



CARICOM REGIONAL STANDARD

Biodegradable Products – Specification

FDCRS 73: 202X



CARICOM Regional Organisation for Standards and Quality (CROSQ)

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Committee representation

This CARICOM Regional Standard was developed under the supervision of the CARICOM Regional **Project Team for Labelling of Biodegradable Products** (hosted by the CARICOM Member State, **Dominica**) which was at the time comprised of the following members:

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Foreword

This CARICOM Regional Standard Biodegradable Products - Specification has been developed under the authority of the CARICOM Regional Organisation for Standards and Quality (CROSQ). It was approved as a CARICOM Regional Standard by the CARICOM Council for Trade and Economic Development (COTED) at its <<[xx Meeting in MMM YYYY.>>](#)

This standard is intended to provide chemical and labelling requirement to address the global challenges we face, including those related to climate and environmental degradation. It also seeks to assist the Caribbean Region in its attainment of Sustainable Development Goal (SDG) Number 12 – Responsible Consumption and Production – with its target of achieving, by 2030, substantial reduction in waste generation through prevention, reduction, recycling and reuse.

In formulating this standard considerable assistance was derived from the following:

- 1) ASTM D6400: 2021, Standard Specification for Labeling of Plastic Designed to be Aerobically Composted in Municipal or Industrial Facilities
- 2) AS 4736: 2006, Biodegradable plastic – Biodegradable plastic suitable for composting and other microbial treatment
- 3) BS EN 13432: 2002, Packaging – Requirements for packaging recoverable through composting and biodegradation – Test scheme and evaluation criteria for the final acceptance of packaging
- 4) CRS 55-1: 2016, Labeling of Goods – General Requirements
- 5) GYS 9-19: 2018, Specification for Labelling of commodities Part 19: Labelling of biodegradable food containers

1 Scope

This standard specifies the requirements for the determination of biodegradable and compostable materials.

This standard applies only to materials and products used in the manufacture of:

- a) Single use bags,
- b) Products used in food and beverage services, inclusive of packaging and tableware
- c) Packaging used for pre-packaged foods and shelf ready products

It also specifies the requirements for the labelling of these products.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

- American Public Health Association Standard Test Method 2540E, Fixed and Volatile Solids Ignited at 550°C
- American Public Health Association Standard Test Method 2540G, Total, Fixed, and Volatile Solids in Solid and Semisolid Samples
- AS 4736: 2006, Biodegradable plastic – Biodegradable plastic suitable for composting and other microbial treatment
- ASTM D6400, Standards Specification for Labeling of Plastic Designed to be Aerobically Composted in Municipal or Industrial Facilities
- ASTM D6866, Standard Test Methods For Determining The Biobased Content Of Solid, Liquid, And Gaseous Samples Using Radiocarbon Analysis
- ASTM D6868, Standards 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 on Municipal or Industrial Facilities.
- BS EN 13432: 2002, Packaging – Requirements for packaging recoverable through composting and biodegradation – Test scheme and evaluation criteria for the final acceptance of packaging
- CRS 55-2, Labelling of Commodities - Part 2: Labelling of prepackaged goods
- DD CEN/TS 16137, Plastic – Determination of bio-based carbon content
- ISO 16620-1:2015, Plastics — Biobased content — Part 1: General principles
- ISO 17088, Specifications for Compostable Plastics

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

biodegradability

the ability of organic substances to be broken down by micro-organisms in the presence of oxygen (aerobic) to carbon dioxide, water, biomass and mineral salts or any other elements that are present

(mineralization). Alternatively, the breakdown of organic substances by the micro-organism without the presence of oxygen (anaerobic) to carbon dioxide, methane, water and biomass.

3.2

biobased

material or product wholly or partly derived from biomass, such as plants, or animals (the biomass can have undergone physical, chemical or biological treatment)."

