FRENCH PROPOSAL FOR LAW ON BIODEGRADABLE PLASTICS

A group of members of the French National Assembly have proposed a law to ban oxo-biodegradable plastics - not on the basis that they pose risks to health and the environment, but on the basis that they just might. This looks like a skilful lobbying attempt to take oxo-biodegradable plastics off the French market and leave the field clear for bio-based plastics which are not competitive with oxo-bio and have very limited usefulness. Lobbyists are trying to do the same in Italy and Spain, and risk making fools of the Deputies in these three countries.

It would be surprising if the French Government allowed this proposal to pass into law, because in a civilised country you cannot close down a lawful business on the basis of a mere suspicion – you need to have credible evidence to justify such a serious interference with freedom. Moreover, any such law would contravene Art 18 of the EU Packaging Waste Directive, and even if that article were eventually amended as proposed by the Commission, it would still contravene Article 36 of TFEU.

Their main point seems to be that fragments of plastic might contaminate food and the environment. However, everything will fragment into the environment as it degrades, for example paper, textiles, conventional plastics, and bio-based plastics. Are they going to ban them all, even if they are not toxic?

It is appears from the statement introducing the proposal that the group of French Deputies have been misled by the lobbyists as follows:

DEGRADATION

Oxo-biodegradable bags do not break up into micro-particles of plastic due to the heat and solar radiation. They are confusing oxo-bio with photo-degradable plastics. Oxo-biodegradation is defined by CEN (the European Standards Organisation) as “degradation resulting from oxidative and cell-mediated phenomena, either simultaneously or successively.”

Oxo-biodegradable plastic does not therefore just fragment, but will be consumed by bacteria and fungi after oxidative cleavage has reduced the molecular structure to a level which permits living micro-organisms access to the carbon and hydrogen. It is therefore “biodegradable.” This process continues until the material has biodegraded to nothing more than CO₂, water, and humus, and it does NOT leave fragments of plastic in the environment. Nobody has advanced any scientific reason why it should stop.

The UK government accepts¹ that oxo-biodegradable plastics are biodegradable, but is unclear about the rate and extent of biodegradation. When the product has reached the end of its useful life the oxidative phase can be as short as a few months depending on the heat, UV light, and stress in the disposal location. As the residues are invisible and non-toxic at the end of that phase it is not important how long they take for total bioassimilation. Materials such as twigs and straw, which are obviously biodegradable, will usually take much longer than oxo-biodegradable plastic to completely bio-degrade.

¹ DEFRA Oxo-degradable plastics Q and A (Revised 31/10/2013) Question 2
Oxo-biodegradation of polymers has been studied in depth in very many scientific publications\textsuperscript{2} - most recently at the Technical Research Institute of Sweden and the Swedish University of Agricultural Sciences. A peer-reviewed report of the work was published in Vol. 96 of the journal of Polymer Degradation & Stability (2011) at pages 919-928. It shows 91\% biodegradation in a soil environment within 24 months in tests performed according to ISO 17556\textsuperscript{3}.

In France, extensive work has been done over many years by Professor Jaques Lemaire at Blaise Pascal University. He is one of the world’s leading experts on oxo-biodegradability, and has no doubt about its efficacy, its safety, and its usefulness. He has been instrumental in creating the AFNOR Accord T51 808.

A Life Cycle Analysis conducted by Intertek for the UK Environment Agency in 2011\textsuperscript{4} showed that plastic shopping bags have better environmental credentials than paper, cotton or bio-based plastic. A further LCA by Intertek in 2012\textsuperscript{5} showed that oxo-biodegradable plastic has the best environmental credentials of all the materials studied.

STANDARDS

The lobbyists are focussing the Deputies’ attention on the wrong standard. EN 13432 is a specification for biodegradation in the special conditions found in an industrial composting unit, not in the open environment. Oxo-biodegradable plastics are tested according to ASTM D6954; BS 8472; ISO 17556; UAE 5009, and the AFNOR Accord T51 808. These are not mere guidelines, but are detailed scientific tests which have to be performed to prove that an oxo-bio plastic is degradable, biodegradable, and non-toxic. There is no EN standard for oxo-biodegradable plastics because lobbyists have been using votes in CEN to block it for many years. However, the eco-toxicity tests in the standards for oxo-bio are the same as the tests prescribed for bio-based “compostable” plastics by EN13432.

