THE EU SINGLE-USE PLASTICS DIRECTIVE 2019/904

Symphony Environmental Technologies Plc has received written advice from Joshua Holmes KC of Monckton Chambers, a specialist in EU law, that: "oxo-biodegradable plastic falls outside the definition of oxo-degradable plastic contained in Article 3(3); and is therefore not subject to the Article 5 prohibition."

BACKGROUND

This prohibition was not in the draft Directive submitted to the EU Parliament by the EU Commission.

The Commission had asked their scientific experts, the European Chemicals Agency (ECHA), to study oxo-biodegradable plastic, but they had not yet completed their studies and submitted their report.

Instead of waiting for ECHA to report, the Environment Committee (who are not scientific experts) amended draft Article 5 to include a ban on what they described as "Oxo-degradable" plastic. None of the reports to that Committee from their own Rapporteurs had given any scientific justification for a ban.

The reasons for the ban are set out in Recital 15 as follows: "that type of plastic (a) does not properly biodegrade and thus (b) contributes to microplastic pollution in the environment, (c) is not compostable, (d) negatively affects the recycling of conventional plastic and (e) fails to deliver a proven environmental benefit.

The prohibition in Art 5 would not be expected to apply to a type of plastic which did not fall within the reasons for the ban set out in Recital 15.

As to (a) the EU Parliament has never defined what it means by "properly" biodegrade, and has never said what it would regard as a reasonable timescale for biodegradation.

If an oxo-biodegradable plastic is proved to biodegrade according to ASTM D6954 - the industry-standard for "Plastics that Degrade in the Environment by a Combination of Oxidation and Biodegradation" it does "properly" biodegrade.

The most recent scientific work has been the four-year OXOMAR study at the French marine laboratory. The scientists said: "We have obtained congruent results from our multidisciplinary approach that clearly shows that oxo-biodegradable plastics biodegrade in seawater and do so with a significantly higher efficiency than conventional plastics. The oxidation level obtained due to the d2w prodegradant catalyst was found to be of crucial importance in the degradation process."

By contrast, ordinary plastics do not biodegrade except over a very long period of time but they are not banned. Also, biobased plastics are not proved to biodegrade except under

the special conditions found in an industrial composting facility, but they too are not banned.

As to (b) Microplastics - conventional plastics will fragment when exposed to sunlight, and they are the principal source of microplastic pollution in the environment, but they are not banned. Oxo-biodegradable plastics convert not into fragments of plastic but into waxy substances which are biodegradable. Professor Ignacy Jakubowicz, one of the world's leading polymer scientists, has explained that the degradation process is "not merely a fragmentation, but a change from a high molecular weight polymer to a material that can be bio-assimilated."

On 30th October 2018 the European Chemicals Agency advised the Biodegradable Plastics Association that it was not convinced that oxo-biodegradable plastic creates microplastics.

On 22nd August 2018 ECHA advised the Commission that:
"Irrespective of their source, microplastics are persistent and universal pollutants. When products containing them are used, microplastics can be released to the environment where they stay for centuries, *as they do not biodegrade*." So if they do biodegrade they are not microplastics. https://echa.europa.eu/documents/10162/db081bde-ea3e-ab53-3135-8aaffe66d0cb

As to (c) – compostability. Conventional plastics and some bio-based plastics are not compostable but they are not banned. Oxo-biodegradable plastics have been independently tested according to ISO 14855, and also in real-world industrial composting, and found to be compostable. In any event no reason is given by the European Parliament why compostability should be relevant to a ban, and plastics do not in fact have any useful role in the composting process – see https://www.biodeg.org/subjects-of-interest/composting/

As to (d) recycling, it is well known that bio-based plastic will contaminate a post-consumer recycling stream, but oxo-biodegradable plastic has been safely recycled for many years, and we have reports from three expert test-houses which confirm recyclability See https://www.biodeg.org/subjects-of-interest/recycling-2/

As to (e) environmental benefit - if an oxo-biodegradable plastic is proved by testing to international Standards to reduce the overall burden of plastic pollution by biodegrading in the open environment leaving no harmful residues, it delivers an obvious environmental benefit.

"Oxo-degradation" is defined by the EU Standards experts (CEN) in TR15351 as "degradation resulting from oxidative cleavage of macromolecules." This describes plastics, which abiotically degrade by oxidation in the open environment and create microplastics, but do not become biodegradable, except over a very long period of time.

By contrast, "oxo-*bio*degradation is defined by CEN as "degradation resulting from oxidative and cell-mediated phenomena, either simultaneously or successively". This means that the plastic degrades rapidly by oxidation until its molecular weight is low enough to be accessible to bacteria and fungi, who then recycle it back into nature.

ARTICLE 3(3) definition

Instead of using the scientifically accurate CEN definition of oxo-degradation, the EU Parliamentary Committee invented its own definition. In Art 3(3) of the SUP Directive oxo-degradable plastic is defined as "plastic materials that include additives which, through oxidation, lead (i) to the fragmentation of the plastic material into micro-fragments or (ii) to chemical decomposition."

The definition in Art. 3(3) has caused confusion because, as appears from the CEN definition above, oxo-degradable and oxo-biodegradable are not the same. Also, the definition bears no relation to the reasons for the ban given in Recital 15. It focusses only on (i) chemical decomposition, and (ii) micro-fragments

It is well known that conventional plastics often contain additives such as colorants which cause them to oxidise and fragment into microplastics. The definition in Art 3(3) does not say that the additives must have been deliberately added for the purpose of causing oxidation, and the prohibition therefore applies to a wide range of conventional plastics.

In the case of oxo-biodegradable plastic, the degradation is caused by the reduction in the molecular weight of the polymer, and we have evidence from our own scientists and from Professor Jakubowicz, one of the world's leading polymer scientists, that this is not chemical decomposition.

Therefore, the legal advice we have received is that "oxo-biodegradable plastic falls outside the definition of oxo-degradable plastic contained in Article 3(3) of the Directive; and is not therefore subject to the Article 5 Prohibition.