



CARICOM REGIONAL STANDARD

Biodegradable Products – Specification

DCRS 73: 202X



CARICOM Regional Organisation for Standards and Quality (CROSQ)

2nd Floor Baobab Tower

Warrens

St Michael

Barbados

T: 246.622.7670 | F: 246.622.7678

Website: <http://www.crosq.org>

© CROSQ 2020 – All rights reserved

Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission.

CARICOM REGIONAL STANDARD

Biodegradable Products – Specification

DCRS 73: 202X

CARICOM Regional Organisation for Standards and Quality (CROSQ)

2nd Floor, Baobab Towers
Warrens, St. Michael
Barbados
T: 246.622.7670 | F: 246.622.7678
Website: <http://www.crosq.org>

© CROSQ 2020 – All rights reserved. No part of this publication is to be reproduced without the prior written consent of CROSQ.

ISBN XXXX-XXXX-XXX
ICS xxxxxxxx

AMENDMENTS ISSUED SINCE PUBLICATION

AMENDMENT NO.	DATE OF ISSUE	TYPE OF AMENDMENT	NO. OF TEXT AFFECTED	TEXT OF AMENDMENT

DCRS 73 - Biodegradable Products - Specification for Comments 24/08/2020 - 02/11/2020

ATTACHMENT PAGE FOR CRS AMENDMENT SHEETS

DCRS 73 - Biodegradable Products - Specification for Comments 24/08/2020 - 02/11/2020

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:

Members	Representing
Mr. Gregory Shillingford (Chairman)	Dominica
Mrs. Indira James-Henry	Ministry of Health and Environment, Antigua and Barbuda
Mr. Benjamin Lo	Nature Plast Belize, Belize
Mr. Cranston Rolle	C'Enna Santish Rolle (CSR) Company, The Bahamas
Mr. Florian Mitchel	Dominica Solid Waste Corporation, Dominica
Mr. Heinrich Anselm	Dominica Bureau of Standards, Dominica
Ms. Myrna Julien	Grenada Solid Waste Management Authority, Grenada
Ms. Odessa Duncan	Environmental Protection Agency, Guyana
Mr. Gilbert Joseph	Solar Energy Services Ltd. (Saint Lucia), Saint Lucia
Mr. Hubert F.G. James	Saint Lucia National Consumers Association, Saint Lucia
Mr. Peter Lorde	Virghen Inc. (Saint Lucia), Saint Lucia
Mr. Carlos Wilson	Environmental Health Department, St. Vincent and the Grenadines
Mr. Simeon Bacchus	St. Vincent and the Grenadines Bureau of Standards, St. Vincent and the Grenadines
Ms. Nadia Asruf	Ministry of Trade, Industry and Tourism, Suriname
Mrs Adrienne Stewart	Trinidad and Tobago Bureau of Standards
Mr Derek Luk Pat	Trinidad and Tobago Bureau of Standards
Ms. Mara Abraham (Technical Secretary)	Dominica Bureau of Standards

DCRS 73 - Biodegradable Products - Specifications for Composites 24/10/2020 - 02/11/2020

Contents

Page

Foreword	1
1 Scope.....	2
2 Normative references	2
3 Terms and definitions.....	2
4 General Requirements.....	3
5 Marking and Labelling	5
6. Methods of testing and analysis	6
Annex A	7

DCRS 73 - Biodegradable Products - Specification for Comments 24/08/2020 - 02/11/2020

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: 2019, 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. It also specifies the requirements for the labelling of these products.

This standard applies to materials and products used in

- a) Single use bags ,
- b) Products used in food service, inclusive of packaging and tableware

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.

- ASTM D6400, Standards Specification for Labeling of Plastic Designed to be Aerobically Composted in Municipal or Industrial Facilities
- 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.
- AS 4736: 2006, Biodegradable plastic – Biodegradable plastic suitable for composting and other microbial treatment
- 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*
- 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

Biodegradable material

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

3.3

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).