Oxo-biodegradable plastic does not contain heavy metals, and the salts contained within it are at such low concentrations that they are unlikely to be toxic to the environment. This is confirmed by the UK government.\textsuperscript{6}

MARINE ENVIRONMENT

The reports which have been cited from Belgium and the Mediterranean are about fragments of conventional plastic – not oxo-biodegradable plastics.


EU DIRECTIVE

Oxo-bio plastic is recoverable within the meaning of Directive 94/62EC on Packaging Waste Annex 1 because it is “of such a nature that it is capable of undergoing physical, chemical, thermal or biological decomposition such that most of the finished compost ultimately decomposes into carbon dioxide, biomass and water.”

RECYCLING

The OPA were aware of the views expressed by some recyclers, so an expert opinion was sought as to whether there was any foundation for them. This expert evidence - the Roediger report of 2012 – has been submitted to the Environmental Audit Committee of the UK Parliament. After extensive testing of materials the report concluded:

“\textit{We are able to confirm that plastic products made with oxo-biodegradable technology}
may be recycled without any significant detriment to the newly formed recycled product.

The report was reviewed and revalidated by Roediger laboratories in December 2013 after studying the Austrian (TCKT) report prepared for EuPC in November 2013. The conclusions were:

1. The TCKT report makes it clear that "compostable" plastics cannot be safely recycled together with oil-based plastics in a post-consumer waste stream.

2. We have no reason to change our 2012 opinion, and we consider that plastic products made with oxo-biodegradable technology may be recycled together with conventional oil-based polymers without the need for separation and without any significant detriment to the newly-formed recycled product.

The Roediger report did consider the use of recyclates for making long-life products such as building films and garden furniture.

BIO-BASED "COMPOSTABLE" PLASTICS

Bio-based plastics marketed as compostable cannot be made into compost. This is because EN13432 requires them to convert into CO2 gas within 180 days. This is not “recovery” but is conversion of the material into a gas, which contributes to climate change but does nothing for the soil.

Bio-based plastics are useful as garbage sacks for transporting organic matter to a composting plant, but oxo-bio bags have also been trialled and found satisfactory for that purpose.

European governments want plastic products to be recyclable, but bio-based bags cannot be recycled with ordinary plastics. Expensive separation processes would be necessary, but would not justify the cost, as they are dealing with a low-value and readily available material.

Bio-based compostable plastic can be considered "renewable" only if you ignore the oil-based content of the material (which can be 40% or more) and if you ignore the fossil fuels burned by machines which clear the land, plough the land, make the fertilisers and pesticides and carry them to the farm, harrow the land, spray the crops, harvest the crops and carry them to a factory for polymerisation, and the energy consumed by the machines at that factory. Insofar as the growing crops absorb CO2 - that would be true of the vegetation which was there before.

WHY OXO-BIODEGRADABLE?

Oxo-bio bags (so called because they degrade by oxidation) have been created to address the problem of plastic waste which gets into the open environment and cannot realistically be collected. Just imagine the hundreds of thousands of tons of plastic waste which have been swept into the sea by the recent hurricane in the Philippines.

Some western countries do not seem to care about this, because they think that they can collect all the plastic waste for recycling, but in Europe we can still see plastic waste in our hedgerows and on our beaches every day. In January 2014 there were massive floods in England & Wales which will have swept huge amounts of plastic waste down the rivers and out to sea to join the great ocean garbage patches.

That is why we need oxo-bio.

INTERNATIONAL

The government of the UAE realised that they would never be able to prevent some of the plastic waste getting into the environment on land or sea. So they carefully considered the effectiveness and safety of oxo-biodegradable technology before passing legislation which makes it mandatory to use the technology. They rejected the bio-based alternative as it did not address the litter
problem and had many other disadvantages. The law covers not just carrier bags, but all disposable plastic goods and packaging.

Nine other countries have followed their example – the largest being Pakistan. These have a combined population of 195 millions.

European factories and retailers cannot now export to those countries unless their disposable plastic products and packaging are made with oxo-biodegradable technology.