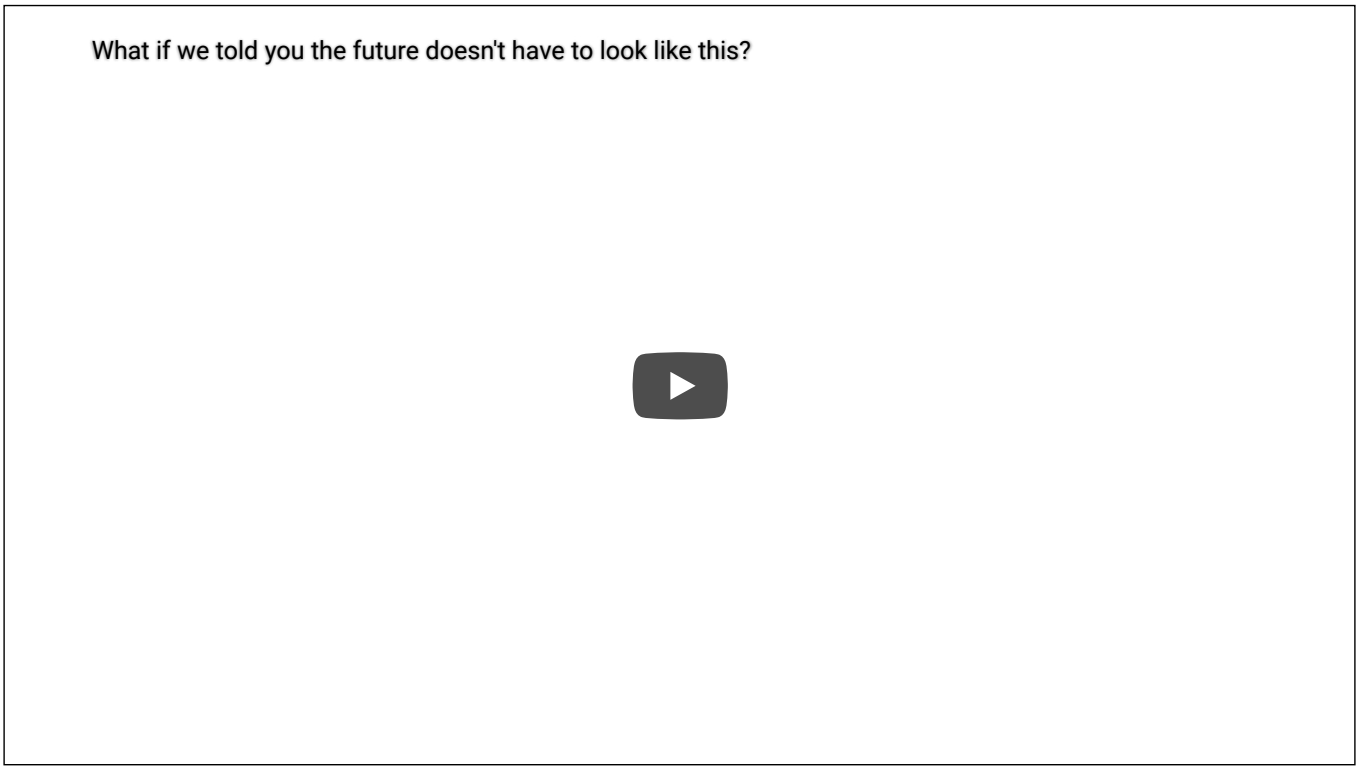
Bioplastics NEWS

OXO Biodegradable Plastic

Michael Stephen, an international expert on bioplastics, shares his thoughts and opinion on important issues impacting the bioplastics industry. Today, Michael writes about OXO-Biodegradable plastics. This is a FREE Article.

Here's a short video introduction to this type of plastic:



For those who want the detail, the OPA has responded to the latest EU scientists' reports; here's the doc

OPA Response to SAM Report Feb 2021 Download

Here is the Executive Summary

- The Report notes that *"global demand for very durable, lightweight and versatile materials, such as plastic materials, is growing and with it the amount of related plastic waste in the open environment is increasing, causing harm and pollution in land and marine ecosystems."* It is therefore **no longer acceptable to continue using ordinary plastic**, which fragments into microplastics and can lie or float around in the environment for decades.

