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Think Globally. Act Locally!

M E D I A R E L E A S E

Wednesday, 10 May 2023

Re: Microplastic releases from Recycling Facilities

A recent article in the *Journal of Hazardous Materials Advances* (Brown, MacDonald, Allen and Allen, 2023) found that plastic recycling facilities can be a major source of microplastics getting into the environment.

Whilst there is increasing understanding of the negative impacts of plastic pollution on the environment – and many people try to do their bit to recycle what they can – the recovery and reprocessing of plastics is not, for many people, given much consideration.

Microplastics – those fragments of plastics between 1 μm (10^{-6} m) and 5mm in diameter - are increasingly being found throughout the environment; including in humans. Much focus has been given to marine microplastics and their impacts on a range of marine organisms including fish, seabirds, mammals, turtles, and bivalve molluscs.

However, little attention has been paid to the introduction of microplastics into the environment from plastic recycling facilities.

At plastic recycling facilities, the recyclable plastics are separated, broken down, granulated and then pelletised for reprocessing. Mechanical friction processes can result in increased microplastics in wastewater streams discharged from these facilities.

From results of a study at a plastic recycling facility in the UK (which took in 22 680 tonnes of plastic waste a year), it was found that, without any filtration, up to 2933 tonnes of microplastics could be discharged per year. Use of a filtration system to remove microplastics certainly reduced the amount released, but the highest figure estimated from the data was still 1366 tonnes per year.

These figures are truly staggering, and give rise to the following implications:

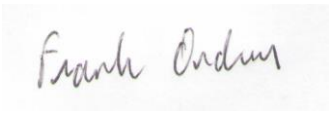
- Without any filtration of wastewater, plastic recycling facilities are notable sources of microplastics.

- Even the best filtration systems still fail to remove all the microplastics.

From this short summary of research, it is clear that technology alone is not yet sufficiently advanced to eliminate microplastic pollution into the environment and that drastic reductions of plastic use are needed to curb the environmental impact of microplastics.

Reference:

- Brown, Erina, MacDonald, Anna, Allen, Steve and Allen, Deonie. 2023. The potential for a plastic recycling facility to release microplastic pollution and possible filtration remediation effectiveness. *Journal of Hazardous Materials Advance.* Volume 10. May 2023. https://doi.org/10.1016/j.hazadv.2023.100309



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