO 14021, Clause 7.12.1.1

This claim deals primarily with the "product disposal" phase of the life cycle. Claims that deal with this phase are the most common in Canada at this time.

A product that claims to be reusable must have been designed specifically with the intent that it shall be reusable.

Example:
Many rigid plastic food containers are identified as "microwaveable" and/or "dishwasher safe" as it is assumed that consumers will reuse these containers for their own purposes. A claim of "reusable" or "refillable" on these containers could be inappropriate, as they are not designed to be reused for their original purpose.

Note: *It is recognized that the term "reusable" has a wider application than is used in the Guide. This wider application would encompass product reuse for purposes other than that for which it was originally intended.*

10.12.1.2 Refillable

A characteristic of a product or packaging that can be filled with the same or similar product more than once, in its original form and without additional processing except for specified requirements such as cleaning or washing.

CAN/CSA-ISO 14021, Clause 7.12.1.2

The design of products that claim to be refillable and/or reusable must be such that they can be reused for their original purpose.

Example:
An unqualified claim of "refillable" could be made if the manufacturer sells a concentrated refill for the detergent bottle in all markets where the original bottle is sold.

Example:
Lidded hard plastic containers for baby wipes, which can be replenished with baby wipes sold in foil packages, may be marked "refillable" provided that both the rigid boxes and the foil refills are available in all markets where the product is sold.

10.12.2 Qualifications

A claim that a product or packaging is reusable or refillable shall be made only where:

a) a programme exists for collecting the used product or packaging and reusing or refilling it; or
b) facilities or products exist that allow the purchaser to reuse or refill the product or package.

CAN/CSA-ISO 14021, Clause 7.12.2.2

A reusable or refillable claim can be valid only if the systems (i.e., programs for collection) or products (i.e., refillables) are in place to allow for the reuse or refilling to occur. Otherwise, the claim is not valid.

Example:
Beer bottles are sold under a deposit/return system that returns them to the producer for cleaning and refilling. These products can carry an unqualified claim of reusable/refillable as this system is almost universally available in Canada.

Example:
Some grocery stores have a system in place that allows consumers to refill special plastic soft drink bottles on site. These products can carry a reusable/refillable claim provided that the explanatory statement identifies facilities where the bottles can be refilled. A claim of "refillable at your local grocery store" could be considered misleading. The claim should read, "Refillable at Penners Grocery Stores in Manitoba, Saskatchewan, and Alberta".

Example:
Some cosmetics are sold in refillable bottles. The retail stores that sell these products have in-house systems for refilling containers that customers bring back when they are empty. These containers can be claimed to be reusable or refillable but must have an explanatory statement to inform consumers about the system. For example, the label might read, "This is a refillable container. To have this container refilled, bring it to an ABC Cosmetics in Canada".

Facilities for servicing refillable products must be conveniently available to a reasonable proportion of purchasers, potential purchasers, and users in the area in which the product is sold (see Clause 10.1.3 of this Guide). Where these facilities are not conveniently available, the claim must be qualified to adequately convey the limited availability of collection programs or facilities. It is understood that not all end users will take advantage of the reusable/refillable characteristic of these containers.

10.12.3 Evaluation methodology

Evaluation shall be undertaken in accordance with clause 6. In addition, the information referred to in 6.5 shall include evidence of the following.

a) The product for which the claim is being made is being refilled or reused.
b) That reuse or refilling facilities are available to accommodate the product for which the claim is being made.
c) The facilities required to reuse or refill the product are conveniently available to a reasonable proportion of the purchasers, potential purchasers and users of the product.

CAN/CSA-ISO 14021, Clause 7.12.3

This evaluation will require the collection of statistical data and reports from those supplying the refill service. Suppliers, including manufacturers, retailers, and distributors, might need to be contacted for the collection of data to verify the claim.

Note: *It is recognized that the term "refillable" has a wider application than is used in this Guide. This broader scope of reference includes situations where it is possible to refill a container or package with similar or other products, or where other intended refill uses exist. However, if it is the purchaser's responsibility to find new ways to refill the package, or if there are no facilities or means to refill the package with the same or similar product, a refillable claim could be considered false or misleading.*

10.13 Waste reduction

10.13.1 Usage of term

> Reduction in the quantity (mass) of material entering the waste stream as a result of a change in the product, process or packaging.
>
> NOTE Waste may include discharges to air and water as well as solid waste from manufacturing or treatment processes.
>
> *CAN/CSA-ISO 14021, Clause 7.13.1*

This claim can be made whenever a change in the product, process, or packaging effects a reduction in waste at any stage of the life cycle — production, distribution, use, or disposal. Consideration should be given to Clause 5.7(h) of CAN/CSA-ISO 14021 to ensure that, in reducing waste, the environmental burden is not increased in another phase of the life cycle (see Clause 5.9 of this Guide).

Waste reduction claims may include waste discharged into air and water, as well as solid waste. They can also include the waste generated in the treatment of any other waste. These claims can be made if there is a reduction in the water content of solid waste or if there is a reduction in the mass of waste due to a waste treatment process.

Example:
Companies involved in electroplating have designed innovative ways to recover metals from the solvents used in the plating process. This creates a measurable reduction in both the volume and toxicity of the waste. A claim of reduced waste may be made by the electroplating organization. The recovered metals could be used by another organization, which may then make a claim of recycled content.

10.13.2 Qualifications

> Calculations of process waste reduction shall not include in-process re-utilization of materials such as rework, regrind or scrap materials generated within the process and capable of being reused within the same process that generated it.
>
> *CAN/CSA-ISO 14021, Clause 7.13.2.4*

This restriction is similar to the one placed on claims about recycled content.

> Waste generators who transfer wastes to other users that intend to utilize the waste for a constructive purpose, other than to put it into the waste stream, may make a claim of waste reduction.
>
> *CAN/CSA-ISO 14021, Clause 7.13.2.5*

Example:
Many cities now have waste exchanges that collect solid waste from some organizations and sell it as a useful input to another organization for a different process. If waste is sold or transferred to such a waste exchange, the claim of waste reduction can be made.

Example:
Newspaper printers may return the ends of paper rolls and overruns or errors to the mill from which they buy their paper. A claim of “reduced waste” would be appropriate on these publications.

Waste reduction is a comparative claim and should meet all the requirements for making comparative claims, as outlined in Clause 9 of this Guide.

10.13.3 Evaluation methodology

> Evaluation shall be undertaken in accordance with clause 6. In addition, reduced waste amount may be calculated from material balance sheets, as well as from the actual measurement of waste.
>
> *CAN/CSA-ISO 14021, Clause 7.13.3*

These data must be available to provide verification of the claim for purchasers, should it be requested.

Annex A
Environmental labels and declarations, and the ISO 14000 Series

A.1 ISO 14000 overview

CAN/CSA-ISO 14001 and CAN/CSA-ISO-14004 are the standards for environmental management systems. The other documents in the CAN/CSA-ISO 14000 Series are tools designed to assist businesses with measuring and communicating their efforts to minimize their environmental impacts.

Documents in the CAN/CSA-ISO 14030 Series deal with issues of environmental performance evaluation, indicators, and reporting. The same information is sometimes required for environmental reports and for verification of environmental claims.

The CAN/CSA-ISO 14040 Series deals with the product life cycle; it covers the guiding principles of life cycle analysis, inventory, impact assessment, and interpretation, and provides some sample applications. Credible environmental labelling is dependent on an understanding of the life cycle of a product; consequently, the linkages between the 14020 and 14040 standards are very important.

ISO and IEC guides are also available to help those developing technical standards to consider the environmental aspects of products. One such guide is ISO Guide 64.

A.2 The CAN/CSA-ISO 14020 Series on environmental labels and declarations

CAN/CSA-ISO 14020: Environmental labels and declarations — General principles

- Outlines nine basic principles that are applicable to all types of environmental labels and declarations
- Does not set out specific requirements

CAN/CSA-ISO 14021: Environmental labels and declarations — Self-declared environmental claims (Type II environmental labelling)

- Defines commonly used environmental claims, establishes use guidelines for the Mobius loop markings, and suggests methodologies for tests that can be used to verify these claims

CAN/CSA-ISO 14024: Environmental labels and declarations — Type I environmental labelling — Principles and procedures

- Establishes procedures to establish and operate a Type I, or eco-logo, program. Type I programs employ a third-party certification process to verify product or service compliance with a pre-selected set of criteria
- Provides guidance on developing criteria, compliance, systems, and operating procedures for awarding eco-logos for third-party verifiers

CAN/CSA-ISO 14025: Environmental labels and declarations — Type III environmental declarations

- Specifies a format for reporting quantifiable life cycle data (environmental loads, such as energy used, emissions generated, etc.)
- Describes business-to-business declarations and labels, which require independent verification of the data only, not third-party certification. Business-to-consumer declarations require third-party certification.

Annex B
Principles for all environmental labels and declarations

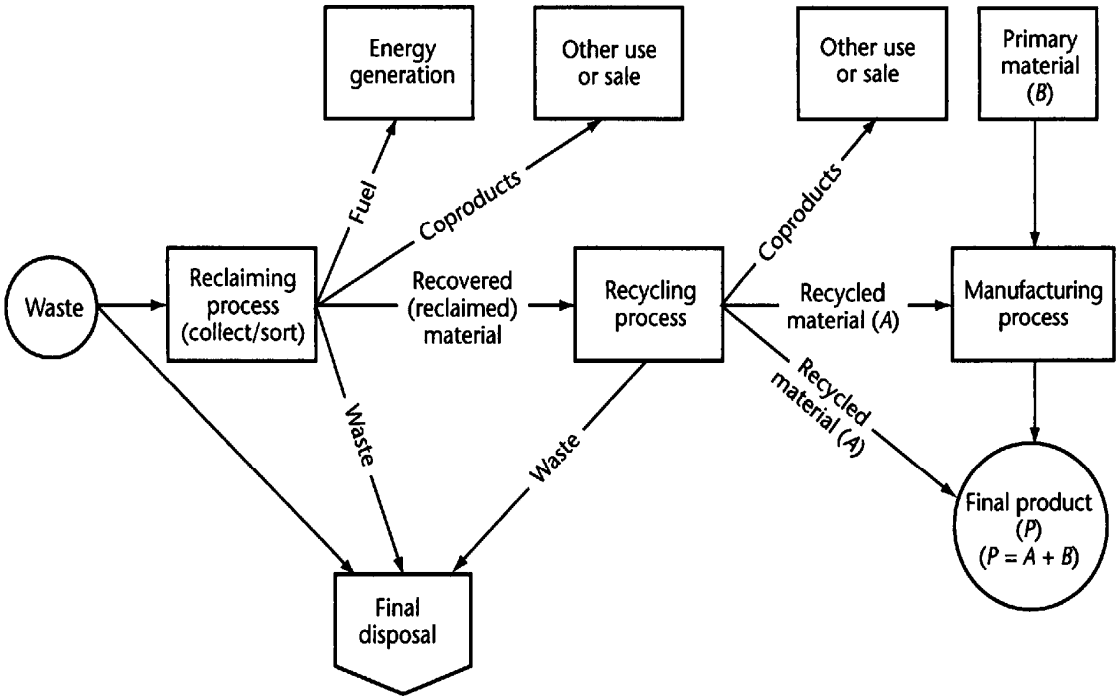
B.1

These principles are taken from CAN/CSA-ISO 14020, which provides detailed explanations for each one. Following the relevant principles is a prerequisite for all the other standards in the CAN/CSA-14020 Series.

- Environmental labels and declarations shall be accurate, verifiable, relevant, and not misleading.
- Procedures and requirements for environmental labels and declarations shall not be prepared, adopted, or applied with a view to, or with the effect of, creating unnecessary obstacles to international trade.
- Environmental labels and declarations shall be based on scientific methodology that is sufficiently thorough and comprehensive to support the claim and that produces results that are accurate and reproducible.
- Information concerning the procedure, methodology, and any criteria used to support environmental labels and declarations shall be available and provided upon request to all interested parties.
- The development of environmental labels and declarations shall take into consideration all relevant aspects of the life cycle of the product.
- Environmental labels and declarations shall not inhibit innovation that maintains, or has the potential to improve, environmental performance.
- Any administrative requirements of information demands related to environmental labels and declarations shall be limited to those necessary to establish conformance with applicable criteria and standards of the labels and declarations.
- The process of developing environmental labels and declarations should include an open, participatory consultation with interested parties. Reasonable efforts should be made to achieve a consensus throughout the process.
- Information on the environmental aspects of products and services relevant to an environmental label or declaration shall be available to purchasers and potential purchasers from the party making the environmental label or declaration.

Annex C
Simplified diagrammatic representation of a recycling system

Source: CAN/CSA-ISO 14021



Recycled content of product *(X%)* = *(A/P)* x 100

Some recovered (reclaimed) materials may go directly to a manufacturing process, which includes the recycling process, without having a separate operation called the "Recycling process" in the system. When this is done, coproducts and waste are still likely to be generated in that manufacturing process. These coproducts and waste shall be accounted for when determining the mass of recycled material to be used in the formula for calculating recycled content.

NOTE This diagram represents a simplified example of a recycling system and is intended to provide information for clarity on recycled content calculations. For more complete examples refer to ISO/TR* 14049, *Environmental management — Life cycle assessment — Examples of application of 1S0 14041.*
**Technical Report.*

Annex D
Bibliography

Note: *This Annex is reproduced from CAN/CSA-ISO 14021-00.*

[1] ISO 14040:1997, *Environmental management — Life cycle assessment — Principles and framework.*

[2] ISO 14041:1998, *Environmental management — Life cycle assessment — Goal and scope definition and inventory analysis.*

[3] ISO/IEC Guide 14:1977, *Product information for consumers.*

Examples of standards for material identification symbols

References [4] through [7] give examples of standards and industry publications which deal with material identification. These are only examples and this is not intended to be an exhaustive list.

[4] ISO 11469: 1993, *Plastics — Generic identification and marking of plastics products.*

[5] IEC 61429:1995, *Marking of secondary cells and batteries with the international recycling symbol ISO 7000-1135.*

[6] Technical Bulletin No. PBI-24-1988 Revision 2, October 1, 1990 *Voluntary Guidelines — Plastic Bottle Material Code System: Mold Modification Drawings*, The Society of the Plastics Industry, Inc. (SPI).

[7] Technical Bulletin No. RPCD-13-1989 Revision 1, October 1, 1990 *Voluntary Guidelines — Rigid Plastic Container Material Code System: Mold Modification Drawings*, The Society of the Plastics Industry, Inc. (SPI).

Quality assurance of testing and claim verification data

References [8] through [11] give examples of standards which can provide useful information and guidance regarding the collection of reliable data that can then be used for claim verification. These are only examples and this is not intended to be an exhaustive list.

[8] ISO 9004-1:1994, *Quality management and quality systems elements — Part 1: Guidelines*.

[9] ISO/IEC Guide 25:1990, *General requirements for the competence of calibration and testing laboratories.*

[10] ANSVASQC E4-1994, *Specifications and guidelines for quality systems for environmental data collection and environmental technology programs.*

[11] EN 45001:1989, *General criteria for the operation of testing laboratories.*

Examples of standards for testing and claim verification

References [12] through [66] list standards and industry methods which could be considered for use when collecting various data necessary for claim verification. The list is not exhaustive and is only intended to provide an illustration of the types of standards that could be considered when selecting methods for testing and verification of self-declared environmental claims.

The methods in this list should only be used where the method chosen meets the relevant requirements set out in Clause 6 of ISO 14021, as they apply to the particular claim being made.

a) Recycled content

[12] ASTM D5663-95, *Standard Guide for Validating Recycled Content in Packaging Paper and Paperboard.*

[13] BS 7500;1995, *Specification for marking of recycled paper board.*

[14] AS 4082-1992, *Recycled paper — Glossary of terms.*

[15] PBI 27-1993, Technical Bulletin — *Protocol to Quantify Plant Usage of Recycled Plastics in Plastic Bottle Production,* The Plastic Bottle Institute.

b) Reduced resource use

[16] ASTM D5833-95, *Standard Guide for Source Reduction, Reuse, Recycling and Disposal of Steel Cans.*

[17] ASTM D5834-95, *Standard Guide for Source Reduction, Reuse, Recycling and Disposal of Solid and Corrugated Fiberboard (Cardboard).*

c) Degradability

[18] ISO 7827:1994, *Water quality — Evaluation in an aqueous medium of the "ultimate" aerobic biodegradability of organic compounds — Method by analysis of dissolved organic carbon (DOC)*.

[19] ISO 9408:1999, *Water quality — Evaluation of ultimate aerobic biodegradability of organic compounds in aqueous medium by determination of oxygen demand in a closed respirometer.*

[20] ISO 9439:1999, *Water quality — Evaluation of ultimate aerobic biodegradability of organic compounds in aqueous medium — Carbon dioxide evolution test.*

[21] ISO 10707:1994*, Water quality — Evaluation in an aqueous medium of the "ultimate" aerobic biodegradability of organic compounds — Method by analysis of biochemical oxygen demand [closed bottle test].*

[22] ISO 14851, *Determination of the ultimate aerobic biodegradability of plastic materials in an aqueous medium — Method by measuring the oxygen demand in a closed respirometer*.

[23] ISO 14852, *Determination of the ultimate aerobic biodegradability of plastic materials in an aqueous medium — Method by analysis of evolved carbon dioxide.*

[24] ISO 14853, *Determination of the ultimate anaerobic biodegradability of plastic materials in an aqueous medium — Method by measurement of biogas production*.

[25] ISO 14855, *Determination of the ultimate aerobic biodegradability and disintegration of plastic materials under controlled composting conditions — Method by analysis of evolved carbon dioxide*.

[26] OECD 301, *Guideline for testing of chemicals.*

[27] ASTM D3826-91, *Determining degradation end point in degradable polyethylene and polypropylene using a tensile test*.

[28] ASTM D5071-91, *Standard practice for operating xenon arc type exposure apparatus with water for exposure of photodegradable plastics*.

[29] ASTM D5208-91, *Operating fluorescent ultraviolet (UV) and condensation apparatus for exposure of photodegradable plastics*.

[30] ASTM D5209-92, *Test method for determining the aerobic biodegradation of plastic materials in the presence of municipal sewage sludge*.

[31] ASTM D5210-92, *Test method for determining the anaerobic biodegradation of plastic materials in the presence of municipal sewage sludge*.

[32] ASTM D5247-92, *Test method for determining the aerobic biodegradability of degradable plastics by specific microorganisms*.

[33] ASTM D5271-93, *Test method for determining the aerobic biodegradation of plastic materials in an activated- sludge-waste water treatment system.*

[34] ASTM D5272-92, *Outdoor exposure testing of photodegradable plastics.*

[35] ASTM D.5338-93, *Test method for determining aerobic biodegradation of plastic materials under controlled composting conditions*.

[36] ASTM D5437-93, *Weathering of plastics under marine floating exposure*.

[37] ASTM D5509-96, *Standard practice for exposing plastics to a simulated compost environment*.

[38] ASTM D5510-94, *Standard practice for heat aging of oxidatively degradable plastics*.

[39] ASTM D5511-94, *Standard test method for determining anaerobic biodegradation of plastic materials under high-solids anaerobic digestion conditions.*

[40] ASTM D5512-96, *Standard practice for exposing plastics to a simulated compost environment using an externally heated reactor.*

[41] ASTM D5525-94, *Standard practice for exposing plastics to a simulated active landfill environment.*

[42] ASTM D5526-94, *Standard test method for determining anaerobic biodegradation of plastic materials under accelerated landfill conditions.*

[43] ASTM D5988-96, *Standard test method for determining aerobic biodegradation with oil of plastic materials or residual plastic materials after composting.*

[44] ASTM D6002-96, *Standard guide for assessing the compostability of environmentally degradable plastics.*

[45] ASTM D6003-96, *Standard test method for determining weight loss from plastic materials exposed to simulated municipal solid waste (MSW) aerobic compost environment.*

[46] DIN V 54900-2, *Testing of the compostability of plastics — Part 2: Testing of the complete biodegradability of plastics in laboratory tests.*

[47] DIN V 54900-3, *Testing of the compostability of plastics — Part 3: Testing under practice-relevant conditions and testing of quality of the composts.*

[48] DIN V 54900-4, *Testing of the compostability of polymeric materials — Part 4: Testing of the ecotoxicity of the composts.*

d) Energy and water consumption

[49] IEC 60436, *Methods for measuring the performance of electric dishwashers.*

[50] IEC 60350, *Electric cooking ranges, hobs, ovens and grills for household use — Methods for measuring performance*.

[51] IEC 60379, *Methods for measuring the performance of electric storage water-heaters for household purposes.*

[52] IEC 60531, *Household electric thermal storage room heaters — Methods for measuring performance.*

[53] IEC 60675, *Household electric direct-acting room heaters — Methods for measuring performance.*

[54] IEC 60456, *Clothes washing machines for household use — Methods for measuring the performance.*

[55] IEC 61121, *Electric tumble dryers for household use — Methods for measuring the performance.*

[56] IEC 60530, *Methods for measuring the performance of electric kettles and jugs for household and similar use.*

[57] IEC 60661, *Methods for measuring the performance of electric household coffee makers.*

[58] IEC 60705, *Household microwave ovens — Methods for measuring performance.*

[59] ISO 7371, *Household refrigerating appliances — Refrigerators with or without low-temperature compartment — Characteristics and test methods.*

[60] ISO 8187, *Household refrigerating appliances — Refrigerator-freezers — Characteristics and test methods.*

[61] ISO 8561, *Household frost-free refrigerating appliances — Refrigerators, refrigerator-freezers, frozen food storage cabinets and food freezers cooled by internal forced air circulation — Characteristics and test methods.*

[62] ISO 5151, *Non-ducted air conditioners and heat pumps — Testing and rating for performance.*

[63] ISO 13253, *Ducted air-conditioners and air-to-air heat pumps — Testing and rating for performance.*

[64] ISO 13256 (all parts*), Water-source heat pumps — Testing and rating for performance.*

[65] ISO 15042 (all parts), *Multiple split-system air-conditioners and air-to-air heat pumps — Testing and rating for performance.*

[66] ISO 5801, *Industrial fans — Performance testing using standardized airways.*

Proposition de modification

N'hésitez pas à nous faire part de vos suggestions et de vos commentaires. Au moment de soumettre des propositions de modification aux normes CSA et autres publications CSA prière de fournir les renseignements demandés ci-dessous et de formuler les propositions sur une feuille volante. Il est recommandé d'inclure

- le numéro de la norme/publication
- le numéro de l'article, du tableau ou de la figure visé
- la formulation proposée
- la raison de cette modification.

Proposal for change

CSA welcomes your suggestions and comments. To submit your proposals for changes to CSA Standards and other CSA publications, please supply the information requested below and attach your proposal for change on a separate page(s). Be sure to include the

- Standard/publication number
- relevant Clause, Table, and/or Figure number(s)
- wording of the proposed change
- rationale for the change.

Nom/Name: _____

Affiliation: _____

Adresse/Address: _____

_____

Ville/City: _____

État/Province/State: _____

Pays/Country: _____ **Code postal/Postal/Zip code:** _____

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Date: _____

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ECN

ECN POSITION

ECN Position Paper on the Acceptance of Compostable Plastics

31 October 2019

1 ECN - Who we are

The European Compost Network (ECN) is a European non-profit membership organisation promoting sustainable recycling practices in composting, anaerobic digestion and other biological treatment processes of organic resources.

ECN's vision is a Europe in which all organic resources are recycled and recovered in a sustainable way. From this vision, ECN's primary goal is to support the implementation of EU waste policies and thereby contributing to the development of a recycling society, to sustainable agriculture and energy recovery, to improve human health and to create overall added value within the European market. To achieve this, we believe that effective recycling in all Member States should be built on appropriate collection systems for organic waste to promote high quality products derived from biological treatment. ECN supports this development through implementation programmes for Member States; the development of EU quality assurance systems for compost and digestate; and, guidelines for the monitoring of operational processes within compost and digestate facilities.

With the publication of the ECN Quality Manual 'ECN-QAS - European Quality Assurance Scheme for Compost and Digestate' in October 2014, the European Compost Network (ECN) laid down harmonised requirements for national certification bodies and quality criteria for recycled materials from organic resources. The aim is to facilitate the free cross-border movement of composts and digestate made out of recycled bio-wastes within the EU. The ECN-QAS is registered as trademark for certified quality assurance organisations, compost and digestate products at the European Register of Community Trade Marks ('OHIM 2012/210: TM No 011007168').

ECN supports the circular economy. The organisation and its members are committed to increase separate collection and recycling of bio-waste and are engaged in producing quality compost to be used in growing media, as organic fertiliser and soil improver.

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2 About this document

This document addresses the issues of acceptance and inclusion of specific types of compostable plastic items at composting[1] facilities for bio-waste. It is addressed to decision makers, local authorities engaged with MSW management and the recycling sector for bio-waste.

Plastics are described as "biodegradable and compostable" if they comply with the EU standards EN 13432 (reference date 2000-12) or with the standard EN 14995 (2007-3)[2]. The use of "bio-based" raw materials for the production of bioplastics is not addressed in this document. Even if paper is a well-known item that can be used to collect bio-waste and thus treated at biological recycling facilities, paper is not the focus of this document.

