

Draft Protocol P 9011-911-5

Compostable Plastic Bags

PART I : Product Requirements

PART II: Certification Requirements

Sacs en plastique compostables

PARTIE I : Exigences du produit

PARTIE II : Exigences de certification

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NOTICE

UNDERSTANDING OF THE NOTION OF EDITION

It is important to note that this edition implicitly includes all the amendments and errata that might eventually be developed, and published separately. It is the responsibility of the users of this document to verify if any amendments or errata exist.

INTERPRETATION

In this document, the use of the following expressions, verbal forms and of notes and informative annexes shall be interpreted by the reader as follows:

The verb **shall** is used to express a mandatory requirement in order to comply with this document.

The verb **should**, or the equivalent expressions **it is recommended that** and **ought to**, are used to indicate a useful, but not mandatory, suggestion, or to provide the most appropriate meaning in order to comply with this document.

With the exception of the notes presented as **normative notes** that contain requirements and are indicated only in the lower part of the figures and tables, all other **notes** are **informative** and provide useful information pertaining to the understanding or intent of a requirement, or to add some clarification or precision.

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It is possible that this document contains requirements for marking and/or labelling. In this event, in addition to meeting these requirements, it is also the responsibility of the suppliers of products to comply with the applicable national, provincial or territorial laws and regulations of the jurisdictions where the products are distributed.

FOREWORD

This document was prepared in consultation with a Certification Protocol Development Committee, whose members were:

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COMPOSTABLE PLASTIC BAGS —
***PART 1* : PRODUCT REQUIREMENTS**

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COMPOSTABLE PLASTIC BAGS —

PART I: PRODUCT REQUIREMENTS

1 **PURPOSE**

This part of the certification program specifies the requirements relating to the conformity of compostable plastic bags. The requirements concern the disintegration and biodegradation characteristics in composting conditions, ecotoxicity, trace element content and marking characteristics.

NOTES —

- 1 The quality requirements take into consideration the requirements for compost quality of the National Standard of Canada CAN/BNQ 0413-200/2005 *Organic Soil Conditioners — Composts* (see Annex A), the *Guidelines for Compost Quality* (PN 1340) [see Annex A] from the Canadian Council of Ministers of the Environment and the "Trade Memorandum T-4-93" (see Annex A) from the Canadian Food Inspection Agency.
- 2 It is important to understand that the term "biodegradable" is not synonymous with "compostable". A bag may be biodegradable in conditions other than composting as, for example, biodegradable in a maritime environment.
- 3 The purpose of this certification program does not cover the negative impacts that compostable plastic bags can cause, prior to their decomposition, to marine animals and fish.

2 **SCOPE**

This part of the certification program applies to plastic bags made from different types of plastic.

This document was developed to serve as a reference document for conformity evaluation activities of specific products.

NOTES —

- 1 Conformity evaluation is defined as the systematic examination of the extent to which a product fulfils specified requirements.
- 2 The different types of plastic may be, for example, from fossil resources or non-fossil resources.

3 NORMATIVE REFERENCES

3.1 GENERAL

In this document, a dated normative reference means that this specific edition shall be used, while a non-dated normative reference means that the last edition of this reference shall be used.

For the purpose of this part, the following reference documents contain necessary requirements and are referred to in appropriate places in the text:

3.2 DOCUMENTS FROM STANDARDS BODIES

AFNOR (Association française de normalisation) [<http://www.afnor.fr/portail.asp>]

NF EN 13432
(NF H 60-140)

Packaging — Requirements for packaging recoverable through composting and biodegradation — Test scheme and evaluation criteria for the final acceptance of packaging.

(Emballage — Exigences relatives aux emballages valorisables par compostage et biodégradation — Programme d'essai et critères d'évaluation de l'acceptation finale des emballages.)

AOAC (AOAC International) [<http://www.aoac.org/>]

AOAC 967.05

Organic Matter in Peat.

AOAC 990.08

Metals in Solid Wastes, Inductively Coupled Plasma Atomic Emission Spectrometric Method.

ASTM (American Society for Testing and Materials) [<http://www.astm.org/>]

ASTM D 2974

Test Method for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils.

ASTM D 5338

Test Method for Determining Aerobic Biodegradation of Plastic Materials Under Controlled Composting Conditions.

