



A CLEAN SWEEP?

The figures in a new study on pre-production pellet loss into the marine environment are far from perfect. But the argument from industry that this means there isn't a problem is a little hard to swallow, says **David Burrows**

At the turn of the year, Barack Obama signed a new law banning the sale of soaps and toothpastes that contain microbeads. These solid plastic particles are widely used by skincare, cosmetics and other personal hygiene brands as an exfoliant. But while they have been keeping our hands soft and our teeth clean, they have been dirtying the oceans.

The beads are not toxic, but they can attract chemicals, and as such they are unlikely to be doing the fish that mistake them for fish eggs any good. So, the US has moved to

suppress them. This followed considerable consumer pressure.

In the UK, the Environmental Audit Committee (EAC) has just launched an inquiry into ocean pollution. "We will be looking at the health consequences of eating fish containing microplastics and the extent of the damage to our eco-systems," says EAC chair Mary Creagh.

But beads are only part of the story. Larger plastic can break down into bite-size chunks and, as *RWW* reported in August last year, the pre-production pellets the plastics industry uses as the building blocks to make everything

from car dashboards to plastic bottles are also leaking into the environment. What wasn't clear was how many.

Quantity of pellet loss

Six months on and Eunomia, working on behalf of Scottish environment charity Fidra, has had a stab at finding out. They estimated that pre-production pellet loss to the environment in the UK is likely to be between 0.001% and 0.01% of all the pellets handled in the country.

So, that's good news, right? Wrong. "The tonnage of plastic handled is so large that these fractions of a percent result in billions of pellets being lost each year," the experts conclude.

The lion's share of the problem seems to be in the processor, producer and transport sections of the supply chain.

Waste management practices, however, might still be creating an annual loss of 200 million pellets.

The continuous trickle actually amounts to losses of some 53 billion pellets at the upper end of the scale (35 tanker-loads full) and 5.3 billion at the lower end.

"Mind-boggling" is the word Greenpeace used to describe the figures.

The plastics industry has a very different reaction. Francisco Morcillo, public and industrial affairs manager at the British Plastics Federation (BPF), says the report has "a substantial number of limitations in its assumptions" and therefore provides "a very rough indication, rather than providing actual evidence".

It's a fair point, but Eunomia has not hidden the fact that data was hard to come by. Little is known about the number of plastics facilities

in the UK or which ones handle pellets, let alone how many are escaping. The researchers therefore had to draw on international literature, as well as interviews with "key stakeholders from the plastics industry", regulators and academics worldwide.

"One of the first conversations we had was with the BPF to find out what data they hold on both the likely extent of pellet loss, and any reduction in emissions of pellets that can be attributed to firms signing up to Operation Clean Sweep," says the new report's co-author Chris Sherrington, a principal consultant at Eunomia.

There wasn't any, which weakens Morcillo's suggestion that "the study draws on very little credible data, with no physical measurements, no representative samples and a lack of repeatability". He cites some data is commercially sensitive.

Operation Clean Sweep

The principal driver to minimise pellet leaks is Operation Clean Sweep. OCS, which has its origins in the US and was designed by the plastics industry, offers a set of low-cost spill containment measures that have been proven to reduce 'leakage' of pellets from industrial plants. This includes steps such as sealing bulk containers properly, installing catch trays and extra training for staff.

As a result of the initiative, some companies have made changes in their sites and have purchased extra equipment to clean spillages, says Morcillo. "OCS is providing practical tools to help reduce plastic pellet loss and improve containment," he adds.

However, there's no data to show the link between any reduction in losses and firms signing up to OCS. "While the measures contained within the [OCS] manual may well be very effective at significantly reducing pellet loss, it is not clear that simply becoming a signatory results in these measures being implemented," says Eunomia's Sherrington.

As *RWW* highlighted in its cover story in August 2015, the scheme has no official reporting or auditing in place, meaning there is no way of assessing if companies that sign up to OCS are indeed meeting the standards

with regard to pellet handling and clean-up. Eunomia says the feedback it got is that "in many cases [OCS] is not effective or that it results in no change of practice in the company joining the programme.

"This is not to say that the measures contained within the manual are not effective – but that signing the pledge does not ensure that these measures are effectively implemented," the authors note.

They cite examples from the US. In Scotland, where Fidra has an industry-engagement project under way in a bid to encourage more businesses to tackle pellet loss, businesses seem to be taking the guidelines "seriously".

"They are making sure they have plans in place for audits or changes in operations before they actually take the pledge," explains the charity's project officer Madeleine Berg. Activity needs to be ratcheted up a notch or three, though.

"At present, we face the issue that only a small proportion of all companies handling pellets have engaged with OCS," adds Berg. "Our primary challenge is to ensure more companies are adopting the good practice expected under OCS."

Trickle of losses

Fidra is making in-roads, but it's far from easy – not least because the 53 billion pellets (which once out are impossible to clean up) are the result of a trickle of losses from sites all over the UK.

Eunomia notes that pellets may be valuable at £2,000 per tonne, but "there will inevitably be a point where cleaning up spills no longer makes economic sense to the processor".

This is just one reason why the consultants believe an independent evaluation of the effectiveness of OCS is needed.

It would also help to identify the reasons for OCS being ineffective in some facilities and, critically, to plug the gaps in data.

This is because the quantity of pellets lost at a site will need to be established before a firm signs up to OCS as well as the quantity it loses after subsequently joining OCS.

"If this monitoring is designed correctly it

can provide the first actual measurements of pellet loss at UK facilities," Eunomia notes. If the effectiveness of OCS is proved, more companies will sign up and more data will allow better targeting of efforts to reduce loss.

The assessment would have to be funded by industry, but the BPF is not convinced it is necessary. "We are recruiting more companies into OCS so we would expect its impact to enlarge with time," says Morcillo, adding: "The overall productivity in the industry has increased significantly in the past few years by making the maximum use of available resource. From the top five polymer consumers in Europe, the UK comes number two in productivity [after Germany], showing its professionalism and willing to do better."

Is OCS working?

However, an industry-wide evaluation could be the only way to find out if OCS is working and that the tide of pellet loss is being stemmed. As Eunomia points out, there is only one producer and consumer of plastic pellets: the plastics industry.

Are regulators happy that this soft-touch self-regulation is working? They seem to be. In Scotland, where between 0.8 billion and 7.9 billion pellets could be leaking into the marine environment, the government says OCS is a "great example" of support for the country's Marine Litter Strategy. (Defra declined to comment, but it's traditionally an ardent supporter of voluntary agreements over legislation).

Launched back in 2014, Scotland's strategy includes more than 40 actions to curb the flow of litter into the sea.

This includes the need for a "plastics industry code of conduct for the safe handling, packaging and transportation by sea, of plastic pellets" (though Eunomia's new research shows that transport is only one of the four major sources of pellet loss).

Also in the strategy is a challenge to producers of personal care products to look at alternatives to the plastic microbeads – the ones the US is banning and the EAC is investigating. A similar ban in the UK is a "no-brainer", according to Greenpeace.

If only it were that simple when it came to their microplastic cousins: pre-production pellets. The figures Eunomia has put together are far from perfect, but it's up to the industry to deliver more accurate ones. Only then can they claim that OCS and self-regulation is working as well as they claim it is. **RWW**

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