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8 October 2024

Symphony Environmental Technologies Plc

("Symphony", the "Company" or the "Group")

Further research validating oxo-biodegradable technology

Symphony Environmental Technologies Plc (AIM:SYM), the global specialists in technologies that make plastic and rubber products smarter, safer and more sustainable, is pleased to announce articles and papers published by three independent and highly credible institutions that support Symphony's oxo-biodegradable technologies:

- [American National Standards Institute \("ANSI"\)](#);
- [Lambton Manufacturing Innovation Centre](#); and
- [US Environmental Protection Agency \("US EPA"\)](#).

The CEO of Symphony, Michael Laurier commented that: "Our d2w technology is now at the forefront of the sustainable plastics revolution and we are delighted that these three highly credible papers expand upon an ever growing body of evidence and underpin a growing realisation that this oxo-biodegradable technology is a key solution, available now, to deal with plastic in the open environment. Their conclusions are resonating with our current and prospective d2w customers, and we anticipate that this will accelerate d2w sales over the medium term."

"More specifically, these papers confirm that, far from being "problematic plastics" Symphony's d2w oxo-biodegradable plastics are essential to prevent the accumulation of plastic waste in the environment which has escaped from the circular economy and cannot be collected for recycling. They do biodegrade if they become litter, without leaving microplastics, but they can be recycled if they get collected."

ANSI article

This article entitled "ASTM D6954-24: Plastic Biodegradability" from ANSI was published in March 2024 and states:

"Using oxo-biodegradable technology can prevent future contributions to the accumulation of plastic waste that has escaped into the environment. Oxo-biodegradable plastic serves as a solution to littered plastic because it is recyclable and will degrade without releasing methane."

ANSI continues "It is important to note that **oxo-biodegradable plastic is not the same as oxo-degradable plastic**. Oxo-degradable plastic (i.e. conventional plastic) does not biodegrade but breaks into microplastics which are then released into the environment and cause significant harm, especially to ocean life. They quickly fragment into smaller and smaller pieces (i.e., microplastics) that do not break down at the molecular or polymer level like biodegradable and

compostable plastics. The resulting microplastics are left in the environment indefinitely until they fully break down over a very long period of time.”

“By contrast, oxo-biodegradation means degradation resulting from oxidative and cell-mediated phenomena, either simultaneously or successively [CEN/TR15351]. 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. These plastics are tested for degradation, biodegradation, and ecotoxicity according to ASTM D6954-24.”

Lambton Manufacturing Innovation Centre (in Ontario, Canada)

Scientists at [Lambton Manufacturing Innovation Centre](#) in Ontario, Canada have also reported on “Degradation of plastics, and microplastics formation” in September 2024. Their paper concluded that oxo-degradable plastics [ie conventional plastics] create microplastics, but oxo-biodegradable plastics do not.”

They continue “Oxo-biodegradable plastics are both bioplastics and biodegradable plastics. They consist of a conventional plastic containing a masterbatch. The masterbatch causes the molecular chains to be dismantled by oxidation so that the material is no longer a plastic and becomes biodegradable. Light and heat will accelerate the process, but it will continue even in dark, cold, conditions. Moisture is not necessary for oxidation and does not prevent it.”

“Ordinary plastic and oxo-biodegradable plastic lose their strength and fall apart at about the same time when exposed to sunlight, but the fragments of ordinary plastic have a molecular weight which is much too high for biodegradation.”

They conclude “In summary it is clear that if plastic products are made with an oxo-biodegradable masterbatch and get into the open environment intentionally or by accident, the molecular-weight of the plastic will reduce much more quickly and it will become a waxy substance which is no longer a plastic. It will then have become a source of nutrition for naturally occurring micro-organisms.”

“The European Chemicals Agency (ECHA) were asked to study this type of plastic in December 2017. They made a Call for Evidence, and advised after 10 months that they were not convinced that it creates microplastics. We agree with them, and have seen no evidence that microplastics from this type of plastic have ever been found in the environment.”

US EPA

As previously announced by Symphony in March of this year, the US EPA has also published a paper entitled “Accelerating Polymer Degradation using pro-oxidant additives” in 2021, which says that it is possible to eliminate persistence of plastics by adding a safe pro-oxidant to make a low-cost biodegradable plastic.

Whilst this paper does not explicitly reference Symphony’s d2w technology, the Board consider it to be a safe pro-oxidant, consistent with that described in the US EPA paper.

Michael Laurier, CEO of Symphony, concluded “Following the [Oxomar](#) and [Queen Mary University](#) studies, these further third-party endorsements are important to our continued programme to explain to governments and stakeholders the importance of this proven technology, and why they

should not be misled by misinformation. As defined by CEN/TR15351 and now confirmed by ANSI and Lambton, oxo-degradable and oxo-biodegradable plastics are not the same.”

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NOTES TO EDITORS:

About Symphony Environmental Technologies plc

www.symphonyenvironmental.com

SYMPHONY’S BUSINESS

Symphony has a diverse and growing customer-base and has established itself as an international business with over 70 distributors around the world. Products made with Symphony's plastic technologies are now available in nearly 100 countries and in many different product applications. Symphony itself is accredited to ISO9001 and ISO14001.

Symphony is a founder-member of The BPA (www.biodeg.org) and actively participates in the Committee work of the British Standards Institute (BSI), the American Standards Organisation (ASTM), the European Standards Organisation (CEN), and the International Standards Organisation (ISO).

Further information on the Group can be found at www.symphonyenvironmental.com and twitter @SymphonyEnv See also Symphony on Instagram. A Symphony App is available for downloading to smartphones.

D2W TECHNOLOGY

Symphony has developed a biodegradable plastic technology which addresses the problem of persistent microplastics, by turning ordinary plastic at the end of its service-life into a waxy substance which is biodegradable. It is then no longer a plastic and can be bioassimilated in the open environment in a similar way to a leaf without leaving microplastics behind. The technology is branded d2w® and appears as a droplet logo on many thousands of tonnes of plastic packaging and other plastic products around the world, much of which has been recycled. In some countries, oxo-biodegradable plastic is mandatory for short-life plastic products.