ISO (International Organization for Standardization) [<http://www.iso.org/>]

ISO 14855

Determination of the ultimate aerobic biodegradability and disintegration of plastic materials under controlled composting conditions — Method by analysis of evolved carbon dioxide.

(Évaluation de la biodégradabilité aérobie ultime et de la désintégration des matériaux plastiques dans des conditions contrôlées de compostage — Méthode par analyse du dioxyde de carbone libéré.)

- ISO 16929 *Plastics — Determination of the degree of disintegration of plastic materials under defined composting conditions in a pilot-scale test.*
(Plastiques — Détermination du degré de désintégration des matériaux plastiques dans des conditions de compostage définies lors d'un essai à échelle pilote.)
- ISO 20200 *Plastics — Determination of the degree of disintegration of plastic materials under simulated composting conditions in a laboratory-scale test.*
(Plastiques — Détermination du degré de désintégration de matériaux plastiques dans des conditions de compostage simulées lors d'un essai de laboratoire.)

3.3 GOVERNMENT DOCUMENTS

EPA (United States Environmental Protection Agency) [<http://www.epa.gov/>]

- EPA 3050 B *Acid Digestion of Sediments, Sludges and Soils.*
- EPA 3051 *Microwave Assisted Acid Digestion of Sediments, Sludges, Soils and Oils.*
- EPA 3060 A *Alkaline Digestion for Hexavalent Chromium.*
- EPA 6010 B *Inductively Coupled Plasma-Atomic Emission Spectroscopy.*
- EPA 6020 *Inductively Coupled Plasma – Mass Spectroscopy.*
- EPA 7061 A *Arsenic (Atomic Absorption, Gaseous Hydride).*
- EPA 7130 *Cadmium (Atomic Absorption, Direct Aspiration).*
- EPA 7131 A *Cadmium (Atomic Absorption, Furnace Techniques).*
- EPA 7190 *Chromium (Atomic Absorption, Direct Aspiration).*
- EPA 7191 *Chromium (Atomic Absorption, Furnace Techniques).*
- EPA 7196 A *Chromium, Hexavalent (Colorimetric).*
- EPA 7200 *Cobalt (Atomic Absorption, Direct Aspiration).*

EPA 7201	<i>Cobalt (Atomic Absorption, Furnace Techniques).</i>
EPA 7210	<i>Copper (Atomic Absorption, Direct Aspiration).</i>
EPA 7211	<i>Copper (Atomic Absorption, Furnace Techniques).</i>
EPA 7420	<i>Lead (Atomic Absorption, Direct Aspiration).</i>
EPA 7421	<i>Lead (Atomic Absorption, Furnace Techniques).</i>
EPA 7471 A	<i>Mercury in Solid or Semisolid Waste (Manual Cold-Vapor Technique).</i>
EPA 7481	<i>Molybdenum (Atomic Absorption, Furnace Techniques).</i>
EPA 7520	<i>Nickel (Atomic Absorption, Direct Aspiration).</i>
EPA 7521	<i>Nickel (Atomic Absorption, Furnace Techniques).</i>
EPA 7741 A	<i>Selenium (Atomic Absorption, Gaseous Hydride).</i>
EPA 7950	<i>Zinc (Atomic Absorption, Direct Aspiration).</i>
EPA 7951	<i>Zinc (Atomic Absorption, Furnace Techniques).</i>

3.4 OTHER DOCUMENT

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT (OECD), Environment Directorate, Environmental Health and Safety Division. *Terrestrial Plants, Growth Test*, Paris, No. 208, 1984, 6 pp.

4 DEFINITIONS

For the purpose of this document, the following definitions shall apply:

bag *n*: container formed of soft material that is folded and assembled, and opens only at the top. French: *sac*. {Reference: *Le grand dictionnaire terminologique* (free translation) [see Annex A].}

NOTE — For the purpose of this document, the notion of "bag" includes handles, drawstrings, pigments, colours and other elements.

biodegradation *n*: degradation caused by biological activity especially by enzymatic action leading to a significant change in the chemical structure of a material. French: *biodégradation*. (Reference: ISO 16929, No. 3.3.)



compost *n*: solid mature product resulting from composting. French: *compost*. (Reference: CAN/BNQ 0413-200/2005 [see Annex A].)

