

How do we tackle plastic pollution from global pellet loss?

Preventing pellet loss through effectively implemented best practice, independently assessed and openly communicated across the whole of the plastics supply chain.

Our vision is a plastics supply chain where all companies handling pellets take full responsibility of the pellets they handle.

The status quo of pellet pollution

Pellets are lost regularly from industrial facilities following accidental spillages during routine handling. These spillages can range from a small but constant trickle of pellets, to major losses from container ships, lorries or freight trains during transportation on land and at sea. Once spilt, if not cleaned up properly or dealt with responsibly these

pellets make their way into waterways, our rivers and eventually our oceans. Losses can occur at every stage of the supply chain.

Though companies generally make sure that most of their pellets are contained on site, there are few incentives to make sure effective best practice measures are in place to ensure ZERO pellet loss to the environment. With hundreds of thousands of sites and companies using pellets around the world, even a handful lost at any one site can add up to a flood entering the environment.

Pellet loss is preventable

If pellets are handled with care, there is no reason for them to escape into the environment.

To make sure pellets are no longer lost to the environment, best practice needs to be effectively implemented at ALL SITES and by ALL ACTORS handling plastic pellets.

Wherever pellets are handled, best practice measures must include:



Installation of effective equipment and barriers to prevent loss



Highly trained and vigilant workforces



Regular internal inspections of sites, supported by senior management



Shared responsibility between pellet handlers at sites of loading and unloading



Effective and practiced clean-up protocols in place to handle all spills

Around the size of a lentil (2-5mm diameter), plastic pellets, or nurdles, are the second largest source of primary microplastic pollution.

An estimated 230 000 tonnes of pellets are lost to the environment every year globally during the production of plastic products – that's 10 trillion pellets, or the equivalent of around 15 billion plastic bottles.^a This could be rapidly cut by 95% if the right solutions are implemented.*

Why we need more than Operation Clean Sweep (OCS)

OCS is a voluntary best practice toolkit developed by industry that asks companies to commit to aiming for 'zero pellet loss', using a set of guidelines and checklists to make improvements to their facilities. If correctly implemented, OCS is a useful tool to reduce pellet loss at any given site, but the voluntary nature of the scheme and lack of external

audits limit its effectiveness and scope. Now almost 30 years old, OCS has had limited traction with the wider plastic supply chain.

OCS is a comprehensive resource, but the scheme needs to be developed further to ensure everyone handling pellets is adhering to best practice.

So, how do we make sure that the full plastics supply chain is taking responsibility and keeping pellet pollution at bay? →

^a Estimate of loss based on Eunomia, 2016, Plastics in the Marine Environment, www.eunomia.co.uk/reports-tools/plastics-in-the-marine-environment/; calculation assumes average of 1000 pellets per plastic bottle, and 50 million pellets per tonne of raw material.

* Eunomia and ICF (2018) Investigating Options for Reducing Releases in the Aquatic Environment of Microplastics Emitter by (but not intentionally added in) Products

The solution lies in a supply chain approach: certified best practice, effectively communicated

Current efforts to tackle pellet loss are limited to only certain sites and facilities, primarily at the start of the plastics supply chain. Although valuable, they fall short of cleaning up the industry as a whole. To fully tackle this pervasive pollution we need joined up action across the entire plastic supply chain.

A Supply Chain Approach uses standards to define minimum requirements for best practice, with third party audits to ensure compliance. Standards and certifications must be endorsed and implemented by all pellet handlers, and effectively communicated along the plastics supply chain.

Our vision of a Supply Chain Approach will mean that...

Actors in the supply chain can demand and supply evidence of fully implemented and certified best practice wherever pellets are handled.



Independently Assessed Best Practice:

- All companies who handle pellets (or any other microplastic raw material) implement best practice in pellet management, that is standardised and certifiable across the whole plastics industry.
- On-site third-party auditing and transparent reporting give companies strong assurance that they handle pellets responsibly.
- Existing health and safety and environmental management systems can be used to minimise bureaucratic burden whilst maximising environmental gain.

Effectively Communicated:

- Companies work together across the whole supply chain to communicate and demonstrate best practice is in place, from point of pellet production through to brands putting products on the shelves. This should include recyclers to ensure a fully closed-loop circular economy.
- A chain of custody^b framework allows companies at all stages of plastic production to communicate in a harmonised way their own best practice, and provide assurance that the entire supply chain is also handling pellets responsibly.

...the plastics industry becomes more transparent and accountable

Reputational or legal incentives for uptake?