3.4

Constituent of a packaging material

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

3.5

Disintegration

The physical falling apart of materials into very small fragments

3.6

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

3.7

National Competent Authority

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

3.8

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.

3.9

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.

3.10

Volatile Solids

the amount of solids obtained by subtracting the residue of a known volume 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 must demonstrate each of the characteristics found in 4.1. – 4.4.

4.1. Characterization

4.1.1. Each packaging material shall be identified, based on information provided by manufacturer, prior to testing as follows:

- i. Information on, and identification of, the constituents of the packaging materials;
- ii. The volatile solid contents of the material. The material shall contain a minimum of 50% of volatile solids.
- iii. The presence of heavy metals and other toxic and hazardous substances. The concentration of any substance present in a material shall not exceed the values set in accordance with national competent Authority. Annex A is provided for consideration and guidance
- 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 during composting so that any residues are not readily distinguishable from the other organic materials in the finished product. Additionally, the material must not be found in significant quantities during screening prior to final distribution of the compost.

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. This process involved the alteration of the chemical structure of any material including plastic brought about by biological action, resulting in the loss of a specific property of the substance.

4.3.2. Biodegradability shall be determined for all constituents of the substances including all forms of plastic as a total material.

4.3.3. A product shall demonstrate a satisfactory rate of biodegradation by achieving the following ratio of conversion to carbon dioxide found in 4.3.4 and 4.3.4.1 within 180 days using tests in Table 2.

4.3.4. 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.

4.3.4.1. Organic constituents present at levels between 1 to 10 % shall be tested individually for compliance to 4.3.4.

4.3.5. 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 %.

4.3.6. Material product test samples shall not be subjected to conditions designed to accelerate biodegradation, prior to testing in 4.3.3.

4.4. Compost Quality

4.4.1. Any product shall demonstrate satisfactory plant growth if it fulfills the requirements in 4.4.1.1 and 4.4.1.2:

4.4.1.1. The substance shall have concentrations of regulated metals less than 50 % of those prescribed for sludges or composts in the country where the product is sold.

4.4.1.2. 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 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 must not introduce unacceptable levels of regulated metals or hazardous substances into the environment, upon sample decomposition.

4.4.3. Bio-Based Materials

4.4.4. 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.

4.4.5. Exemptions

4.4.6. 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.

4.4.7. 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. The Words “green”, “eco-safe”, “environmentally friendly” or any other such designation shall not be used in lieu of biodegradable or compostable.

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 labeled as biodegradable or compostable and shall carry a certification mark or any other mark required by the Competent Authority

5.5. All biodegradable 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 safe and of food grade quality;
- b) Time to disintegrate – the time to disintegrate shall not exceed nine (9) months under controlled conditions;

Note: the timeframe includes disintegration (12 weeks) followed by biodegradation of 180 days (6 months)

- c) Microwave safe – there shall be an indication as to whether the container is microwave safe;
- d) Biodegradable certification mark – the size of the mark should be a minimum of 25mm² (5mm x 5mm)
- e) 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 container shall be coded or un-coded to identify the producing factory and the lot.
- h) Storage condition - there shall be indication of any special storage conditions 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 6400
Biodegradability	ASTM 6868
Characterization	EN 13432
Compost Quality	ISO 17088

Annex A
(informative)

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

Table A.1 - Maximum element content of material

Element	Europe	US	Canada	Japan
	mg/kg on dry substance			
Zn	150	1,400	463	180
Cu	50	750	189	60
Ni	25	210	45	30
Cd	0.5	17	5	0.5
Pb	50	150	125	10
Hg	0.5	8.5	1	0.2
Cr	50	-	265	50
Mo	1	-	5	-
Se	0.75	50	4	-
As	5	20.5	19	5
F	100	-	-	-
Co	-	-	38	-

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

DCRS 73 - Biodegradable Products - Specification for Comments 24/08/2020 - 02/11/2020



© CROSQ 2020 – All rights reserved

ISBN _____
ICS _____