compostable *adj*: said of that which is capable of undergoing biological decomposition in a compost site such that the material is not visually distinguishable and breaks down into carbon dioxide, water, inorganic compounds and biomass, at a rate consistent with known compostable materials. French: *compostable*. (Reference: ASTM D 6002 [see Annex A].)

composting *n*: managed process of bio-oxidation of a solid heterogeneous organic substrate including a thermophilic phase. French: *compostage*. (Reference: CAN/BNQ 0413-200/2005 [see Annex A].)

degradation *n*: an irreversible process leading to a significant change in the structure of a material, typically characterized by a loss of properties (e.g. integrity, molecular mass or structure, mechanical strength) and/or by fragmentation, affected by environmental conditions, proceeding over a period of time and comprising one or more steps. French: *dégradation*. (Reference: ISO 16929, No. 3.2.)

disintegration *n*: the physical breakdown of a material into very small fragments. French: *désintégration*. (References: ISO 14855, No. 3.3, ISO 16929, No. 3.4, and ISO 20200, No. 3.4.)

homopolymer *n*: polymer derived from one species of monomer. French: *homopolymère*. (Reference: ISO 472 [see Annex A].)

5 GENERAL REQUIREMENTS

Manufacturers of compostable plastic bags shall ensure that the bags they produce are conform at all times with the specific requirements of this part.

Bags shall be free of any radioactive material.

6 SPECIFIC REQUIREMENTS

6.1 TRACE ELEMENT CONTENTS

Trace elements of concern are arsenic (As), cadmium (Cd), chromium (Cr), cobalt (Co), copper (Cu), lead (Pb), mercury (Hg), molybdenum (Mo), nickel (Ni), selenium (Se) and zinc (Zn).

The requirements pertaining to the maximum acceptable trace element contents in the compostable plastic bags concern the finished product, i.e. the plastic film in which pigments, if any, are integrated and on which inks, if any, used for printing are deposited.

NOTE — The trace element contents in the plastic film of compostable plastic bags can be calculated based on the contents of each component in the plastic film (resin, pigments and inks).



The maximum allowable trace element contents of compostable plastic bags shall be less than or equal to the following values, when analyzed in accordance with the methods indicated in Clause 7.2:

**MAXIMUM ACCEPTABLE TRACE ELEMENT
CONTENTS OF COMPOSTABLE PLASTIC BAGS**

Trace Element	Maximum Content
	mg/kg (dry weight basis)
Arsenic (As)	19
Cadmium (Cd)	5
Chromium (Cr)	265*
Cobalt (Co)	38
Copper (Cu)	189*
Lead (Pb)	125
Mercury (Hg)	1
Molybdenum (Mo)	5
Nickel (Ni)	45
Selenium (Se)	4
Zinc (Zn)	463

NOTE — Maximum acceptable trace element contents in compostable plastic bags, except for chromium and copper, represent 25 % of the Maximum Acceptable Metals Concentrations (contents) of Table II in "Trade Memorandum T-4-93" (see Annex A) from the Canadian Food Inspection Agency.

* There is no chromium and copper content in "Trade Memorandum T-4-93" (see Annex A). Maximum acceptable contents for chromium and copper in compostable plastic bags represent 25 % of the maximum acceptable trace element concentrations (contents) that were established for Type B composts in Standard CAN/BNQ 0413-200/1997 (see Annex A) in which the chromium and copper contents are respectively 1 060 mg/kg and 757 mg/kg. Those contents were obtained from standards applied by Agriculture and Agri-Food Canada based on the same calculation principles used in the "Trade Memorandum T-4-93" (see Annex A).

6.2 PIGMENTS

The pigments of compostable plastic bags shall be free of chromium VI, when analyzed in accordance with the method indicated in Clause 7.2.

6.3 INKS

Inks used to mark compostable plastic bags shall be free of chromium VI, when analyzed in accordance with the method indicated in Clause 7.2.

6.4 VOLATILE SOLID CONTENT

The volatile solid content of compostable plastic bags shall be at least 50 %, when analyzed in accordance with the method indicated in Clause 7.1.

6.5 COMPOSTABILITY

6.5.1 Disintegration

The disintegration rate of the plastic film of compostable plastic bags shall be at least 90 %, when analyzed in accordance with the procedures described in one of the Standards ISO 16929, ISO 20200 and ASTM D 5338 [without taking into consideration the carbon dioxide (CO₂) capturing system]. Sieving shall be done with a 2,0 mm sieve.