The use of certification will allow companies to verify their own responsible pellet handling. Communication along the supply chain will help brands and retailers who put products on the market to check their products are being made without contributing to the pellet loss problem and should be part of their standard due diligence of selecting suppliers. This links pellet handlers to the customer, creating a reputational incentive for companies to ensure responsible pellet handling and gain certification.

However, it's unlikely that reputation alone will lead to 100% uptake for such a hidden issue. We believe that ultimately, legislation based on an established supply chain approach will be the best way to create a level playing field and ensure the whole plastics industry implements best practice. Once the system of standards and certifications is in place, legislation can be brought in at national or regional scales to ensure uptake.

^b A chain of custody is an evidence trail (or audit trail) that tracks where and how a product is handled at every point it is handled, from production to being put on the market. In this context, it means that evidence of best practice compliance is traceable all the way from one end of the supply chain to another.

We are not alone in calling for this solution

The Supply Chain Approach is advocated by leaders in the plastics and manufacturing industry, among national decision makers, multinational brands & investor groups and at a global level by G7² and UNEA³. It is highlighted as a key solution by the European Commission in their Plastics Strategy⁴. A European Commission-funded report recently identified the supply chain approach as capable of reducing 95% of pellet loss by 2035, equivalent to 600,000 tonnes of plastic pollution⁵. The principles and mechanisms of this approach are being explored by several task forces and steering groups across Europe, and international standards are in development⁶.

Our journey to the supply chain approach

Fidra set up The Great Nurdle Hunt in 2014, which has since gathered evidence of plastic pellet pollution worldwide. We have used this evidence to work directly and collaboratively with industry, raising awareness of available best practice to stop pellet loss at source. Originally working to promote Operation Clean Sweep (OCS) to industry in the local area, we found after several years of engagement that progress was frustratingly slow. Most companies hadn't heard of OCS. Despite some companies showing proactive leadership and enthusiasm for taking part in the voluntary scheme, many others refused to engage. As the nurdle hunt gained international reach, we also realised that this globally widespread, complex supply chain issue was calling for more

far-reaching solutions.

That's why we are calling for a globally compatible, unified approach to ensure best practice is in place everywhere that pellets are handled:

- We work with decision makers and industry to make this vision reality. For example, we are represented on a Scottish government-led steering group that aims to design and trial effective supply chain solutions.
- We work together with international NGOs Fauna & Flora International and the Environmental Investigation Agency to push for stringent designs that lead to meaningful change and are calling for a legislated Supply Chain Approach across Europe.

What does the plastic supply chain look like?

Most plastic is produced in pellet form from chemicals within fossil fuels. Plastic is produced in bulk by large, petrochemical companies and sold on to plastic manufacturers, converters or processors.



Pellets can be transported in large 35 tonne tankers, or packaged into smaller bags, bins or containers and transported around the world by lorry, train or ship.

Converters buy raw plastic materials and heat it, softening the plastic for it to be moulded to the desired shape. There are tens of thousands of converter companies, varying in size from microbusinesses to multinational corporations.



There are many potential intermediate steps to this simple supply chain. Pellets can be reprocessed to add colour and additives, ground to powders, repackaged, stored and redistributed. Ancillary services might also handle pellets such as waste companies, and port facilities.

Brands, retailers and even customers are a further key part of the plastics value chain. Although they don't handle pellets, they are buying plastic products and can ask for better pellet handling from their suppliers.



As the circular economy develops more plastic is being recycled. This usually means shredding plastic to small flakes, and reprocessing them to make new pellets.

We need demand for these systems to come from all corners of the world

- Help us Raise awareness of the problem by joining our Nurdle Hunting Network
- Join us in calling for an effective global solution in your region

¹ Eunomia and ICF (2018) Investigating Options for Reducing Releases in the Aquatic Environment of Microplastics Emitter by (but not intentionally added in) Products

² G7 (2018) Ocean Plastics Charter, 2.c.

³ Resolution adopted by the UN Environment Assembly on 15 March 2019, Paragraph 4c

⁴ European Commission (2018) – A European Strategy for Plastics in A Circular Economy (p.19)

⁵ Eunomia and ICF (2018) Investigating Options for Reducing Releases in the Aquatic Environment of Microplastics Emitter by (but not intentionally added in) Products

⁶ PlasticsEurope (2018) PlasticsEurope Operation Clean Sweep® 201 Report

What is the supply chain approach to tackling pellet loss?



LEGISLATION CAN HELP TO ENSURE UPTAKE ACROSS THE WHOLE PLASTICS INDUSTRY



FOR MORE INFORMATION PLEASE CONTACT:

Madeleine Berg, Project Manager, Fidra

Madeleine.Berg@fidra.org.uk | 01620 895677 | nurdlehunt.org.uk | fidra.org.uk