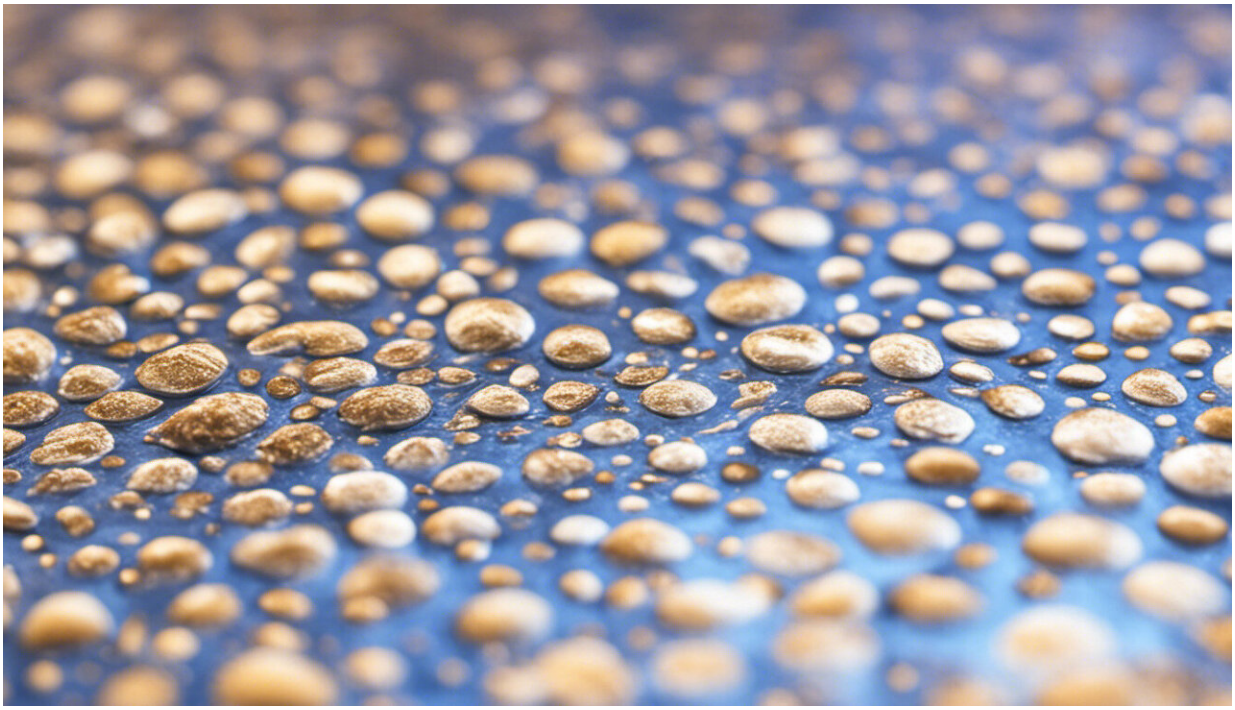
Why the fuss about nurdles?

April 11 2018, by Dr Abigail Entwistle



Credit: AI-generated image (disclaimer)

Nurdles. The name sounds inoffensive, cuddly even…. However, nurdles are anything but. "Nurdle" is the colloquial name for "pre-production plastic pellets" (which is in itself rather a mouthful); these are the raw material of the plastic industry – the building blocks for plastic bottles, plastic bags, drinking straws, car components, computer keyboards – in fact almost anything you can think of that's made of plastic.

However, nurdles are also covering our beaches. I found that out for myself when Fauna & Flora International (FFI) first started researching this issue in 2009. Having read about them I went looking on my local beach, and was shocked to find so many nurdles in the strandline and trapped in washed-up seaweed. I had never noticed them before, but they had clearly been accumulating for some time.