The time needed of the plastic film of compostable plastic bags to reach the disintegration rate shall not exceed 84 days, when analyzed in accordance with the procedure used to measure the disintegration rate.

If the ISO Standard 20200 is used for this analysis, a control compost shall be prepared in accordance with the described procedure, for the purpose of conducting the ecotoxicity test (Clause 6.5.3).

If the ASTM Standard D 5338 is used for this analysis, a sufficient volume of compost shall be prepared, for the purpose of conducting the ecotoxicity test (Clause 6.5.3).

If the ASTM Standard D 5338 is used for this analysis, the sieving procedure used shall be done in conformity with procedure indicated in Subclause 6.1.3.2 of ISO Standard 16929 or procedure indicated in Clause 10 of ISO Standard 20200.

6.5.2 Biodegradation

The biodegradation is done by measuring the ratio of conversion to carbon dioxide (CO₂/ThCO₂). The organic carbon of the plastic film of compostable plastic bags shall be converted to carbon dioxide by the end of the test period when compared to a positive control (relative biodegradation). Both the positive control and the sample shall be run for the same length of time. The results shall be compared at the same length of time after the positive control and the sample have reached a plateau in activity.

The biodegradation can also be made by showing that the organic carbon of the plastic film of compostable plastic bags is converted to carbon dioxide by the end of the test period (absolute biodegradation).

The biodegradation shall be determined for the whole plastic film of the compostable plastic bag or for each organic constituent, which is present in more than 1 % of dry weight basis. Constituents, which are present in less than 1 %, do not need to display biodegradability. However the sum of the constituents for which the biodegradation is not carried out, shall not exceed 5 % in total. Positive control to be used for the demonstration of the biodegradation is microcrystalline cellulose powder.

For plastic film of compostable plastic bags consisting of a homopolymer, at least 60 % of the organic carbon shall be converted to carbon dioxide by the end of the test period, when compared to the positive control and when analyzed in accordance with the methods described in the ISO Standard 14855 or ASTM Standard D 5338.



For plastic film of compostable plastic bags made of all other polymers (random copolymers, block copolymers, segmented copolymers), at least 90 % of the organic carbon shall be converted to carbon dioxide by the end of the test period, when compared to the positive control and when analyzed in accordance with the procedures described in the ISO Standard 14855 or ASTM Standard D 5338.

The test period needed for plastic film of compostable plastic bags to reach the biodegradation rate shall not exceed 180 days, when analyzed in accordance with the procedure used to measure the biodegradation rate.

The test period needed for plastic film of compostable plastic bags to reach the biodegradation rate shall not exceed 365 days, when analyzed in accordance with the procedure used to measure the biodegradation rate and when the test is performed with radioactive labelling of the plastic.

6.5.3 Ecotoxicity

6.5.3.1 General — The ecotoxicological effects shall be determined by a culture test, by comparing the results of the germination and vegetation biomass of the plants, obtained from a control compost and the compost containing the plastic film of compostable plastic bags being tested for disintegration (Clause 6.5.1).

The culture test shall be conducted in accordance with the procedure described in OECD Document *Terrestrial Plants, Growth Test* (No. 208). The modifications indicated in Annex E of NF EN Standard 13432 shall be used.

6.5.3.2 Germination Rate — The germination rate shall be at least 90 % of the rate obtained from the control compost, when analyzed in accordance with the method indicated in Clause 6.5.3.1.

6.5.3.3 Vegetation Biomass Rate — The vegetation biomass rate shall be at least 90 % of the rate obtained from the control compost, when analyzed in accordance with the method indicated in Clause 6.5.3.1.

7 METHODS OF ANALYSIS

7.1 VOLATILE SOLID CONTENT

The volatile solid content shall be determined either in accordance with "Method C" described in ASTM Standard D 2974 or with the procedure described in AOAC Standard 967.05 that refers to the procedures described in AOAC Standard 967.03 and AOAC Standard 967.04. The temperature of the muffle furnace shall be 550 °C.

Results shall be expressed in milligrams per kilogram on a dry weight basis.



