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on “Food waste reduction and new initiatives for reducing plastic packaging waste.”

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Most of us would agree that plastic is immensely useful for protecting our food & water from contamination, especially when wet, and for minimising food-waste and preventing sickness.

We are all in favour of efforts to Reduce, Re-use, and Recycle, but what do we do before those efforts have eliminated plastic litter everywhere in the world? – and that will be many years from now.

Today more than 600,000 tons of plastic waste gets into the Mediterranean Sea alone every year, where it will rapidly fragment into microplastics. I am talking here about ordinary plastic, not degradable plastic.

Fifty years ago, Prof. Gerald Scott and some of the other scientists who invented plastics, realised they had made the plastic so durable that it could lie or float around for decades, and perhaps 100 years before it became biodegradable. This is why there is so much public concern about plastic.

So these scientists decided to find a way to make the plastic convert rapidly into biodegradable materials if it found its way into open environment. They called the result of their efforts oxo-biodegradable plastic, and it is intended to replace ordinary plastic for everyday products. In his later years Prof Scott became scientific adviser to Symphony Environmental Technologies Plc and to the Oxo-biodegradable Plastics Association, and I had the privilege of knowing him.

Oxo-biodegradable plastic is not the same as *oxo-degradable* plastic, and we should all stop using this terminology interchangeably. *Oxo-degradable* plastic oxidises and degrades, but it does not become biodegradable for a very long time. Essentially, ordinary plastic is oxo-degradable, but it is not *oxo-biodegradable*.

The manufacture of oxo-biodegradable plastic is the same as for ordinary plastic, and can be done at little or no extra cost. The only difference is that the extruder adds a masterbatch at 1% by volume.

I need to stress here that oxo-biodegradable plastic does NOT just break up into tiny pieces, and nobody would want to buy or sell this technology if it did. No, it converts in the presence of oxygen into biodegradable materials which can be recycled back into nature by bacteria and fungi, who sequester the carbon content to build their own cell structure.

Oxo-biodegradation does not need special conditions, as only oxygen and bacteria are required, and these are abundant in the open environment.

Bio-degradation in landfill is not necessary, and would generate methane, which is a powerful greenhouse gas.

A Life-cycle Assessment by Intertek in 2012 confirmed that oxo-biodegradable plastic had the best LCA of all materials used for making carrier bags and bread

bags. <http://www.biodeg.org/wp-content/uploads/2018/11/intertek-final-report-15.5.121.pdf>

The precise timescale for degradation depends on the formulation of the plastic product (some are designed to degrade faster than others) and on the conditions in the environment where they are lying or floating (sunlight and heat will accelerate the process but are not essential. They have a specific gravity less than 1, so they will float on the surface where oxygen, sunlight, and bacteria are abundant). For this reason we give only a broad indication of timescale.

It is however possible to say with certainty that at any given time and place in the open environment an oxo-bio plastic item will become biodegradable much more quickly than an ordinary plastic item. That is the point.

Do you want plastic which can lie or float around for 100 years, or plastic which will have been recycled back into nature in 2-3 years or less? Of course we don't want plastic in the sea at all, but that is not the reality for the foreseeable future.

Symphony has been developing this technology for 20 years, and we think we understand it quite well, but just to make sure we had got it right we asked Peter Susman QC, a Deputy Judge of the High Court in England to review all the scientific evidence. His report is published on the OPA website at <http://www.biodeg.org/wp-content/uploads/2018/11/15-page-written-opinion.pdf> and he was entirely satisfied that oxo-biodegradable plastic does become biodegradable much more quickly than ordinary plastic and does confer a significant environmental benefit.

He also found it entirely compatible with recycling. See also <http://www.biodeg.org/recycling-and-waste/>

Finally, I want to say a word about the European Union. There is a well-established procedure in the EU for deciding whether substances should be restricted, which is set out in the REACH Regulation. In December 2017 the EU Commission acted under Article 69 to ask the European Chemicals Agency (ECHA) to study "oxo-degradable" plastics because the Commission thought that they created microplastics, but on 30th October (ten months into the study) ECHA advised that they were not convinced that microplastics were formed. The Commission then terminated ECHA's mandate.

If, and only if, ECHA had recommended a restriction, it would have had to be considered by two committees under Articles 70 and 71, and there would have had to be a public consultation, before any restriction could be made. None of this has been done, and there is no scientific justification from the EU's own scientific experts for any restriction. We are therefore advised that any restriction would be legally invalid and unenforceable.