All statements refer to professional managed composting facilities only and where anaerobic digestion is addressed it is considered in relation to post-treatment of the digested material with an aerobic process. In this case, the two types of facilities are grouped as bio-waste recycling facilities. Home composting and specifically the behaviour of compostable plastics in home composting is not considered in this document.

According to ECN not all types of compostable items can be granted automatic and unconditioned access to bio-waste recycling facilities; thus, **ECN does not consider composting as the main option for the recycling of any packaging item**. Chapter 8 shows ECN position about the possible acceptance of different selected and specific types of compostable items at composting facilities.

The current document does not address marine littering, nor does it suggest compostable plastics to be a solution for this important threat to our environment; the solution to marine littering depends on a revolutionary change in consumers' education, waste collection capabilities, sorting capabilities and waste management systems in general.

[1] Composting means the aerobic treatment of organic waste under controlled conditions in industrial installations, using micro-organisms to decompose and break it down to carbon dioxide, water, new biomass and mineral salts.

[2] EN 14995 has been drafted by CEN TC dealing with Plastics, to address the compostability of those plastic articles that do not qualify as "packaging", which is instead the "domain" or "scope" of EN 13432.

3 Glossary

For the purpose of this document, following definitions are used:

Bioplastics = defined as biobased and biodegradable and compostable plastics. For the sake of the argument here, when addressing bioplastics, biodegradable and compostable plastics are referred to.

Biodegradable = refers to a material that maintains its mechanical strength during practical use but break down into low-weight compounds and non-toxic by-products after their use

Bio-waste = as defined in the Waste Framework Directive (COM(EU)2018/851)[3]. Bio-waste means biodegradable garden and park waste, food and kitchen waste from households, offices, restaurants, wholesale, canteens, caterers and retail premises and comparable waste from food processing plants. It does not include forestry or agricultural residues, manure, sewage sludge, or other biodegradable waste such as natural textiles, paper or processed wood. It also excludes those by-products of food production that never become waste.

Compostable = a product or item that complies with the European standards EN 13432 Packaging - Requirements for packaging recoverable through composting and biodegradation - Test scheme and evaluation criteria for the final acceptance of packaging; or EN 14995 Plastics - Evaluation of compostability - Test scheme and specifications.

Food-waste = in the EU context is defined in the WFD (EU)2018/851 with back reference to (EC) No 178/2002 and includes any waste deriving from food, and therefore any kitchen waste from households, restaurants, caterers and retail premises, and comparable waste from food processing plants.

MSW = Municipal Solid Waste and covers household waste and waste similar in nature and composition to household waste, according to WFD (EU)2018/851

Recycling of bio-waste = processes such as composting, anaerobic digestion or both treatments combined that are developed under controlled conditions.

[3] COM (EU) 2018/851: DIRECTIVE (EU) 2018/851 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 30 May 2018 amending Directive 2008/98/EC on waste

4 Introduction

The existing **EU strategy addressing the circular economy applied to bio-waste** acknowledges that „ “Composting and anaerobic digestion offer the most promising environmental and economic results for bio-waste that cannot be prevented. An important pre-condition is a good quality of the input to these processes. This would in the majority of cases be best achieved by separate collection.[4]”

The role that bio-waste management can play in the EU circular economy strategy can be summarised in a few key-data: recycling the 90-116 million tons of bio-waste into high-quality **compost** could help to improve the quality of 3% to 7% of depleted agricultural **soils in the EU** and to address the problem of degrading soil quality in Europe. Maximizing composting could also replace 10% of phosphate fertilisers, 9% of potassium fertilisers and 8% of lime fertilisers[5].

In some EU countries and districts the use of compostable bioplastic bags for bio-waste collection has a long track-record, such as in Italy since more than 20 years, but also in Norway, Spain (Cataluña), Austria, Switzerland, the UK, Belgium, Luxembourg and others. In other EU countries – like Germany or the Netherlands – the acceptance of compostable bioplastics by operators of biological recycling facilities is very low. Please refer to **Annex A** for a short overview about the acceptance of compostable plastics at composting facilities in selected EU countries.

It is therefore fundamental for ECN to correctly address the issue regarding if, how and when and where to include compostable products into the recycling chain of bio-waste. In any case an agreement with the plant operator of specific composting plants is decisive for the inclusion of compostable plastics into the bio-waste stream. The bio-waste recycling facilities can only accept input that does not disturb the whole recycling process of biowaste and that contributes to the production of a quality end product.

[4] EC, 2010a. Communication from the Commission to the Council and the European Parliament on future steps in biowaste management in the European Union. COM (2010) 235 final. Commission of the European Communities, Brussels.

[5] EC, 2010b. Commission Staff Working Document Accompanying the Communication from the Commission on future steps in bio-waste management in the European Union. SEC (2010) 577 final. Commission of the European Communities, Brussels.

5 What are compostable plastics

5.1 Definition of compostable plastic items

The term "Bioplastic" could be used to define different types of plastics: bio-based plastics, biodegradable plastics or bio-based and biodegradable plastics. Among these, the characteristic that is relevant for the bio-waste recycling processes is the biodegradability and compostability in professional composting facilities.

A compostable product or item has – for the purpose of this document - to comply to the **European standards EN 13432** (for packaging) or **EN 14995** (for items made of compostable plastics). These standards guarantee a **disintegration** and **biodegradability** of the product in a certain time under **professional composting conditions**. Further information about compliance to the EU standard are summarized in **Annex B**. Well known examples of bioplastic items are shopping bags, fruit & vegetable bags and liners used in separate collection schemes for bio-waste.

Generally speaking, compostable plastics do not or do not completely biodegrade in anaerobic conditions; absence of oxygen, short retention times and relatively low temperatures usually do not guarantee a complete biodegradation of compostable items. But when anaerobic digestion is followed by the composting of the digestate, the standards for compostability may also be applied.

The specific aspect dealing with the use of "**bio-based**" raw materials for the production of bioplastics is not addressed in this document since renewable raw materials that are currently present in whole or in part in the bioplastics business, do not determine the biodegradation characteristics; biodegradation is solely influenced by the kind of chemical composition (i.e. the kind of molecules and their links in the bioplastics), not by the origin of said that are present in chemical composition.

5.2 Labelling of compostable plastic items

Citizens (and many MSW managers) are challenged to correctly identify compostable bags and liners now both compostable and non-compostable items are available on the market. Hence labels, instructions, information and communication are needed for consumers to correctly sort compostable items into bio-waste collection.

The use of right and clear claims (i.e. "suitable for the collection of food waste/compostable in professional / home composting'") stresses the most appropriate end of life option suitable for the compostable items. The use of the claim „biodegradable" should be avoided because of the lack of a European standard and undefined time boundaries for the process. Moreover, some countries, such as Belgium have already banned the use of the claim "biodegradable" on packaging when related to bags made of compostable plastics.

The adoption of a European harmonized logo connected to the EN 13432 and EN 14995 standards could facilitate consumer's understanding regarding items/products complying with the compostability standard. A visual pattern could also allow for the identification of compostable items at first sight if it covers the entire product (e.g. a collection bag or liner for bio-waste) as already being done in Switzerland, Belgium, France, United Kingdom.

In conclusion, though wishing for a unique marking and claiming system, ECN recognizes that single countries or regions or even composting facilities might suggest and implement additional instructions/claims depending on their actual waste management set up to facilitate citizens in a correct waste separation practice and avoid negative issues in accepting compostable items in their bio-waste recycling plants.

6 Circular Economy and Bio-Waste

The recent updating in 2018 of the EU Waste Framework Directive[6] recognizes the importance of organic recycling and introduces the obligation to separate at source, collect and hence manage the organic fraction of MSW. Bio-waste is addressed by the following: "*Member States shall ensure that by 31 December 2023 and subject to Article 10(2) and (3), bio-waste is either separated and recycled at source, or is collected separately and is not mixed with other types of waste.*" **Food waste** represents a relevant fraction of the municipal bio-waste and of industrial waste and accounts **around 90 million of tons of matter**[7] that in a circular economy approach should be prevented, recirculated rather than disposed of through landfilling or incineration.

According to ECN, however, the management of food waste has to be seen from the hierarchy of treatment as settled at the European level. Therefore, before valorisation and recycling, **prevention and reuse strategies have to be implemented in order to produce less food waste**, according to the 30% reduction target for food waste by 2025 and 50% by 2030[8] established in the mentioned directives.

Cities and settlements are large producers of bio-waste (that statistically represents between 30% to 45% of all MSW produced) and especially in urban dwellings, most bio-waste consist of food residues and food scraps. According to ECN[9] less than 45% of all bio-waste is currently separately collected and recycled in the EU, thus there is a **huge potential to boost the recycling sector for composting** with or without biogas production. With the increasing effort to extend the collection of bio-waste also to larger urban areas in Europe, also an increase in the level of impurities is generally being experienced. This requires a larger investment in communication and outreach activities, but also the use of the most effective tools to make the collection process as easy and hygienic as possible for the citizens.

Door-to-door collection of food waste among households and commercial activities using compostable bags is already available in large cities in the EU such as Milan, Paris, Grenoble, Geneva, Copenhagen, Turin, Parma, Barcelona, etc. Large semi-urban areas are also applying this optimized model (e.g. Contarina and Sardinia in Italy, Libournais and Thann-Cernay in France, Berguedà in Catalonia) with excellent participation rates and good

[6] COM (EU) 2018/851: DIRECTIVE (EU) 2018/851 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 30 May 2018 amending Directive 2008/98/EC on waste

[7] Stenmarck A. et al. 2016: FUSIONS Reducing food waste through social innovation: Estimates of European food waste levels. Stockholm. https://www.eu-fusions.org/phocadownload/Publications/Estimates%20of%20European%20food%20waste%20levels.pdf

[8] COM (EU) 2018/851: DIRECTIVE (EU) 2018/851 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 30 May 2018 amending Directive 2008/98/EC on waste

[9] Jane Gilbert, Stefanie Siebert 2019: ECN Status Report 2019 – European Bio-Waste Management. Overview of bio-waste collection, treatment & markets across Europe. European Compost Network e.V. ISBN 978-3-9820825-0-9

quality of food waste (impurities due to non-compostable materials (metals, plastics, glass, etc.) are reported to be around 1-2% and below 5 mass % in larger cities like e.g. Milan).

A recent investigation performed in Germany (13 cities and municipalities where examined) by the Witzenhausen Institut[10] showed that kitchen-based bio-waste is mostly collected in bags, primarily in polyethylene bags (PE) and special collection bags made of biodegradable materials. Paper bags played a minor role. The widespread fear that the admission of compostable plastic bags leads to an increase in impurities could not be verified during the analyses. On the contrary, the admission of compostable plastic bags resulted in less impurities in bio-waste. The cities/municipalities with the recommendation to use compostable plastic bags resulted in 2,5% by weight impurities in the collected bio-waste against 3.8% by weight impurities in the collected bio-waste in the cities/municipalities where no compostable plastic bags were allowed.

[10] Michael Kern, Hans-Jörg Siepenkothen, Thomas Turk 2018: Collection and quality of kitchen-based biowaste - Evaluation of sorting analyses. Ausgabe 10/2018, Müll und Abfall, pp. 526-531

7 How to enhance separate collection of bio-waste

The updated Waste Framework Directive requires all Member States to meet a 65% recycling target in 2035; in order to accomplish this goal, an increase of the separate collection of bio-waste with low content of impurities and high-quality composting and anaerobic digestion are required. End-product quality standards in national regulations and in the European Quality Assurance Scheme for compost and digestate (ECN-QAS) include stringent limits on impurities (e.g. plastics, metals, glass). With the new EU Fertilising Product Regulation[11] specific limits for plastics are set on European level. By 16 July 2029, these will be re-assessed in order to take into account the progress made with regards to separate collection of bio-waste.

An **efficient and sustainable separate collection** is the result of the interaction of different factors (collection tools, frequency of collections, type of collection scheme) including communication and awareness activities promoted by local authorities[12]. Among these factors, **the collection scheme and the type of bags** used play a key role to achieve convenience for producers (i.e. households and commercial activities) and high-quality standards of the bio-waste collected. Bags and liners made of compostable plastics are transparent, light weight, watertight, breathable and represent a comfortable tool for households in sorting cooked food with a high moisture content.

An important tool for increasing the commitment to food waste separate collection is the combined use of **compostable bags and vented kitchen caddies**, in order to prevent the production of odours from organics fermentation. The "vented system" is commonly used[13] in Italy, UK, Catalonia, France, Norway, Denmark, Switzerland, Austria and proves to reduce moisture content by 7 to 10%.

The positive **effect of the use of compostable plastic bags** associated to correct awareness campaigns has been documented repetitively. In Italy, for instance, where almost 40 million people were connected in 2017 to a food waste collection scheme[14], compostable plastic bags have become the most popular collection tool with significant beneficial effects on the quality of the collected feedstock (less than 4,8% average national contamination in 2017). In Ireland, the provision of educational tools, compostable liners &

[11] COM (EU) 2019/1009: Regulation (EU) 2019/1009 of the European Parliament and of the Council of 5 June 2019 laying down rules on the making available on the market of EU fertilising products and amending Regulations (EC) No 1069/2009 and (EC) No 1107/2009 and repealing Regulation (EC) No 2003/2003

[12] Reference documents for further readings: FRANCE - http://www.compostplus.org/realisations/#guide-pratique; NORWAY- Mold development on food waste in BioBags, The centre for soil and environmental research, 2004; SPAIN - http://www.portaaporta.cat/documents/arxiu_portaaporta_142.pdf

[13] Caimi, Ricci-Jürgensen M. & E. Favoino 2006: Analisi delle performance di sacchi in carta riciclata, MaterBi e polietilene per il conferimento dell'umido domestic. Scuola Agraria del Parco di Monza

[14] CIC 2018: Annual Update about composting and biowaste recycling. www.compost.it

kitchen caddies to householders in Sligo City[15] doubled the participation and reduced the contamination levels from 18% to 1%; one year later the contamination level was still as low as 3%. A test in the city of Kassel (Germany) showed[16] that through the distribution of the compostable biobags to households the share of bio-waste could be increased by 23 % on average and the impurities dropped by 56%, which was mainly a result of substituting PE bags with compostable plastic bags.

So, if **local authorities** choose - in agreement with the composting-plant-operator - to set up a collection scheme for bio-waste with compostable bags and liners, then they should give access to valuable collection tools by a set of different means, among the ones listed here:

- providing starter kits of kitchen caddies and compostable bags to households;
- make compostable bags and liners available for free to households or by paying a reduced price at bags dispenser machines, distribution points such as recycling yards, city hall offices, schools and local administration offices, etc;
- promote the availability of compostable bags in the supermarket stores and local shops and arrange agreements with the distributors (i.e. Canton of Geneva);
- enhance proper identification of compostable bags and liners, by labelling all the communication and collection tools related to that collection and/or by communicating how to identify a compostable bag or liner.

In addition National initiatives banning or limiting the availability of single-use carrier bags made out of petrol-derived plastics can promote the use of reusable or compostable plastic carries, thus reducing the availability of single-use plastic bags and therefore the risk of households using petrol-derived plastics in separate collection of bio-waste[17]. Currently ban on plastic bags and/or carrier bags are applied in Italy[18], France[19] and Austria[20] and there are a number of different initiatives worldwide[21].

[15] Sligo County Council, Cré – Composting & Anaerobic Digestion of Ireland, Department of Communications, Climate Action and the Environment – Ireland, Novamont, 2019: Final Report - National Brown Bin Awareness
Pilot Scheme in Sligo City

[16] Gröll, K., Kern, M. Turk, T. & J. Werner 2015: Praxisversuch mit kompostierbaren Biobeuteln. Optimierung der Erfassung von Küchen- und Nahrungsabfällen in der Stadt Vellmar, Landkreis Kassel. Ausgabe 06/2015, Müll und Abfall.

[17] See EU Directive2015/720

[18] Since 2011 Italy has banned single-use shopping bags (under 100µm) and from 2018 also all single use ultra-light; compostable plastic bags, certified according to EN-13432 are exempted from the ban.

[19] Since 2016 there is a ban in France on oxodegradable bags and on all check-out single use bags; all the single use bags (under 50µ=light weight bag) other than check-out bags should be home-compostable

[20] Austrian Initiative *EN 13432-Pflicht für alle Einweg-Sackerl und Einweg-Tragtaschen*, 2018

8 Acceptance of compostable materials in composting facilities

The Waste Framework Directive (COM(EU)851/2018) allows for compostable items and products complying with the EU harmonized compostability standard EN 13432 or EN 14995 to be accepted in the organic waste treatment such as composting; article 22 states that "M*ember States may allow waste with similar biodegradability and compostability properties which complies with relevant European standards, or any equivalent national standards, for packaging recoverable through composting and biodegradation to be collected together with bio-waste".*

According to ECN not all types of **compostable items** that are currently available on the EU market can be granted automatic and unconditioned access to bio-waste recycling facilities; thus, ECN does not consider composting as the main option for the recycling of any packaging item.

For items made of compostable plastics, according to ECN, it should be evaluated whether composting is the most suitable recycling option, and this decision should be taken considering each type of item individually. The main purpose of including compostable items into the industrial sector of composting is to increase the amount and quality of bio-waste as a feedstock for composting and to produce high-quality compost.

In order to determine the suitability of compostable items for bio-waste recycling facilities, ECN proposes to classify them[22] in the following main types of compostable plastic items complying to EN 13432 and EN 14995 standards:

Type 1: Tools that are functional to ease the users in the separate collection of bio-waste; these tools include **bags and liners** utilised for the separate collection of bio-waste, and could be treated in bio-waste recycling facilities by decision of the operator considering that:

- compostable liners have a long track-record[23] in increasing the amounts of bio-waste collected separately and in reducing the presence of impurities (non-compostable items), above all the traditional plastic liners;

[21] ISWA 2015: ISWA Key Issue Paper Biodegradable Plastics- An overview of the compostability of biodegradable plastics and its implications for the collection and treatment of organic wastes.https://www.iswa.org/index.php?eID=tx_iswaknowledgebase_download&documentUid=4561

[22] **Obviously, these criteria DO NOT REPRESENT the current legislation existing in single EU member states, that must in any case be applied by local composting facilities. In some EU countries the treatment at composting facilities may not be legally allowed for all three types of compostable items.**

[23] Sources: CIC, *Annual Report of the Italian Composting and Biogas Association*, 2017, Milan; Witzenhausen-Institut *Optimization of the collection of kitchen waste with compostable bioplastic liners*, 2014

- compostable plastics are widely promoted in selected countries by local authorities/districts and waste management companies, so that users (especially households) can clearly identify those tools as suitable for the separate collection of bio-waste.

Extensive technical research has demonstrated[24] that these tools do comply with standard process management of professional composting facilities accepting bio-waste collected separately. Even so some composting facilities may not be able to treat these compostable bags due to the specific material flow management.

Type 2: Compostable catering packaging used at public events or by a specific type of waste producers, may be delivered and recycled by bio-waste recycling facilities if the following criteria are met:

- the compostable catering waste is collected (together with bio-waste) in **close loop events** (festival, street fests, etc.) or by selected producers (canteens, fast foods, restaurants, etc.) whose staff has been previously trained on how to sort different waste items correctly. This approach prevents traditional catering-waste (made of conventional plastic) from being used and delivered by error to the separate collection of bio-waste;
- the bio-waste recycling facilities do previously agree to receive such types of deliveries in separate batches, in order to adopt - if necessary – specific treatment procedures;
- the bio-waste recycling facilities are able to biologically treat the compostable catering waste in order to maximise the amount of bio-waste recycled and reduce the production of rejects.

Nowadays, "traditional"-plastic catering packaging is "contaminated" with food residues at the end of its use; this it is normally disposed at incinerators or landfills, preventing the recycling of the amount of food-waste. In this case, compostable catering packaging could represent a more sustainable alternative as they will compost together with the food-waste residues they contain.

Type 3: Complex compostable packaging for food items both emptied or full (i.e. packed food items beyond the expiry date), which may also be delivered and recycled at bio-waste recycling facilities, if following criteria are met:

- waste is collected separately as a mono-stream from dedicated waste producers (supermarkets, food and beverages producers, etc.); the waste producers need to

[24] Sources: C.A.R.M.E.N. e. V, *How compatible are compostable bags with major industrial composting and digestion technologies*, C. Letalik, 2012; CIC, *Getrenntsammlung und Kunststoffe/Fremdstoffe in Bioabfall und die Kompostierung und Vergärung in Italien*, Ricci, Centemero, 2018.

be clearly informed about the types of compostable packaging that can be used and applied;

- the bio-waste recycling facilities do previously agree to receive such types of deliveries in separate batches, in order to adopt - if necessary – specific treatment procedures;
- the bio-waste recycling facilities are able to biologically treat the compostable packaging waste in order to maximise the amount of bio-waste recycled and reduce the production of rejects.

Currently most composting facilities are unlikely to accept these types of complex packaging items, due to the actual layout and the material flow management.

9 Conclusion

ECN is aware that in each EU Member State there will be significant different acceptances for compostable plastics. Acceptance will also depend on specific composting facilities according to the layout of each plant and the specific time-temperature profiles, treatment times material flow and management. Additionally, the legal framework in the single Member States has to be considered, if they allow to collect specific types of compostable materials within the bio-waste collection scheme.

Thus, it is likely that most modern, bio-waste recycling facilities may accept Type-1 items, provided that they are applying adequate temperature profiles and their process has a duration in line with the production of a medium to mature compost; but at facilities producing fresh compost the utilisation of compostable plastic bags may likely to be widely excluded. In addition, several facilities may need to adapt their infrastructure or process layout in order to include also the Type-2 and Type-3 items.

For details about the current acceptance in selected EU member states refer to Annex A.

Before taking any decision, that implies awareness initiatives and communication to households, ECN advises local authorities to liaise with National/Regional composting organisation[25], its MSW collection companies and the local composting facilities, so to verify if and how compostable plastic items can be included into the separate collection scheme for bio-waste and recycled at bio-waste recycling facilities. This approach will result into national or local, tailor-made solutions that - by taking into consideration the increasing availability of compostable plastic items - will fit to the layout and the technology of local bio-waste recycling facilities.

For further info please contact us at https://www.compostnetwork.info/

Worked out by ECN TG on Compostable Materials
TG Chair: Marco Ricci (CIC, IT)

Approved by ECN Board 09/10/2019

[25] Such as ECN "bio-waste organisation" members.

Annexes:

Annex A: Acceptance of compostable plastics in selected EU member states

Annex B: European Standard EN 13432:2000 in short

Annex A – Acceptance of compostable plastics in selected EU member states

The following table is summarising the current likely acceptance of compostable plastics (according to EN 13432 or EN 14995) at composting facilities according to the information provided by Composting Organisation being ECN members; the overview is neither complete nor exhaustive at the EU-28 level.