7.2 TRACE ELEMENT CONTENT

7.2.1 General

Trace element content shall be determined using the "Inductively Coupled Plasma — Atomic Emission Spectroscopy" methods indicated in Clause 7.2.2, the "Inductively Coupled Plasma Mass Spectroscopy" method indicated in Clause 7.2.3 or the "Atomic Absorption Spectroscopy" methods indicated in Clause 7.2.4, except for mercury (Hg) content, which shall be determined by the cold vapour technique indicated in Clause 7.2.4, and chromium VI, which shall be determined by the colourimetric method indicated in Clause 7.2.5.

Results shall be expressed in milligrams per kilogram (dry weight basis).

7.2.2 "Inductively Coupled Plasma — Atomic Emission Spectroscopy"

As, Cd, Co, Cr, Cu, Mo, Ni, Pb, Se and Zn content by "Inductively Coupled Plasma — Atomic Emission Spectroscopy" shall be determined in accordance with the procedures described in EPA Method 6010 B or AOAC Method 990.08.

For EPA Method 6010 B, test portions shall be digested in accordance with the extraction procedure described in EPA Method 3050 B or EPA Method 3051 prior to analysis.

7.2.3 "Inductively Coupled Plasma Mass Spectroscopy"

As, Cd, Co, Cr, Cu, Mo, Ni, Pb, Se and Zn content by "Inductively Coupled Plasma Mass Spectroscopy" shall be determined in accordance with the procedures described in EPA Method 6020.

Test portions shall be digested in accordance with the extraction procedure described in EPA Method 3050 B or EPA Method 3051 prior to analysis.

7.2.4 "Atomic Absorption Spectroscopy"

As, Cd, Co, Cr, Cu, Hg, Mo, Ni, Pb, Se and Zn content by "Atomic Absorption Spectroscopy" shall be determined in accordance with the procedures described in the following methods:

- Arsenic (As) : EPA 7061 A;
- Cadmium (Cd) : EPA 7130 or EPA 7131 A;
- Chromium (Cr) : EPA 7190 or EPA 7191;
- Cobalt (Co) : EPA 7200 or EPA 7201;
- Copper (Cu) : EPA 7210 or EPA 7211;
- Lead (Pb) : EPA 7420 or EPA 7421;
- Mercury (Hg) : EPA 7471 A;
- Molybdenum (Mo): EPA 7481;
- Nickel (Ni) : EPA 7520 or EPA 7521;
- Selenium (Se) : EPA 7741 A;
- Zinc (Zn) : EPA 7950 or EPA 7951.



7.2.5 Colourimetric Method

Chromium VI content shall be determined in accordance with the procedures described in EPA Method 7196 A.

Test portions shall be digested in accordance with the extraction procedure described in EPA Method 3060 A.

NOTE — EPA Method 7196 A and EPA Method 3060 A may be replaced by equivalent methods.

8 MARKING AND PACKAGING

8.1 COLOURS RELATED TO MARKING

The marking on the compostable plastic bags and on the packaging shall be in a different and contrasting colour to the background on which the marking is placed.

8.2 PACKAGING

Information pertaining to the conservation before used and after filling of compostable plastic bags should be written on the bag packaging.

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ANNEX A
(informative)

INFORMATIVE REFERENCES

A.1 DOCUMENTS FROM STANDARDS BODIES

BNQ (Bureau de normalisation du Québec) [<http://www.bnq.qc.ca>]

CAN/BNQ 0413-200/2005 *Organic Soil Conditioners — Composts.*
(Amendements organiques — Composts.)

CAN/BNQ 0413-200/1997 *Organic Soil Conditioners — Composts.*
(Amendements organiques — Composts.)

ASTM (American Society for Testing and Materials) [<http://www.astm.org/>]

ASTM D 6002 *Guide for Assessing the Compostability of Environmentally Degradable Plastics.*

ISO (International Organization for Standardization) [<http://www.iso.org/>]

ISO 472 *Plastics — Vocabulary.*
(Plastiques — Vocabulaire.)

A.2 GOVERNMENT DOCUMENTS

CANADIAN FOOD INSPECTION AGENCY, Plant Product Division. *Standards for Metals in Fertilizers and Supplements*, Ottawa, September 1997, 4 pp. (Trade Memorandum T-4-93).

CANADIAN COUNCIL OF MINISTERS OF THE ENVIRONMENT. *Guidelines for compost quality*, 2005, 24 pp. (PN 1340).