While pictures of the tide of larger plastics in the ocean are front page news, the issue of nurdle pollution has received much less attention. Recent storms, however, have resulted in higher levels of nurdles being reported from a range of sites around UK coasts, highlighting the numbers of nurdles that are in our waterways, seas and sediments – a level of pollution which we can only see when they are flushed out and onto the beach. The Great Nurdle Hunt (an initiative of our partner Fidra) has mapped nurdle finds from around the UK and Europe, which has identified a number of nurdle hotspots in key industrial estuaries. However, this problem isn't unique to Europe; nurdles are reported worldwide, but only hit the headlines when there are significant local spills from containers lost at sea, as recently occurred in South Africa. However, such one-off events aren't the only source of nurdle pollution.

A report commissioned by Fidra in 2016 estimates that up to 53 billion nurdles may be spilled each year from land-based sources in the UK alone. That's equivalent to losing up to 88 million plastic bottles to sea over the course of a year.

This isn't good news for marine life. Whilst a plastic bottle may take years to break down into pieces that can be ingested by sea creatures, pellets are immediately available for consumption and are known to be eaten by a range of fish and seabird species, which may mistake them for fish eggs floating in the water column. What's more, like other microplastics, they have the potential to concentrate background pollutants (to the extent that nurdles are used as a research tool by

Japanese scientists studying relative background pollution levels). Experiments have also shown the potential of nurdles to harm the animals that eat them.

With the focus on a closed-loop, circular economy for plastics being proposed as a way to reduce plastic pollution, there is a key issue that is being overlooked. Nurdles can be spilt at every stage of the plastic production, manufacturing and recycling process – meaning the loop isn't really closed at all. Effectively every time you or I use a plastic item, there is a risk that somewhere in the supply chain of that item nurdles may have been lost.

Nurdles start their life within plastic production facilities, extruded like string and then chopped into short pieces – the approximate size and shape of a lentil (or into finer-grade flakes and powders). Making plastics this way enables easy transportation and processing into the next stage of plastic production. Nurdles may be handled by a wide range of companies before they become a finished plastic product. Once produced, nurdles are bundled into bags, siphoned into containers, hefted into trucks, shunted by forklifts and/or poured into containers at a range of processing, haulage or manufacturing centres to be coloured, converted, extruded or moulded before becoming a final plastic product. Indeed, if that product is then recycled, it will be chopped up, heated and treated to again be turned back into nurdles.

Despite their innocuous name, nurdles are pesky things, and often make a bid for freedom. If you have ever poured lentils from a bag into a jar, you know how easy it is to spill them and see them bouncing onto the kitchen floor. It's just the same for nurdles. It's all too easy for them to be spilt – as they are moved around the factory floor, transferred to containers or for bags of nurdles to be damaged by the spike of a forklift truck. Nurdles can then end up on the ground both inside and outside around industrial facilities and haulage yards. Like the lentils on your

kitchen floor, with a bit of effort they can be cleared up. But if they aren't, they can end up being washed off down the drain, reaching waterways and eventually the sea.

FFI and Fidra have both been working constructively with a range of players in the plastics industry since 2012. The industry has its own guidance to reduce loss of nurdles (Operation Clean Sweep), but we continue to appeal to all those involved in the plastic supply chain to move more swiftly to ensure everyone involved is adopting best practice in preventing (and tidying up) nurdle spills, and that this is made as transparent as possible, with effective standards, monitoring and reporting by all those who may inadvertently be contributing to the numbers of nurdles that continue to litter our beaches and threaten our marine wildlife. We have also been working with plastic using brands, assisting them to ask questions regarding the potential for nurdle loss along their supply chains. While we have seen some success in adopting of common recommendations across industry bodies, and increased sign ups to Operation Clean Sweep, we believe much more could be done across the supply chain to stop this avoidable leakage of plastics.

In the meantime, if you want to have a look for nurdles yourself don't forget to add your findings to The Great Nurdle Hunt map. And if you're heading out 13-16 April, why not join Fidra's Great Technicolour Nurdle Hunt at a time and on a beach that suits you?

Provided by Fauna & Flora International