Country (ECN composting organisation)	Current status of separate collection of bio-waste	General acceptance of compostable plastics at composting facilities	Type 1 Bags and Liners	Type 2 Catering Ware	Type 3 Complex compostable packaging
AT **(KBVÖ)** **www.kompost-biogas.info**	In Austria bio-waste collection is developed and implemented on national scale, including collection in small towns and decentralised areas. The national ordinance regarding the separate collection of bio-waste is since 1995 in force. Especially in urban areas impurities in the bio-waste pose an increasing problem. The prohibition of conventional plastic bags valid from 2020 may help to improve the situation. The only exception of the prohibition are plastic bags < 15 mikron that consist mainly of renewable raw materials and that are suitable for home composting. The second exception are reusable bags following certain criteria.	In Austria the main technique is open windrow composting with a sufficient rotting duration thus thin walled certified compostable plastic bags will not pose a problem in composting. Those can help to increase the amount and quality of collected bio-waste. Composting in general shall not be the recycling path for biodegradable products in general. Only EN 13432 certified, thin walled bags as collection aid for bio-waste are accepted.	thin-walled (<15 mikron) EN 13432 certified, labelled as home compost (TÜV Austria) bags only www.biosackerl.at	Yes, if bio-waste recycling facilities do previously agree to receive such types of deliveries, if legally permitted.	No, more valuable and meaningful is the material recycling of these precious polymers.
BE **(VLACO)** **www.vlaco.be)**	Every plant decides for themselves if they accept compostable plastics. The minimum requirement is the EN 13432 and EN 14995. Compostable collection bags are accepted by some plants. These bags are	Compostable bags can be accepted when they are conform with the EN 13432 and when it is useful for the separate collection. We prefer that the bags are distributed by the (group of) municipalities.	Only in combination with the distribution of the compostable bags, only these bags can be used	Sporadic	Sporadic

Country (ECN composting organisation)	Current status of separate collection of bio-waste	General acceptance of compostable plastics at composting facilities	Type 1 Bags and Liners	Type 2 Catering Ware	Type 3 Complex compostable packaging
	distributed by the (group of) municipalities. Only these bags are allowed. Type 2 compostable plastics can be accepted by some plants, but there will be a lot of communication and commitments between the provider (e.g. festival) and the plant.	Next to that there can be opportunities for type 2 and 3 when they are conform with the EN 13432 or EN 14995 and when the plant decide they can process it correctly. We also want to give attention to prevention and home composting.			
DE **(BGK)** **www.kompost.de;** **(VHE)** **www.vhe.de**	Considering the different procedures and treatment times in composting plants, the co-treatment of the collection bags can not necessarily be required for most systems. This would possibly lead to a significant deterioration of the quality of the product if the bags are not completely degraded. The plant operators in Germany favour paper (bags / newspaper) for the collection of biowaste. Type 2 and Type 3 items cannot be collected with bio-waste. Further info: www.kompost.de	In Germany – the acceptance of compostable bioplastics by operators of biological recycling facilities is very low. The disposal of these materials through the bio-waste bin is not permitted with the exception of collection bags for kitchen waste and is generally not desired by the plant operators. These statements are corroborated by a survey by the Bundesgütegemeinschaft Kompost e.V. (BGK) from 2018, according to which 88.6% of respondents reject the use of compostable plastic bags.	Low, to be verified with local District Authorities and Composting Facilities	No	No
FI **(Biolaitosyhdistys ry)** **www.biolaitosyhdistys.fi** **(www.sulapac.com)**	currently 30% of bio-waste is collected (2019). Target is to increase the amount to 60 %, by the end of 2023.	Compostable plastics are accepted in nearly all collection areas.	General acceptance	Yes, if agreed with local waste treatment plant	Yes, if agreed with local waste treatment plant
FR	Since July 2016 single use plastic bags under 50 microns distributed at cash point are banned. Since January 2017 single use plastic	See next rows	Widely accepted	Very rare on the market	Not available on the market

Country (ECN composting organisation)	Current status of separate collection of bio-waste	General acceptance of compostable plastics at composting facilities	Type 1 Bags and Liners	Type 2 Catering Ware	Type 3 Complex compostable packaging
	bags under 50 microns are banned. Exemption for home compostable plastic bags and made of >40% renewable raw material in 2019, >50% RRM starting with 2020, >60% RRM starting with 2025. Starting with 2020 all single use plates and cups are banned. Exemption for home compostable and biobased plastic plates and cups. Separation at source of biowaste mandatory starting with 2025. Separation at source of biowaste mandatory for all producers over 10 T of biowaste/year since 2018. Separate collection of biowaste, mainly food-waste, available for 4 M inhabitants.				
IE **(Cré)** **www.cre.ie**	Bio-waste is collected from commercial premises (food waste only) and households (food waste and garden waste) through the brown bin initiative. The two main pieces of legislation are: Waste Management (Food Waste) Regulations 2009, and the European Union (Household Food Waste and Bio-waste) Regulations 2015.	Allowed in food waste bins (in accordance with the Food Waste Regs) as long as they meet EN 13432.	Yes, once they meet the new Cre Compostable Certification Scheme.	Yes, once they meet the new Cre Compostable Certification Scheme.	Yes, once they meet the new Cre Compostable Certification Scheme.
IT **(CIC)** **www.compost.it**	Collection of bio-waste and specifically food waste is significantly developed in Italy, since the late ’90. Today separate collection of food-waste is adopted in a large portion of Italian Municipalities including collection in cities and metropolitan areas.	Compostable plastic bags are generally accepted at composting and AD+Composting facilities, collected together with bio-waste. Other certified compostable items for catering ware are often accepted at composting and AD facilities	General acceptance	Significantly developed	Low, to be verified with local District Authorities

Country (ECN composting organisation)	Current status of separate collection of bio-waste	General acceptance of compostable plastics at composting facilities	Type 1 Bags and Liners	Type 2 Catering Ware	Type 3 Complex compostable packaging
NL **(DMWA)** **www.wastematters.eu**	EN 13432 is no guarantee for acceptance. Factors such as generated co-benefit and consumers' understanding are of importance. Further info: Factsheet	Compostable plastic bags are generally accepted at composting and AD+Composting facilities but the DWMA (all plants) favour paper (bags for the collection of biowaste.	General acceptance	No	No
UK	Composting of green waste is an established process, mostly in open-air windrows. Approximately 20% of UK households have separate door-to-door food waste collections (100% coverage in Wales). Separate food waste legislation in Northern Ireland, Scotland & Wales. Anaerobic digestion is the preferred option for food waste treatment.	Allowed as part of the compost standard (PAS 100) and end-of-waste criteria (Compost Quality Protocol) as long as they are independently certified to EN 13432. Acceptance dependent upon the site, its environmental permit and waste contracts.	Dependent upon the site. Generally, not accepted at AD plants due to processing problems.	Sporadic Dependent upon the composting site.	Sporadic Dependent upon the composting site.

Annex B – European Standard EN13432:2000 in short

The definition of the "compostability" criteria is very important because materials not compatible with composting (traditional plastics, glass, materials contaminated with heavy metals, etc.) can decrease the final quality of compost and make it not suitable for agriculture and, therefore, commercially not acceptable. Additionally, the terms "*biodegradation*", "*biodegradable materials*", "*compostability*" etc. are very common but frequently misused and source of misunderstanding. The European standard EN 13432 resolves these problems by defining the characteristics a material/article must own in order to be claimed as "*compostable*" and, therefore, recycled through composting of organic solid waste.

The norm EN 13432 is a harmonised norm, i.e. it has been quoted in the Official Journal of the European Communities, it has been implemented in Europe by the national standardization bodies, and it provides presumption of conformity with the European Directive 94/62 EC on packaging and packaging waste.

According to the EN 13432, the characteristics that must be demonstrated for a compostable items and packaging are:

1. **Analysis on chemical composition**: to assess that heavy metal content and verify that are below specific threshold values;
2. **Biodegradability**: describes the capability of the compostable material to be converted into CO_2 and water (mineralization) under the action of micro-organisms in the presence of oxygen. This property is measured with a laboratory standard test method like the EN 14046 (also published as ISO 14855: biodegradability under controlled composting conditions). In order to show complete biodegradability, a biodegradation level of at least 90% must be reached in less than 6 months; this very high threshold level (90%) is considered as an indicator of total biodegradation and of no remaining chemical residues; the rest of organic matter is being immobilised as biomass.
3. **Disintegrability**: describes the property of a material to breakdown into fragments; the standard requests a minimum degradation up to a maximum treatment period of 12 weeks of industrial composting; this characteristic is measured in a composting test (for example EN 14045). The final compost is then screened with a 2 mm sieve. The mass of test material residues with dimensions > 2 mm shall be less than 10% of the original mass.
4. **Eco-toxicity**: is performed on the compost produced with bioplastics inside the input feedstock of the process; the test verifies the absence of negative effects on plant growth.

Currently there are **in Europe three main certification labels for compostable plastics**, that verify the compliance of single and specific items to the compostability criteria established in the harmonised standards EN-13432.

COMPOSTABILE CIC Verifica con il tuo Comune/Gestore Locale le modalità di conferimento e raccolta dei rifiuti	OK compost TÜV AUSTRIA INDUSTRIAL	DIN Geprüft
www.compostabile.com	**http://www.tuv-at.be/it/home/**	**https://www.dincertco.de**

Media release
For publication: 06 May 2020

New guidance to address confusion over compostable plastic packaging

The Australian Packaging Covenant Organisation (APCO), the Australasian Bioplastics Association (ABA) and the Australian Organics Recycling Association (AORA)) unite behind common approach to compostable plastic packaging.

APCO, in partnership with ABA and AORA, have today published *Considerations for Compostable Packaging,* a new guideline to help businesses make informed choices when considering the use of compostable packaging.

Designed to cut through confusion, the practical new resource will help industry professionals – particularly brand owners, packaging technologists and designers, and food service providers – decide when and where to use certified compostable plastic packaging, and associated items like cutlery.

Based on the systems and infrastructure currently available, the guideline identifies the key potential applications and opportunities for certified compostable plastic packaging, with a strong emphasis on packaging that could also facilitate the collection of food waste. These include food caddy liners, fruit and vegetable stickers and 'closed-loop' situations, such as festivals.

Recommendations are also provided about how to correctly communicate with end consumers, including accurate certification and correct language for labelling and marketing. Statements to avoid are also highlighted, including the misleading terminology and greenwashing claims that are currently contributing to unintentional litter and contamination of the mechanical recycling system.

Brooke Donnelly, CEO, APCO commented: "With brands facing intense consumer pressure to move away from plastics, coupled with thousands of Australian food outlets turning to takeaway packaging formats for the first time, there's never been a more important time for businesses to receive accurate and consistent information about compostable packaging. Compostable plastics currently account for around 0.1% of plastic packaging on market in Australia. Yet we know that it is a market that is growing and one that causes real confusion - for both industry and end consumers. We are delighted to launch this new guideline today with the two leading industry associations, to provide a clear and consistent approach to the packaging format going forward".

Rowan Williams, President, Australasian Bioplastics Association, noted that this has been an excellent opportunity for peak industry bodies to collaborate on guidelines for industry and consumers. "The collaborative nature of the work in getting this guideline out has been outstanding. The guidelines look up and down the value chain, at where the raw material comes from and also where the finished packaging will go to, such as organics recycling, in the future. The ABA, as custodian of the only verification scheme for claims of certified compostability to the Australian Standards, welcomes the advent of the guidelines and looks forward to continuing collaboration with APCO, AORA and industry stakeholders".

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Peter Wadewitz, Chair, AORA commented: “AORA supports the use of AS4736 certified materials for the source separation of food waste in the home or in commercial settings. It is a suitable alternative to non-recyclable packaging. Compostable coffee cups, capsules and compostable bags can all be successfully utilised through normal organic recycling processes, without concern of contamination”.

Considerations for Compostable Packaging will be officially launched to industry via a webinar on May 6. The full report is available to download on the APCO website https://www.packagingcovenant.org.au/news.

-ENDS-

NOTES TO EDITORS

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ABOUT *CONSIDERATIONS FOR COMPOSTABLE PACKAGING*

Considerations for Compostable Packaging has been adapted for the Australian market from the WRAP UK‘s *Considerations for Compostable Plastic Packaging*, and was developed in partnership with the Australasian Bioplastics Association (ABA), the Australian Organics Recycling Association (AORA), APCO Members and key stakeholders.

ABOUT AUSTRALIAN PACKAGING COVENANT ORGANISATION

The Australian Packaging Covenant Organisation (APCO) is the agency charged by government to make all packaging reusable, recyclable or compostable by 2025. To achieve this goal, APCO is working closely with government and industry to deliver a range of sustainable design, recycling, waste to landfill reduction and circular economy projects. Recognised as one of Australia’s leading product stewardship organisations with a strong national and global collaborative network, APCO is committed to reducing the environmental impact of packaging on Australian communities by moving towards a circular economy.

Further information: www.packagingcovenant.org.au.

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APCO
AUSTRALIAN PACKAGING COVENANT ORGANISATION

Considerations for Compostable Plastic Packaging

Taking Action

We all want to help clean up our environment and minimise waste. To do this we need to start using certifiable compostable packaging correctly.

It's important to understand the two distinct families of certified compostable and conventional plastics and their separate avenues for recovery. This practical document will help people decide when and where to use certified compostable plastic packaging and items like cutlery, and where they should go after use.

This document defines compostable packaging and provides information on standards and certifications, the market today, and potential applications suited to current infrastructure. It also clarifies communication and labelling requirements for certified compostable packaging.

Decision trees provide guidance on the suitability of packaging applications for either composting or traditional recycling routes, ideal for decision makers such as:

- Brand Owners
- Packaging technologists and designers
- Food service providers.

The information provided is based on packaging types and recycling systems used for plastics and food material in Australia today. It is designed to assist industry and government as we work together to achieve Australia's National Packaging Targets by 2025 and the National Waste Targets by 2030.

This guide has been adapted for the Australian market from WRAP UK's Considerations for Compostable Plastic Packaging, and was developed in partnership with the Australian Organics Recycling Association (AORA), the Australasian Bioplastics Association (ABA), APCO Members and key stakeholders.

Follow the waste hierarchy: First consider how to reduce packaging, then design for re-use, next for recycling and then, where appropriate, for composting.

Contents

This is an interactive document. The top toolbar and contents buttons allow you to navigate through the different sections of the guide.

1. What is compostable plastic packaging?

Compostable plastic packaging is created to be suitable and certified for composting after use. Compostable plastics are not to be mixed with conventional plastics for mechanical recycling.

Defining compostable plastic packaging

When designing, specifying, selling or purchasing compostable plastic packaging, it is important to use correct terms as these indicate where items should go after use - to landfill or to compost. Misleading terminology can result in unintentional litter or contamination of mechanical recycling or composting systems.

For an item to be called **'compostable'** it must be certified to the Australian Standard - AS 4736: 2006 Biodegradable plastics suitable for composting and other microbial treatment **(Australian Industrial Composting Standard).** This standard is relevant to industrial and commercial scale composting facilities in Australia that are used to treat our kerbside collected organics and organics from other collections. Compostable plastics should be able to be successfully collected for organics recycling, and proven to work in practice and at scale.

'Home compostable' refers to an item that has been certified to a similar Australian Standard - AS 5810: 2010 Biodegradable plastics suitable for home composting **(Australian Home Composting Standard).** Packaging designed for a home composting environment should be certified to the Australian Home Composting Standard.

Although this standard requires similar testing regimes to those in the Australian Industrial Composting Standard, the lack of visibility over the processing conditions of these materials in individual environments means there is therefore no guarantee that adequate biodegradation will occur. Materials which meet the Australian Industrial Composting Standard do not necessarily compost under home composting conditions.

For commercial scale organics recycling, certification and therefore verification of conformance to the Australian Industrial Composting Standard is critical for organics recyclers. Certification provides assurance that technically these materials will break down without interfering with normal operating processes, and will not leave any physical or chemical residues in the finished organic product after processing. It is important to note that organics recyclers in Australia have differing capabilities to process these materials based on individual operating processes.

What is compostable plastic packaging?

Clarifying complex terms

The terminology around compostable plastics can be confusing. Businesses should prioritise only referencing either **'certified compostable plastics'** or **'conventional plastics'** for maximum clarity across industry and consumers.

The term **'biodegradable'** is often misused and applied to a broad range of different materials. The term is vague, because a biodegradable product may biodegrade in some environments and not in others in an unknown timeframe. Importantly, **all certified compostable plastics will biodegrade, and when mixed in compost contribute to soils, but not all biodegradable plastics will turn into compost.**

Natural soil and water environments are not controlled, and therefore the time for a material to biodegrade will vary greatly. 'Biodegradable' is therefore best avoided as a term for plastic materials as it infers a general behaviour of the material and could mislead users to think that something will automatically biodegrade in a reasonable timeframe.

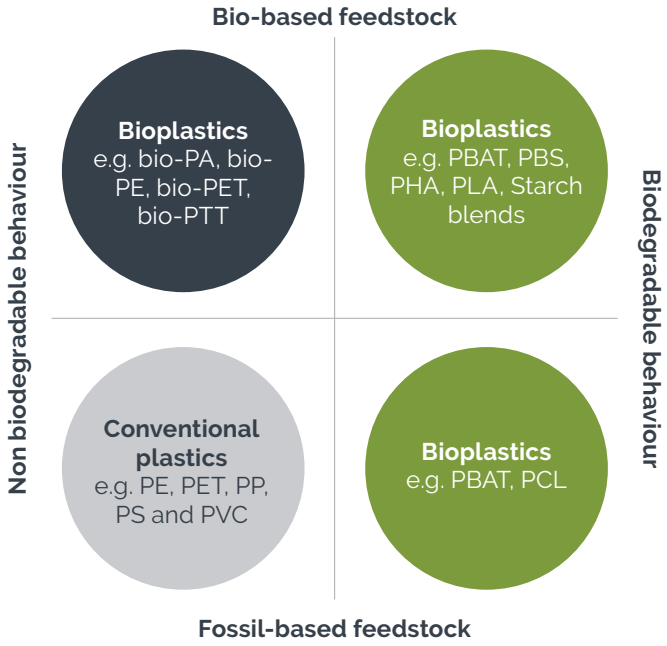
The terms **'bio-based'** and **'fossil-based'** relate to the two different raw material feedstocks that are used to produce plastics i.e. made from plants or fossil derived oil and gas by-products. This is entirely separate from the way in which the material behaves in compost or any other environment; **not all bio-based plastics are compostable or will biodegrade.**

Equally, for a plastic material to be compostable it is not required to be made from bio-based materials. The origin of the feedstock for the production of a certified compostable product is irrelevant. Passing the relevant composting standard confirms only the ultimate properties of biodegradability and disintegration in the appropriate end-of-life environment, such as organics recycling.

Another important fact is that the term **'plastic free' should not be applied to compostable plastics** even if they incorporate 100% bio-based content; these are still most often defined as a plastic.

Other varieties of plastics containing additives, such as those called oxo-degradable or oxo-biodegradable, are not certified compostable. These, along with common conventional plastics should not be used when disposing of food and organics for collection in systems such as a kerbside Food and Garden Organics (FOGO) collection or home composting system. Oxo-degradable or photodegradable (fragmentable) plastics are internationally and locally recognised to be phased-out.

COMPLEXITY OF THE TERM BIOPLASTICS



[1] AORA/ABA (2018) Joint Position Paper: Certified Compostable Bioplastics. Available at https://www.aora.org.au/sites/default/files/uploaded-content/website-content/180503-certified-compostable-plastics-position-joint-policy-statement.pdf

What is compostable plastic packaging?

Standards and certifications

Anyone wanting to use and provide certainty on compostable plastics must obtain certification to the Australian Standard - AS4736:2006 - Biodegradable plastics: Biodegradable plastics suitable for composting and other microbial treatment (Australian Industrial Composting Standard).

Verification that a compostable plastic meets the Australian Industrial Composting Standard is provided by the Australasian Bioplastics Association (ABA) and a certificate of conformance issued following testing to this Standard by an independent accredited laboratory. Its scope is specifically for compostable plastics.

If making and using fibre-based packaging (paper, bamboo, etc.) and seeking to make compostability claims, there is no specific standard to prove this. In theory, all natural fibre-based packaging should biodegrade, however many inks, polymer linings, additives and so on, can cause toxicity concerns, and so it is important to assess composition and additives. This can be achieved by having the product verified to the requirements of the Australian Industrial Composting Standard through the ABA verification program.

Whilst there are other Standards that cover commercial and home compostability throughout the world, including EN 13432:2000 – requirements for packaging recoverable through composting and biodegradation, these Standards are not equivalent to the Australian Standard. The Australian Industrial Composting Standard contains an important ecotoxicity test for earthworm survival, which has been included to assure users of the recycled organics that there are no toxic residues in the organic output.[2]

Australia has other standards and guidelines that support legally compliant marketing claims about compostability. These include ISO14021 – Environmental labels and declarations – self-declared environmental claims and Green marketing and the Australian Consumer Law.

The Australasian Bioplastics Association (ABA) administers the verification scheme, issues a certificate of conformance and licenses compostable packaging producers to use the two logos pictured to the right.

The verification program plays an important role in testing the conformity of the individual components of packaging or products, such as raw materials, inks and glues. The ABA publishes a list of all applicants that have verification of conformance to the Australian Industrial Composting Standard.

AUSTRALIAN STANDARD INDUSTRIAL COMPOSTING LABEL

AUSTRALIAN STANDARD HOME COMPOSTING LABEL

Source: Australasian Bioplastics Association (ABA)

[2] AORA/ABA (2018) Joint Position Paper: Certified Compostable Bioplastics. Available at https://www.aora.org.au/sites/default/files/uploaded-content/website-content/180503-certified-compostable-plastics-position-joint-policy-statement.pdf

2. Today's landscape

It is estimated that compostable plastics account for around 0.1% of plastic packaging in Australia. In 2017/18, this equated to approximately 1,000 tonnes, and 0.02% of all packaging placed on the market.[3]

The main applications currently seen are food waste bin liners, takeaway coffee cups and lids, food serviceware (plates, cutlery etc.) and postage and retail bags.

The Australian Organics Recycling Association (AORA), is the national association for the organics recycling industry. Organics that potentially can be recycled include food waste, green or garden waste and food-soiled compostable packaging.

Compostable packaging and Australia's current resource recovery system

Compostable packaging (both plastics and natural fibre-based like paper and bamboo) has the potential to play a small but important role in achieving Australia's 2025 National Packaging Targets. Compostable packaging and items may facilitate the recovery of food waste and food-contaminated packaging by enabling it to go to compost facilities instead of landfill.

Safe and secure markets are needed for the products that are generated by organics recycling businesses. Recycled organic products, such as compost, are beneficial to support soil health and Australia's agriculture and horticulture industries. It is therefore vital that compostable plastic packaging and items have approved certification to the Australian Industrial Composting Standard to ensure they are not contaminating soils.

Currently there are a number of issues that mean that compostable packaging is not always ending up in organics recycling systems.

The following section outlines some of these resource recovery and reprocessing issues and the impact that they have on the destination of compostable materials. Future use of compostable materials and the development of markets for compost will depend on improvements across the supply chain including design, identification, collection and recycling infrastructure, as well as government policy and industry programs.

Future use of compostable materials and the development of new markets will depend on improvements in design, identification, collection and organics recycling infrastructure, as well as government policy and industry programs.

[3] Based on APCO, (2019). Australian Packaging Consumption & Resource Recovery Data. Available at: https://www.packagingcovenant.org.au/industry-resources

Today's landscape

Organics recycling infrastructure and resource recovery challenges that affect the use of compostable materials

The recyclability of compostable packaging is complex and depends on the reprocessing technology used.

For organics recycling, there are multiple technologies available including in-vessel composting, open air windrow and anaerobic digestion. The diagrams shown on the following pages summarise each of the disposal routes that compostable materials might follow and the relevant challenges at this time in Australia.

There are four key challenges:

- **Limited collection** from households to recover certified compostable packaging that otherwise would be directed to landfill. Only an estimated 18% of councils in Australia provide a FOGO collection service, and not all accept compostable packaging.

  There are a small number of food businesses that separate food at their premises and a small but growing number of outdoor festivals and events that have food separation and training of staff and public. The destination of these food collections is relevant to the choice and type of certified compostable plastic packaging or items.

- **Although Australia has an Industrial Composting Standard** (AS 4736:2006) much of Australia's organics recycling infrastructure is not set up to recognise or completely process compostable packaging. As a consequence and in combination with non-certified compostable plastic packaging on the market, some organics recycling operators will aim to remove all plastics from incoming feedstock. This can include certified compostable bin liners and compostable packaging with the aim of minimising the quantity of plastic fragments that could end up in their product.

- **Conventional plastics** contaminate compost and pose a very real risk to the ongoing application of compost to agricultural land and gardens. This is particularly problematic in light of growing concerns about the negative impacts of microplastics. Misleading or vague claims are exacerbating consumer confusion.

- **Distinguishing between plastics is difficult.** While compostable plastics offer a potential solution in reducing organic waste to landfill, there is a significant challenge in being able to distinguish between compostable plastics and conventional plastics once collected. This poses a challenge for organics recyclers seeking to exclude or remove conventional plastics during treatment to avoid contamination. Only those compost and mulch outputs of organics recycling that meet the relevant compost quality standards for each State and Territory will have viable end markets.

The diagrams on the following pages are based on the current and existing landscape and do not consider new potential opportunities that may overcome the challenges detailed above.

This diagram shows the options currently available in Australia if compostable packaging enters an organics collection and recycling system, e.g. through FOGO or other dedicated collections, such as at events.

ORGANICS RECYCLING

In-vessel composting (IVC)

This industrial scale composting system is like an enclosed pressure cooker that accelerates composting of food organics and garden organics (FOGO). Some local councils and businesses collect food and garden organics mixed together, while others offer separate collection of food waste which is generally treated via Anaerobic Digestion systems. Technically IVC is currently the best option for compostable materials. Frequently, organic material will be put through an IVC before being processed more slowly and for a longer period through open air windrows.

Open Air Windrow (OAW)

This process is used to process garden waste and sometimes finish off IVC material. Whilst technically possible for the materials to compost effectively, generally food waste and food contaminated packaging are not permitted input feedstocks for OAW in some jurisdictions.

Anaerobic Digestion (AD)

AD is used to treat food waste. It is not designed to process any plastics and most facilities work to remove all types of plastic, including certified compostable plastic, before the organic material is inserted into the equipment to prevent equipment seizure. As AD excludes oxygen, even some certified compostable plastics are unlikely to break down in this process. Unless the facility has a composting phase (not currently common in Australia), all plastics including certified compostable plastics are problematic for this route and system.

Key

- Most favourable waste management route
- Some issues
- Currently problematic

This diagram shows that if compostable plastics enter our conventional mechanical recycling stream, they are problematic as they contaminate other recyclable materials.

MECHANICAL RECYCLING

Plastics recycling

Whilst it is technically possible to recycle certain rigid compostable plastics such as PLA, this does not currently happen in practice in Australia.

The risk of compostable plastics entering the mechanical recycling stream is a concern for Australian plastics recyclers as these materials are considered a contaminant. When removed as a contaminant from the plastics mechanical recycling stream, compostable plastics will be sent to landfill.

Paper recycling

Paper recycling can tolerate some plastic contamination, but in the majority of cases, compostable or not, it will be removed and sent to landfill. For some specialist processors aiming to separate the fibre and plastics, the use of a compostable plastic can be detrimental to their production processes.

Landfill

Compostable packaging that is not collected for organics recycling will enter the residual waste stream and thus be directed to landfill. In landfill, the best case is the compostable packaging stays inert, but if it biodegrades then it will release some greenhouse gases as will other organic matter.