A.3 OTHER DOCUMENT

OFFICE QUÉBÉCOIS DE LA LANGUE FRANÇAISE (OQLF). *Le grand dictionnaire terminologique*, [Online], 2007.
[<http://www.granddictionnaire.com>].

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COMPOSTABLE PLASTIC BAGS —
PART II: CERTIFICATION REQUIREMENTS

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COMPOSTABLE PLASTIC BAGS — PART II: CERTIFICATION REQUIREMENTS

1 PURPOSE

This part of the certification program outlines the certification rules of procedure and specifies the certification requirements that apply to the certification of compostable plastic bags according to the requirements of Part I.

2 NORMATIVE REFERENCES

For the purpose of this part, the following reference documents contain necessary requirements and are referred to in appropriate places in the text:

BNQ (Bureau de normalisation du Québec) [<http://www.bnq.qc.ca>]

NQ 9902-001/2002 *Product, Process and Service Certification — Rules of Procedure.*
(Certification de produits, de processus et de services — Règles de procédure.)

ASTM (American Society for Testing and Materials) [<http://www.astm.org/>]

ASTM E 1252 *Standard Practice for General Techniques for Obtained Infrared Spectra for Qualitative Analysis.*

ASTM D 5947 *Standard Test Methods for Physical Dimensions of Solid Plastics Specimens.*

ISO (International Organization for Standardization) [<http://www.iso.org>]

ISO/IEC 17025 *General requirements for the competence of testing and calibration laboratories.*
(Exigences générales concernant la compétence des laboratoires d'étalonnage et d'essais.)



SCC (Standards Council of Canada) [<http://www.scc.ca>]

CAN-P-1500

Additional Requirements for Accreditation of Certification Bodies.

(Exigences supplémentaires relatives à l'accréditation des organismes de certification.)

3 TECHNICAL REQUIREMENTS RELATED TO THE PRODUCT

3.1 GENERAL

3.1.1 The compostable plastic bag manufacturer shall comply with the product requirements stipulated in Chapters 5 and 6 of Part I of this document and to the requirements stipulated in this part.

3.1.2 The manufacturer shall notify the BNQ of any modification that he intends to make in the formulation or of any change in raw material supplier that he intends to make.

3.2 DISINTEGRATION, BIODEGRADATION, GERMINATION RATE AND BIOMASS RATE

3.2.1 At the time of certification and when there is a modification in formulation or change in raw material supplier, the manufacturer shall provide the BNQ with the results of the disintegration, biodegradation, germination rate and biomass rate tests on the thickest film of each formulation, conducted according to the corresponding test methods stipulated in Part I of this document.

3.2.2 The results of the disintegration, biodegradation, germination rate and biomass rate tests on the thickest film of each formulation shall comply with the corresponding requirements stipulated in Part I of this document (see Clauses 6.5.1, 6.5.2, 6.5.3.1 and 6.5.3.2 of Table 1).

3.3 INFRARED SPECTRUM

3.3.1 At the time of certification and when there is a modification in formulation or change in raw material supplier, the manufacturer shall provide the BNQ with an infrared spectrum, with wavelengths ranging from 4000 cm^{-1} to 400 cm^{-1} and a transmission ranging from 0 % to 100 %, of the film having the same thickness as the one used for the tests stipulated in Clause 3.2.1 for each of the different formulations.

3.3.2 At the time of certification, during regular inspections and when there is a modification in formulation or change in raw material supplier, an infrared spectrum shall be conducted by the BNQ on each bag whose formulation is different (see Clause 3.3 of Table 1).

3.3.3 The manufacturer's infrared spectrum shall be identical to the infrared spectrum obtained by the BNQ at the time of certification (see Clauses 3.3.1 and 3.3.2).

3.3.4 Each annual infrared spectrum shall be identical to the infrared spectrum obtained at the time of certification where the test is conducted according to ASTM Standard E 1252 with wavelengths ranging from 4000 cm^{-1} to 400 cm^{-1} and a transmission ranging from 0 % to 100 %.



3.4 BAG THICKNESS

3.4.1 At the time of certification and during regular inspections, bag thickness shall be verified by the BNQ according to the ASTM Test Method D 5947, on each of the thickest bags of each of the different formulations.

3.4.2 The thickness of the bags shall be lower than or equal to the thickness of the bag measured at the time of certification (see Clause 3.4 of Table1).

