

Nurdles – A brief introduction



- Pre-production plastic pellets (nurdles) have been identified as one of the major sources of microplastics affecting EU waters¹.
- They are a widespread pollutant, found in huge numbers on UK beaches².
- Spills can be minimised by simple improvements to best practice along the entire plastics supply chain.

What is 'pellet loss'?

Pre-production plastics are the raw material used to make most of our plastic products. 2.5 million tonnes of plastic materials are produced, and 4.8 million tonnes processed in the UK each year³. This raw material is transported to manufacturers as pellets (nurdles), flakes and powders. Nurdles are the most widely used, and easiest to spot when spilt into the wider environment. About the size of a red lentil, they are notoriously hard to contain and spills can occur during handling at any point during the manufacturing process.

If not dealt with correctly, nurdles, flakes and powders can find their way to sea via drains and watercourses. According to recent analysis, up to 230,000 tonnes of nurdles may be entering the ocean across Europe each year⁴.

Why is it a problem?

Nurdles pollute the coastline of the UK and further afield. Our online [nurdle map](#) demonstrates this, populated by volunteers surveying their local beaches. We do not know the extent of plastic flake or powder pollution.

Marine animals including mammals, birds and fish, have been found to ingest nurdles and microplastic fragments. These get trapped in the stomach stopping them from eating real food and inhibiting appetite⁵. Once at sea, nurdles are known to adsorb high concentrations of persistent organic pollutants to their surface and are used to monitor for levels of these chemicals around the globe⁶. These chemicals and some additives in the plastic, which include endocrine (hormone) disrupters and carcinogens, may transfer to animals⁷, and can cause them harm⁸, with potential implications further up the food chain.

The solution: stopping pollution at source

A positive change can be made quickly and simply. Spills are accidental and simple low-cost changes to procedure in facilities can minimise loss to the environment. No company intends to lose pre-production plastics; however, our experience indicates spills are commonplace in facilities.

[Operation Clean Sweep](#) is an industry-devised voluntary scheme. Companies pledge to aim for 'zero pellet loss' and are provided guidelines and check-lists to help achieve this. Although the scheme is useful and comprehensive, it does have some problems, including:

- Across the UK, sign-up to the scheme remains low.
- Many companies are unaware of its existence or unwilling to commit to the pledge.
- A lack of independent auditing and public reporting makes it difficult to assess the scheme's effectiveness.

What can be done?

Government support is needed to make existing solutions fit for purpose. Greater transparency and regular reporting is required to ensure the scheme is effective. Awareness-raising and strengthening of the Operation Clean Sweep scheme should be promoted by industry leaders and supported by government. **Appropriate legislation could ensure best practice procedure is in place across the plastic supply chain.**

¹ Eunomia (2016) <http://www.eunomia.co.uk/reports-tools/plastics-in-the-marine-environment/>

² The Great Nurdle Hunt www.nurdlehunt.org.uk/take-part/nurdle-map

³ About the British Plastics Industry [online] <http://www.bpf.co.uk/industry/default.aspx> (Accessed 05/09/2016)

⁴ Eunomia (2016) <http://www.eunomia.co.uk/reports-tools/plastics-in-the-marine-environment/>

⁵ Derraik (2002) *The Pollution of the marine environment by plastic debris: a review*. Marine Pollution Bulletin 44: 842-952.

⁶ International Pellet Watch - www.pelletwatch.org

⁷ Rochman et al (2013) [Ingested plastic transfers hazardous chemicals to fish and induces hepatic stress](#). *Scientific Reports* 3, article number 3263

⁸ e Silva, P. P. G. et al. (2016) [Leachate from microplastics impairs larval development in brown mussels](#). *Water Research*, 106, 364-370