

Submission to ACCC re OxoPak Pty Ltd-Certification Trade Mark Application No.1852562 from the Planet Ark Environmental Foundation (Planet Ark) and the Australian Packaging Covenant Organisation (APCO)

Planet Ark Environmental Foundation (Planet Ark) and the Australian Packaging Covenant Organisation (APCO) have previously provided a submission with respect to four certification trademarks applied for by OxoPak Pty Ltd.

OxoPak has provided revised CTM rules in respect of CTM 1852562 – the certification trademark for The Planet OxoPositive logo. The points made in our joint submission provided previously (see Appendix 1) still apply to the latest OxoPak application. The problematic issues associated with oxo-biodegradable plastic products remain the same. Additionally, our objections associated with this specific logo are dealt with in Appendix 2, with concerns about the logo design.

Specific concerns with the Certification Rules for the OxoPositive Logo

The objections to the nature of oxo-biodegradable products remain the same. Although degradable, the available conditions for complete biodegradation remain an area of conjecture, along with the fate of the degradants in the environment. See Appendix 1.

In reviewing the latest application, a number of concerns are raised as to the nature of the language and claims. The certification characteristics are dependent on two criteria, neither of which bear any relation to the actual bio-degradation profiles of the material:

- **Ref: 4 (a)** – simply requires that the product has been tested under conditions that satisfy the two standards listed: ASTM D 6954 and BS 8472:2011 – both of which are about testing methodologies, rather than product characteristics. There are no references to results or thresholds, just whether the plastic products were tested to identify the presence of the additive.
- **Ref: 4 (b)** – the regulatory requirements listed are focused entirely on the toxicity of products in the context of food packaging – again, entirely unrelated to degradability or bio-degradability.

Further, quoting from the CTM rules in respect of CTM 1852562:

“5. Authorised Use of the Certification Mark

5(c) The Certification Mark does not mean that the product is environmentally friendly – all products have some environmental impact. Advertising and promotional materials and any labelling on or associated with the Goods must state that the Goods bearing the Certification Mark are certified as “environmentally preferable”.”

The language use is ambiguous as to what the plastic product is “environmentally preferable” to, and as such is meaningless and misleading. Our experience with consumers suggests this terminology is bound to generate consumer confusion and perverse outcomes – increased littering, marine microplastic litter, and contamination of viable recycling streams through consumer-led intermingling of materials, particularly through kerbside collection. Our conversations with average householders indicate they don’t have either the time or inclination to investigate the validity of claims, nor understand the nuanced nature of different terminology.

“6. Requirements to obtain an OxoPak Certificate

6(a) Before issuing an OxoPak Certificate in relation to particular Goods, OxoPak must be supplied with the following:

(i) A certificate from an Approved Laboratory confirming that the oxo-biodegradable formulation contained in the Goods has the Certified Characteristics

(ii) A report of test results carried out by an Approved Laboratory or a Registered Laboratory that confirms:

(A) A representative test plastic film made with the oxo-biodegradable formulation does not contain heavy metals or other substances of concern.

(B) The plastic film made with the oxo-biodegradable formulation undergoes significant molecular weight reduction in accelerated ageing or natural conditions.

(C) The degraded residues of abiotic degradation undergo biodegradation.

(D) The substrate and products of the biodegradation test (soil or compost and plastic degradation and biodegradation residues) demonstrate no significant ecotoxicological effect.”

Again, the issues discussed in Appendix 1 hold true as to the nature and extent of the biodegradation associated with these plastics. Additionally,

B — what does “significant molecular weight reduction” actually mean, from what molecular composition to what? What is significant?

C — there is no timeline for complete biodegradation, or conditions defined. We assume this is in line with the standard methodologies used. With no timeline defined then potential for other environmental impacts remains significant.

D — the degradation residues must be confirmed to demonstrate “no significant ecotoxicological effects”. This is very non-specific and implies that some ecotoxicological effects are permitted and subject to the undefined term “significant”.

The lack of clarity around timeframes for so-called ‘biodegradation’ implies that there is still a more than adequate window for oxo-degradable plastics escaping into the environment to have damaging impacts on both land-based and marine wildlife, through ingestion or entanglement. Firstly, the degradation process, particularly in the marine environment, can lead to the accumulation of Persistent Organic Pollutants (POPs) on the resulting microplastics, with increased surface area leading to the absorption of toxins¹. This combined with the presence of heavy metals used to stimulate the degradation phase in oxo-degradables, could see both toxins and heavy metals transferred into the food chain through ingestion by fish, crustaceans etc. and up the chain to humans, potentially leading to highly toxic bioaccumulation.

The remainder of the application is about maintaining the system and data associated with certification. Providing publicly available evidence as to the nature and extent of the biodegradation under environmental conditions should be a minimum requirement for the certification to be granted.

