Local resource recovery drives bioplastics standards globally

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The push to overhaul the use of conventional plastics with bio-based and/or biodegradable alternatives is supported by many multi-national companies, particularly in the various consumer goods industries.

Therefore, international standardization of the bioplastic packaging or (single use) product content is seemingly foreseeable, if not inevitable. However, recent legal initiatives looking into this previously unregulated sector suggest bioplastics specifications will be based upon actual recovery in the communities in which they are waste-managed, turning a global development into a very local concern.

European Union (E.U.) mandates performance proof for biodegradable plastics (BDP)

The European Commission (EC) has been actively investigating the value of bioplastics under various end-of-life processes in an effort to capture the actual movement of such materials within Europe. In December 2020, the EC issued *Biodegradability of plastics in the open environment*, containing recommendations by an independent scientific advisory group looking at the performance of BDPs where no dedicated processing (such as in-vessel composting) has been applied.

The recommendations constrain the promotion of BDP and require performance verification based upon the particular waste management environments in which they are processed. These recommendations include:

- Supporting the development of testing and certification schemes evaluating **actual biodegradation** of BDP in **the context of their application in a specific receiving open environment;**
- Required assessment of biodegradation and environmental risk of BDP **under the conditions of specific open environments**; and
- Supporting the development of a materials catalogue and **their relative biodegradation rates in a range of environments.**

As the EC is aware from its ongoing assessment of compostable/biodegradable plastic packaging standard CEN 13432, processing of waste, even industrial composting activities, differs among E.U. members, making the “specific open environment” a domestic designation at best.

Japan places biomass at centre of bioplastics strategy

Similarly, Japan recently issued a *Bioplastic Introduction Roadmap* specifically tied to growth of “sustainable bioplastics” driven by a national plastic resource recycling strategy. The roadmap focuses on switching from fossil fuel to biomass-based polymers, specifically plant-derived inputs, reflecting the availability of local resources.

Manufacturers of products using plastics, such as containers and packaging, plastic shopping bags, electrical and electronic equipment, clothing, footwear, furniture and toys, are to introduce biomass content into their products, with the coincident growth of recycling infrastructure to match this material profile. Concerns over international compostability standards and certifications are secondary to Japanese resources and their recovery.

Canada looks at aerobic/anaerobic bioplastic performance

The country’s Zero Waste Plastic Initiative is funding an assessment of the performance of certain “compostable” bioplastics in both aerobic and anaerobic organic waste facilities, recognizing that plastic waste frequently contaminates organic waste streams, particularly residential source-separated “green bin” organics. In doing so, locally-demonstrated resource recovery is prioritized over international bioplastics standards:

> *While national and international certification standards exist,* ***meeting those standards does not necessarily ensure that Compostables can be properly managed*** *after reception of the source separated organics, including Compostables, at Ontario’s aerobic composting or anaerobic digestion facilities.*

A similar study was funded last year by the EC and found the demonstrated value of compostable plastics in these processes to be “sparse and inconclusive”.

Bottom-up waste management over top-down product standards

While there are significant growth projections for bioplastics and plans for further standards developments, such as under the EU Circular Economy Action Plan 2020, obtaining product certification under an international regime will not necessarily mean acceptance in any domestic market. Instead, demonstrable performance of the bioplastic within existing local waste management infrastructure will ultimately be needed.

For more information, please contact any of the key contacts listed below.

By

Jonathan Cocker

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BLG Offices

Calgary

Centennial Place, East Tower
520 3rd Avenue S.W.
Calgary, AB, Canada
T2P 0R3

T 403.232.9500
F 403.266.1395

Ottawa

World Exchange Plaza
100 Queen Street
Ottawa, ON, Canada
K1P 1J9

T 613.237.5160
F 613.230.8842

Vancouver

1200 Waterfront Centre
200 Burrard Street
Vancouver, BC, Canada
V7X 1T2

T 604.687.5744
F 604.687.1415

Montréal

1000 De La Gauchetière Street West
Suite 900
Montréal, QC, Canada
H3B 5H4

T 514.954.2555
F 514.879.9015

Toronto

Bay Adelaide Centre, East Tower
22 Adelaide Street West
Toronto, ON, Canada
M5H 4E3

T 416.367.6000
F 416.367.6749

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