

Marine Conservation Society position statement on:

Glitter

Date of statement: December 2020

Geographical extent: UK

Concerns around microplastics and the effects they may have on the environment and human health have led the European Chemicals Agency (ECHA) to propose a restriction on all intentionally added microplastics.¹ This restriction includes glitter made with the plastic polyethylene terephthalate (PET), but natural polymers and biodegradable alternatives are currently excluded from the proposal. This is despite the evidence in the scientific literature to suggest that biodegradable microplastics may still be persistent and cause similar ecological effects as conventional microplastics.²

Conventional glitter normally consists of a plastic core made of polyester PET film, which is coated with aluminium and then covered with another thin plastic layer. Biodegradable glitters come in many different forms with two of the main ones being mica³ and the other using Modified Regenerated Cellulose (MRC). The former is a natural mineral mined from the ground, the latter utilises a cellulose core which is often coated with aluminium and overlain with a thin layer of plastic (styrene acrylate).² The biodegradable glitter industry has developed another alternative that purports to be entirely plastic and aluminium free. BioGlitter claims that their PURE range uses an alternative coating to plastic however, at the time of writing (November 2020), it is currently pending a patent and therefore we are unable to confirm the nature of the coating.⁴

There has been a big upsurge in the number of retailers ⁵ and festivals ⁶ switching to the use of biodegradable glitter as an 'eco-friendly' option. In 2018 MCS commissioned a survey by YouGov* to inform work on single use plastics and determine the understanding of terminology by the British public. When asked about a product being described as biodegradable; 39% of respondents understood that 'it would break down causing no harm to the marine environment' and 38% of respondents understood 'if it was littered, it would cause less harm to the environment than a product not labelled as 'biodegradable''. Questions have also been raised previously about the labelling of products as biodegradable with the testing often only carried out on a portion of the product, rather than the final item.

Therefore, the biodegradability of the product as it would be in the environment is often not actually assessed. Investigation of deterioration of carrier bags (in soil and seawater), labelled as biodegradable ⁷ found that, "over a 3-year period, none of the materials examined could be relied upon to deteriorate sufficiently enough to reduce the negative effects of littering on biota or aesthetics across all three environments. Moreover, it was not clear that materials which claimed to have enhanced degradation consistently deteriorated faster than conventional polyethylene." Furthermore, testing biodegradability is not sufficient in predicting real-world environmental degradation and quite often the duration of time that degradation takes is significantly underestimated. ⁸

* All figures, unless otherwise stated, are from YouGov Plc. Total sample size was 2,081 adults. Fieldwork was undertaken between 18th - 19th October 2018. The survey was carried out online. The figures have been weighted and are representative of all GB adults (aged 18+).

It is crucial that pollution, both chemical and plastic, is reduced at source; as once it is in the marine environment, the contaminants are able to persist for decades without degrading. The abundance of glitter in the environment and the extent to which it is a source of microplastics in the environment hasn't currently been fully quantified or investigated. ⁹ However, glitter is easily able to get into the environment by both direct or indirect means, direct release into the environment would include things such as glitter bombs being used at festivals or being rinsed off directly down the drain. Indirect glitter contamination could come from sewage sludge spreading on agricultural land. For example, when glitter is washed off in the shower, it is carried through the drain to the sewage works, and is removed alongside other solid sewage material. This is then treated and spread on land. The application of sludge to soil can result in more than 99% of the microplastics being transported into aquatic habitats. ¹⁰

There is very limited research into the impacts of biodegradable glitter. However, one study of three different types of glitter (conventional PET, mica and cellulose) and their impacts on a freshwater ecosystem ² found those dubbed as eco-friendly alternatives caused impacts in aquatic ecosystems. All three caused a decrease in the abundance of certain plants (duckweed) and the cellulose glitter was found to cause an increase in the abundance of a non-native snail which could ultimately disrupt the ecosystem balance. The researchers concluded "Interestingly the biodegradable glitters used in this study elicited stronger effects than the non-biodegradable PET glitter overall" ². Although this study specifically looks at the impacts on a freshwater environment, ultimately rivers are the source to the sea for contaminants and should therefore be controlled at source.



MCS is asking Governments to:

Standardise terms such as 'biodegradable' for use in products. A December 2020 Competition and Markets Authority (CMA) consultation is investigating misleading eco-friendly claims as they are "concerned that [a] surge in demand for green products and services could incentivise some businesses to make misleading, vague or false claims about the sustainability or environmental impact of the things they sell."¹¹

MCS is asking manufacturers and retailers to:

Avoid using glitter in all products until further research is conducted to determine the environmental impact of different biodegradable glitters. Items such as cosmetics and other products that would be washed down drains should have immediate focus for removal of glitter.

MCS is asking consumers to:

Avoid using glitter including biodegradable versions specifically in items such as cosmetics or products that would be washed away, but also in other products as well. Encourage retailers and manufacturers to remove glitter from their products.

References:

[1] <https://echa.europa.eu/-/echa-proposes-to-restrict-intentionally-added-microplastics>

[2] Green, D. S. et al., (2020), All that glitters is Litter? Ecological impacts of conventional versus biodegradable glitter in a freshwater habitat, Journ. Hazardous Materials, 402.

[3] <https://thebluebottletree.com/glitter-and-mica-powder-are-not-the-same-thing/>

[4] <https://www.discoverbioglitter.com/what-is-glitter-and-what-is-bioglitter/>

[5] <https://www.theguardian.com/environment/2019/mar/24/glitter-sales-ban-supermarkets-microplastics>

[6] <https://www.standard.co.uk/beauty/music-festivals-ban-glitter-microbeads-microplastic-a3812661.html>

[7] Napper, I. E., et al., (2019) Environmental Deterioration of Biodegradable, Oxo-biodegradable, Compostable and Conventional Plastic Carrier Bags in the Sea, Soil and Open-Air Over a 3 Year Period, Environ. Sci. Technol., 53.

[8] Harrison, J. P., et al., (2018) Biodegradability standards for carrier bags and plastic films in aquatic environments: a critical review, R. Soc. Open sci, 5.

[9] Yurtsever, M., (2019) Tiny, Shiny, and colourful microplastics: Are regulat glitters a significant source of microplastics? Marine Pollution Bulletin, 146.

[10] Crossman, J., et al., (2020) Transfer and transport of microplastics from biosolids to agricultural soils and the wider environment, Science of the Total Environ., 724.

[11] <https://www.gov.uk/government/news/cma-to-examine-if-eco-friendly-claims-are-misleading>



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