Key

- Most favourable waste management route
- Some issues
- Currently problematic

3. Key potential applications for compostable plastic packaging

First consider if the packaging/item is needed at all and if reusable options are more appropriate.

The following applications can be considered, providing the appropriate design, certification, separation protocols and systems, and organics recycling collection and infrastructure are in place.

All of these applications must be considered against the backdrop of the current constraints in infrastructure discussed above.

One of the most commonly cited situations where certified compostable plastics could be particularly useful is for packaging that is likely to be so contaminated with food that it cannot be mechanically recycled and where it can facilitate the collection of food waste. Certified compostable packaging and food can, in theory, be disposed of together in organics collections where it is approved by councils and collectors.

Food caddy liners

There is a strong correlation between the provision of caddy liners for food waste collections and uptake of those services by householders. Compostable food caddy liners are widely used in many local council FOGO collection schemes. Check with your council first before proceeding to confirm their position on caddy liners and compostables.

Fruit & vegetable stickers

It is particularly beneficial for stickers to be compostable in cases where the skin is unlikely to be eaten and they can be disposed of together (e.g. FOGO or home composting).

Closed-loop food service systems

Rigid certified compostable plastic packaging is likely to be most beneficial in closed systems where it has been prearranged that all packaging will be compostable and the suitable collection infrastructure is in place. Examples include festivals, individual buildings, food courts and coffee shops. A key to success is the control of other materials to ensure that there is no contamination of the organics collection, which would condemn it to landfill.

Clear, uncoloured PLA (a commonly used compostable plastic) looks and feels similar to natural PET. The potential for confusion and contamination of the PET recycling system is therefore high when used outside of these closed systems.

4. Communication

When choosing to use certified compostable plastic packaging, there are a few key considerations for communication and labelling:

- **There is currently no widely recognised, consistent labelling or identification system** in Australia that communicates how to correctly dispose of compostable packaging. The only current recognised labelling system is the ABA licenced logos, available only from the ABA, that provides evidence of certifications for compostability.

  Given this system has limitations in consumer reach and recognition, it is vital if using compostable plastics to provide information about disposal, account for waste collection variations at a local level and explain where consumers can find further information.

- **Without a consistent organics recycling system in Australia, it is difficult to convey the correct message to the consumer** about how to dispose of compostable packaging. The correct disposal pathway will vary between local councils and there will be differing options out of home such as at events, festivals, and at work. This must be clearly communicated to users and appropriate systems put in place.

- **If packaging producers are concerned about the littering of their products, simply choosing a certified compostable plastic material is not enough to negate the impact of that packaging on the environment.** Use language that ensures consumers understand that littering is never an acceptable method of disposal no matter what an item is made of. Certified compostable packaging is not to be littered.

The diagrams on the next page outline key phrases and language you can use and should avoid for compostable packaging, until consistent product identification is developed and adopted.

Communication

Recommended statements

If you are using certified compostable plastic packaging, along with displaying the certification logo, the following statements are recommended for application in reference to collection systems.

'This packaging is certified for industrial composting. Place in your food or garden organics recycling bin if your local council accepts it'.

'Place in the organics recycling compost bin'
(intended for away from home disposal pathways)

'Place in your waste bin if there is not a suitable food or garden organics recycling collection and if it is not allowed by your council or collector'

'This packaging is suitable for home composting'

'Do not put this packaging in your recycling bin'

'Do not litter – this package will still harm the environment'

Statements to avoid

'100% compostable.'
Avoid vague language that lacks direction for consumers. Claims of being compostable should always be paired with specific disposal information for consumers.

'Plastic free.'
Compostable plastics are still plastics. Avoid misleading people.

'Degradable', 'Biodegradable' and similar claims such as 'oxo-degradable' and 'photo-degradable'.
Avoid such vague, unqualified terms that will confuse people. 'Biodegradable' does not mean anything on its own and should be avoided. It only has meaning when you qualify it for a particular environment (e.g. soil, open, marine), and specify conditions and time. Any references to biodegradability in the natural environment are very difficult to verify.

Avoid using the terms 'compostable' and 'recyclable' together.
Aim for the highest value recovery system available.

5. Decision making guidance

Click to access the decision tree most appropriate

These two decision trees are designed to help Brand Owners and manufacturers, and food service providers considering where they can use compostable plastic packaging appropriately, based on current accessible infrastructure.

It should be noted that this is a continually evolving field and changing circumstances may affect the outcome, and this guide may not cover every eventuality. In many cases there is no perfect answer and the risks and benefits of any decisions should be fully investigated based on existing conditions.

Brand Owners are always encouraged to assess packaging decisions using APCO's Sustainable Packaging Guidelines and Quickstart Guides to Recovery.

Packaging and Product Manufacturers and Brand Owners

This section is for potential users of compostable plastic packaging or those who are considering changing their current packaging material.

go to decision tree

Food Service Providers

This section is for food vendors – those that sell food that is meant for immediate consumption inside and outside of their premises or during events.

go to decision tree

Packaging and Product Manufacturers and Brand Owners

Click on 'Yes' or 'No' to create your decision

Click here to see full accessible version

This section is for designers, makers, fillers and Brand Owners considering potentially changing their current packaging material or items from conventional materials to certified compostable plastic packaging.

Is the packaging/item necessary?

YES **NO**

Packaging and Product Manufacturers and Brand Owners

This section is for designers, makers, fillers and Brand Owners considering potentially changing their current packaging material or items from conventional materials to certified compostable plastic packaging.

Click on 'Yes' or 'No' to create your decision

Click here to see full accessible version

Does the packaging/item contain food or is it designed to come in contact with food during its life?

YES **NO**

It's in contact with food

Is there a collection and mechanical recycling pathway for your current conventional packaging?

NO **YES**

Food Service Providers

Click on 'Yes' or 'No' to create your decision

Click here to see full accessible version

This section is for food service providers, especially those that sell food for immediate consumption inside and outside of their premises or during events. It applies to packaging and items like cutlery.

Is the packaging/item necessary? **YES** **NO**

6. Glossary and static decision trees

Glossary

The following are some of the key terms used in this guide. Also included, is a list of the wide range of plastics used by industry to make packaging and food related items.

Terms in this subject area can be confusing and seem contradictory. Therefore, it is important that we all use consistent, reliable words and phrases to inform customers, community and governments on selected packaging materials and items.

Anaerobic Digestion (AD)

A technical process that breaks down organic matter (primarily foods wastes) in the absence of oxygen to produce biogas for energy and organic digestate which is applied to agricultural land.

Bio-based plastics

Bio-based plastics are those with building blocks that are derived partly or wholly from plant-based feedstocks (see Starch-blended plastics). These are often also part of the group known as bioplastics. Not all bioplastics are made to be compostable.

Biodegradation

The breakdown of an organic chemical compound by micro-organisms. In the presence of oxygen it becomes biomass, mineral salts, water and carbon dioxide. In the absence of oxygen organics become biomass, mineral salts, water, carbon dioxide and methane.

Biodegradable

A generic term that indicates a plastic is biologically available for microbial decomposition, with no detail on its breakdown outputs, time or extent of degradation or end environments.

Bioplastics

A broad term for plastics that are biobased, biodegradable or both. Bioplastics fall into one of three groups:

- Bio-based and biodegradable
- Bio-based (but not biodegradable)
- Biodegradable (but not bio-based).

Conventional polymers (e.g. PET and HDPE) can also be fully or partially bio-based.

Compostable plastic

Plastic that biodegrades in industrial composting and is compliant with AS 4736:2006.

Only plastic that is labelled as complying with home composting schemes should be composted in home composting systems.

Compostable plastic packaging

Packaging or item made to compost down through approved processes. It can be called compostable if it is certified to AS4736 and if its successfully collected, sorted, and composted in practice and at scale.

Glossary

Conventional plastic

Plastic typically derived from fossil-based feedstock sources that is not considered to be biodegradable or compostable in any reasonable timeframe. This includes the common recyclable plastics of PET, HDPE and PP (see related definitions).

Home compostable plastic

Home compostable refers to those plastics that have been certified to the Australian Standard AS 5810-2010.

Industrial composting

A broad term which includes all forms of large scale aerobic organic treatment characterised by high levels of control and that produces soil improver (compost, mulches, liquids) and/or biogas.

In-vessel composting (IVC)

Composting technology involving the use of a fully enclosed chamber or vessel in which the composting process is controlled by regulating the rate of mechanical aeration with fans. Aeration assists in heat removal, temperature control and oxygenation of the organic mass.

Open Air Windrow (OAW)

Used for processing garden waste and sometimes finish off IVC material in either an open-air environment or within large covered areas where the material can break down in the presence of oxygen.

Oxo-degradable or photodegradable (fragmentable)

Conventional fossil-based polymers (usually polyethylene (PE) or polypropylene (PP)) that have additives incorporated at low rates (2-3%) to cause highly accelerated fragmentation of the plastic in sunlight or in the presence of oxygen or in an anaerobic environment.

These plastics cannot be certified compostable to Australian Standards and therefore are increasingly the focus of government legislators for removal from the Australian market.

PA

Polyamides (Nylon) comprise the largest family of engineering plastics with a very wide range of applications, generally for industrial products and used in some flexible films especially for food applications. PA is not compostable.

PBAT and PBS

Polybutylene adipate terephthalate and Polybutylene succinate – two biodegradable plastics that can be made certified compostable.

PCL

Polycaprolactone - a biodegradable polymer suitable for applications requiring years of stability. In recent years it is becoming of increased interest to manufacturers of medical devices and drug delivery particles. It can be made to be certified compostable.

PE – HDPE and LDPE

Polyethylene (PE) – a type of resin and a polyolefin and one of the world's most widely produced conventional plastics.

High density PE (HDPE) – used for milk bottles, bleach, cleaners and most shampoo bottles. It is mostly used in rigid packaging, but also in some flexible film applications.

Low density PE (LDPE) – widely used in flexible plastics for carrier bags, bin liners and packaging films.

Rigid HDPE packaging is recyclable through most of Australia's commingled recycling systems. LDPE is recyclable through special collections for flexible packaging.

With special additives PE (HDPE and LDPE) can be made to be degradable, but it is not compostable.

Glossary

PET

Polyethylene terephthalate – a type of resin and a form of polyester; it is commonly labelled with the number one code on or near the bottom of bottles and other containers. PET has some important characteristics such its strength, thermo-stability, gas barrier properties and transparency. It is also lightweight, shatter-resistant and highly recyclable through most of Australia's commingled recycling systems. It is a conventional plastic, and not compostable.

PHA

Polyhydroxyalkanoate – a naturally occurring family of biodegradable polyesters. It can be made to be certified compostable.

PLA

Polylactic acid – a biodegradable polyester produced from lactic acid, used in range of food/drink service-ware products, such as clear drink cups, and as filament for 3D printing.

Plastic/Polymer

A polymer is a chemical compound that contains a large number of identical molecular repeating units. A plastic material is a polymer, typically modified with additives, which can be moulded or shaped by pressure and temperature, to be flexible or rigid, coloured and printed. Depending upon the specific chemistry it can be made to be composted or mechanically recycled. Plastics are widely used in packaging and in durable products like furniture, flooring and water pipe.

PP

Polypropylene – a widely used recyclable fossil-based plastic commonly used for clear takeaway food containers, margarine tubs, microwaveable meal trays, also produced as fibres and filaments for carpets, wall coverings and vehicle upholstery. It is a conventional plastic and not compostable.

PS and EPS

Polystyrene – a plastic used to make single use cutlery and CD cases. It is not compostable and is generally rejected by conventional recycling systems. This plastic is also made into Expanded Polystyrene (EPS) to make white insulating fruit and fish boxes for cold transport. This is not compostable and is highly problematic for litter. Some recycling systems are available for clean EPS.

PVC

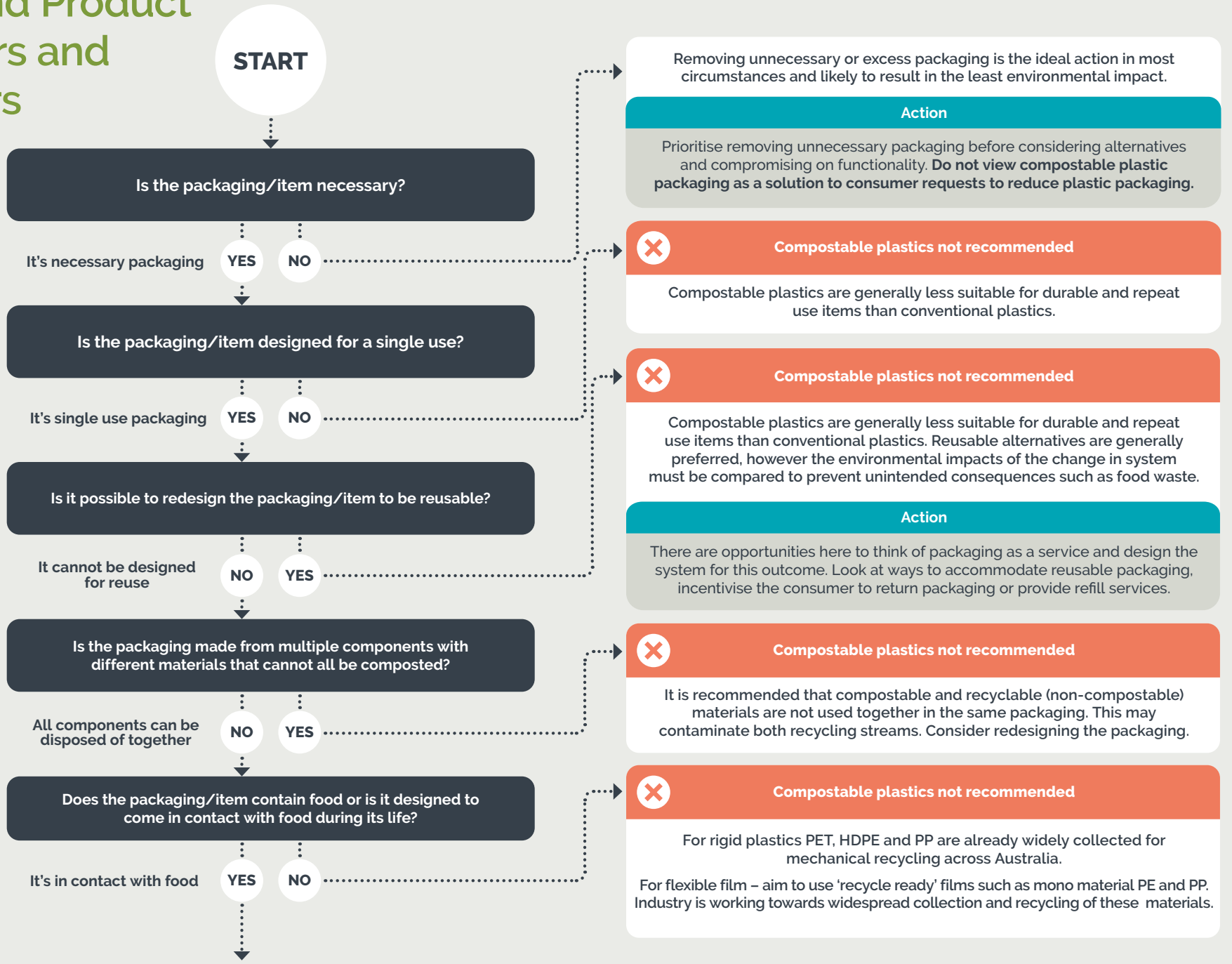
Polyvinyl chloride – occasionally used for rigid packaging like pill blister packs, clear hardware packaging and cake clam shells. Proposed for phase out in certain packaging applications due to its easy confusion with PET and unique recycling requirements. It is widely used in durable industrial products like pipe, flooring and hose. It is not compostable.

Starch-blended plastics

The majority of bio-based plastics are currently manufactured using starch as a feedstock (~80% of current bio-based plastics). The current major sources of this starch are maize, potatoes and cassava. Other potential sources include arrowroot, barley, some varieties of liana, millet, oats, rice, sago, sorghum, sweet potato, taro and wheat. They can be made to be certified compostable.

Packaging and Product Manufacturers and Brand Owners

This section is for designers, makers, fillers and Brand Owners considering potentially changing their current packaging material or items from conventional materials to certified compostable plastic packaging.



Packaging and Product Manufacturers and Brand Owners

This section is for designers, makers, fillers and Brand Owners considering potentially changing their current packaging material or items from conventional materials to certified compostable plastic packaging.

Is there a collection and mechanical recycling pathway for your current conventional packaging?

It cannot be mechanically recycled — NO — YES

Compostable plastics not recommended

Low level food contamination is not generally an issue for recyclers and some packaging can be easily rinsed by the consumer.

Move to the next box if the packaging will be highly contaminated with food.

Is it possible to redesign the packaging/item to be reusable?

It's a film — NO — YES

Potential use of compostable plastic

Consumers easily confuse rigid compostable plastic packaging with conventional plastics as it often looks and feels the same. Consumers may subsequently place these incorrectly in the mechanical recycling streams.

Organic recycling facilities cannot separate compostable from conventional plastics and therefore will treat this as contamination and remove it where possible.

Potential use of compostable plastic

This is worth evaluating, alongside the question of whether mechanical recycling can be achieved with a redesign of existing packaging and/or investment in new technologies.

Note, that currently there is no ideal recycling or composting route that is accessible to all Australian consumers for flexible film packaging. The REDcycle drop off recycling scheme for soft plastics is an initiative that is gaining traction in Australia with collection points in major retailers, Coles and Woolworths and with Brand Owner partners.

Action

Questions to ask your compostable material supplier:

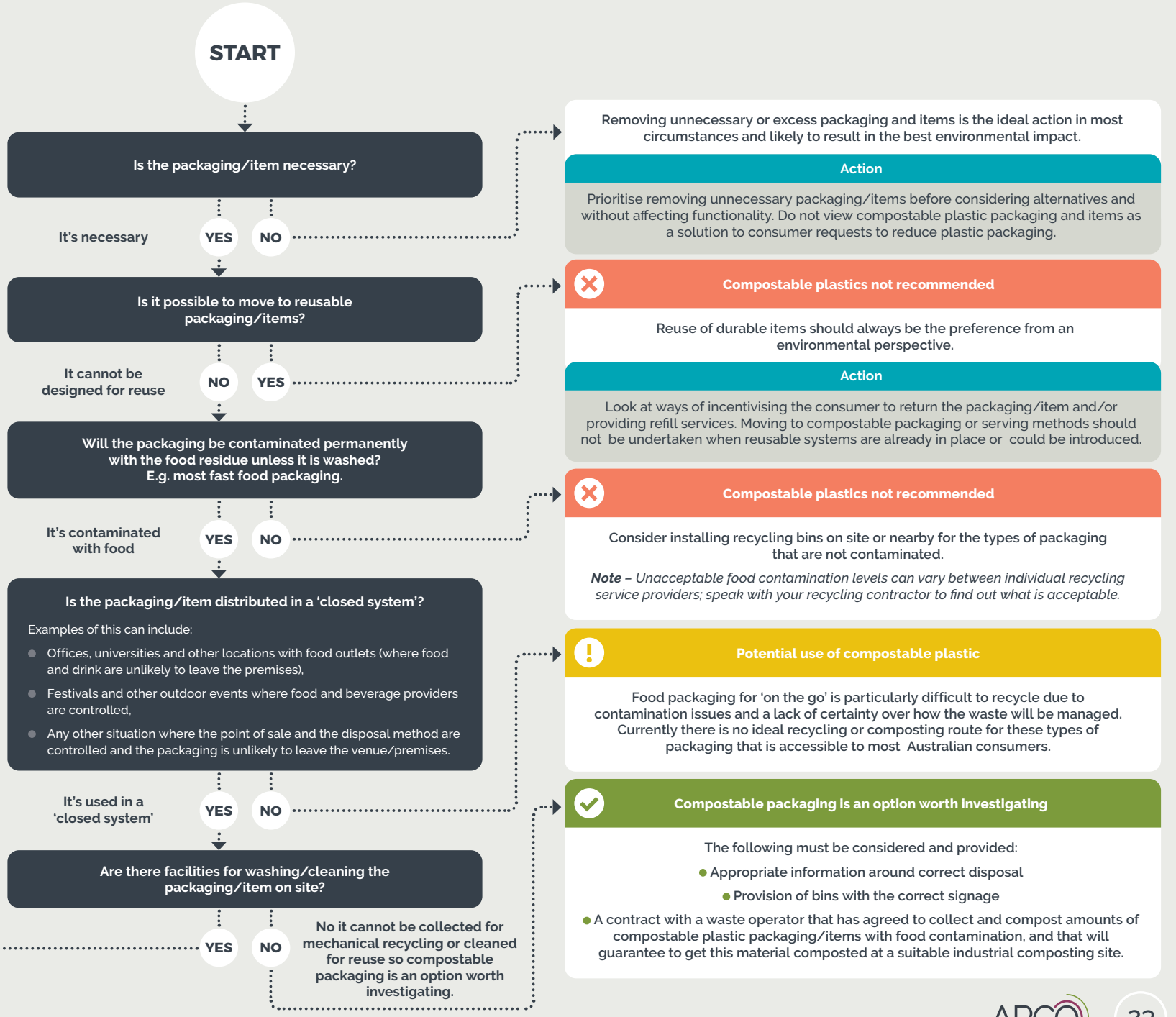
- Is the product independently certified to the Australian Industrial Composting Standard AS 4736: 2006?
- Can the material provide equivalent performance characteristics (such as oxygen and moisture barrier) to conventional plastics and hence maintain shelf-life?
- Will the material require changes to the packaging production or filling process?

Action

Do not use/supply oxo-(bio)degradable plastic items. Despite their name these are not considered biodegradable or compostable, with bans occurring across various states in Australia including the ACT, South Australia and Queensland, and several international jurisdictions. They are a contaminant in conventional plastic recycling systems and are likely to fragment quicker than conventional plastic and thus become microplastics in the environment.

Food Service Providers

This section is for food service providers, especially those that sell food for immediate consumption inside and outside of their premises or during events. It applies to packaging and items like cutlery.



Thank you

APCO website

Considerations for Compostable Plastic Packaging

Australian Organics Recycling Association (AORA)

Australasian Bioplastics Association (ABA)

Further information

To contact APCO please visit our website
www.packagingcovenant.org.au

Australasian Bioplastics association

aora australian organics recycling association

APCO AUSTRALIAN PACKAGING COVENANT ORGANISATION

BIODEGRADABLE PRODUCTS INSTITUTE

Guidelines For The Labeling And Identification Of Compostable Products And Packaging

OBJECTIVE

To establish consistent, category-specific identification guidelines that make it easy for consumers, composters and others to identify compostable products and packaging, with the goals of reducing contamination, facilitating food scrap composting programs, and decreasing landfill methane production.

Overview

Compostable products and packaging exist to help facilitate the diversion of food scraps from landfills. Unfortunately, the threat of contamination from "look alike" non-compostable packaging has led some composters to discontinue accepting even certified compostable items.

In order for compostable products and packaging to perform their intended function, they should be readily and easily identifiable by end-users, consumers, composters and others so they can be differentiated from their non-compostable counterparts. The guidelines put forth in this document reflect the belief that a consistent identification strategy employed by product manufacturers and brand owners is a key driver in achieving differentiation and will assist in the acceptance of food scraps and compostable products and packaging on a larger scale.

Intended Audiences

This document has a number of intended audiences, all with an interest in organics diversion and the principles of circular economies.

The primary audiences include **Product and Packaging Manufacturers and Brand Owners.** This document will help these audiences to evaluate their current labeling and identification strategies and to put plans in place for short and long-term changes designed to bring consistency to how compostable products and packaging are labeled and identified.

In addition, this document may be of value to other stakeholders:

- **Composters** are essential to the success of waste diversion systems utilizing compostable products and packaging in the effort to divert organics from landfills. This document is the first iteration of an ongoing collaborative effort between composters, governments, brand owners, and the compostable products industry to reduce contamination and, ultimately, lead to higher quality feedstocks for composters.

- **State and Local Governments** may use this document to inform conversations around labeling and identification requirements for compostable products and packaging, particularly as it relates to product and category-specific manufacturing capabilities that vary with factors like shape, size, and material type.

Stakeholder Engagement

BPI invited and incorporated feedback on these guidelines from a wide array of groups including: the United States Composting Council (including state chapters), the California Compost Coalition, the Compost Manufacturing Alliance, independent composters, the City of Seattle, Zero Waste Washington, the Foodservice Packaging Institute, Sustainable Packaging Coalition, foodservice operators and brand owners. BPI looks forward to ongoing work with these stakeholders and others as the recommendations for labeling and identification are considered and put into practice.

PART ONE

This section outlines the variety of considerations that should be taken into account when determining how to properly label and identify compostable products and packaging.

