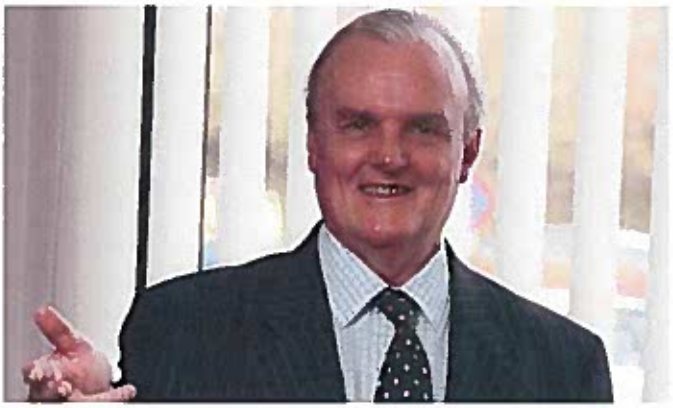
Michael Stephen | How can oxo-biodegradable plastics most effectively be used?

Waqas Qureshi May 21, 2015 No Comments » Print

Michael Stephen, chairman of the Oxo-biodegradable Plastics Association and deputy chairman of Symphony Environmental Technologies, discusses how this material biodegrades in the outdoor environment.



Oxo-biodegradable plastics have from time to time been challenged, often by people who do not understand the technology, or who are specialists (and have commercial interests in) other forms of biodegradable plastics.

We are therefore very pleased that the EU Commission will be making a study of oxo-biodegradable plastics, and we hope this will be an opportunity to prove beyond doubt that they do biodegrade in the outdoor environment, they are not toxic, and that they can be recycled with ordinary plastics.

Indeed, if they just fragmented without biodegrading why would CEN define oxo-biodegradation, and why would the UK, US and French standards include tests for biodegradation?

Oxo-biodegradable technology was developed to address the problem caused by plastic discarded into the land or marine environment and which, if not collected, could lie or float around for decades.

It degrades completely to a short, preset timescale, without leaving any harmful or messy fragments – an environmentally compelling solution for those worried about the formidable amount of plastic pollution.

Oxo-biodegradable technology works by converting the plastic at the end of its useful life into biodegradable materials.

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Michael Stephen How Can Oxo-Biodegradable Plastics Most Effectively Be Used?

May 22, 2015

Tags: Oxo-biodegradable Plastics, plastics

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This starts with an abiotic process wherever oxygen is present (eg: in the open air) which changes the molecular structure of the plastic.

Thus, at the end of this phase, the material is no longer a plastic and has become a biodegradable material, which biodegrades on land or water into CO2, water and humus.

To qualify as an 'oxo-bio' plastic it has to pass the tests prescribed by ASTM D6954 or BS8472 or AFNOR T51-808, not only to show that it will degrade, then biodegrade in the open environment, but also to show that it contains no heavy metals and is not eco-toxic.

It is specifically designed not to degrade deep in landfill and will not therefore generate methane (unlike bio-based plastics, paper, or cotton).

Biodegradation in landfill is not desirable.

Oxo-bio plastic is not marketed for composting (though tests have shown that it can be satisfactorily used in an in-vessel process). During its useful life it can be re-used and recycled. It can also be made with the same machines and raw materials as normal plastic, at little or no extra cost.

Oxo-biodegradable plastic is made to have a service-life, so that it can be re-used and recycled, so it is obviously not designed to degrade immediately. However, a material which can degrade in the environment in two years or less (in as little as six months if necessary) is a great deal better than one which takes 50 years or more.

The EU and the US currently have no policy for plastic waste which cannot realistically be collected from the environment, but ten countries in Africa, Asia, and the Middle-East have already made oxo-biodegradability mandatory for disposable plastic products.

In November 2014 a research team from one of France's leading universities, Blaise Pascal, published an important briefing paper: this not only re-affirmed the benefits of oxo-biodegradable plastic, but criticized the recent spate of "misinformation", including the "not very expert reports and erroneous information" on which European Parliamentarians had based their opinions." They also state that the field of oxo-biodegradation of polymers is one with important potential for the protection of the environment.