



Microbeads Briefing March 2016

What are microbeads?

Microbeads are a type of microplastic. Microplastics are defined as plastic particles less than 5mm in size. Primary microplastics are purposefully manufactured, whereas secondary microplastics arise from the breakdown of larger plastic items on land or at sea. In this document, the term “microbeads” refers to primary microplastics that are used as ingredients in consumer products. The term “microplastic” refers to primary and secondary microplastics.

Background

Over the past few decades, microbeads have increasingly been used in a wide range of products, including (but not limited to) facial and body scrubs, toothpastes, and washing powders. These small pieces of plastic are designed to be washed down the drain, and end up discharged to the ocean through our sewerage systems.

Microplastics in the marine environment are a serious concern, because:

- They are eaten by aquatic life at all stages of the food chain, from [plankton](#) through to fish and marine mammals, including species important to fisheries and ecosystem function¹;
- The transfer of microplastics up the food chain has been demonstrated^{2,3};
- They release toxic chemicals into the surrounding water, and also attract chemicals onto their surface, which can have toxic impacts on living organisms^{4,5};
- They persist in the environment for hundreds of years;
- They have been found in every ocean and in all marine habitats;
- Once released into the marine environment, it is impossible to clean them up.

Our organisations firmly believe that eliminating microplastic pollution at source is the only way forward financially, technically, and environmentally.

With marine plastic pollution now recognised as a major threat to marine biodiversity and multiple international fora urging action⁶, the British government has an opportunity to take a seat at the leadership table by acting swiftly to ban the production and sale of products containing microbeads in the UK.

Microplastics in the marine environment

Microplastics are now ubiquitous throughout the world’s oceans – at the sea surface, in the water column, in sediments and even concentrated in Arctic Sea ice. Between 15 and 51 trillion tiny plastic particles are estimated to be floating in the world’s oceans⁷. Market surveys of fish being sold for consumption in the U.S. found plastic in 67% of all species and 25% of individual fish⁸.

In the UK, 83% of Norway lobster (typically sold as scampi) has been found to contain plastics⁹, and plankton sampling demonstrates a significant increase in the abundance of plastics from the 1960s to the present day^{10,11}. In Europe, cosmetic microbeads could be adding up to 8,627 tonnes of plastic per year to the marine environment¹². Scientists estimate that European seafood consumers could be consuming up to 11,000 microplastics per year¹³.



The impacts of microplastic ingestion include gut blockage and physical injury, oxidative stress, altered feeding behaviour and reduced energy allocation, resulting in impacts on growth and reproduction in a range of marine invertebrates, including crabs, lugworms and oysters¹⁴.

Toxic compounds are incorporated into microplastics during production as plasticisers, fire retardants and other additives¹⁵. But microplastics also attract persistent, bioaccumulative and toxic pollutants from seawater (such as the endocrine disruptors PCBs and DDEs)¹⁶. Microbeads can concentrate PCBs and DDEs to levels up to a million times greater than in the surrounding seawater¹⁷.

PCBs are linked to reproductive toxicity and population declines in marine mammal populations, and their biomagnification in marine food webs continues to cause severe impacts in top predators in European seas^{18,19}. Whilst the extent to which these contaminants are transferred from ingested plastics into living tissues is as yet unknown, there is evidence that PCBs found in the flesh of Great Shearwaters were derived from ingested plastic particles²⁰.

With microplastics and their associated contaminants readily ingested by organisms throughout the food chain, and well documented in a range of species consumed as seafood, there is a real danger that these pollutants may be passed up the food chain to human consumers.

Solving the problem

Action to eliminate all sources of plastics to the marine environment is urgently required, and as with all littering and waste the problem is easiest to deal with at source. A ban on the production and sale of products containing microbeads in the UK is a significant step towards reducing sources of plastics to the marine environment.

High-street brands and retailers, such as Boots, Asda, and Unilever, have already made public commitments to end solid microplastic use in their products. Cosmetics Europe, the cosmetics industry association, has released a recommendation that its members phase out the use of solid microbead ingredients from wash-off cosmetics and personal care products. However, this recommendation is not binding, is limited to exfoliating and cleansing products, and there are still many manufacturers that have failed to make a commitment. With variable timescales and commitments from companies, legislative action is essential to speed progress, maintain long-term commitments and ensure a level playing field for manufacturers.

In December 2015 the USA passed a law prohibiting the production and sale of products containing microbeads. The Canadian and Australian governments, as well as a number of European countries (including Belgium, Sweden, and the Netherlands) are also considering a legislative route.

Our organisations firmly believe that stopping microbeads at source is the only way forward, financially, technically, and environmentally. We believe that the UK has an opportunity to demonstrate leadership by acting now to ban the production and sale of products containing microbeads in the UK.

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