Legal and Regulatory Considerations

The Federal Trade Commission (FTC) in the United States, the Competition Bureau (CB) in Canada and various state/provincial and local governments across both countries have created various guidelines and laws for marketers of compostable products and packaging to follow when making

claims of compostability. The following are examples of requirements or suggestions that generally become relevant whenever a product or package is marketed as "compostable":

1. Provide reliable and scientific evidence of compostability, such as meeting ASTM D6400 or ASTM D6868 compostability standard specification.
2. Use disclaimer language for products and packaging to qualify compostable claims if the product cannot be composted at home safely or in a timely way, such as "Commercially Compostable Only."
3. Use disclaimer language to indicate that commercial compost facilities are not available to a substantial majority of consumers such as, "Facilities May Not Exist In Your Area."
4. Use a Resin Identification Code (RIC) for bioplastic containers over 8 ounces in size. For bioplastics, the RIC is #7.

Use of the term "Biodegradable"

It is illegal in California, Maryland, and Washington to use the term "biodegradable" in marketing claims related to plastic products. This is because "biodegradable" is often used to describe items that do not meet ASTM standards for compostability, and are contaminants for composters.

Washington State Labeling Legislation

The Washington State legislature passed HB 1569 to address labeling and identification for compostable products and packaging. The law went into effect on July 1, 2020 and either requires or suggests items 5 - 8 in addition to existing federal requirements. It also references "industry standards for being distinguishable upon quick inspection" that did not exist prior to the creation of this document.

5. Use of the word "compostable".
6. Use of a third-party certification logo to verify that an item meets ASTM standards for compostability.
7. Use of identification that makes the product or packaging distinguishable upon quick inspection in both public sorting areas and in processing facilities.
8. Use of distinctive color schemes, green or brown color striping, or other adopted symbols, colors, marks, or design patterns that help differentiate compostable items from non-compostable materials.

Third-Party Certification Requirements

While use of a certification mark is optional for other certification providers, products certified by the Biodegradable Products Institute must include the BPI Certification Mark.

Technical Considerations

Today, manufacturers of compostable products and packaging have three primary techniques for labeling and identification:

1. Printing is a reliable method of delivering specific information on a product or package, whether through visual elements like a stripe, or with words and symbols. Printing, however, may not be possible -- or may be a significant challenge -- on many of the products covered by these guidelines.

2. Material coloring and tinting are options for achieving visual differentiation. These techniques, however, are not sufficient on their own to clearly identify compostable products and packaging.

3. Embossing, debossing or otherwise etching compostable items may make it possible to deliver the information required. This messaging strategy is most effective when the wording is prominently featured on the products and packaging and is legible by consumers and composters. The category specific chart and graphical examples in Part Two of this document recommend a "Prominent Emboss" approach of the word "compostable".

In the future, innovation will bring new solutions, expanding the possibilities beyond printing, coloring and embossing. This document will be updated as these solutions move closer to reality.

Spatial Considerations

Along with technical challenges, lack of space is often cited by manufacturers and brand owners as a challenge when considering language and logo usage on compostable products and packaging. Some of the spatial challenges for existing regulatory requirements are detailed below.

1. Including the word "compostable" alone (especially on smaller items) does not meet the FTC's Guides for the Use of Environmental Marketing Claims

2. Including "Commercially compostable only. Facilities may not exist in your area." does meet FTC guidelines, but is lengthy and may be a challenge -- but not impossible -- to emboss.

3. Including a third-party certification logo alone (without any qualifying language) does not meet FTC guidelines, and the logo alone may not be recognized by all consumers.

When adequate space is a challenge, the overall recommendation of these guidelines is to include as much of the required content as possible on all products where labeling is an option. When

spatial constraints make it truly impossible to fit all required content on the products themselves, the recommendation is to include all required content on packaging and marketing collateral.

Composter Considerations

Composters require high-quality feedstock to manufacture high-quality compost. In order to achieve this, visually inspect the feedstock to assure there is little to no contamination. Making sure that compostable products and packaging are readily and easily identifiable makes it possible for them to distinguish compostable from non-compostable items.

Connection to Food Scraps

Only common elements of the food service waste stream are covered by this document, and are eligible for BPI certification. Compostable versions of foodservice products and packaging make it easier to divert organics at scale because they can be included with food scraps in the same bin.

Brand Owner Considerations

Brand owners often customize products and packaging to communicate their own brand and message. This can include specific branding standards, such as logos, colors, and images. Manufacturers are strongly encouraged to share these guidelines with their brand owner partners and to work together to incorporate them wherever and whenever possible.

Consumer and End-User Considerations

In residential and commercial environments, consumers and end-users are generally tasked with determining which bin to put their products and packaging in after use. In this way, they are the first line of defense in the effort to provide composters with a contaminant-free stream of organic material.

The labeling and identification recommendations in this document are driven by a desire to make it as easy as possible for consumers and end-users to distinguish between compostable and non-compostable products and packaging. To facilitate the quick decision making that is often required at the point of disposal, manufacturers acknowledge that more work needs to be done with various stakeholders on consumer and end-user education to augment improvements in labeling and identification techniques for compostable products and packaging.

Manufacturing Limitations, Market Preferences, and Financial Considerations

There are a number of factors driving the feasibility and timeframes associated with the labeling and identification strategies recommended in Part Two of this document.

First, many of the strategies that are called for are not in practice today and will require significant time and investment to implement. The recommendation to manufacturers and brand owners is to follow a phased approach, starting with categories where manufacturing and technology limitations are not present.

Second, certain market preferences are determining factors for how many compostable items are produced. For example, adding color to clear items will fundamentally change the value proposition (e.g., ability to see the food inside), and there may be scenarios where conventional packaging will be used instead of compostable packaging if design elements like striping or tinting are required.

Third, the investments required to implement some of the recommended strategies will significantly change the economics for manufacturers and brand owners, and some of those costs are likely to be passed on to their downstream customers. Compostable products and packaging are already sold at significant premiums relative to their conventional counterparts, and it is possible that the labeling and identification approaches proposed here will increase those premiums. This could lead to reduced market acceptance of these items.

PART TWO

This section makes specific recommendations for the labeling and identification of compostable products and packaging, recognizing that products and materials may have different options. These recommendations address the considerations outlined in Part One and incorporate the results of a manufacturer survey designed to identify current and potential identification methods in use and/or in development across the compostable products and packaging industry.

Part Two of the document is divided up into two sections:

1. A comprehensive chart displaying the full set of labeling and identification techniques available, by category and material type.

2. A set of mocked up illustrations designed to make the recommendations in the chart easier to visualize, accompanied by estimates of availability based on Manufacturing Limitations and Market Preferences.

Recommendations Chart

The chart on page 9 shows possible labeling and identification techniques available for specific categories and material types. When multiple labeling and identification options are presented, they are listed in order of availability and/or industry preference. The footnotes in the chart correspond to text and color recommendations that vary depending on the primary method of labeling.

For example, the options for the Bioplastic Clamshell category are displayed as follows: Emboss* 1,2 | Color 3 | Print 1,2,3. The first option recommends a Prominent Emboss approach on this product, with significant embossment, debossment, or etching of the word "compostable", and including all other required messaging elements indicated by the footnotes. Tinting of the product in conjunction with prominent embossment is a subsequent option, followed by printing.

While the categories and material types displayed in the chart represent the majority of the products and packaging categories likely to be disposed of in organics bins, it is not an exhaustive list. One notable omission from the chart are products made from plant-based fibers only like napkins, tissues, paper towels, and wipes. These items are generally recognized as compostable, are largely exempt from BPI's labeling requirements and are specifically excluded from Washington's regulations.

When multiple options are presented below, they are listed in order of current industry-wide availability and/or industry preference.

	Bioplastics	Bioplastic Coated Paper/ Paperboard	Uncoated Paper / Paperboard and Wood	Molded Fiber
Beverage Cups	Print[1,2,3] | Emboss*[1,2] | Color[3]	Print[1,2,3]		
Food Containers - Round	Print[1,2,3] | Emboss*[1,2] | Color[3]	Print[1,2,3]		
Food Containers - Square	Emboss*[1,2] | Color[3] | Print[1,2,3]	Print[1,2,3]		
Food Containers - Clamshell	Emboss*[1,2] | Color[3] | Print[1,2,3]	Print[1,2,3]		Emboss*[1,2] | Color[3] | Print[1,2,3]
Portion Cups	Print[1,2,3] | Emboss*[1,2] | Color[3]		N/A	Emboss*[1,2] | Color[3] | Print[1,2,3]
Lids for Cups	Emboss*[1,2] | Color[3] | Print[1,2,3]			Emboss*[1,2] | Color[3] | Print[1,2,3]
Lids for Containers	Emboss*[1,2] | Color[3] | Print[1,2,3]			Emboss*[1,2] | Color[3] | Print[1,2,3]
Cup Sleeves			Print[1,2,3]	
Plates	Emboss*[1,2] | Color[3] | Print[1,2,3]	Print[1,2,3]	N/A	Emboss*[1,2] | Color[3] | Print[1,2,3]
Bowls	Emboss*[1,2] | Color[3] | Print[1,2,3]	Print[1,2,3]		Emboss*[1,2] | Color[3] | Print[1,2,3]
Meat Trays	Emboss*[1,2] | Color[3] | Print[1,2,3]	Print[1,2,3]		
Wraps & Sheets		Print[1,2,3]	Print[1,2,3]	
Bags (i.e. carryout, produce, kitchen liners)	Print[1,2,3] & Color[3]		N/A	
Cutlery	Emboss[1,2] | Color[3]		N/A	
Straws	Color[3,4]	Print[1,2,3] | Color[3]		
Straw Wrappers			Print[1,2,3]	
Stirrers, Picks, Chopsticks & Splash Sticks	Print[1,2,3]		Color[3,4]	
Coffee Pods	Color[3,4] | Emboss[1,2] | Print[1,2,3]			
Sachets & Pouches	Print[1,2,3]	Print[1,2,3]		
Flexible Packaging (i.e. chip/snack bags, wrappers)	Print[1,2,3]			
Other (i.e. sushi grass)	Color[3,4]			

No common products made in this material.

N/A *Products have been exempted from either BPI's requirements or WA's labeling law.*

For ALL products where printing or embossing is possible, the word "COMPOSTABLE" should be included.

1 The text "Commercially compostable only. Facilities may not exist in your area." should be included.

2 BPI Certification Mark for BPI Certified Products should be included. Other certification marks may also be included.

3 Inks for printing or coloring (including tinting) should be green or brown.

4 The use of material color (including tinting) could be used on its own for products where other options are not technically possible. However, it would require others outside the compostable products industry to agree voluntarily, or through regulatory measures, that the color would not be used with non-compostable products.

** Indicates where "Prominent Emboss" should be used.*

Mocked Up Illustrations

Beginning on page 11, mocked up illustrations of major product categories and material types are displayed. These drawings are examples of what finished products might look like when the recommendations for labeling and identification by category and material type are put into practice. The brand names used are fictional placeholders designed to make the illustrations look more realistic.

To the right of or below every example is a set of two "sliding scales" with additional information on the labeling and identification technique(s) illustrated. Many of the recommendations in these guidelines will require new investments to achieve, and will also require downstream partners, end-users and consumers to adjust to new versions of products and packaging.

Manufacturing: An Inside Look

In order to adopt many of the recommendations outlined here, manufacturers will need to make changes that involve time, money and human resources. For example:

- Adding or changing embossing requires that new molds be made and installed for every shape and size of a given product.
- Adding color will require identifying FDA approved inks and colorants, recertifying with BPI, and creating new print plates for every shape and size of a given product.
- For items that are not printable today, advancements in technology will be required before scalable printing will be possible.

1. The "Manufacturing Limitations" sliding scale is designed to give the reader a sense of current availability and estimated future availability based on the investments required to achieve the recommended labeling and identification method.

2. The "Market Acceptance" sliding scale is designed to give the reader a sense for how the recommendations may be viewed by customers in food service and retail marketplaces today. For example, transparent packaging is often used with fresh foods recognizing that consumers "eat with their eyes" and may want to see the food to confirm freshness. Switching to a tinted package may help with labeling and identification for composters, but this may not be acceptable for brand owners and their consumers. Additionally, incorporating green or brown colors to signal that a product or package is compostable may be beneficial for identification purposes, but brand owners may be reluctant to use these colors if they conflict with their own existing branding guidelines.

Note: In the drawings that follow, the use of the marks Fresh Start, Right Pack, Right Snacks and Fresh Brews are fictitious and not intended to represent existing brands.

COLD BEVERAGE CUP & LID
BIOPLASTIC

PRINT

Widespread printing capabilities exist.

EMBOSS

"Prominent Emboss" features significant "Compostable" call out in available marking area.

EMBOSS

"Prominent Emboss" features significant "Compostable" call out in available marking area.

TINT

Market acceptance could be a challenge for the tinting of traditionally clear products.

HOT BEVERAGE CUP
BIOPLASTIC COATED PAPER

PRINT

Widespread printing capabilities exist.

LID
BIOPLASTIC

EMBOSS

"Prominent Emboss" features significant "Compostable" call out in available marking area.

Full Material Color

MATERIAL COLOR

Most valuable if only compostable products are produced in colors like green and brown.

CLAMSHELL BIOPLASTIC

EMBOSS

"Prominent Emboss" features significant "Compostable" call out in available marking area.

TINT

Market acceptance could be a challenge for the tinting of traditionally clear products.

PRINT

Printing this item will require advancements in technology that are likely to shift economics for manufacturers.

CLAMSHELL
BIOPLASTIC COATED PAPER OR MOLDED FIBER

Molded Fiber

EMBOSS

"Prominent Emboss" features significant "Compostable" call out in available marking area.

Bioplastic Coated Paper Or Molded Fiber

PRINT

Printing this item will require advancements in technology that are likely to shift economics for manufacturers.

PLATE
BIOPLASTIC

EMBOSS

"Prominent Emboss" features significant "Compostable" call out in available marking area.

MATERIAL COLOR

Most valuable if only compostable products are produced in colors like green and brown.

PRINT

Printing this item will require advancements in technology that are likely to shift economics for manufacturers.

PLATE
BIOPLASTIC COATED PAPER OR MOLDED FIBER

Molded Fiber

EMBOSS

"Prominent Emboss" features significant "Compostable" call out in available marking area.

Bioplastic Coated Paper Or Molded Fiber

PRINT

Printing this item will require advancements in technology that are likely to shift economics for manufacturers.

BOWL
BIOPLASTIC

EMBOSS

"Prominent Emboss" features significant "Compostable" call out in available marking area.

MATERIAL COLOR

Most valuable if only compostable products are produced in colors like green and brown.

PRINT

Printing this item will require advancements in technology that are likely to shift economics for manufacturers.

BOWL
BIOPLASTIC COATED PAPER OR MOLDED FIBER

Molded Fiber

EMBOSS

"Prominent Emboss" features significant "Compostable" call out in available marking area.

Bioplastic Coated Paper Or Molded Fiber

PRINT

Printing this item will require advancements in technology that are likely to shift economics for manufacturers.

PORTION CUP & LID
BIOPLASTIC

PRINT

Printing is operationally possible but not a regular offering today.

EMBOSS

"Prominent Emboss" features significant "Compostable" call out in available marking area.

EMBOSS

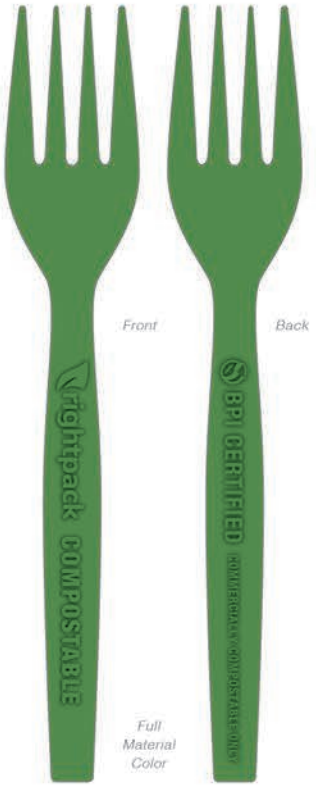
"Prominent Emboss" features significant "Compostable" call out in available marking area.

Tinted Bioplastic

TINT

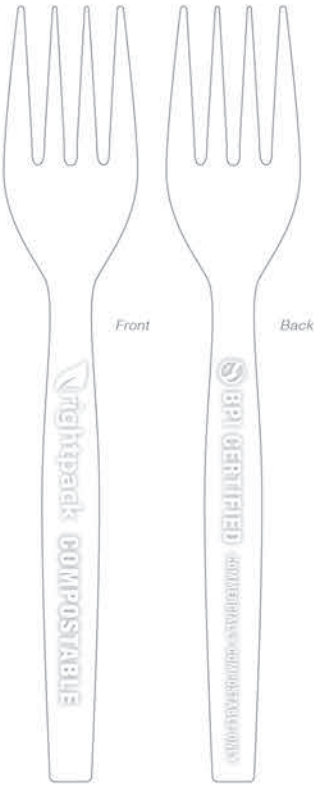
Market acceptance could be a challenge for the tinting of traditionally clear products.

CUTLERY
BIOPLASTIC



MATERIAL COLOR

Most valuable if only compostable products are produced in colors like green and brown.



EMBOSS

"Prominent Emboss" features significant "Compostable" call out in available marking area.

MATERIAL COLOR

Most valuable if only compostable products are produced in colors like green and brown.

SOUP CUP
BIOPLASTIC COATED PAPER

PRINT

Widespread printing capabilities exist.

LID
BIOPLASTIC

EMBOSS

"Prominent Emboss" features significant "Compostable" call out in available marking area.

Full Material Color

MATERIAL COLOR

Most valuable if only compostable products are produced in colors like green and brown.

ROUND DELI CONTAINER & LID
BIOPLASTIC

PRINT

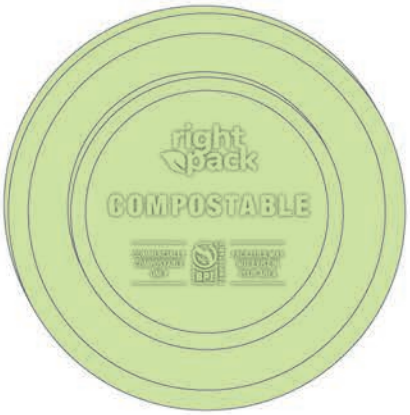
Printing is operationally possible but not a regular offering today.

EMBOSS

"Prominent Emboss" features significant "Compostable" call out in available marking area.

EMBOSS

"Prominent Emboss" features significant "Compostable" call out in available marking area.



TINT

Market acceptance could be a challenge for the tinting of traditionally clear products.

SQUARE DELI CONTAINER & LID
BIOPLASTIC

EMBOSS

"Prominent Emboss" features significant "Compostable" call out in available marking area.

TINT

Market acceptance could be a challenge for the tinting of traditionally clear products.

EMBOSS

"Prominent Emboss" features significant "Compostable" call out in available marking area.

TINT

Market acceptance could be a challenge for the tinting of traditionally clear products.

SMALL SNACK PACKAGE
BIOPLASTIC

PRINT

Widespread printing capabilities exist.

SACHETS & POUCHES
BIOPLASTIC & COATED PAPER

PRINT

Widespread printing capabilities exist.

COFFEE PODS
BIOPLASTIC

PRINT

Widespread printing capabilities exist.

BAG
BIOPLASTIC

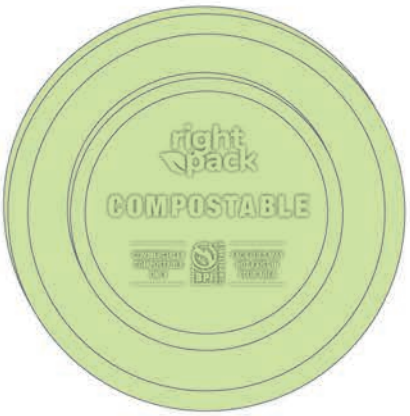
PRINT

Widespread printing capabilities exist.

CONTAINER LIDS
BIOPLASTIC

EMBOSS

"Prominent Emboss" features significant "Compostable" call out in available marking area.



TINT

Market acceptance could be a challenge for the tinting of traditionally clear products.

STRAW WRAPPER PAPER

PRINT

Widespread printing capabilities exist.

STRAW BIOPLASTIC & COATED PAPER

MATERIAL COLOR

Most valuable if only compostable products are produced in colors like green and brown.

STIRRERS BIOPLASTIC

MATERIAL COLOR

Most valuable if only compostable products are produced in colors like green and brown.

HOT CUP SLEEVE UNCOATED PAPER & PAPERBOARD

PRINT

Widespread printing capabilities exist.

Chapter Listing

Chapter 70A.455 RCW
PLASTIC PRODUCT DEGRADABILITY

Sections

RCW 70A.455.010

Findings—Intent.

(1) The legislature finds and declares that it is the public policy of the state that:

(a) Environmental marketing claims for plastic products, whether implicit or implied, should adhere to uniform and recognized standards for "compostability" and "biodegradability," since misleading, confusing, and deceptive labeling can negatively impact local composting programs and compost processors. Plastic products marketed as being "compostable" should be readily and easily identifiable as meeting these standards;

(b) Legitimate and responsible packaging and plastic product manufacturers are already properly labeling their compostable products, but many manufacturers are not. Not all compost facilities and their associated processing technologies accept or are required to accept compostable packaging as feedstocks. However, implementing a standardized system and test methods may create the ability for them to take these products in the future.

(2) Therefore, it is the intent of the legislature to authorize the state's attorney general and local governments to pursue false or misleading environmental claims and "greenwashing" for plastic products claiming to be "compostable" or "biodegradable" when in fact they are not.

[2019 c 265 § 1. Formerly RCW 70.360.010.]

RCW 70A.455.020

Definitions.

The definitions in this section apply throughout this chapter unless the context clearly requires otherwise.

(1) "ASTM" means the American society for testing and materials.

(2) "Biodegradable mulch film" means film plastic used as a technical tool in commercial farming applications that biodegrades in soil after being used, and:

(a) The film product fulfills plant growth and regulated metals requirements of ASTM D6400; and

(b)(i) Meets the requirements of Vincotte's "OK Biodegradable Soil" certification scheme, as that certification existed as of January 1, 2019;

(ii) At ambient temperatures and in soil, shows at least ninety percent biodegradation absolute or relative to microcrystalline cellulose in less than two years' time, tested according to ISO 17556 or ASTM 5988 standard test methods, as those test methods existed as of January 1, 2019; or

(iii) Meets the requirements of EN 17033 "plastics-biodegradable mulch films for use in agriculture and horticulture" as it existed on January 1, 2019.

(3) "Federal trade commission guides" means the United States federal trade commission's guides for the use of environmental marketing claims (Part 260, commencing at section 260.1), compostability claims, including section 260.8, and degradation claims (subchapter B of chapter I of Title 16 of the Code of Federal Regulations), as those guides existed as of January 1, 2019.

(4) "Film product" means a bag, sack, wrap, or other sheet film product.

(5) "Food service product" means a product including, but not limited to, containers, plates, bowls, cups, lids, meat trays, straws, deli rounds, cocktail picks, splash sticks, condiment packaging, clam shells and other hinged or lidded containers, sandwich wrap, utensils, sachets, portion cups, and other food service products that are intended for one-time use and used for food or drink offered for sale or use.

(6) "Manufacturer" means a person, firm, association, partnership, or corporation that produces a product.

(7) "Person" means individual, firm, association, copartnership, political subdivision, government agency, municipality, industry, public or private corporation, or any other entity whatsoever.

(8) "Plastic food packaging and food service products" means food packaging and food service products that is composed of:

(a) Plastic; or

(b) Fiber or paper with a plastic coating, window, component, or additive.

(9) "Plastic product" means a product made of plastic, whether alone or in combination with another material including, but not limited to, paperboard. A plastic product includes, but is not limited to, any of the following:

(a) A product or part of a product that is used, bought, or leased for use by a person for any purpose;

(b) A package or a packaging component including, but not limited to, packaging peanuts;

(c) A film product; or

(d) Plastic food packaging and food service products.

(10) "Standard specification" means either:

(a) ASTM D6400 – standard specification labeling of plastics designed to be aerobically composted in municipal or industrial facilities, as it existed as of January 1, 2019; or

(b) ASTM D6868 – standard specification for labeling of end items that incorporate plastics and polymers as coatings or additives with paper and other substrates designed to be aerobically composted in municipal or industrial facilities, as it existed as of January 1, 2019.

(11)(a) "Supplier" means a person, firm, association, partnership, company, or corporation that sells, offers for sale, offers for promotional purposes, or takes title to a product.

(b) "Supplier" does not include a person, firm, association, partnership, company, or corporation that sells products to end users as a retailer.

(12) "Utensil" means a product designed to be used by a consumer to facilitate the consumption of food or beverages, including knives, forks, spoons, cocktail picks, chopsticks, splash sticks, and stirrers.

[**2019 c 265 § 2**. Formerly RCW **70.360.020**.]

RCW 70A.455.030

Use of terms on label.

(1) Except as provided in this chapter, no manufacturer or supplier may sell, offer for sale, or distribute for use in this state a plastic product that is labeled with the term "biodegradable," "degradable," "decomposable," "oxo-degradable," or any similar form of those terms, or in any way imply that the plastic product will break down, fragment, biodegrade, or decompose in a landfill or other environment.

(2) This section does not apply to biodegradable mulch film that meets the required testing and has the appropriate third-party certifications.

[**2019 c 265 § 3**. Formerly RCW **70.360.030**.]

RCW 70A.455.040

Requirements for a product labeled "compostable."