3.5 OTHER REQUIREMENTS RELATED TO THE PRODUCT

3.5.1 The manufacturer shall keep up-to-date a list of trade designations or unique identification number of the compostable plastic bags. The formulation and the thickness (in micrometres) of the bags for which the manufacturer wishes to obtain certification shall be available.

3.5.2 The manufacturer shall keep up-to-date a list of his supply sources (supplier's name and address). The identification and the percentage of each of the ingredients going into the formulation of the bags for a total of 100 % of all the cumulated ingredients shall also be kept up-to-date.

3.5.3 The manufacturer shall keep up-to-date a list of the distributors of his bags.

4 ADMINISTRATIVE REQUIREMENTS

4.1 GENERAL RULES OF PROCEDURE

The rules of procedure for BNQ certification are described in detail in Document NQ 9902-001. Specific items applying to the certification program of compostable plastic bags are specified hereafter.

NOTE — Document NQ 9902-001 is available free of charge from the BNQ Web site [<http://www.bnq.qc.ca>], but, if need be, a printed copy may also be provided.

4.2 SPECIFIC POINTS OF THE CERTIFICATION PROGRAM

4.2.1 Application for Certification

A distinct application for certification shall be filed for each of the compostable plastic bag manufacturer's addresses.

In the documents of application for certification, the applicant shall provide the following data:

- trade or corporate name and trade address of the compostable plastic bag manufacturer;

NOTE — If the compostable plastic bag manufacturer is part of a business combination, the name provided is the trade or corporate name of the compostable plastic bag manufacturer and not the trade or corporate name of the business combination.



- the results of the disintegration, biodegradation, germination rate, biomass rate and infrared spectrum tests on the thickest film of each formulation (see Clauses 3.2.1 and 3.3.1);
- trade designation or unique identification number of the compostable plastic bags, the bag formulation and the thickness (in micrometres) corresponding to each of the bags for which the manufacturer wishes to obtain certification (see Clause 3.5.1);
- supply source (supplier's name and address) and identification of each of the ingredients going into the formulation of the bags (see Clause 3.5.2);
- percentage of each of the ingredients going into the formulation of the bags for a total of 100 % of all the cumulated ingredients (see Clause 3.5.2);
- list of bag distributors (see Clause 3.5.3).

NOTE — The certificate of conformity issued by the BNQ indicates the trade designation or a unique identification number for each of the certified compostable plastic bags.

4.2.2 Inspection with the View to Certification

The BNQ shall conduct the tests stipulated in Table 1 of this part on bag samples at one of the distributors of the manufacturer's bags (with the exception of the ink that shall come from the manufacturer).

4.2.3 Regular Inspection Visits

Once a year, the BNQ shall conduct the tests stipulated in Table 1 of this part on bag samples at one of the distributors of the manufacturer's bags (with the exception of the ink that shall come from the manufacturer).

4.2.4 Renewal of the Certificate of Conformity

Every two years, on the anniversary date (month) of the issuing of the certificate of conformity, the certificate may be renewed according to the conditions specified in Clause 5.7 of Document NQ 9902-001, insofar as all certification program requirements are met.

5 MARKING AND PACKAGING

5.1 MARKING

5.1.1 The conditions related to the rights and obligations stipulated in Document NQ 9902-001 shall be respected by the manufacturer holding a valid certificate of conformity issued by the BNQ, for affixing distinctive marking onto its bags, as described in Clauses 5.1.3, 5.1.3 and 5.2, mentioning that the compostable plastic bags are certified, only after the manufacturer has been assured of their conformity to the requirements of this certification program.



5.1.2 The mark of conformity applicable to this certification program shall be affixed so as to be readable and permanent every 30 cm and shall have a minimum height of 3 cm on at least one surface of each compostable plastic bag.

NOTE — For more information on this program’s mark of conformity, log onto [www.compostable.info].

5.1.3 The number of the certificate of conformity and the unique identification of the compostable plastic bags shall be affixed so as to be readable and permanent on each compostable plastic bag at least once.

5.2 PACKAGING

The BNQ’s mark of conformity applicable to this certification program, the number of BNQ’s certificate of conformity and the unique identification of the compostable plastic bags shall be affixed on the packaging at least once.

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**TABLE 1****INSPECTIONS AND TESTS TO BE CONDUCTED BY THE BNQ**

This table specifies the inspections the BNQ shall make and their frequencies, and indicates the applicable details under the terms of this certification program, where necessary.