¹ Rochman, C.M., et al (2013). Long-Term Field Measurement of Sorption of Organic Contaminants to Five Types of Plastic Pellets: Implications for Plastic Marine Debris. *Environ. Sci. Technol.* 47, 1646–1654.

In Conclusion

The concerns submitted by Planet Ark and APCO in the previous submission still apply and we continue to believe that this CTM should not be granted as it will be detrimental to the Australian environment. The certification description and logo are confusing, ambiguous and misleading.

The broader implications of the use of this CTM on recycling and disposal of all plastics in the overall Australian waste stream remain a major concern. These implications are described in the previous submission and detailed in Appendix 3 along with the general lack of support for oxo-biodegradable plastics internationally, and the potential for misinterpretation by the consumer as a 'licence to litter'.

In summary, we continue to agree with the conclusions of the research-informed *New Plastics Economy* report² – namely, the “uncertainties surrounding the effect of oxo-degradable plastics on the conventional plastics recycling process mean that the safest solution is to keep oxo-degradable plastics out of mainstream plastics recycling processes. The evidence to date suggests oxo-degradable plastic packaging goes against two core principles of the circular economy: designing out waste and pollution; and keeping products and materials in high-value use. Therefore, we support applying the precautionary principle by banning oxo-degradable plastic packaging from the market.”

The presence and potential for intermingling of oxo-degradables with other plastics in the Australian marketplace could lower the value of genuinely recyclable plastics, resulting in a perverse outcome for waste handlers/processors in on-selling the collected materials, and compromising the viability of a local recycling industry due to quality questions that may emerge.

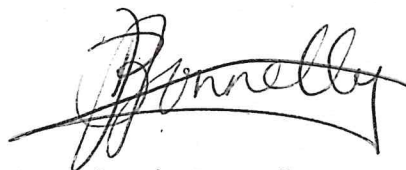
In summary, this CTM and its technology contradicts the 2025 Commonwealth target to eliminate problematic and single-use plastic. It would appear that these additives could potentially create a whole new range of problematic plastics, which could make the achievement of that target more difficult rather than less. Australia should be encouraging a move away from the kind of plastics in which these additives would typically be utilised – plastic shopping bags, barrier bags, fresh food packaging etc. – rather than endorsing questionable/unproven alternatives that may generate even more undesirable results.

Signed by



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² Oxo-degradable Plastic Packaging is not a Solution to Plastic Pollution, and Does Not Fit in a Circular Economy (2014). *New Plastics Economy* report – an initiative of the Ellen MacArthur Foundation. <https://newplasticseconomy.org>

Appendix 1

Important issues and questions

The most important issues regarding oxo-degradable plastics are the extent to which they degrade or biodegrade over time, and the impact of this on the environment.

There is published chemistry research evidence that oxo-degradables degrade when exposed to either sunlight or heat (~60°C). This degradation process causes deterioration in the strength of the plastic, which becomes brittle and easily fragments into small pieces. The time taken for fragmentation to occur will depend on the amount of additive in the plastic film and the environment to which it is exposed. For example, degradation reactions leading to fragmentation of polythene films will occur much more quickly in Queensland in summer compared with the Victoria in winter because of the differences in temperature and the intensity of the sunlight.

However, the key question is whether the chemically degraded oxo-degradable plastics biodegrade further (i.e. whether the plastic can be colonised and metabolised by microbes) and if so, what is the extent and time frame of this process. Biodegradation is caused by the action of living organisms rather than physical or chemical processes. The term 'biodegradable' does not specify the extent, time-scale or conditions under which biodegradation has taken place.

After the oxo-degradable plastics start to degrade it is unclear what happens to the small fragments of plastic in the environment.

- Are they able to be completely assimilated by micro-organisms (bacteria, fungi and/or algae) and ultimately converted to carbon dioxide and water vapour, so that they disappear?
- Does it matter if they remain as fragments in the soil?
- Does it matter if they become air-borne or enter water courses?

The overall conclusion of the comprehensive EV0422 review is that "incorporation of additives into petroleum-based plastics that cause those plastics to undergo accelerated degradation does not improve their environmental impact and potentially gives rise to certain negative effects."

The key points relevant to all the CTMs under consideration are:

- The length of time for degradation of oxo-degradable plastic cannot be predicted accurately because it depends so much on the environmental conditions. The peer-reviewed evidence based on standard methods suggests that the biodegradation of oxo-degradable polyethylene is no more than 15% after 350 days³.
- Labelling the oxo-degradable plastics as biodegradable can lead to confusion on the part of consumers, who may assume that biodegradable plastics are compostable. This may lead to contamination of the composting waste-stream with oxo-degradable plastics.
- The fate of plastic fragments that remain in the soil is an area of uncertainty, leading to a significant risk of bioaccumulation due to ingestion by living organisms.

³ EV0422 Assessing the Environmental Impacts of Oxo-degradable Plastics Across Their Life Cycle. Loughborough University. A research report completed for the Department for Environment, Food and Rural Affairs. Published by the UK Department for Environment, Food and Rural Affairs in January 2010.