(1)(a) A product labeled as "compostable" that is sold, offered for sale, or distributed for use in Washington by a supplier or manufacturer must:

(i) Meet ASTM standard specification D6400;

(ii) Meet ASTM standard specification D6868; or

(iii) Be comprised of wood, which includes renewable wood, or fiber-based substrate only;

(b) A product described in (a)(i) or (ii) of this subsection must:

(i) Meet labeling requirements established under the United States federal trade commission's guides; and

(ii) Feature labeling that:

(A) Meets industry standards for being distinguishable upon quick inspection in both public sorting areas and in processing facilities;

(B) Uses a logo indicating the product has been certified by a recognized third-party independent verification body as meeting the ASTM standard specification; and

(C) Displays the word "compostable," where possible, indicating the product has been tested by a recognized third-party independent body and meets the ASTM standard specification.

(2) A compostable product described in subsection (1)(a)(i) or (ii) of this section must be considered compliant with the requirements of this section if it:

(a) Has green or brown labeling;

(b) Is labeled as compostable; and

(c) Uses distinctive color schemes, green or brown color striping, or other adopted symbols, colors, marks, or design patterns that help differentiate compostable items from noncompostable materials.

[**2019 c 265 § 4**. Formerly RCW **70.360.040**.]

RCW 70A.455.050

Film bags—Identification.

(1) A manufacturer or supplier of a film bag that meets ASTM standard specification D6400 and is distributed or sold by retailers must ensure that the film bag is readily and easily identifiable from other film bags in a manner that is consistent with the federal trade commission guides.

(2) For purposes of this section, "readily and easily identifiable" products must meet the following requirements:

(a) Be labeled with a certification logo indicating the bag meets the ASTM D6400 standard specification if the bag has been certified as meeting that standard by a recognized third-party independent verification body;

(b) Be labeled in accordance with one of the following:

(i) The bag is made of a uniform color of green or brown and labeled with the word "compostable" on one side of the bag and the label must be at least one inch in height; or

(ii) Be labeled with the word "compostable" on both sides of the bag and the label must be one of the following:

(A) Green or brown color lettering at least one inch in height; or

(B) Within a contrasting green or brown color band of at least one inch in height on both sides of the bag with color contrasting lettering of at least one-half inch in height;

(c) Meet industry standards for being distinguishable upon quick inspection in both public sorting areas and in processing facilities.

(3) If a bag is smaller than fourteen inches by fourteen inches, the lettering and stripe required under subsection (2)(b)(ii) of this section must be in proportion to the size of the bag.

(4) A film bag that meets ASTM standard specification D6400 that is sold or distributed in this state may not display a chasing arrow resin identification code or recycling type of symbol in any form.

(5) A manufacturer or supplier is required to comply with this section only to the extent that the labeling requirements do not conflict with the federal trade commission guides.

[**2019 c 265 § 5**. Formerly RCW **70.360.050**.]

RCW 70A.455.060

Food service products/film products—Identification.

(1)(a) A manufacturer or supplier of food service products or film products that meet ASTM standard specification D6400 or ASTM standard specification D6868 must ensure that the items are readily and easily identifiable from other plastic food service products or plastic film products in a manner that is consistent with the federal trade commission guides.

(b) Film bags are exempt from the requirements of this section, and are instead subject to the requirements of RCW **70A.455.050**.

(2) For the purposes of this section, "readily and easily identifiable" products must:

(a) Be labeled with a logo indicating the product has been certified by a recognized third-party independent verification body as meeting the ASTM standard specification;

(b) Be labeled with the word "compostable," where possible, indicating the food packaging or film product has been tested by a recognized third-party independent body and meets the ASTM standard specification; and

(c) Meet industry standards for being distinguishable upon quick inspection in both public sorting areas and in processing facilities.

(3) A compostable product described in subsection (1) of this section must be considered compliant with the requirements of this section if it:

(a) Has green or brown labeling;

(b) Is labeled as compostable; and

(c) Uses distinctive color schemes, green or brown color striping, or other adopted symbols, colors, marks, or design patterns that help differentiate compostable items from noncompostable materials.

(4) It is encouraged that each product described in subsection (1) of this section:

(a) Display labeling language via printing, embossing, or compostable adhesive stickers using, when possible, either the colors green or brown that contrast with background product color for easy identification; or

(b) Be tinted green or brown.

(5) Graphic elements are encouraged to increase legibility of the word "compostable" and overall product distinction that may include text boxes, stripes, bands, or a green or brown tint of the product.

(6) A manufacturer or supplier is required to comply with this section only to the extent that the labeling requirements do not conflict with the federal trade commission guides.

[**2020 c 20 § 1446**; **2019 c 265 § 6**. Formerly RCW **70.360.060**.]

NOTES:

Effective date—2020 c 20 §§ 1446-1450: "Sections 1446 through 1450 of this act take effect July 1, 2020." [**2020 c 20 § 104**.]

RCW 70A.455.070

Manufacturer or supplier of film or food service products—Prohibited, discouraged, and encouraged acts.

A manufacturer or supplier of film products or food service products sold, offered for sale, or distributed for use in Washington that does not meet the applicable ASTM standard specifications provided in RCW **70A.455.050** and **70A.455.060** is:

(1) Prohibited from using tinting, labeling, and terms that are required of products that meet the applicable ASTM standard specifications under RCW **70A.455.050** and **70A.455.060**;

(2) Discouraged from using coloration, labeling, images, and terms that confuse consumers into believing that noncompostable bags and food service packaging are compostable; and

(3) Encouraged to use coloration, labeling, images, and terms to help consumers identify noncompostable bags and food service packaging as either: (a) Suitable for recycling; or (b) necessary to dispose as waste.

[**2020 c 20 § 1447**; **2019 c 265 § 7**. Formerly RCW **70.360.070**.]

NOTES:

Effective date—2020 c 20 §§ 1446-1450: See note following RCW **70A.455.060**.

RCW 70A.455.080

Submission of information demonstrating compliance with chapter—Other information.

(1) Upon the request by a person, a manufacturer or supplier shall submit to that person, within ninety days of the request, nonconfidential business information and documentation demonstrating compliance with this chapter, in a format that is easy to understand and scientifically accurate.

(2) Upon request by a commercial compost processing facility, manufacturers of compostable products are encouraged to provide the facility with information regarding the technical aspects of a commercial composting environment, such as heat or moisture, in which the manufacturer's product has been field tested and found to degrade.

[**2019 c 265 § 8**. Formerly RCW **70.360.080**.]

RCW 70A.455.090

Enforcement of chapter—Penalties—Enforcement costs.

(1) The state, acting through the attorney general, and cities and counties have concurrent authority to enforce this chapter and to collect civil penalties for a violation of this chapter, subject to the conditions in this section. An enforcing government entity may impose a civil penalty in the amount of up to two thousand dollars for the first violation of this chapter, up to five thousand dollars for the second violation of this chapter, and up to ten thousand dollars for the third and any subsequent violation of this chapter. If a manufacturer or supplier has paid a prior penalty for the same violation to a different government entity with enforcement authority under this subsection, the penalty imposed by a government entity is reduced by the amount of the payment.

(2) Any civil penalties collected pursuant to this section must be paid to the office of the city attorney, city prosecutor, district attorney, or attorney general, whichever office brought the action. Penalties collected by the attorney general on behalf of the state must be deposited in the compostable products revolving account created in RCW **70A.455.110**.

(3) The remedies provided by this section are not exclusive and are in addition to the remedies that may be available pursuant to chapter **19.86** RCW or other consumer protection laws, if applicable.

(4) In addition to penalties recovered under this section, the enforcing government entity may recover reasonable enforcement costs and attorneys' fees from the liable manufacturer or supplier.

[**2020 c 20 § 1448**; **2019 c 265 § 9**. Formerly RCW **70.360.090**.]

NOTES:

Effective date—2020 c 20 §§ 1446-1450: See note following RCW **70A.455.060**.

RCW 70A.455.100

Manufacturers and suppliers in violation of chapter.

Manufacturers and suppliers who violate the requirements of this chapter are subject to civil penalties described in RCW 70A.455.090. A specific violation is deemed to have occurred upon the sale of noncompliant product by stock-keeping unit number or unique item number. The repeated sale of the same noncompliant product by stock-keeping unit number or unique item number is considered a single violation. A city, county, or the state must send a written notice and a copy of the requirements to a noncompliant manufacturer or supplier of an alleged violation, who will have ninety days to become compliant. A city, county, or the state may assess a first penalty if the manufacturer or supplier has not met the requirements ninety days following the date the notification was sent. A city, county, or the state may impose second, third, and subsequent penalties on a manufacturer or supplier that remains noncompliant with the requirements of this chapter for every month of noncompliance.
[2020 c 20 § 1449; 2019 c 265 § 10. Formerly RCW 70.360.100.]

NOTES:

Effective date—2020 c 20 §§ 1446-1450: See note following RCW 70A.455.060.

RCW 70A.455.110

Compostable products revolving account.

The compostable products revolving account is created in the custody of the state treasurer. All receipts from civil penalties or other amounts recovered by the state in enforcement actions under RCW 70A.455.090 must be deposited in the account. Expenditures from the account must be used by the attorney general for the payment of costs, expenses, and charges incurred in the enforcement of this chapter. Only the attorney general or the attorney general's designee may authorize expenditures from the account. The account is subject to allotment procedures under chapter 43.88 RCW, but an appropriation is not required for expenditures.
[2020 c 20 § 1450; 2019 c 265 § 11. Formerly RCW 70.360.110.]

NOTES:

Effective date—2020 c 20 §§ 1446-1450: See note following RCW 70A.455.060.

RCW 70A.455.900

Effective date—2019 c 265.

This act takes effect July 1, 2020.
[2019 c 265 § 13. Formerly RCW 70.360.900.]

Draft Protocol D 0017-988-3

Compostable Products — Certification Protocol

Produits compostables — Protocole de certification

Warning

Until this draft certification protocol has been formally approved for publication at the end of the standards development process, it shall not be considered an official BNQ certification protocol.

Notice regarding intellectual property rights (patent, copyright, trademark and others)

The recipients of this document shall notify the BNQ of their knowledge of the existence of any pending application for intellectual property rights or the existence of intellectual property rights relating to this document. The recipients of this document should provide relevant documentation, if applicable.

Deadline for comments

November 7, 2020

ICS: 03.120.20; 19.040; 83.080.01

BNQ
Bureau de normalisation
du Québec

FOREWORD

This document was prepared in consultation with the Certification Protocol Development Committee on Compostable Products, whose members were:

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BERNARD, Yves	Investissement Québec — CRIQ
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The collaboration or the participation of the following person is also worthy of mention:

MORIN, Alexandre	Bureau de normalisation du Québec (BNQ)

CONTENTS

COMPOSTABLE PRODUCTS – CERTIFICATION PROTOCOL

INTRODUCTION

This certification protocol BNQ 0017-988, now in its second edition, marks a change in the way compostable products are certified. The Bureau de normalisation du Québec (BNQ)'s certification program will, in future, be developed around the standard ISO 17088: 2012 rather than on the standard CAN/BNQ 0017-088, the first edition of which was intended as a Canadian adaptation of the standard ISO 17088: 2008 and was published in December 2010 under the Standards Council of Canada (SCC) approval.

1 PURPOSE AND SCOPE

The purpose of this document is to establish the certification requirements, rules of procedure and marking requirements for the certification of compostable products in accordance with the requirements of the standard ISO 17088: 2012, as well as the requirements for compostable products specified in Chapters 4 and 5 of this document.

The voluntary certification program BNQ 0017-988 is intended for Canadian manufacturers seeking to have the conformity of their products recognized by the BNQ.

NOTE — The composition of compostable products is not limited to any particular material type, such as plastics. For instance, products made from natural materials (for example bamboo products) can be considered compostable products as long as they meet the requirements of the standard ISO 17088.

2 NORMATIVE REFERENCES

2.1 GENERAL

The references below (including any amendment or errata) are normative references, and are therefore considered mandatory. They are essential to the understanding and use of this document, and are cited in appropriate places in the text.

It should be noted that a dated normative reference refers to that specific edition of the reference, while a non-dated normative reference refers to the latest edition of the reference in question.

NOTE — A bibliography of references on topics covered in this document is also annexed.

2.2 DOCUMENTS FROM STANDARDS BODIES

BNQ (Bureau de normalisation du Québec) [www.bnq.qc.ca]

BNQ 9902-001	*Product, Process and Service Certification — General Rules of Procedure.* (Certification de produits, de processus et de services — Règles de procédure générales.)

AOAC (AOAC International) [www.aoac.org]

AOAC 967.03	*Moisture in Peat.*
AOAC 967.04	*Ash of Peat.*
AOAC 967.05	*Organic Matter in Peat.*
AOAC 990.08	*Metals in Solid Wastes. Inductively Coupled Plasma Atomic Emission Spectrometric Method.*

ASTM International [www.astm.org]]

ASTM D645/645M	*Standard Test Method for Thickness of Paper and Paperboard.*
ASTM D1777	*Standard Test Method for Thickness of Textile Materials.*
ASTM D1179-04	*Standard Test Methods for Fluoride Ion in Water.*
ASTM D2974	*Standard Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils.*
ASTM D5630	*Standard Test Method for Ash Content in Plastics.*
ASTM D5947	*Standard Test Methods for Physical Dimensions of Solid Plastics Specimens.*
ASTM D6370	*Standard Test Method for Rubber — Compositional Analysis by Thermogravimetry (TGA).*
ASTM D6988	*Standard Guide for Determination of Thickness of Plastic Film Test Specimens.*
ASTM E1131	*Standard Test Method for Compositional Analysis by Thermogravimetry.*

ASTM E1252 — *Standard Practice for General Techniques for Obtaining Infrared Spectra for Qualitative Analysis.*

CEN (European Committee for Standardization) [www.cen.eu]

EN 14582 — *Characterization of waste — Halogen and sulfur content — Oxygen combustion in closed systems and determination methods.*

EN 15408 — *Solid recovered fuels — Methods for the determination of sulphur (S), chlorine (Cl), fluorine (F) and bromine (Br) content.*

DIN (German Institute for Standardization) [www.din.de]

DIN 51723 — *Testing of solid fuels - Determination of fluorine content.*

ISO (International Organization for Standardization) [www.iso.org]

ISO/IEC 12625-3 — *Tissue paper and tissue products — Part 3: Determination of thickness, bulking thickness and apparent bulk density and bulk.*
(Papier tissue et produits tissue — Partie 3 : Détermination de l'épaisseur, de l'épaisseur moyenne d'une feuille en liasse et de la masse volumique moyenne et de la main.)

ISO/IEC 17025 — *General requirements for the competence of testing and calibration laboratories.*
(Exigences générales concernant la compétence des laboratoires d'étalonnages et d'essais.)

ISO 17088: 2012 — *Specifications for compostable plastics.*
(Spécifications pour les plastiques compostables.)

ISO 10304 — *Water Quality — Determination of dissolved anions by liquid chromatography of ions — Part 1: Determination of bromide, chloride, fluoride, nitrate, nitrite, phosphate and sulfate*
(Qualité de l'eau — Dosage des anions dissous par chromatographie des ions en phase liquid — Partie 1 : Dosage du bromure, chlorure, fluorure, nitrate, nitrite, phosphate et sulfate).

2.3 LAWS, REGULATIONS AND SIMILAR DOCUMENTS

CANADA, *Fertilizers Act.*

CANADA, *Fertilizers Regulations.*

2.4 GOVERNMENT DOCUMENTS

CANADIAN FOOD INSPECTION AGENCY (CFIA). *Safety Standards for Fertilizers and Supplements*, [Online], April 2020 (Trade Memorandum T-4-93). [www.inspection.gc.ca/plants/fertilizers/trade-memoranda/t-4-93/eng/1305611387327/1305611547479].

MINISTÈRE DU DÉVELOPPEMENT DURABLE, DE L'ENVIRONNEMENT ET DE LA LUTTE CONTRE LES CHANGEMENTS CLIMATIQUES DU QUÉBEC (MDDELCC), Centre d'expertise en analyse environnementale du Québec. [www.ceaeq.gouv.qc.ca].

MA. 100 — S.T. 1.1	*Détermination des solides totaux et des solides totaux volatils : méthode gravimétrique.*
MA. 200 — Mét. 1.2	*Détermination des métaux : méthode par spectrométrie de masse à source ionisante au plasma d'argon.*
MA. 303 — Anions 1.1	*Détermination des anions fluorure, chlorure et sulfate dans l'eau : dosage par chromatographie ionique avec détecteur conductivimétrique*

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (EPA). [www.epa.gov].

EPA 3050B	*Acid Digestion of Sediments, Sludges, and Soils.*
EPA 3051A	*Microwave Assisted Acid Digestion of Sediments, Sludges, Soils, and Oils.*
EPA 6010C	*Inductively Coupled Plasma — Atomic Emission Spectrometry.*
EPA 6020A	*Inductively Coupled Plasma — Mass Spectrometry.*
EPA 7061A	*Arsenic (Atomic Absorption, Gaseous Hydride).*
EPA 7130	*Cadmium (Atomic Absorption, Direct Aspiration).*
EPA 7131A	*Cadmium (Atomic Absorption, Furnace Technique).*
EPA 7190	*Chromium (Atomic Absorption, Direct Aspiration).*
EPA 7191	*Chromium (Atomic Absorption, Furnace Technique).*

EPA 7200	*Cobalt (Atomic Absorption, Direct Aspiration).*
EPA 7201	*Cobalt (Atomic Absorption, Furnace Technique).*
EPA 7210	*Copper (Atomic Absorption, Direct Aspiration).*
EPA 7211	*Copper (Atomic Absorption, Furnace Technique).*
EPA 7420	*Lead (Atomic Absorption, Direct Aspiration).*
EPA 7421	*Lead (Atomic Absorption, Furnace Technique).*
EPA 7471B	*Mercury in Solid or Semisolid Wastes (Manual Cold-Vapor Technique).*
EPA 7473	*Mercury in Solids and Solutions by Thermal Decomposition, Amalgamation, and Atomic Absorption Spectrophotometry.*
EPA 7481	*Molybdenum (Atomic Absorption, Furnace Technique).*
EPA 7520	*Nickel (Atomic Absorption, Direct Aspiration).*
EPA 7521	*Nickel (Atomic Absorption, Furnace Method).*
EPA 7741A	*Selenium (Atomic Absorption, Gaseous Hydride).*
EPA 7950	*Zinc (Atomic Absorption, Direct Aspiration).*
EPA 7951	*Zinc (Atomic Absorption, Furnace Technique).*

3 DEFINITIONS

The terms used in this document and in the document *Certification Requirements ISO 17088* are defined in the standard ISO 17088 and in the information document BNQ 9902-001, except for the terms below, which are defined as follows:

composition, n. The quantitative makeup of a product, expressed in percentages for each of the ingredients of the product. French: ***composition***.

NOTE — The composition of a compostable product is expressed in percentages by weight.

compost, n. Solid, mature product resulting from composting, used as an organic soil conditioner. French: ***compost***.

composting, n. Managed process of bio-oxidation of a solid, heterogeneous organic substrate including a thermophilic phase. French: ***compostage***

distributor, n. Natural person or legal entity that supplies products to retailers or sells them to the end user. French: ***distributeur, distributrice***.

NOTES —

1 Distribution of compostable products is a series of successive operations leading to the delivery and availability of compostable products.

2 The manufacturer may act as a distributor.

file, n. A collection of documents in paper or electronic format containing information on the same subject and generally inserted in a paperboard or electronic folder, envelope, etc. French: ***dossier***.

manufacturer, n. Natural person or legal entity that produces compostable products. French: ***fabricant, fabricante***.

manufacturing plant, n. Facility intended for the production of compostable products, situated in a single buiding or in a series of buildings grouped together at the same location. French: ***usine de fabrication***.

material of natural origin, n. Material existing in nature that has not been chemically modified. French: ***matériau d'origine naturelle***.

NOTE — In the context of compostable products, such materials include, but are not limited to, wood, wood fibres, cotton fibres, starch, sugarcane, paper pulp, jute, bamboo, and cellulose.

procedure, n. The combination of steps to be completed, means to be taken, and methods to be followed in the accomplishment of a task. French: ***procédure***.

NOTE — By extension, the term *procedure* also designates the text or document outlining a procedure.

register, n. A document in which are entered, for the most part in chronological order, facts, names, decisions, results and instructions to be saved for future reference or for record-keeping purposes. French: ***registre***.

unique identification, n. Number or name given to a compostable product for which the trade designation, dimensions or characteristics, and composition are specified. French: ***identification unique***.

4 CERTIFICATION PROGRAM GENERAL REQUIREMENTS

The requirements of the certification program include all the requirements specified in the following documents:

a) the standard ISO 17088;

b) the information document BNQ 9902-001;

NOTE — The information document BNQ 9902-001 is available free of charge through the BNQ website [www.bnq.qc.ca].

c) this certification protocol;

d) the document *Certification Requirements ISO 17088.*

NOTES —

1 The document *Certification Requirements ISO 17088* is provided with this certification protocol.

2 It is up to the manufacturer to ensure to have in hand the most recent version of the document *Certification Requirements ISO 17088*.

3 Table 3 of the document *Certification Requirements ISO 17088* specifies the additional requirements concerning the manufacturer's quality management system that are deemed necessary for the certification of compostable products.

4 Modifications to the document *Certification Requirements ISO 17088* are communicated to manufacturers holding a valid certificate of conformity. When necessary, manufacturers will be given a period of time fixed by the BNQ to comply with any new requirements.

4.1 DISINTEGRATION DURING COMPOSTING

The compostable product shall comply with the requirements of Clause 6.2 of the standard ISO 17088.

4.2 ULTIMATE AEROBIC BIODEGRADATION

The compostable product shall comply with the requirements of Clause 6.3 of the standard ISO 17088.

4.3 NO ADVERSE EFFECTS ON ABILITY OF COMPOST TO SUPPORT PLANT GROWTH AND COMPLIANCE WITH REGIONAL AND/OR NATIONAL REGULATIONS

The compostable product shall comply with the requirements of Clause 6.4 of the standard ISO 17088, exclusive of clause 6.4.2. Concentrations of regulated metals and other toxic substances present in the compostable product in which pigments are integrated or on which printing ink has been applied shall be less than 20% of those prescribed in Table 1 of this document for Categories AA or A compost.

The total fluorine content present in the compostable product in which pigments are integrated or on which printing ink has been applied, shall be less than 100 ppm when the analysis is carried out in accordance with the test methods EN 14582, ISO 10304, DIN 51723, EN 15408, or ASTM D1179-04 or MA. 303 — Anions 1.1, where samples are prepared by digestion, not extraction.

5 CERTIFICATION PROGRAM SPECIFIC REQUIREMENTS

5.1 IDENTIFICATION OF COMPOSTABLE PRODUCTS

5.1.1 Each compostable product shall have a unique identification that leaves no room for ambiguity as to its identification.

5.1.2 Products that differ in composition, however slightly, are considered different products, each with its own unique identification.

5.1.3 For each compostable product subject to certification, the manufacturer shall keep an updated document containing the following information:

a) the unique identification of the compostable product;

b) the composition of the compostable product, including, for each ingredient:

- the designation of the ingredient;
- the supply source (supplier's trade name or corporate name) of the ingredient;
- the mass percentage of the ingredient (considering that the sum of the mass percentages of all ingredients used shall equal 100%)

c) the dimensions of the compostable product;

d) the thickness of the compostable product;

e) the list of distributors of the compostable product.

5.2 INFRARED SPECTROSCOPY

An infrared spectroscopy shall be performed on the compostable product, and may be performed on the ashes obtained at the end of the volatile solids content analysis.

Each infrared spectrum of the compostable product obtained through spectroscopy shall have the same characteristics as the spectrum obtained at the time of certification when infrared testing is conducted in accordance with the standard ASTM E1252 with wavelengths ranging from 4 000 cm^{-1} to 400 cm^{-1} (or 600 cm^{-1}) and with a transmission from 0% to 100%. The infrared spectrum obtained for the ashes after the volatile solids content analysis is only used as an indication (non-mandatory).

5.3 COMPOSTABLE PRODUCT'S THICKNESS

The thickness of the compostable product shall at all times be less than or equal to the thickness of the product used for the disintegration test.

5.3.1 The thickness of the compostable product shall be verified in accordance with the test method ASTM D5947, ASTM D6988, ASTM D645/645M, ASTM D1777, or ISO/IEC 12625-3.

5.4 THERMOGRAVIMETRIC ANALYSIS

A compositional analysis by thermogravimetry shall be carried out on the compostable product.

Each thermogravimetric curve obtained shall have the same characteristics as the curve obtained at the time of certification when the thermogravimetric analysis is conducted in accordance with the test method ASTM D6370 or ASTM E1131.

5.5 REGULATED METALS AND OTHER TOXIC SUBSTANCES

5.5.1 The concentrations of regulated metals and other toxic substances present in the compostable product in which pigments are integrated or on which printing ink has been applied, shall comply with the requirements of Clause 4.3 of the present document and have the same characteristics as the results obtained at the time of certification when the analysis is performed in accordance with the test method EPA 6020A, EPA 6010C, or MA. 200 — Mét. 1.2.