Chapter or Clause of Part I	Inspections and Tests to Be Conducted by the BNQ	Sampling at the Distributors of the Manufacturer's Bags	Details
6 <i>Specific Requirements</i>			
6.1 <i>Trace Element Contents</i>	<p>Test to determine the trace element content.</p> <p>Frequency: at the time of certification, during regular inspections and when there is a modification in formulation or a change in raw material supplier.</p>	<p>At the time of certification and when there is a modification in formulation or a change in raw material supplier, sample the thickest bag for each formulation.</p> <p>During regular inspections, sample any certified bag.</p>	<p>Test conducted by a laboratory subcontracted by the BNQ that meets the requirements of Clause 4.3 of Document CAN-P-1500.</p>
6.2 <i>Pigments</i>	<p>Test to determine the chromium VI content in the pigments.</p> <p>Frequency: at the time of certification or when there is a modification in formulation or a change in raw material supplier.</p>	<p>Sample any bag that is subject to certification.</p>	<p>Test conducted by a laboratory subcontracted by the BNQ that meets the requirements of Clause 4.3 of Document CAN-P-1500.</p> <p>The chromium VI analysis shall be conducted only if total chromium is detected during the trace element analysis.</p>
6.3 <i>Inks</i>	<p>Test to determine the chromium VI content in the ink.</p> <p>Frequency: at the time of certification or when there is a modification in formulation or a change in raw material supplier.</p>	<p>Manufacturer's sample.</p> <p>When requested by the BNQ, the manufacturer shall take samples of 150 ml per colour and provide them to the BNQ.</p>	<p>Test conducted by a laboratory subcontracted by the BNQ that meets the requirements of Clause 4.3 of Document CAN-P-1500.</p> <p>The chromium VI analysis shall be conducted only if total chromium is detected during the trace element analysis.</p>



Chapter or Clause of Part I	Inspections and Tests to Be Conducted by the BNQ	Sampling at the Distributors of the Manufacturer's Bags	Details
6.4 <i>Volatile Solid Content</i>	Test to determine the volatile solid content. Frequency: at the time of certification or when there is a modification in formulation or a change in raw material supplier.	Sample the thickest bag for each formulation.	Test conducted by a laboratory subcontracted by the BNQ that meets the requirements of Clause 4.3 of Document CAN-P-1500.
6.5 <i>Compostability</i>			
6.5.1 <i>Disintegration</i>	Verification of conformity.		
6.5.2 <i>Biodegradation</i>	Frequency: at the time of certification or when there is a modification in formulation or a change in raw material supplier.		
6.5.3 <i>Ecotoxicity</i>			
6.5.3.1 <i>General</i>			
6.5.3.2 <i>Germination Rate</i>	Verification of conformity. Frequency: at the time of certification or when there is a modification in formulation or a change in raw material supplier.		
6.5.3.3 <i>Vegetation Biomass Rate</i>	Verification of conformity. Frequency: at the time of certification or when there is a modification in formulation or a change in raw material supplier.		
8 <i>Marking and Packaging</i>			
8.1 <i>Colours Related to Marking</i>	Verification of conformity. Frequency: at the time of certification and during regular inspections.		
8.2 <i>Packaging</i>	Verification of conformity. Frequency: at the time of certification and during regular inspections.		



Chapter or Clause of Part II	Inspections and Tests to Be Conducted by the BNQ	Sampling at the Distributors of the Manufacturer's Bags	Details
3 <i>Technical Requirements Related to the Product</i>			
3.3 <i>Infrared Spectrum</i>	Infrared test. Frequency: at the time of certification, during regular inspections and when there is a modification in formulation or a change in raw material supplier.	At the time of certification or when there is a modification in formulation or a change in raw material supplier, sample the thickest bag for each formulation. During regular inspections, sample any certified bag.	Test conducted by a laboratory subcontracted by the BNQ that is accredited according to the requirements of Document ISO/IEC 17025.
3.4 <i>Bag Thickness</i>	Measurement of bag thickness. Frequency: at the time of certification and during regular inspections.	Sample the thickest bag for each formulation.	Test conducted by a laboratory subcontracted by the BNQ that is accredited according to the requirements of Document ISO/IEC 17025.

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