3.3

biodegradable material

a material in which the degradation results from the action of naturally occurring micro-organisms such as bacteria, fungi, and algae

3.4

compostable

material or product able to be biodegraded in a composting process:

- a) without leaving any visible, distinguishable or toxic residue; and
- b) under managed conditions, inclusive of, temperature, humidity and time-frame, in a composting facility

NOTE to entry: To claim compostability, it must have been demonstrated that a material can be biodegraded and disintegrated in a composting system (as can be shown by standard test methods). The compost must meet the relevant quality criteria. Quality criteria are, for example, low regulated metal content, no ecotoxicity, no obviously distinguishable residues.

3.5

Compost

organic soil conditioner obtained by biodegradation of a mixture principally consisting of various organic material and having a limited mineral content

3.6

composting

a managed process that controls the biological decomposition and transformation of biodegradable materials into a humus-like substance called compost: the aerobic mesophilic and thermophilic degradation of organic matter to make compost; the transformation of biologically decomposable material through a controlled process of bio-oxidation that proceed through mesophilic and thermophilic phases and results in the production of carbon dioxide, water, minerals, and stabilized organic matter (compost or humus).

3.7

constituent of a packaging material

all pure chemical materials and substances of which a packaging material is composed

3.8

disintegration

the physical falling apart of materials into very small fragments

3.9

food grade

material used to construct food packaging, tableware and single-use bags which are scientifically proven to be inert, non-toxic, stable, and therefore will not contribute to contamination of the food

3.10

National Competent Authority

any Ministry, State Agency or other national entity that is legally authorized to administer any requirement pertaining to biodegradable or compostable products or both

3.11

oxo-degradable

material or product designed to break-down by accelerated oxidation and fragmentation through the addition of chemicals under the action of oxygen and ultraviolet light or ultraviolet light and heat

3.12

plastic

a material that contains as an essential ingredient one or more organic polymeric substances of large molecular weight, is solid in its finished state, and, at some stage in its manufacture or processing into finished articles, can be shaped by flow.

3.13

polymer

a substance consisting of molecules characterized by the repetition (neglecting ends, branch junctions, other minor irregularities) of one or more types of monomeric units.

3.14

Single-use

conceived, designed, designated or intended by the manufacturer for one-time use only, within its life span, prior to disposal

3.15

tableware

utensils used to aid the consumption of food and drink, including various types of containers (known as hollowware), spoons and forks (flatware), knives (cutlery)

3.16

volatile Solids

the amount of solids obtained by subtracting the residue of a known mass of test material or compost after incineration at about 550°C from the total dry solids of the same sample

Note: The volatile- solid content is an indication of the amount of organic matter present

4 General Requirements

In order to compost satisfactorily, a product or material shall demonstrate each of the characteristics found in 4.1. – 4.4.

4.1. Characterization

The manufacturer or importer or distributor shall have available information on the characterization of the packaging material, for review by the National Competent Authority, as follows:

- i. Information on, and identification of, the constituents of the packaging materials;
- ii. The volatile solids content of the material shall contain a minimum of 50% of volatile solids;
- iii. The presence of heavy metals and other toxic and hazardous substances **shall be determined and** the concentration present in a material shall not exceed the values set in accordance with the National Competent Authority. Annex A is provided for consideration and guidance; and
- iv. The organic carbon content and total dry solids of the material.

4.2. Disintegration

4.2.1. A material shall be considered as disintegrated by composting when residues are not readily distinguishable in the end product and in accordance to Table 2. Additionally, the material must not be

found in significant quantities during screening prior to final distribution of the compost as outlined in 4.2.2.

4.2.2. A material shall be considered to have demonstrated satisfactory disintegration if after twelve weeks (84 days) in a controlled composting test, no more than 10 % of its original dry weight remains after sieving on a 2.0-mm sieve.

4.3. Biodegradability

4.3.1. Biodegradability shall be determined for all constituents of the material including all forms of packaging material as a total material.

Note This process involves the alteration of the chemical structure of any material brought about by biological action, resulting in the loss of a specific property of the material.

4.3.2. A product shall demonstrate a satisfactory rate of biodegradation by achieving the ratio of conversion to carbon dioxide found in 4.3.3 and 4.3.3.1 within 180 days using tests in Table 2.