Test portions shall be digested using the extraction procedure described in the test method EPA 3050B or EPA 3051A or MA. 200 — Mét. 1.2, or an equivalent method accepted as such by the BNQ

The total fluorine content present in the compostable product in which pigments are integrated or on which printing ink has been applied, shall be less than 100 ppm when the analysis is performed in accordance with the test method EN 14582, ISO 10304, DIN 51723, EN 15408, or ASTM D1179-04 or MA. 303 — Anions 1.1, where samples are prepared by digestion, not extraction.

5.6 VOLATILE SOLIDS CONTENT

5.6.1 An analysis of volatile solids shall be performed on the compostable product and meet the requirements of Clause 6.4.3 of the standard ISO 17088 and have the same characteristics as the results obtained at the time of certification.

5.6.2 The volatile solids content shall be determined by using the procedure for Method C as described in the standard ASTM D2974, or the procedure described in the standard ASTM D5630, or the procedure described in the test method MA. 100 — S.T. 1.1, or the procedure described in the standard AOAC 967.05 that refers to the procedures described in the standards AOAC 967.03 and AOAC 967.04, or an equivalent procedure accepted as such by the BNQ. The temperature of the muffle furnace shall be 550 °C.

6 CERTIFICATION RULES OF PROCEDURE

6.1 GENERAL RULES OF PROCEDURE

The BNQ's rules of procedure for certification are described in detail in the information document BNQ 9902-001. Specific points applying to the certification program BNQ 0017-988 are explained hereafter.

6.2 APPLICATION FOR CERTIFICATION

6.2.1 The process underlying the application for certification follows the procedure specified in the information document BNQ 9902-001.

6.2.2 An application for distinct certification shall be made for each manufacturing plant for which the applicant seeks to have the conformity of one or more of their products recognized.

6.2.3 When filing an application, the applicant shall provide the documents required in the document *Certification Requirements ISO 17088* and indicated by an asterisk (*).

6.3 EXAMINATION OF MANUFACTURER'S DOCUMENTS

6.3.1 The manufacturer's documents are examined in accordance with the procedures specified in the information document BNQ 9902-001.

6.4 INSPECTION VISIT LEADING TO CERTIFICATION

6.4.1 The inspection visit with a view to certification is not mandatory for manufacturers with ISO 9001 certification or who have carried out the self-evaluation concerning the quality system requirements outlined in Table 3 of the document *Certification Requirements ISO 17088*. In other cases, the BNQ may require an inspection visit at the manufacturing plant to take samples of the compostable products or require that such samples be submitted.

6.4.2 If an inspection visit at the manufacturing plant is required by the BNQ, the BNQ inspector takes samples, for testing purposes, of all compostable products that are subject to the application for certification in order to determine if the product complies with the requirements of the certification program. The BNQ may authorize that the manufacturer or manufacturer's distributor send all compostable products that are subject to the application for certification to the BNQ program leader for testing.

6.4.3 The BNQ conducts the verifications and tests specified in the document *Certification Requirements ISO 17088*.

6.5 DECISION CONCERNING CERTIFICATION AND ISSUING OF THE CERTIFICATE OF CONFORMITY

6.5.1 The decision leading to the issuing of a certificate of conformity is taken in accordance with the procedures specified in the information document BNQ 9902-001.

6.5.2 The certificate of conformity issued by the BNQ specifies the following information concerning the certified compostable products:

a) the unique identification of each compostable product;

b) the number assigned to the formulation;

c) the maximum thickness of each compostable product;

d) the dimensions of each compostable product;

e) the percentage of disintegration achieved during disintegration testing and the number of days needed to reach that percentage;

f) the percentage of aerobic biodegradation achieved during aerobic biodegradation testing and the number of days needed to reach that percentage.

6.5.3 The certificate of conformity issued is valid for a period of **three years** starting from its date of issue, insofar as the certification program requirements are complied with.

6.5.4 When a certificate is issued, the manufacturer receives a declaration of the composition of each certified compostable product. No modification to the composition of certified compostable products is authorized without the explicit approval of the BNQ.

6.6 CONDITIONS FOR MAINTAINING THE CERTIFICATE OF CONFORMITY

6.6.1 The conditions for maintaining the certificate of conformity are specified in the information document BNQ 9902-001. Non-compliance with any of the conditions may result in suspension of the certificate of conformity.

6.7 PERIODIC INSPECTION VISITS AND VISITS FOR RENEWAL

6.7.1 When applicable, periodic inspection visits are conducted in accordance with the procedure specified in Clause 6.4 of this document.

6.7.2 The BNQ conducts the verifications and tests specified in the document *Certification Requirements ISO 17088* annually.

6.8 RENEWAL OF THE CERTIFICATE OF CONFORMITY

6.8.1 Renewal of the certificate of conformity is carried out in accordance with the procedure specified in the information document BNQ 9902-001.

7 PROVISIONS IN THE EVENT OF MODIFICATIONS

7.1 MODIFICATIONS TO THE PRODUCT

A manufacturer wishing to make a modification to a certified compostable product shall do so in accordance with the terms and conditions specified in the information document BNQ 9902-001. Any modification to the composition of a certified compostable product shall be communicated to the BNQ in writing, prior to being implemented, to determine whether additional tests are necessary to verify the conformity of the modified compostable product.

7.2 MODIFICATIONS TO THE SCOPE OF THE CERTIFICATE OF CONFORMITY

7.2.1 It is possible that a manufacturer may wish to add a new product to the scope of an already valid certificate of conformity. In such a case, the manufacturer shall file a request with the BNQ.

7.2.2 The rules of procedure regarding additions to the scope of a certificate of conformity are specified in the information document BNQ 9902-001.

8 MODIFICATIONS MADE TO THE REQUIREMENTS OF THE CERTIFICATION PROGRAM BY THE BNQ

Any modification that may be made by the BNQ to the requirements of the certification program BNQ 0017-988 will be treated in accordance with the terms and conditions specified in the information document BNQ 9902-001.

9 COMPONENT CERTIFICATION PROCEDURE

Component certification follows the procedure specified in the information document BNQ 9902-001.

10 MARKING, LABELLING, PACKAGING AND HANDLING

10.1 GENERAL

10.1.1 The rights and obligations of the manufacturer holding a certificate of conformity are stipulated in the information document BNQ 9902-001.

10.1.2 The marking stipulated in Clause 7 of the standard ISO 17088 is not mandatory.

10.2 MARK OF CONFORMITY

10.2.1 Only certified products for which conformity has been recognized may bear the BNQ mark of conformity. The mark of conformity applying to the certification program covered by this certification protocol is the following:

COMPOSTABLE
www.compostable.info

NOTE — Only the BNQ can authorize the use of the COMPOSTABLE mark of conformity.

10.3 MARKING AND COLOUR OF COMPOSTABLE BAGS

The mark of conformity presented in Clause 10.2.1 shall be affixed so as to be readable and permanent at least every 50 cm and shall have a minimum height of 3 cm on at least one surface of each compostable plastic bag.

The number of the certificate of conformity and the unique identification of the compostable plastic bag shall be affixed so as to be readable and permanent on each compostable plastic bag at least once.

The colour of compostable bags subject to the BNQ certification program covered by this certification protocol is the following: **brown**.

10.4 MARKING OF COMPOSTABLE PRODUCTS OTHER THAN COMPOSTABLE BAGS

The mark of conformity presented in Clause 10.2.1, the number of the certificate of conformity, and the unique identification of the compostable product shall be affixed so as to be permanent on each compostable product at least once.

10.5 MARKING OF THE PACKAGING OF COMPOSTABLE PRODUCTS

The mark of conformity presented in Clause 10.2.1, the number of the BNQ's certificate of conformity, the manufacturing date (by order of **year**[four digits]-**month**[two digits]-**day**[two digits]) or the manufacturing code associated with the manufacturing date, and the unique identification of the compostable product shall be affixed at least once on its packaging.

The following statement in French shall also be printed on the packaging (see below for suggested English translation):

COMPOSTABLE DANS DES INSTALLATIONS DE COMPOSTAGE CENTRALISÉES.
VEUILLEZ VOUS ASSURER QUE CE PRODUIT SOIT ACCEPTÉ PAR VOTRE PROGRAMME DE COLLECTE DES MATIÈRES ORGANIQUES.

Suggested English translation:

COMPOSTABLE IN CENTRALIZED COMPOST FACILITIES.
PLEASE CONFIRM WITH YOUR ORGANICS COLLECTION PROGRAM PROVIDER FOR ACCEPTABILITY.

When the compostable product is packaged, the manufacturer shall also mention whether or not the packaging is compostable.

⊙⊙⊙⊙⊙⊙⊙⊙⊙⊙⊙⊙⊙

TABLE 1

MAXIMUM INORGANIC TRACE ELEMENT CONTENT IN COMPOST

Inorganic Trace Element (ITE) essential or beneficial to plants or animals	**Maximum content**
	Categories AA and A compost, (in mg/kg) [dry weight basis]
Arsenic (As)	13
Cobalt (Co)	34
Chromium (Cr)	210
Copper (Cu)	400
Molybdenum (Mo)	10
Nickel (Ni)	62
Selenium (Se)	2.0
Zinc (Zn)	700
ITE non-beneficial to plants or animals	**Maximum content**
	Categories AA and A compost (in mg/kg) [dry weight basis]
Cadmium (Cd)	3.0
Lead (Pb)	120
Mercury (Hg)	0.80

NOTES —

1 Although the ITE content in this table was obtained by consensus, provinces' or territories' regulatory bodies may have specific requirements, in some regard, concerning maximum ITE content in compost.

2 All fertilizers and supplements imported into or sold in Canada shall meet the requirements of the *Fertilizers Act* and *Regulations*, including the associated metals standards. Refer to the Canadian Food Inspection Agency's (CFIA) Trade Memorandum T-4-93 *Safety Standards for Fertilizers and Supplement.*

ANNEX A

BIBLIOGRAPHY

BNQ (Bureau de normalisation du Québec) [www.bnq.qc.ca]

CAN/BNQ 0413-200 — *Organic Soil Conditioners — Composts.*
(Amendements organiques — Composts.)

SCC (Standards Council of Canada) [www.scc.ca]

SCC Requirements and Guidance — Product, Process, and Service Certification Body Accreditation Program.
(Exigences et lignes directrices du CCN — Programme d'accréditation des organismes de certification de produits, de procédés et de services.)

CERTIFICATION REQUIREMENTS
ISO 17088

This document forms part of the requirements of the certification program ISO 17088 for compostable products.

This document shall be used with the certification protocol BNQ 0017-988.

Tables 1, 2 and 3 that follow specify the documentary or other evidence (for instance, inspections or tests to be conducted on the compostable product) that the manufacturer shall provide to demonstrate compliance with the requirements stipulated in the program documents:

— Table 1: Requirements of the standard ISO 17088: 2012-06-01;

— Table 2: Requirements of the certification protocol BNQ 0017-988/2020-xx-xx;

— Table 3: Requirements related to the quality management system.

Unless otherwise indicated, the required evidence [see column Evidence to be provided in Tables 1, 2, and 3] shall be updated continually by the manufacturer.

Unless otherwise indicated, verification of compliance with every requirement is carried out by the BNQ by means of the following activities, as required by circumstances:

— verification of the manufacturer's documents [see column Evidence to be provided in Tables 1, 2 and 3];

— verifications and/or tests required by the BNQ [see column Verification(s) and/or test(s) to be conducted in Tables 1 and 2];

— interviews, on-site verification of activity, or verification of the results of activity.

Tables 1 and 2 provide, where necessary, clarifications that shall be taken into account to demonstrate compliance with the requirements of this certification program.

Table 3 specifies additional requirements related to the quality management system to which the manufacturer shall conform to demonstrate compliance with the requirements of the certification program.

TABLE 1
REQUIREMENTS OF THE STANDARD

STANDARD ISO 17088: 2012 Chapter or Clause	Manufacturer Evidence to be provided [* document(s) to be provided with the application for certification.]	BNQ Verification(s) and/or test(s) to be conducted	Clarification
6 ***Detailed requirements***			
6.2 ***Disintegration during composting***	Disintegration test results for the compostable product in its final composition. *	Verification of conformity of disintegration test results.	The disintegration test shall be performed for each different composition.
	Frequency: – during activities with a view to certification; – when there is a change in the compostable product's ingredients, including a change in supplier for any ingredient (see NOTE 1); – when there is a change in proportion greater than 20% for any of the compostable product's ingredients (see NOTE 2); – when there is a change in thickness of the compostable product.		
6.3 ***Ultimate aerobic biodegradation***	Aerobic biodegradation test results for each organic ingredient present in the compostable product or for the compostable product in its final composition. * For each organic ingredient present at a proportion of 1% to 10% (dry mass) in the composition of the compostable product, the level of biodegradation must be determined separately.	Verification of conformity of aerobic biodegradation test results.	The aerobic biodegradation test does not need to be conducted on products made of materials of natural origin. Biodegradability does not need to be demonstrated for organic ingredients whose proportion in the composition is less than 1%. However, the sum of these ingredients shall not exceed 5%. The aerobic biodegradation test shall be conducted for each different composition.
	Frequency: – during activities with a view to certification; – when there is a change in the compostable product's ingredients, including a change in supplier for any ingredient (see NOTE 1); – when there is a change in proportion greater than 20% for any of the compostable product's ingredients (see NOTE 2); – when a change in proportion of the organic ingredients that account for less than 1% of the composition results in their proportion exceeding 1% (see NOTE 2); – when there is a change in thickness of the compostable product.		
6.4 ***No adverse effects on ability of compost to support plant growth and compliance with regional and/or national regulations***			
6.4.2 **Regulated metals and other toxic substances**	Analytical results of regulated metals and other toxic substances testing for the compostable product in its final composition. *	Verification of conformity of analytical test results.	Testing shall be performed on compostable products in which, when relevant, pigments are integrated or on which, when relevant, printing ink has been applied. See NOTE 3.
	Frequency: – during activities for certification; – when there is a change in the compostable product's		

TABLE 1
REQUIREMENTS OF THE STANDARD

STANDARD ISO 17088: 2012 Chapter or Clause	Manufacturer Evidence to be provided [* document(s) to be provided with the application for certification.]	BNQ Verification(s) and/or test(s) to be conducted	Clarification
	ingredients, including a change in supplier for any ingredient (see NOTE 1); – when there is a change in proportion greater than 20% for any of the compostable product's ingredients (see NOTE 2); – when there is a change in the pigments and/or printing inks used.		Testing shall be performed for each different composition.
6.4.3 **Volatile solids content**	Analytical results of the volatile solids content testing for the compostable product in its final composition. *	Verification of conformity of analytical test results.	See NOTE 4. Testing shall be performed for each different composition.
	Frequency: – during activities with a view to certification; – when there is a change in the compostable product's ingredients, including a change in supplier for any ingredient (see NOTE 1); – when there is a change in proportion greater than 20% for any of the compostable product's ingredients (see NOTE 2).		
6.4.4 **Ecotoxicity**	The ecotoxicity test results for each organic ingredient present in a proportion greater than 1%, or for the compostable product in its final composition. *	Verification of conformity of ecotoxicity test results.	The ecotoxicity test does not need to be conducted on products made of materials of natural origin. Ecotoxicity does not need to be demonstrated for organic ingredients that are at concentrations below 1%. However, the sum of these ingredients shall not exceed 5%. The ecotoxicity test shall be performed for each different composition.
	Frequency: – during activities for certification; – when there is a change in the compostable product's ingredients, including a change in supplier for any ingredient (see NOTE 1); – when there is a change in proportion greater than 20% for any of the compostable product's ingredients (see NOTE 2); – when a change in proportion of the organic ingredients that account for less than 1% of the composition results in their proportion exceeding 1% (see NOTE 2).		
8 Test Report			
8.0 Test report(s)	Test report(s) of the compostable product. *	Verification of conformity of test report(s).	
	Frequency: – during activities for certification; – when there is a change in the compostable product's ingredients, including a change in an ingredient's supplier (see NOTE 1); – when there is a change in proportion greater than 20% for any of the compostable product's ingredients (see NOTE 2); – when a change in proportion of the organic ingredients that account		

TABLE 1
REQUIREMENTS OF THE STANDARD

STANDARD ISO 17088: 2012 Chapter or Clause	Manufacturer Evidence to be provided [* document(s) to be provided with the application for certification.]	BNQ Verification(s) and/or test(s) to be conducted	Clarification
	for less than 1% of the composition results in their proportion exceeding 1% (see NOTE 2); – when there is a change in thickness of the compostable product.		

NOTES —

1 For instance, a compostable product is composed of ingredients A and B and the proportion of the ingredients is 20% for A and 80% for B. This compostable product may be modified so that the proportion of ingredient A is 24% (variation of 20%) and the proportion of ingredient B is 76% (variation of 5%) without the need for the BNQ to review new evidence. On the other hand, the same compostable product modified so that the quantity of ingredient A reaches 36% (variation of 80%) and the quantity of ingredient B is 64% (variation of 20%) requires that new evidence be provided by the manufacturer and reviewed by the BNQ before these modifications can be implemented.

2 It is important to note that an ingredient is associated with a sole supplier (for instance ingredient A from supplier X is not the same as ingredient A from supplier Y).

3 The maximum acceptable concentrations of regulated metals and other toxic substances shall be less than 20% of the values in Table 1 of the certification protocol BNQ 0017-988.

The content of inorganic trace elements (ITE) and of other toxic substances shall be determined using inductively coupled plasma atomic emission spectroscopy (ICP-AES), inductively coupled plasma mass spectroscopy (ICP-MS), or atomic absorption spectroscopy (AAS).

The total fluorine content shall be determined using EN 14582, ISO 10304, DIN 51723, EN 15408, ASTM D1179-04, or MA. 303 — Anions 1.1 test methods, where samples are prepared by digestion, not extraction.

Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES)

When determining As, Cd, Cr, Co, Cu, Mo, Ni, Pb, Se and Zn content by ICP-AES, the procedure described in the method EPA 6010C or AOAC 990.08 shall be used.

For the method EPA 6010C, test portions shall be digested using the extraction procedure described in the method EPA 3050B or EPA 3051A prior to analysis.

Inductively Coupled Plasma Mass Spectroscopy (ICP-MS)

When determining As, Cd, Cr, Co, Cu, Mo, Ni, Pb, Se and Zn content by ICP-MS, the procedures described in the method EPA 6020A or MA. 200 — Mét. 1.2 shall be used.

TABLE 1
REQUIREMENTS OF THE STANDARD

STANDARD ISO 17088: 2012 Chapter or Clause	Manufacturer Evidence to be provided [* document(s) to be provided with the application for certification.]	BNQ Verification(s) and/or test(s) to be conducted	Clarification
Test portions shall be digested using the extraction procedure described in the method EPA 3050B or EPA 3051A, or MA. 200 — Mét. 1.2 prior to analysis. **Atomic Absorption Spectroscopy (AAS)** When determining As, Cd, Cr, CO, Cu, Hg, Mo, Ni, Pb, Se, and Zn content by AAS, the procedures described in the following methods shall be used: • Arsenic (As): EPA 7061A; • Cadmium (Cd): EPA 7130 or EPA 7131A; • Chromium (Cr): EPA 7190 or EPA 7191; • Cobalt (Co): EPA 7200 or EPA 7201; • Copper (Cu): EPA 7210 or EPA 7211; • Mercury (Hg): EPA 7471B or EPA 7473; • Molybdenum (Mo): EPA 7481; • Nickel (Ni): EPA 7520 or EPA 7521; • Lead (Pb) : EPA 7420 or EPA 7421; • Selenium (Se): EPA 7741A; • Zinc (Zn): EPA 7950 or EPA 7951. 4 The volatile solids content shall be determined by using either Method C described in the standard ASTM D2974, or the procedure described in the standard ASTM D5630 or the procedure described in the method MA. 100 — S.T. 1.1, or the procedure described in the standard AOAC 967.05 that refers to the procedures described in the standards AOAC 967.03 and AOAC 967.04. The temperature of the muffle furnace shall be 550 °C. Results shall be expressed in mass percentage on a dry basis.			

TABLE 2
REQUIREMENTS OF THE CERTIFICATION PROTOCOL

CERTIFICATION PROTOCOL BNQ 0017-988/2020-xx-xx Chapter or Clause	Manufacturer Evidence to be provided [* document(s) to be provided with the application for certification.]	BNQ Verification(s) and/or test(s) to be conducted	Clarification
5 ***Certification program specific requirements***			
5.1 ***Identification of compostable products***	For each compostable product subject to certification, a document in which it is possible to find the following information: * — the unique identification of each compostable product; — the dimensions of each compostable product; — the thickness of each compostable product; — the composition of each compostable product (ingredients and proportions); — the list of distributors of the compostable product. **Frequency:** — during activities for certification; — when there is a change in the compostable product's ingredients, including a change in supplier for any ingredient (see NOTE 1); — when there is a change in proportion greater than 20% for any of the compostable product's ingredients (see NOTE 2).	Verification of conformity of provided document.	
5.2 ***Infrared spectroscopy***	A sample of the compostable product in which, when relevant, pigments are integrated or on which, when relevant, printing ink has been applied.	Verification of conformity of infrared spectroscopy test results. For compostable products in which, when relevant, pigments are integrated or on which, when relevant, printing ink has been applied: – obtaining of samples : taken at the manufacturer's premises or provided	Testing shall be performed by an ISO/IEC 17025 accredited laboratory subcontracted by the BNQ, whose scope includes the test methods required by the certification protocol. Testing shall be performed for each different composition. The infrared spectrum

TABLE 2
REQUIREMENTS OF THE CERTIFICATION PROTOCOL

CERTIFICATION PROTOCOL BNQ 0017-988/2020-xx-xx Chapter or Clause	Manufacturer Evidence to be provided [* document(s) to be provided with the application for certification.]	BNQ Verification(s) and/or test(s) to be conducted	Clarification
		by a manufacturer's distributor; – conducting of tests on the compostable product and on the ashes obtained after the volatile solids content analysis (see Clause 5.6).	obtained for the ashes after the volatile solids analysis is only used as an indication (non-mandatory). It is recommended the test be performed on the ashes once per certification cycle (3 years).
	Frequency: – during activities for certification; – during annual activities for certification maintenance; – during activities for certification renewal; – when there is a change in the compostable product's ingredients, including a change in supplier for any ingredient (see NOTE 1); – when there is a change in proportion greater than 20% for any of the compostable product's ingredients (see NOTE 2).		
5.3 ***Compostable product's thickness***	A sample of the compostable product in which, when relevant, pigments are integrated or on which, when relevant, printing ink has been applied.	Verification of conformity of thickness measure. For compostable products in which, when relevant, pigments are integrated or on which, when relevant, printing ink has been applied: – obtaining of samples: taken at the manufacturer's premises or provided by a manufacturer's distributor; – measuring of the thickness.	Measuring shall be performed by an ISO/IEC 17025 accredited laboratory subcontracted by the BNQ, whose scope includes the test methods required by the certification protocol. Measuring shall be performed for each different composition.
	Frequency: – during activities for certification; – during annual activities for certification renewal; – when there is a change in the compostable product's ingredients, including a change in supplier for any ingredient (see NOTE 1); – when there is a change in proportion greater than 20% for any of the compostable product's ingredients (see NOTE 2).		

TABLE 2
REQUIREMENTS OF THE CERTIFICATION PROTOCOL

CERTIFICATION PROTOCOL BNQ 0017-988/2020-xx-xx Chapter or Clause	Manufacturer Evidence to be provided [* document(s) to be provided with the application for certification.]	BNQ Verification(s) and/or test(s) to be conducted	Clarification
5.4 *Thermogravimetric analysis*	A sample of the compostable product in which, when relevant, pigments are integrated or on which, when relevant, printing ink has been applied.	Verification of conformity of thermogravimetric analysis results. For compostable products in which, when relevant, pigments are integrated or on which, when relevant, printing ink has been applied – obtaining of samples: taken at the manufacturer's premises or provided by a manufacturer's distributor; – thermogravimetric analysis.	Testing shall be performed by an ISO/IEC 17025 accredited laboratory subcontracted by the BNQ, whose scope includes the test methods required by the certification protocol. Testing shall be performed for each different composition.
	Frequency : – during activities for certification; – during annual activities for certification maintenance; – during activities for certification renewal; – when there is a change in the compostable product's ingredients, including a change in supplier for any ingredient (see NOTE 1); – when there is a change in proportion greater than 20% for any of the compostable product's ingredients (see NOTE 2).		
5.5 *Regulated metals and other toxic substances*	A sample of the compostable product in which, when relevant, pigments are integrated or on which, when relevant, printing ink has been applied.	Verification of conformity of test results. For compostable products in which, when relevant, pigments are integrated or on which, when relevant, printing ink has been applied: – obtaining of samples: taken at the manufacturer's premises or provided by a manufacturer's distributor; – measuring of the concentration of regulated	Testing shall be performed by an ISO/IEC 17025 accredited laboratory subcontracted by the BNQ, whose scope includes the test methods required by the certification protocol. See NOTE 3 of Table 1.