- The report continues: *"Some plastic products, may be either difficult or not possible to collect after their use, due to their nature or circumstances in which they are employed. As a result, there is a high risk of these products ending up in the environment. In those specific cases, **biodegradability could be investigated as a possible remediation measure."***

- Fortunately the scientists who developed plastics had the foresight to identify the problem and provide us with a solution. They called it oxo-biodegradation, because they put a catalyst into ordinary plastic which accelerates oxidation so as to reduce the molecular weight to the point where it can be bioassimilated. This is not the same as oxo-degradable plastic.

- Oxo-biodegradable plastic is not designed to circumvent or replace current waste disposal practices, nor to prevent movement toward a circular economy. **It is not put forward as "a solution to littering."**

- Oxo-biodegradable plastic exists to deal with the *failure* of waste-management, by ensuring that plastic which has escaped into the open environment will biodegrade much more quickly and be **removed from the eco-system by naturally-occurring bacteria.**

- It is designed so that during its useful life it can be used, re-used, and recycled in the same way as ordinary plastic, and can itself be made from recyclate. It does not rule out more circular and useful end-of-life options if it does not escape into the open environment.

- The authors of the GCSA Report seem to be **searching for the holy grail, but they will never find it.** They are looking for a type of plastic whose timescale to complete biodegradation under any conditions in the open environment is very short and can be accurately predicted.

- When a plastic product is made, it is not known what the conditions will be at the time and in the place where it is discarded, nor will it be known into which category of open environment eg land or sea, temperate or tropical, it will be discarded. Therefore it is **impossible for the speed of degradation and biodegradation to be ascertained in advance**.

- *"Even when certified to biodegrade in a particular environment, seasonal and microbiological variations in nature mean that* ***we need to accept uncertainties around actual biodegradation rates."***

- The Report says that *the "timeframe needs to be a timescale short enough not to be as harmful to the environment as conventional plastics and not to lead to a harmful or lasting accumulation in the open environment."* **This is the timescale for which oxo-biodegradable plastic is designed.**

- The Report accepts that *"In the open environment the CO_2 release [which is the indicator of biodegradation] cannot be captured and measured."* For that reason controlled laboratory mineralization experiments such as ASTM D6954 have been devised by polymer scientists. Recommendation 2.2.2 in the Report is to require testing under laboratory and ***simulated*****environmental conditions**.

- **Oxo-biodegradable mulch films** can be programmed at manufacture to degrade soon after the harvest. The degraded material can then be ploughed into the soil where it completes the bio-degradation process and becomes a source of carbon for next year's plants.

- Oxo-biodegradable plastics should not be confused with other technologies which claim biodegradability, including those which are mixed with starch so that the starch biodegrades, leaving the polyethylene or polypropylene behind. Nor should oxo-biodegradable plastics be confused with enzymatic plastics.

- There is nothing wrong with composting garden and kitchen waste, but no plastics of any kind should be introduced into the process. There are at least **21 reasons why plastic marketed as "compostable" is not useful**·

- **Plastics marketed as compostable are an irrelevance**, because the main problem facing governments today is plastic waste which has escaped into the open environment, from which it cannot realistically be collected and taken to a composting facility.

- Most consumers don't realise that "compostable" plastic **does not convert into compost,** and it is therefore **deceptive to market it as compostable**. It is required by EN13432 to convert rapidly into CO_2 gas. If you can collect a plastic product there are better things to do with it than turn it into CO_2.This is not consistent with a circular economy.