4.3.3. Ninety percent (90 %) of the organic carbon in the whole item or for each organic constituent, which is present in the material at a concentration of more than 1 % (by dry mass), shall be converted to carbon dioxide by the end of the test period when compared to the positive control or in the absolute.

4.3.3.1. Organic constituents present at levels between 1 to 10 % shall be tested individually for compliance to 4.3.3.

4.3.4. Organic constituents which are present at concentrations of less than 1 % do not need to demonstrate biodegradability. However, the sum of such unproven constituents shall not exceed 5 %.

4.3.5. Test samples of packaging materials shall not be subjected to any conditions that will accelerate biodegradation, prior to testing in 4.3.3.

4.4. Compost Quality

4.4.1. In order to compost satisfactorily, a product shall demonstrate the following characteristics and in accordance to Table 2:

4.4.1.1. proper disintegration during composting;

4.4.1.2. adequate level of inherent biodegradation; and

4.4.1.3. no adverse impacts on the ability of composts to support plant growth

4.4.1.4. The concentration of any regulated metals shall not exceed the values set in accordance with National Competent Authority. Annex A is provided for consideration and guidance;

4.4.1.5. The germination rate and the plant biomass of the sample composts shall be no less than 90% than that of the corresponding blank composts for two different plant species following Annex E of EN 13432.

4.4.2. The tested materials, at 4.4.1 shall not adversely impact on the ability of composts to support plant growth, when compared to composts derived from biowaste without any addition of tested products or reference materials. Additionally, the polymeric products or materials shall not introduce unacceptable levels of metals or hazardous substances into the environment, upon sample decomposition.

4.5. Bio-Based Materials

4.5.1. Bio-based materials and products shall be considered to be compostable or biodegradable where they meet the requirements at Clause 4.1 to 4.4.

4.6. Exemptions

4.6.1. A material demonstrated to be organically recoverable in a particular form, shall be accepted as being organically recoverable in any other form having the same or a smaller mass to surface ratio or wall thickness.

4.6.2. Chemically unmodified materials and components of natural origin, such as wood, wood fibre, cotton fibre, starch, paper pulp or jute shall be accepted as being biodegradable without testing but shall be chemically characterized and fulfill the criteria for disintegration and compost quality.

5 Marking and Labelling

5.1. No word, phrase, terminology or other designations shall be used in lieu of the words "Biodegradable or Compostable" for labelling e.g. "green", "eco-friendly" or "environmentally friendly"

5.2. Oxo-biodegradable, oxo-degradable, or degradable products shall not be considered to be either biodegradable or compostable and shall not be labelled as such.

5.3. The labelling requirements shall be in accordance with the CARICOM Regional Standard *CRS 55-2 Labelling of Commodities - Part 2: Labelling of prepackaged goods*

5.4. All single use bags shall be labelled as biodegradable or compostable and shall carry a certification mark, plastic resin identification code or any other mark required by the National Competent Authority

5.5. Where individual products are not able to accommodate adequately the criteria in the labeling, the criteria shall be placed on the bulk and primary package. All biodegradable **and compostable** products manufactured, imported or offered for sale shall be legibly labelled with the following requirements:

- a) Material composition – raw materials used for products shall be food safe and of food grade quality;
- b) Microwave safe – there shall be an indication as to whether the container is microwave safe according to the certification requirements of Regulatory Authority;
- c) Biodegradable certification mark – the size of the mark should be a minimum of 25mm² (5mm x 5mm);
- d) Purpose/Use - Labels for biodegradable packaging shall display its purpose for use;
NOTE: Uses may include hot, cold, wet, dry or a combination
- f) Lot identification;
- g) Each outer packaging shall be coded or otherwise indicated to identify the producing factory and the lot;
- h) Storage condition - there shall be indication of any special storage conditions, including temperature, that may apply.
- i) Font Size - The minimum type size shall be in accordance with the requirements outlined in Table 1 and shall:

- i. be the smallest type size that is permitted based on the space available for labelling;
- ii. determine the height of the type by measuring the height of the lower case 'o' or its equivalent when mixed upper and lower-case letters are used or the height of the upper-case letters when only upper-case letters are used.