TABLE 2
REQUIREMENTS OF THE CERTIFICATION PROTOCOL

CERTIFICATION PROTOCOL BNQ 0017-988/2020-xx-xx Chapter or Clause	Manufacturer Evidence to be provided [* document(s) to be provided with the application for certification.]	BNQ Verification(s) and/or test(s) to be conducted	Clarification
		metals and other toxic substances.	
	Frequency : – during activities for certification; – during annual activities for certification maintenance; – during activities for certification renewal; – when there is a change in the compostable product's ingredients, including a change in supplier for any ingredient (see NOTE 1); – when there is a change in proportion greater than 20% for any of the compostable product's ingredients (see NOTE 2). – when there is a change in the pigments or inks used.		
5.6 ***Volatile solids content***	A sample of the compostable product in which, when relevant, pigments are integrated or on which, when relevant, printing ink has been applied.	Verification of conformity of test results For compostable products in which, when relevant, pigments are integrated or on which, when relevant, printing ink has been applied: – obtaining of samples: taken at the manufacturer's premises or provided by a manufacturer's distributor; – measuring of the volatile solids content.	Testing shall be performed by an ISO/IEC 17025 accredited laboratory subcontracted by the BNQ, whose scope includes the test methods required by the certification protocol. See NOTE 4 of Table 1.
	Frequency : – during activities for certification; – during annual activities for certification maintenance; – during activities for certification renewal; – when there is a change in the compostable product's ingredients, including a change in supplier for any ingredient (see NOTE 1); – when there is a change in proportion greater than 20% for any of the compostable product's ingredients (see NOTE 2).		
10 ***Marking, labelling, packaging and handling***			
10.3 ***Marking and colour of***	A sample of the compostable bag on which the marking elements are present.	Verification of conformity of marking.	

TABLE 2
REQUIREMENTS OF THE CERTIFICATION PROTOCOL

CERTIFICATION PROTOCOL BNQ 0017-988/2020-xx-xx Chapter or Clause	Manufacturer **Evidence to be provided** [* document(s) to be provided with the application for certification.]	BNQ **Verification(s) and/or test(s) to be conducted**	Clarification
compostable bags			
10.4 ***Marking of compostable products other than compostable bags***	A sample of the compostable product's on which the marking elements are present.	Verification of conformity of marking.	
10.5 ***Marking of the packaging of compostable products***	A sample of the packaging of the compostable product on which the marking elements are present.	Verification of conformity of marking.	

TABLE 3
REQUIREMENTS RELATED TO THE QUALITY MANAGEMENT SYSTEM

Requirement(s) Related to the Manufacturer's Quality Management System (Reference: document BNQ 9902-001)		Manufacturer Evidence to Be Provided [*: to be provided with the application form for certification.]
1	**Competence of resources**	
1.1	The personnel performing work having an impact on the quality of the product, process or service shall be competent with regard to their professional training, their knowledge or their experience. An employee's typical record may include initial qualifications, assessment of training needs and evidence of skills maintenance and updating activities.	Record of staff members subject to the requirement.
2	**Purchase information**	
2.1	The manufacturer shall keep an up-to-date list of qualified suppliers used for product manufacture, process implementation, or service provision covered by the certification. Where necessary, a list of the raw materials used in the product manufacture shall also be kept up to date.	List of qualified suppliers and (if applicable) list of raw materials used. *
2.2	Purchase orders shall contain data clearly describing the product, process or service ordered and include or refer to applicable characteristics and requirements. Upon receipt of the order, the manufacturer shall have a mechanism in place to validate that the applicable characteristics and requirements are met and that, if not, the nonconformity is addressed in accordance with the requirements of Section 4 of this table.	Procurement procedure and purchase order.
2.3	Where required by the certification program, the manufacturer shall obtain evidence of the conformity of the product, process or service ordered.	Evidence of conformity.
3	**Quality monitoring and measurement activities**	
3.1	The manufacturer shall designate a person who is responsible for ensuring that the quality monitoring and measurement activities planned are carried out, and that the results show that the product, process or service complies with the applicable requirements.	Name and title of the designated person. *
3.2	The manufacturer shall establish and implement a quality plan that includes the necessary monitoring and measurement activities to demonstrate the conformity of the product, process or service with the applicable requirements. The equipment used during inspection activities is subject to the requirements of Section 7 of this table.	Quality plan. *
3.3	The manufacturer shall record the results from the monitoring and measurement activities as they are carried out.	Register of monitoring and measurement activities.
3.4	When the manufacturer becomes aware that the product, process or service does not meet the stipulated requirements, immediate action shall be taken. Furthermore, the corrective actions necessary to avoid repetition of the issue found shall be implemented in accordance with the requirements of Section 4 of this table.	

TABLE 3
REQUIREMENTS RELATED TO THE QUALITY MANAGEMENT SYSTEM

Requirement(s) Related to the Manufacturer's Quality Management System (Reference: document BNQ 9902-001)		Manufacturer Evidence to Be Provided [*: to be provided with the application form for certification.]
3.5	The manufacturer shall implement appropriate means (marking, stamping, tag, job traveler, recording of inspection, quarantining or others) in order to indicate the state of product, process or service conformity following monitoring and measurement activities. Where necessary, the manufacturer shall ensure that nonconforming products are identified and/or isolated so as not to confuse them with conforming products.	Description of the means used. *
3.6	The manufacturer shall designate one person who is authorized to approve the re-release of the product, process or service.	Name and title of the designated person. *
3.7	The manufacturer shall take the necessary means to ensure that, following monitoring and measurement activities, conforming products maintain their quality and are not altered prior to delivery (packaging, handling instructions, etc.).	Description of the means used. *
4	**Handling cases of nonconformity**	
4.1	The manufacturer's management shall designate a person who is responsible for ensuring proper handling of cases of nonconformity to certification program requirements identified by the manufacturer or by the BNQ.	Name and title of the person responsible for ensuring the handling of any cases of nonconformity. *
4.2	The manufacturer shall implement a procedure for handling cases of nonconformity.	Written procedure. *
4.3	The manufacturer shall keep a register of the results of the handling of cases of nonconformity obtained after each of the following steps: – applying appropriate correction to cases of nonconformity (e.g. downgrading or product destruction, halt in production or process, interruption of service); – searching to discover the underlying causes of the nonconformity; – determining the corrective actions needed to eliminate the causes of the nonconformity; – applying means to ensure that the corrective actions are implemented and produce the desired results.	Register of the results of the handling of cases of nonconformity.
4.4	The manufacturer shall, where possible, identify nonconforming products or isolate them from other products.	Documents describing the means used to identify nonconforming products or isolate them from other products and designated location at the manufacturing site.
4.5	The certification program's applicable mark of conformity shall not be found on nonconforming products.	
5	**Handling complaints**	
5.1	The management of the manufacturer shall designate one person responsible for ensuring the handling of complaints raised concerning the nonconformity of a certified product, process or service.	Name and title of the person responsible for ensuring the handling of complaints. *
5.2	The manufacturer shall implement a procedure for the handling of complaints concerning the nonconformity of a certified product, process or service.	Written procedure. *

TABLE 3
REQUIREMENTS RELATED TO THE QUALITY MANAGEMENT SYSTEM

Requirement(s) Related to the Manufacturer's Quality Management System (Reference: document BNQ 9902-001)		Manufacturer Evidence to Be Provided [*: to be provided with the application form for certification.]
5.3	The manufacturer shall maintain a file of any complaint raised concerning the nonconformity of a certified product, process or service to the requirements of the certification program concerned.	Complaints file.
5.4	Appropriate corrections and corrective actions arising from the review of the complaint shall be undertaken in accordance with the requirements of Section 4 of this table.	Complaints file.
6	**Document control**	
6.1	The manufacturer shall establish, keep up to date and retain the documents providing evidence that it possesses the following items: – the documents needed by the BNQ in the framework of the certification program; – the results of all quality monitoring and measurement activities; – the results of how cases of nonconformity are handled; – the file of complaints. For quality monitoring and measurement activities, as well as the handling of cases of nonconformity, the name of the person responsible for the activities and the date of the intervention shall appear on the records.	Items listed.
6.2	All documents relating to the items listed in Section 6.1 shall be available from the manufacturer and shall be retained for at least the entire valid period of the certificate of conformity.	Items listed in Section 6.1.
6.3	The registers related to quality shall be accessible to the person responsible for the assessment, who shall be able to make copies thereof for the certification file.	Registers related to quality.
7	**Requirements concerning the laboratory used by the manufacturer for product testing**	
7.1	The laboratory shall be organized in a manner to guarantee that it can, at all times, be shown that its judgment remains independent and its integrity uncompromised when it comes to the manufacturing of the product.	Manufacturer organization chart. *
	CLARIFICATION — To demonstrate its independence of judgement and its integrity, the laboratory should stipulate the relations, roles and responsibilities of its personnel concerning the review, approval, publication and recording of test results.	
7.2	The laboratory shall have a responsible technical person (regardless of this person's title) to whom the general responsibility of this laboratory is incumbent.	Name and title of the person responsible for the laboratory. *
7.3	The laboratory shall have sufficient staff with the requisite training, technical knowledge and experience to conduct the tests.	Records of training, technical knowledge and experience of staff.
7.4	The environment in which testing activities are performed shall comply with the requirements stated in the test methods used. Special care shall be taken when these activities are performed in locations other than the laboratory. Neighbouring sectors harbouring incompatible activities shall be physically separated.	
7.5	The laboratory shall have the appropriate equipment as described in the reference documents. When it uses equipment over which it has no permanent control, the laboratory shall ensure that all the relevant requirements are fulfilled.	List of equipment used. *

TABLE 3
REQUIREMENTS RELATED TO THE QUALITY MANAGEMENT SYSTEM

Requirement(s) Related to the Manufacturer's Quality Management System (Reference: document BNQ 9902-001)	Manufacturer Evidence to Be Provided [*: to be provided with the application form for certification.]
7.6 Equipment having an effect on the degree of uncertainty of measurement in test results, including equipment used in monitoring and measurement activities, shall be subject to a calibration program and included in a calibration schedule. A register shall be maintained attesting conformity of the results obtained and demonstrating that calibration frequency is respected.	Calibration schedule. Calibration register or certificate.
7.7 Maintenance procedures shall be written down. Any testing equipment that was subject to an overload or defective handling, that has shown results that are dubious or outside the specified limits or that has revealed itself to be defective shall be taken out of service. It shall also be isolated to prevent it from being used, or clearly labelled or marked as being taken out of service until it has been repaired and a calibration or test demonstrates that it is operating correctly. The laboratory shall examine the consequences of the malfunction or deviation with regard to the limits specified in the test methods or to prior calibrations. The laboratory shall also record the results of the examination of the testing equipment and of the corrective actions taken.	Maintenance procedures. Registers showing the evaluation of the impact of the defect on previous measurements or tests and specifying, where applicable, any corrective actions taken.
7.8 Reference standards used shall be calibrated by a body capable of ensuring the calibration traceability to the International System of Units (SI). A calibration and verification program for reference standards is required to ensure the validity of the calibration certificate.	Calibration certificate.
7.9 The instructions, standards, guides and reference data pertaining to the laboratory shall be kept up-to-date and easily accessible to personnel.	Applicable documents.
7.10 If sampling is conducted in accordance with a test method, the laboratory or the manufacturer shall have written procedures to collect, package and conserve the samples.	Written procedures.
7.11 All calculations and data transcriptions shall be subject to appropriate verifications.	Documents showing the verifications.
7.12 Any laboratory carrying out tests on behalf of the manufacturer shall meet all the requirements specified in this table along with the particular requirements of the certification program in question.	Documents demonstrating the competence and conformity of the laboratory.
7.13 When the test results come from work done by a subcontracted laboratory, the laboratory that has conducted the tests shall be clearly identified in the manufacturer's records.	Manufacturer records.
7.14 The manufacturer shall record and keep details of its analysis on the competence and conformity of subcontracted laboratories and keep file of all subcontracted operations.	Record of subcontracted operations and documentation demonstrating the competence and conformity of the laboratory.
8 Responsibilities and commitments of the manufacturer	
8.1 The manufacturer shall take all necessary measures to facilitate the realization of inspection visits.	

TABLE 3
REQUIREMENTS RELATED TO THE QUALITY MANAGEMENT SYSTEM

Requirement(s) Related to the Manufacturer's Quality Management System (Reference: document BNQ 9902-001)		Manufacturer Evidence to Be Provided [*: to be provided with the application form for certification.]
8.2	The manufacturer shall inform the BNQ without delay of any modification that may affect its certification or the conformity of its products, processes or services. These modifications include, but are not limited to: – a relocation or shut down of operations; – the transfer or assignment of activities to a third party; – a change in the nature of goods or services; – a replacement or reassignment of one of the designated officials of the manufacturer; – a change of operating licence or the withdrawal of such a licence.	
8.3	The manufacturer shall display the certificate issued in full view of its clients.	
8.4	The manufacturer shall use the BNQ's certification documents in their entirety and only for the purpose of demonstrating conformity of its product, process or service; any other use shall be previously approved by the BNQ.	
8.5	The manufacturer shall not use, in any way whatsoever, the BNQ's logo.	Promotional documents, Web site.
9	**Licence to use the BNQ's certificate, product attestation letter or mark of conformity**	
9.1	The manufacturer that holds a valid certificate of conformity from the BNQ can announce its certification in association with its corporate identity. The manufacturer shall meet the requirements of Annex D of the document BNQ 9902-001 when announcing its certification or attestation, whether on manufacturer premises; through the manufacturer's publications, such as advertising; or in its commercial and administrative documents.	Web site, administrative, commercial and promotional documents.
9.2	The mark of conformity used shall be the one associated with the certification program under which the manufacturer holds a certificate of conformity. The mark of conformity shall only serve to indicate the conformity of the products, processes or services subject to a valid certificate of conformity or product attestation letter.	Web site, administrative, commercial and promotional documents.
9.3	The manufacturer shall not make any erroneous reference to the BNQ's certification system or any fraudulent use of the certificate of conformity, the product attestation letter or the mark of conformity and shall take appropriate action to correct these situations should they occur.	Web site, administrative, commercial and promotional documents.

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There is growing opinion by those involved in the recycling of organic residuals that the testing for products & packaging intending to be certified as COMPOSTABLE requires both real-world as well as laboratory analysis.

The analytical work done in a laboratory for certification and the assurance that the product is compostable enables for observation as well as the testing for trace element content and other parameters which organics recycling facilities must adhere to within their jurisdictional regulations for the production and quality standards of their final product, COMPOST.

Currently, real-world testing for compostability claims is not a requirement for certification and compostable claims.

This document has been developed by the members of *THE CERTIFIED COMPOSTABLE COMMITTEE* (a committee of the Compost Council of Canada) to serve as a guideline document for the real-world analysis of compostability of products and packaging when tested at actual, operational industrial organics recycling facilities.

This guideline is to help organics recycling facilities record their tests for the physical decomposition of sample products/packaging.

The attached documentation is for centralized composting facilities. Recognizing that processing technology and operations differ amongst facilities, the analysis will record not only observations of the physical breakdown of the test materials over the composting process but also state the technology and processing parameters involved throughout the test.

Further documentation will be issued in the near-term to reflect facilities utilizing anaerobic digestion technology.

DISCLAIMER:

The testing and documentation provided are for general information purposes only. This information is provided "AS-IS" and with NO WARRANTIES including, for example, implied fitness for compostability. There is no responsibility or liability for any loss or damage suffered as a result of the use, misuse or reliance on this information and documentation provided.

The testing and any report generated as a s result of the testing is considered to be communication, containing privileged confidential information, intended solely for the person(s) to whom it is addressed. Any use, dissemination, publication or copying of this testing and reports by anyone other than the intended recipient must have the written permission of both parties – the brand owner and the organics recycling facility – prior to being released publicly.

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GUIDELINES for RECORDING OF COMPOSTABILITY TEST

This Guideline is intended to provide some guidance and recording assistance to facility operators when testing the compostability of products or packaging in their operations. It is not intended to be adopted as a standard by any decision-making body nor is it intended that operators should necessarily require testing of this, or any, kind before accepting products into their input stream.

This Guideline is not intended to imply that the results of any test undertaken according to this Guideline or in any other way should be published or made available for public review. The question of disclosure of test results should be a matter for discussion and agreement between the organics recycling facility owner/operator and the manufacturer or brand owner of the product, package, or material being tested, or as otherwise required by law.

It is important to record the details of the compostability trial throughout the process.

Using the excel sheet, record details <u>each time</u> the tested product is reviewed throughout the process.

From start to finish, documenting process data, observations, and recording progress through photos will be of great help to review the trial's results and success.

The following are details that are recommended for recording, using the excel sheet provided.

1. DESCRIPTION OF PRODUCT BEING TESTED

Name of Product; any additional description relevant to acknowledge product type

2. LOCATION of TRIAL

Record the name of the composting facility and composting technology (open windrow, covered, tunnel, static pile, agitated bed, etc.)

Identify where product has been physically placed (ie. which windrow, which tunnel, which pile, etc.)

3. DATE OF ORIGINAL PLACEMENT AND CONDITIONS

Record date of start of trial (when placed in windrow, tunnel, pile, etc.)

Record the processing conditions of the location where the product was placed at beginning of trial: eg. C/N ratio, Temperature, % Humidity, Oxygen level.

4. TRIAL LOG

The trial log records each time that the product is examined throughout the trial period. For each examination, observation details should be recorded to review status of decomposition and progress towards full compostability.

While some of the observations should be documented quantifiably (ie. temperature; # of days since test has begun), most observations would be qualitative, reflecting what is being seen by the operator. It is recommended that the operator makes note of as many observations as possible, building on the same type of observations from one inspection to the next thereby helping to record changes over time.

Included in each recording are:

i. Date of Recording
ii. # of Days since the Test has begun
iii. Processing conditions: C/N ratio, Temperature, % Humidity, Oxygen level.
iv. Perceived Degree of Decomposition Change (%)
v. Written Observations at Time of Recording
vi. Photos (record photos by Inspection as well as describing what is being done and/or observed)
vii. Name of Operator doing the Inspection

5. NAME OF TEST PERSON(S)

Identify all those involved in observation process (from placement, to inspections, to final review)

SAMPLE FORM Testing for Compostability @ Compost Facility

PURPOSE

· To test for the physical breakdown of certified compostable product/packaging in real-life large-scale composting conditions

PROCESS

· Process description

· Supplies used in sample preparation

· Feedstock preparation – Ready for Placement in Compost Pile

· Method of monitoring location within Compost Pile

· Trial Duration (at time when compost is finished/ready as determined by compost facility)

EXAMPLE

· **Process**

o Facility utilized is an in-vessel aerated static pile system

· Supplies used in sample preparation

o 10 – 15 units of product/packaging
o 15 – 20 kgs of feedstock (combination of feedstock @ facility; e.g. food waste, leaf & yard, overs)
o Mesh bag (e.g. large onion bag)
o Marker (to help identify whereabouts in compost pile)
o Camera (to record progress via photos of before/during/after)
o Thermometer (to record temperature at time of any process change)
o Calendar (to document time/compost process action)

· **Feedstock Preparation**

o Shred product/packaging (as this is usually too small to put in regular shredder, manually cut product/packaging in pieces)
o Put in mesh bag
o Mix product/packaging with feedstock
o Place in composting tunnel/windrow/static pile, digging a hole and placing the bag in the pile to ensure sample is fully covered

· **Method of monitoring location within Compost Pile**

o Place an identifiable marker at the test section of the pile to identify whereabouts
o If pile is moved, remove bag in advance and then place again with marker
o If water is applied to pile, apply moisture as well to the bag before placing back in pile

· Trial duration

o The trial will be completed after **X** days in Active composting phase and **X** days of curing

RECORD

Important Recordings to include on the Composability Trial Log in both photo and written description format are:

- Description of package to be tested
- Description of technology system in which product is being tested in (i.e. windrow/ tunnel etc.)
- Date of original placement
- Trial Log – See attached Composability Trial Log
- Date of recording
- # of DAYS in process
- Measured C/N, O_2, Moisture content and Temperature readings in test location
- Perceived degree of decomposition and change (%)
- Written observation at time of recording
- Photos
- Name of test person(s)

EXAMPLE

- Description of package be tested
  - Compostable materials are mixed with fresh stock from the facility
  - Mixed materials will be placed into the mesh bag
- Description of system product is being tested in (i.e. Which windrow/ tunnel etc.)
  - Product is tested in an in-vessel tunnel system
  - Positive aeration through the material from the tunnel ground
  - Moisture is added from the top sprinkler system
- Date of original placement
  - The placement of material occurred on Feb 1, 2017
- Trial Log – See attached Composability
- Date of recording
  - Information about the trial is recorded on Feb 1, 2017
- # of DAYS in process
  - The testing package is in the process for **X** days of active composting and **X** days of curing
- Estimated Moisture content and Temperature readings in test location
  - Moisture content of the trial package is measured at 35%

- Temperature reading during the trial is recorded in the SCADA system
- Maximum temperature is 65^{o}C and minimum temperature is 45^{o}C.

· Perceived degree of decomposition and change (%)

- Material decomposition is **x**% after phase 1 process
- Decomposition is **x**% after phase 2 process
- Decomposition is **x**% after curing process

· Written observation at time of recording

- Split holes and thinning surface
- Describe change in texture; eg. Plastic layers separated in some areas
- Describe any decomposition on the surface, etc.

· Photos

- See attached photos

· Name of test person(s)

- Compost Operator

Observations

· What are the overall observations e.g. what was the total % breakdown?

· Were there any other limitations or other important notes on the trial?

EXAMPLE

· What are the overall observations? e.g. what was the total % breakdown?

- The total percentage breakdown of compostable material in the trial is about ~~25~~%
- The material decomposed at a slow, medium, or fast rate in the in-vessel tunnel composting system
- In-vessel tunnel composting with X days active phase (may or may not) provide enough time for material to decompose

· Were there any other limitations or other important notes on the trial?

- Higher moisture content during composting could result in higher degradation
- Knots or cluster spots may reduce the material's ability to decompose in the process
- pH is also an important factor in the process to promote material decomposition

Conclusion

· How compatible is the product with the facility's operation?

· What are positives and negatives in accepting the product at the facility? e.g. would this product get screened out before completing the compost process?

EXAMPLE

· How compatible is the product with the facility's operation?

- The product (is *or* is not) compatible with current in-vessel tunnel composting operation
- The product (may *or* may not) need longer processing duration (i.e. 3 months) to see significant decomposition (> 90%)
- Current facility design is only for short-term (X days active phase, X days curing) SSO composting

· What are positives and negatives in accepting the product at the facility? e.g. would this product get screened out before completing the compost process?

- **Positives**

· Accepting compostable product may increase residential participation rate in green bin recycling

· Accepting this product will increase diversion of material from landfill and will add to the diversion rate of the municipality.

· Accepting this product will reduce greenhouse gas emissions from waste management activities in the municipality.

· Accepting this product provides net environmental benefit to the municipality and/or to its residents.

- **Negatives**

· Accepting the product will contaminate the final compost quality because
(i) the product will not decompose during the process;
(ii) the product will be screened out at the screening stage and removed as residue;
(iii) the product will pass through the screen and present as a plastic contaminant in the finished Compost
(iv) Other ……

· Product presents in the finished compost will lower the quality of finished compost and have financial impact on sales and market demand.

COMPOSTABILITY TRIAL LOG (example)

DESCRIPTION OF PRODUCT BEING TESTED

1

LOCATION of TRIAL 2

Record the name of the composting facility and composting technology (open windrow, covered, tunnel, static pile, agitated bed, etc.)
Identify where product has been physically placed (ie. which windrow, which tunnel, which pile, etc.)

DATE OF ORIGINAL PLACEMENT AND CONDITIONS 3

Record date of start of trial (when placed in windrow, tunnel, pile, etc.)
Record the processing conditions of the location where the product was placed, at beginning of trial; C/N ratio, Temperature, % Humidity, Oxygen level.

TRIAL LOG 4

	Inspection # 0	Inspection # 1	Inspection # 2
DATE OF RECORDING i	*2016-06-22 (ACTIVE PHASE)* **Beginning of test**	*2016-06-29 (ACTIVE PHASE)*	*2016-07-06 (ACTIVE PHASE)*
# OF DAYS IN PROCESS ii	*0*	7	14
RECORDABLE PROCESSING CONDITIONS iii	Test area is at 30% moisture content and temperature is 35 degrees C, C/N ratio, oxygen level	30% moisture content, and temperature is 65 degrees C, C/N ratio, oxygen level	35% moisture, temperature is 45 degrees C, C/N ratio, oxygen level
PERCEIVED DEGREE of DECOMPOSITION/ CHANGE (%) iv	*None - Material is being prepped for tunnel.* See photos.	5% decomposition, some split holes on the surface	eg. 25% decomposition
WRITTEN OBSERVATIONS AT TIME OF RECORDING Eg. Minor change in texture; Plastic layers separated in some areas; Some minor decomposition on the surface, etc. v	*Material has been shredded to simulate shredding process and will be placed in Tunnel I for 7 days. It is placed half way into the tunnel within the top 1/3 of the pile.*	thinning layer on the surface and no apparent decomposition of material	"Dark" spots on the surface, separation of material layers
PHOTOS Photo reference number and description vi	*Pic. 1-3 - Shredded product* *Pic. 4-6 - Product added to bag with feedstock* *Pic. 6-7 - Product placed into vessel for composting*	see attached	See attached
Name of test person(s) 5 vii	*Operator*	Operator	Operator