- The SAPEA report notes at 5.4.2 that *"If compostable plastics are introduced into the open environment, their certifications no longer apply."* **It is deceptive to market plastics designed to biodegrade in a composting facility as "biodegradable**."

banned. This procedure has not been complied with. The European Chemicals Agency is **not convinced that oxo-biodegradable plastic**

creates microplastics, and the purported ban of oxo-degradable plastic is under **legal challenge in the courts of the EU.**

- **Oxo-biodegradable plastic has been well described by Intertek** (one of the world's largest inspection and certification companies) in their evidence to ECHA of 24th May 2018. They made the following points:
  - The material used for making plastics is an inevitable by-product of the process of making fuels, and the **same amount of oil would be extracted** from the ground if plastics did not exist.
  - Almost all the microplastics found in the oceans have **come from the fragmentation of conventional plastics**. The fragments remain for years at a molecular mass which is too high for biodegradation.
  - The oceanic micro-plastic problem has arisen because the **dwell-time of conventional plastics is too long** compared to the rate of arrival of more plastics. Any shortening of the dwell-time must be useful.
  - Whatever the speed of degradation of oxo-biodegradable plastic, it **is faster than that of conventional plastics.**
  - Oxo-biodegradable plastics **do not encourage a throw-away society**.
  - Oxo-biodegradable plastics are **not antagonistic to re-use and recycling**.
  - **A ban does not seem to be logical or justified**.

"It is important to ensure that consumers are provided with clear and correct information." The OPA and its members agree with that, and are willing to work with governments to agree definitions and to devise advertising and labelling criteria.

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
- 14/1/20 – Plastiphobia and Bioplastics Definitions
- 21/1/20 – Composting, the European Union and Unemployment
- 30/1/20 – Plastiphobia, Malaysia and a Case Against Compostables and Paper
- 7/02/20 – Coronavirus, MPs Letter, Montreal, Australia and the Dominican Republic
- 14/02/20 – Oman, MacArthur Foundation, Stifling Innovation, South Africa and Compostable Plastics
- 24/02/20 – Serbia, India, Pakistan and European Bioplastics
- 03/03/20 – Plastic To Protect Health and Common Sense on Plastic
- 10/03/20 – Plastiphobia, Singapore, Compostable Plastics, Doorknobs and Carbios
- 17/03/20 – Greening our Way to Infection, Defra Warns Against Bioplastics and Montreal
- 24/03/20 – Ditch the Plastic Bag Ban and Inn-Probio
- 01/04/20 – The Come Back of Plastic Bags, Compostable Plastic Not Wanted and EASAC
- 16/04/20 – Coronavirus and Agricultural Plastics
- 11/05/20 – Coronavirus, Peru, Barbados and Recycling
- 18/05/20 – Say No to Plastiphobia, False Descriptions and the Recycling Myth
- 02/06/20 – Definitions and More Setbacks for Plastiphobia
- 11/06/20 – BBIA, Food Waste and Testing of OXO-Biodegradable Plastic
- 19/06/20 – Oxo Biodegradation, Independent Reports and Precautionary Principle
- 29/06/20 – Banana Republic, Why Turn Plastic into CO2 and Plastic Waste from Ships
- 13/07/20 – Running Scared, The Daily Telegraph and Market Report
- 20/07/202 – Tipa, Plastics Today and The American Genius
- 27/07/20 – Coronavirus, Plastic Litter, Bahrain and Polymateria
- 17/08/20 – Plastics Europe, Confusing Issues and Paper
- 25/08/20 – Professor Emo Chiellini, Plastics Today, Greenwashing and Coronavirus
- 28/09/20 – Kill the Virus, Marine Degradation, Airports, Brazil Retail, Plastic Growth and Face Mask
- 08/10/20 – Compostable vs Biodegradable, Covid 19 and New British Bioplastic Standard

- 09/11/20 – Support for OXO BIO, Westminster Forum, Euractiv and Covid
- 23/11/20 – Toxicity of Bio-based and Biodegradable Plastics, and Covid Scaremongering
- 15/12/20 – Recycling and An Article from Austria
- 21/12/20 – EU Scientific Advisers, China Chose Wrong Bioplastics and Covid Nonsense
- 05/01/20 – EU, Covid Lockdowns, WRAP, British Standards Institution and Polymateria
- 12/01/21 – Intertek and Composting
- 19/01/21 – Recycling and Exporting Plastic Waste
- 22/02/21 – Seaweed Plastic, Orange Peel and Xampla (FREE)

Interview with Michael Stephen

- Questions and Answers on OXO-Biodegradability

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