OxoPak will use the CTMs to indicate that the approved product meets 'higher standards of degradability, biodegradability, and eco-toxicity than other products within the same product category'. Therefore, comparison with biodegradable bioplastics is recommended.

Appendix 2

CTM 1852562 PlanetOxoPositive – Certified Oxo-Biodegradable Plastic

Planet Ark and APCO believe this CTM is particularly problematic because of its vagueness. It gives a green impression without being specific and appears to contravene a number of the ACCC's Green Marketing Guidelines. A positive environmental impact requires some form of environmental benefit.

The circled arrows in the trade mark may mislead consumers that oxo-biodegradable plastics can be recycled. We believe it is unreasonable to claim that oxo-degradable plastics are recyclable in existing recycling streams because the oxo-degradables in the recycling stream will have an adverse effect on the quality and usability of the product. It is quite clear that the product will be more prone to degradation, which will be particularly damaging for long-life applications such as membranes used in construction, and medium-life applications, such as garden furniture.

An area of uncertainty is the fate of plastic fragments that remain in the soil. These are regarded as beneficial by the producers because they are claimed to add to the content of humus in the soil. However, there is a lack of evidence about the environmental impact of oxo-degradable plastic fragments in the soil and a number of concerns have been raised. For example, these fragments might act to concentrate pesticide residues in the soil⁴.

Given the lack of biodegradability evidence one cannot claim a positive impact for the environment.

⁴ Feuilleley, P. et al. Degradation of Polyethylene Designed for Agricultural Purposes. *Journal of Polymers and the Environment*, 13, 349-355 (2005).

Appendix 3

Broader implications of the use of these CTMs on recycling and disposal of plastics in the overall Australian waste stream²

Re-use

The fact that they are degradable limits the re-use of oxo-degradable bags: they are unsuitable for storing items for an extended length of time.

Therefore, the metal ions used as catalysts to degrade the plastic are simply released to the environment and diluted so they cannot be recovered. This is a poor use of an energetically expensive and non-renewable resource.

Recycling

Oxo-degradable plastics are not suitable for recycling with main-stream plastics. The 'recyclate' will contain oxo-degradable additives that will render the product more susceptible to degradation. Although the additive producers suggest that stabilisers can be added to protect against the oxo-degradable additives, it would be problematic for recyclers to determine how much stabiliser needs to be added and to what extent the oxo-degradable plastic has already degraded.

Disposal – Incineration and Landfill

The potential for problems to be caused by incorrect disposal of oxo-degradable plastics means that any packaging should be clearly labelled with the appropriate means of disposal. Life cycle analysis suggests that the best means of disposal for oxo-degradable plastics is incineration. If incineration is not available, then landfill is the next best option.

There is a lack of evidence about what actually happens to oxo-degradable plastics in landfill. It is possible that they will degrade in landfill sites if sufficient oxygen is present, but the most likely scenario is that they remain un-degraded.

Litter

Some oxo-degradable producers maintain that their products are a solution to the littering problem because oxo-degradable packaging will eventually degrade and then biodegrade. However, as the plastics will not degrade for approximately 2-5 years², they will still remain visible as litter before they start to degrade. Further to this, such a declaration could easily be misinterpreted by the consumer as a licence to litter, which would serve to undo the gains achieved through existing and future initiatives designed to phase out problematic single-use plastics.

Lack of Support for Oxo-biodegradable Plastics

A wide range of academics (from universities including California State University, Michigan State University, University of Loughborough), international and governmental institutions (e.g. UN Environment, European Commission, UK Government), testing laboratories (e.g. Organic Waste Systems), trade associations of plastics manufacturers, recyclers and converters (e.g. Plastics Europe, SPI Bioplastics Council, European Plastics Converters), non-profit organisations (e.g. Sustainable Packaging Coalition) and multiple other experts have provided or collected evidence that oxo-degradable plastics are not a solution to plastic packaging pollution, and that they are not suited for effective long-term reuse, recycling at scale or composting².

Countries where oxo-degradable plastics are mandatory for certain applications, include the United Arab Emirates, Saudi Arabia, areas of Pakistan, Yemen, Ivory Coast, South Africa, Ghana and Togo¹. We understand these countries do not have the same rigorous government standards that Australia enjoys.

Any research evidence supporting the claim of effective biodegradation of oxo-biodegradable plastics indicates some tests were performed at temperatures which do not reflect real life environments; some show that a threshold in fragmentation is reached after a certain period of time without proving that the biodegradation process will continue and thus be completed (similarly, some conclude effective biodegradation in a potential future by extrapolation of the results); some tests do not make the data on the amount of additive concentration added to the polymer for the test available, although these elements have been proved to highly influence the rate of fragmentation - and hence the extent of biodegradation.

Finally, some of these studies were not performed independently, but on behalf of oxo-degradable additives manufacturers.
