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What are Certifiable Compostable Products and how should they be handled in our waste stream?

SWANA Northern Lights Chapter
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Welcome

Key Questions

1. What are certified compostable products?
2. Who tests products? For how long? For which parameters?
3. What does lab testing mean?
4. Can these products be used as a feedstock at existing organics processing facilities?
5. Do they break down in existing organics processing facilities?
6. How should these products be collected?
7. Do these products impact compost quality?

➔ What are Certified Compostable Products?

- Defined in Ontario Regulation 391/21 (Blue Box Regulation) as material that is only capable of being processed by composting, anaerobic digestion or other processes that result in decomposition by bacteria or other living organisms, and is certified compostable by an international, national, or industry standard.
- The Blue Box Verification and Audit Procedures outlines that **all certified compostable products and packaging must be certified under one of the following standards: CAN/BNQ 0017-088, ISO 17088, ASTM D6400, ASTM D6868, and EN 13432.**

What do Certified Compostable Products look like?

- Packaging manufacturers and food service industries are looking for ways to replace single-use plastics with biodegradable and compostable packaging.
- More and more plastics packaging are labelled as “biodegradable” and “compostable” and are entering the waste stream.
- Can comprise of fibre and plastic materials.



→ Who are the Certifying Bodies in North America?

1. Biodegradable Products Institute (BPI; USA)



2. Bureau de Normalisation du Québec (BNQ; Quebec, Canada)

- Focus on collection containers and products/packaging related to food waste.
- Compostability relates to largescale composting conditions. Home composting is not included nor is anaerobic digestion (AD). (2021 ISO 17088 includes AD)
- Oxo degradables are not accepted for certification because these products do not meet the performance required for certification.
- The total organic 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.
- The ISO compostable standard (17088) forms the baseline of their laboratory testing program, with adjustments to the standard incorporating country/jurisdictional regulations as well as elements considered important for the certification dynamics.



Bureau de normalisation
du Québec

→ What does the Lab Certification Mean?

BPI	BNQ
Disintegration: at least 90% in <84 days via <2mm sieve , as defined in ASTM D6400 or ASTM D6868.	Disintegration: at least 90% in <84 days via <2mm sieve , in accordance with ISO 16929, ISO 20200, ISO 14855 1 or ASTM D 5338.
Aerobic biodegradation: conversion of at least 90% of carbon to carbon dioxide (CO ₂) within 180 days, as defined in ASTM D6400 or ASTM D6868.	Aerobic biodegradation: conversion of at least 90% of carbon to CO ₂ within 180 days, in accordance with ISO 14855-1, ISO 14855-2 or ASTM D 5338.
Plant growth as defined by ASTM D6400 or ASTM D6868.	Plant growth in accordance with Organisation for Economic Co-operation and Development (OECD) Guideline 208 with modifications in Annex E of EN 13432:2000. Seedling germination rate & plant biomass of tested plant species in sample compost >90% of blank compost
Regulated metals and other elements as defined by ASTM D6400 or ASTM D6868.	Regulated metals and other elements in plastic products and packaging. Maximum metal concentrations for Canada are prescribed in Section 6.1 of BNQ 9011-911-I/2007.
Per-and poly-fluorinated compounds (PFCs) testing for total fluorine <100 ppm in accordance with EN 14582, ISO 10304, DIN 51723, EN 15408 or ASTM D1179-04.	Proposed updates planned for end of 2021 on metals limits, PFC limits, and ecotoxicity.

→ Proposed Changes to BNQ Certification

BNQ Proposed Revision	BNQ Rationale
<p>Proposed: <i>45 days to achieve 90% disintegration</i> to <2 mm fragments.</p> <p>Current: 84 days to achieve 90% disintegration to <2 mm fragments.</p>	<ul style="list-style-type: none"> • Reduction in testing time period of 39 days. • 45-day duration is based on the reported operating experience from composting facilities.
<p>Proposed: Compost is not only the final product of the aerobic composting process but also the aerobically stabilized product of the anaerobic digestion process.</p> <p>Current: No mention of anaerobic digestion.</p>	<ul style="list-style-type: none"> • The level of anaerobic biodegradation can be established by testing under controlled conditions using ISO 14853 or ISO 15985, in order to estimate the amount of biogas recovered during the first anaerobic phase. • No pass/fail requirement for the percentage of anaerobic biodegradation has been set because most commercial biogasification plants provide for a follow-on second phase of aerobic organic recycling.
<p>Proposed: The concentrations of regulated metals and other elements in the plastics product or material shall be <20% of those prescribed in CAN/BNQ 0413-200, which prescribes different limits for Category AA and A compost compared to Category B compost.</p> <p>Current: Concentrations of regulated metals & other elements in plastic product or material <50% of those prescribed for sludges, fertilizers and composts in country where final product will be placed on market or disposed - maximum metal concentrations for Canada are those prescribed in 6.1 of BNQ 9011-911-1/2007</p>	<ul style="list-style-type: none"> • Opinion that a 20% limit has to be set in order to ensure a potential compost contamination by metals is as low as possible. • Refers to the current edition of the Compost standard CAN/BNQ 0413-200/2016.

→ International Standards

1. ISO 17088 – International
2. EN 13432 – Europe
3. AS 4736 – Europe
4. ASTM D6400 – USA
5. ASTM D6868 – USA

Mandatory Testing Requirements

- Disintegration
- Aerobic Biodegradation
- Ecotoxicity
- Plant growth
- Acute earthworm toxicity



→ Life Cycle Considerations of Certified Compostable Products

Design of Compostable Products

- Key ingredients
- Product colour
- Certification standards
- Labeling and marketing standards
- **Field testing certification**
- Information database

Collection of Used Products

- Identify product disposal route
- Green bin, blue bin, landfill, other
- Public education
- **Minimize contamination in green and blue bins**
- Consistent collection practices across Country

Processing (Aerobic & Anaerobic Facilities)

- Pre-processing: enhanced screening/sorting (i.e., new shredder at composting facility)
- Processing: duration, temperature, moisture
- Send residuals from AD facility for composting at dedicated, new facilities
- Recirculation of overs at composting facility

End Markets

- Lab Certification confirms acceptable feedstock for composting
- **Minimize contamination**

Conclusions

1. Lab Certification confirms product is acceptable as feedstock for composting.
2. Establishment of a field certification process by product type and processing technology type is currently being discussed.
 - Different certified compostable products will react differently in aerobic facilities due to the composition of the products and the facility operations.
 - Fibre products may behave differently in facilities than plastic products.
 - It will help ensure products break down in operating industrial composting and anaerobic digestion facilities.
3. How the products are collected needs to be discussed.

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Questions



* Get in touch

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