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## Symphony Environmental Technologies plc

("Symphony" or the "Company")

# US Environmental Protection Agency Positive report on Biodegradable Plastics (using pro-oxidants)

Symphony Environmental Technologies Plc (AIM: SYM), the global specialist that makes plastic products smarter, safer and more sustainable, wishes to highlight the important 2021 report from the US Environmental Protection Agency ("EPA") confirming that pro-oxidant masterbatches "could significantly reduce the persistence of plastic pollution without creating undesired by-products." See https://cfpub.epa.gov/si/si\_public\_record\_Report.cfm?dirEntryId=353810&Lab=CESER (the "EPA Report")

Unlike other government reports that can be more akin to literature reviews, such as the EU reports, the EPA reported on their own scientific evaluation by "Accelerating Polymer Degradation using Prooxidants." The EPA Report notes: "Single use plastics that are commonly used for packaging and service-ware, such as bottles, bags, straws, and wrappers result in land and marine pollution as they break down into microplastics. Blending plastics with pro-oxidants could be a promising solution, as they accelerate photo-oxidation to obtain degradable materials whose final ecological and physical footprint are much smaller."

"In this study, two pro-oxidants, iron stearate (FeSt3) and cobalt stearate (CoSt2), were melt-blended with polypropylene at concentrations of 1 and 2 weight percentage. Plates of neat and pro-oxidant filled polypropylene were kept in an accelerated weathering chamber that simulates damaging effects of long-term outdoor exposure. Samples were taken out from the test chamber and their properties were measured at selected time intervals as they undergo photochemical degradation."

"Uv-Vis (ultraviolet visible) and GC (gas chromatography)-mass spectroscopic analysis of wash-water samples indicated water soluble degradation products are potently biodegradable and can be assimilated by microorganisms. The study offers a successful approach where a benign filler could significantly reduce the persistence of plastic pollution without creating undesired by-products."

The EPA Report correlates with nearly 4 decades of scientific studies, which include the four-year Oxomar study in France, and the study at Queen Mary University London which found that products made with d2w were able to biodegrade up to 90 times faster than ordinary plastics.

Unlike the type of plastic marketed as compostable, it does not need special conditions, and will degrade and biodegrade anywhere on the planet in the presence of oxygen and bacteria. See <a href="https://www.symphonyenvironmental.com/why-biodegradable/">https://www.symphonyenvironmental.com/why-biodegradable/</a>

Michael Laurier CEO said: "this important study from the world's largest market, confirms that our d2w technology is at the forefront of the sustainable plastics revolution and adds to a growing realisation that this technology, is a key solution that is available now to prevent plastic in the open environment from accumulating there for decades. Furthermore, it is resonating with several of our current prospective d2w customers in the Americas which we hope will accelerate d2w sales over the medium term."

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# NOTES TO EDITORS:

About Symphony Environmental Technologies plc www.symphonyenvironmental.com

## 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.

d2w technology was studied for four years in the Oxomar project, sponsored by the French government, which concluded that plastic made with Symphony's d2w oxo-biodegradable technology will biodegrade in seawater significantly more efficiently than conventional plastic. See <u>www.biodeg.org/subjects-of-interest/agriculture-and-horticulture/the-marine-environment/</u>

Following this report, the scientists allowed bacteria commonly found in the open environment access to d2w oxo-biodegradable plastic containing Carbon 13. They found Carbon 13 in the carbon dioxide exhaled by the bacteria, proving beyond doubt that the plastic had been bioassimilated by the bacteria.

## D2P TECHNOLOGY

Symphony has developed a range of additives, concentrates and master-batches marketed under its d2p® ("designed to protect") trademark, which can be incorporated in a wide variety of plastic and nonplastic products so as to provide protection against many different types of bacteria, viruses, fungi, algae, moulds, and insects, and against fire. See <u>www.d2p.net</u> d2p products also include odour, moisture and ethylene adsorbers as well as other types of food-preserving technologies. For an overview see <u>www.d2p.net</u> Symphony has launched d2p anti-microbial household gloves and toothbrushes and "Symfresh" food-packaging and is developing a range of other d2p finished-products for retail sale.

#### D2C TECHNOLOGY

Symphony has complemented its d2w and d2p product ranges with d2c "compostable resins and products" that have been tested to US and EU composting standards and has invested in Eranova - a French company extracting starch for making plastics out of algae.

### D2DETECTOR

Symphony has also developed the d2Detector®, a portable device which analyses plastics and detects counterfeit products. This is useful for government officials tasked with enforcing legislation, and Symphony's d2t tagging and tracer technology is available for further security.

#### 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.