Note: Any rounded letter minus the extension e.g. b, g, d, q, p

Table 1 — Minimum type size

Minimum type size	Area of principal display panel
1.6 mm (1/16 in)	32 cm ² (5 in ²) or less
3.2 mm (1/8 in)	more than 32 cm ² (5 in ²)

6. Methods of testing and analysis

6.1. The analytical methods described in Table 2 below shall be used to determine whether the sample conforms to the requirements.

Table 2 — Test Methods

Characteristics	Methods of test
Disintegration	ASTM D6400 ASTM D6868 ASTM D6866 EN 13432 ISO 17088
Biodegradability	
Characterization	
Compost Quality	
Heavy metals	
Organic carbon content	DD CEN/TS 16137 ISO 16620-1:2015 ASTM D6866
Exception	EN 13432 (Clause 6, 7, and 8)
Volatile solids	American Public Health Association Standard Test Method 2540E or 2540G

Annex A
(informative)

Examples of maximum concentrations of metals and other toxic substances
(Table taken ISO 17088:2012)

Table A.1 - Maximum element content of material

Element	Europe ^a	US ^b	Canada ^c	Japan ^d
	mg/kg on dry substance			
Zn	150	1,400	500	180
Cu	50	750	100	60
Ni	25	210	62	30
Cd	0.5	17	3	0.5
Pb	50	150	150	10
Hg	0.5	8.5	0.8	0.2
Cr	50	-	210	50
Mo	1	-	5	-
Se	0.75	50	2	-
As	5	20.5	13	5
F	100	-	-	-
Co	-	-	34	-

a The maximum metal concentrations for the EC are 50 % of those prescribed in ecological criteria for the award of the Community eco-label to soil improvers (EC OJ L 219, 7.8.1998, p. 39).

b The maximum metal concentrations given here for the US are 50 % of those prescribed by 40 CFR 503.13, Table 3 (as per ASTM D6400 requirements).

c The maximum metal concentrations for Canada are those prescribed in Table 1 for Compost Category A in Guidelines for Compost Quality published by the Canadian Council of Ministers of the Environment (CCME), and Category AA of the Ontario Compost Quality Standards, published by Ontario Ministry of the Environment.

d The maximum metal concentrations for Japan are 10 % of those prescribed in the Fertilizer Control Law (Ministry of Agriculture, Forestry and Fisheries) and Guidelines for Quality of Composts (Central Union of Agricultural Co-operatives).

END OF DOCUMENT



CARICOM REGIONAL ORGANISATION FOR STANDARDS AND QUALITY

The CARICOM Regional Organisation for Standards and Quality (CROSO) was created as an Inter-Governmental Organisation by the signing of an agreement among fourteen Member States of the Caribbean Community (CARICOM). CROSO is the regional centre for promoting efficiency and competitive production in goods and services, through the process of standardization and the verification of quality. It is the successor to the Caribbean Common Market Standards Council (CCMSC), and supports the CARICOM mandate in the expansion of intra-regional and extra-regional trade in goods and services.

CROSO is mandated to represent the interest of the region in international and hemispheric standards work, to promote the harmonization of metrology systems and standards, and to increase the pace of development of regional standards for the sustainable production of goods and services in the CARICOM Single Market and Economy (CSME), and the enhancement of social and economic development.

CROSO VISION:

The premier CARICOM organisation for the development and promotion of an Internationally Recognised Regional Quality Infrastructure; and for international and regional harmonized CARICOM Metrology, Standards, Inspection, Testing and Quality Infrastructure

CROSO MISSION:

The promotion and development of standards and standards related activities to facilitate international competitiveness and the sustainable production of goods and services within the CARICOM Single Market and Economy (CSME) for the enhancement of social and economic development

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