Bioplastics NEWS

Plastiphobia and Bioplastics Definitions

Michael Stephen is a spokesperson from the bioplastics industry. He shares his thoughts and opinion on important issues that are impacting the bioplastics industry. Today, Michael writes about plastiphobia and he brings some clarity around bioplastics definitions.

Michael Stephen

Plastiphobia

In my column on 1 st January I wrote about Plastiphobia – the emotional reaction against plastic which spread like wildfire when David Attenborough's "Blue Planet" programme appeared on the BBC.

A few days ago I read a report by the Green Alliance, who had interviewed representatives from five of the UK's major supermarkets as well as from major consumer goods and beverage companies.

One of them had received many complaints saying that "plastic is evil and has no place, regardless of any positives it might have in addressing food waste and what not… It's been ferocious."

However, these companies need to resist Plastiphobia, because the report finds that "Worryingly, the brands report that decisions to switch away from plastic are often made without considering the environmental impact of the substitute materials chosen."

Multiple interviewees indicated the desire to avoid “kneejerk reactions”, suggesting that, while they know they need to have a better approach to plastic and packaging, they “need to have time to get the right solution in place.” One respondent added: there is “not a lot of joined up thinking going on.”

Another noted: “I think there’s a lot of pressure to move to alternatives, which aren’t necessarily better from an environmental and climate impact point of view.”

The Report says that some decisions have been taken knowing it could actually increase environmental burdens. One supermarket representative was frank: “We are aware that [by switching from plastic to other materials] we may, in some cases, be increasing our carbon footprint.” A brand representative bluntly complained about misinformation being spread about the environmental credentials of non-plastic single use packaging formats: “The past year has just really pissed me off no end with companies coming out and boasting about not using plastic, even when they’re in single use glass, and their carbon emissions are going to be off the scale.”

Paper? Some supermarkets had shifted to single-use paper bags, but the Report says that “This is a worrying trend, as paper bags can have much higher carbon impacts. A 2011 study for the Northern Ireland Assembly found that paper bags generally require four times as much energy to manufacture as plastic bags. A February 2018, Life cycle assessment of carrier bags in Denmark concluded that “When factors like ozone depletion, human and ecosystem toxicity and water and air pollution are accounted for, a paper bag would need to be reused 43 times to have a lower impact than the average plastic bag.

Refillables? concern with the in-store refill model is the reduction in shelf-life for some products, with one respondent noting that some fresh drinks would last just two days if poured into a customer’s own bottle, compared to 20 to 30 days in a factory sealed container.

Reusable Bags? “The increase in the use of so-called ‘bags for life’ that has accompanied the five pence single use carrier-bag charge in England is a case in point. Shoppers are often using bags intended for multiple use like single use bags, purchasing an average of 54 a year, resulting in an overall increase in material use.”

Compostable plastic? One repeated concern was around the use of bio-based and compostable material for packaging. A Grocer survey of more than 1,000 individuals in 2019 found that consumers think that plant-based compostables are the most environmentally friendly packaging materials, ahead of paper, glass, cardboard, conventional plastic and aluminium, in that order.

However, the retailers and brands we interviewed were wary about replacing conventional plastic with these novel plastics in their packaging. Some of this came down to cost, with one supermarket representative suggesting: “It’s difficult to see how that can get to a realistic cost position.” Not only is it difficult to get to a realistic cost position because these plastics cost four times as much as ordinary plastic – but they are also addressing the wrong problem.

The problem is not that there is insufficient plastic going into composting facilities – the problem is that there is too much plastic getting into the open environment. To address that problem they need packaging made with d2w material, which is tested to ASTM D6954 to biodegrade in the open environment.

The report quotes one respondent "As a retailer, a lot of time is spent on responding to media and public perception of the plastics issue. This can detract from the more rigorous work required to develop longer term, systematic, sustainable solutions that have the potential to positively transform consumption patterns." Another respondent said "I'd like to be having a more rounded, well informed debate around plastic…"

They are right. Supermarkets around the world need to be engaging with companies like Symphony Environmental who understand this issue, and challenging the EU on biodegradable plastics – not lying down and waiting for muddled thinking in Brussels to remove this option from their decision- making process.

Definitions

The Green Alliance Report says "When we talk to consumers, they're hugely confused about what bio-based, compostable and biodegradable mean."

Let me explain:

BIO-BASED plastics consist of about 40% polymerised starch from corn or other food-crops, and 60% petroleum-based material. Some are and some are not biodegradable.

BIODEGRADABLE means that it can be consumed by bacteria and fungi. As I said last week, there are two main types of biodegradable plastic –

- A. is tested according to EN13432 or ASTM D6400 to biodegrade in the special conditions found in an industrial composting facility (not in the open environment), and
- B. is tested according to ASTM D6954 to biodegrade if it gets into the open environment.

BIOPLASTICS: There are two types of Bioplastics

1. Bio-based plastics, and

2. plastics which are biodegradable (Type A and type B plastics above)

COMPOSTABLE is a misleading term to apply to plastic, because it does not convert into compost. This is type A plastic, which is required by EN13432 to convert into CO2 gas within 180 days.

OXO-DEGRADATION is defined by CEN (the European Standards authority) in TR15351 as "degradation identified as resulting from oxidative cleavage of macromolecules." This describes ordinary plastics, which abiotically degrade by oxidation in the open environment, but do not become biodegradable except over a very long period of time.

OXO-BIODEGRADATION is defined by CEN as "degradation resulting from oxidative and cell-mediated phenomena, either simultaneously or successively". This means that the plastic degrades by oxidation until its molecular weight is low enough to be accessible to bacteria and fungi, who then recycle it back into nature.

Michael Stephen

Michael Stephen is a lawyer and was a member of the United Kingdom Parliament, where he served on the Environment Select Committee.

When he left Parliament Symphony Environmental Technologies Plc. attracted his attention because of his interest in the environment.

He is now Deputy Chairman of Symphony, which is listed on the AIM market of the London Stock Exchange, and is the founder and Chairman of the Oxo-biodegradable Plastics Association.

Earlier Postings in this Column

- 1/ 1/ 20 – **Plastiphobia, Microplastics and A Throw-Away Society**
- 7/ 1/ 20 – **Recycling, Lab Testing, Bangladesh and the Right Bioplastic**

Interview with Michael Stephen

- **Questions and Answers on OXO-Biodegradability**

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