

# Company Pledge to Prevent Resin Pellet, Flake and Powder Loss

Our company recognises the importance of preventing the loss of resin pellets into the environment and is committed to implementing the Operation Clean Sweep® programme. We will be an OCS Programme Partner, strive towards "Zero Pellet Loss" and make changes to:

- 1 Improve our worksite(s) set-up to prevent and address spills;
- 2 Create and publish internal procedures to achieve «zero pellet loss» goals;
- 3 Provide employee training and accountability for spill prevention, containment, clean-up and disposal;
- 4 Audit our performance regularly;
- 5 Comply with all applicable local and national regulations governing pellet containment;
- 6 Encourage our partners (contractors, transporters, etc.) to pursue the same objectives.

Operation Clean Sweep® is trademarked by PLASTICS Industry Association

## Company Pledge to Prevent Resin Pellet, Flake and Powder Loss

### Company/Association:

Producer  Converter  Logistic  Recycler

Other: \_\_\_\_\_

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### Company Representative (signing the pledge):

Name: Luigi D'Auria

Title: General Manager

Email: luigi.dauria@transitalia.it

Does your company belong to any association/federation which has signed OCS?  Yes  No

If so, please specify: Federchimica

### All sites covered by this pledge - Site name & country/region:

Italy: Fisciano (SA), Arcole (VR), San Giorgio di Nogaro (UD), Varedo (MI), Piombino (LI), Livorno, Bolzano (BZ).

### OCS Accountable Person (for correspondence):

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Title: Quality Team

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Phone: 0039 089 890 157

I would like the name of my company to be published on the Operation Clean Sweep® (EU) website and agree to be used in specific, Operation Clean Sweep® related, PlasticsEurope communications:

As soon as possible.

After 6 months from signing the pledge.

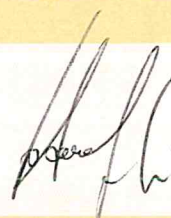
Company stamp:

**Trans Italia srl**  
**Luigi D'Auria**

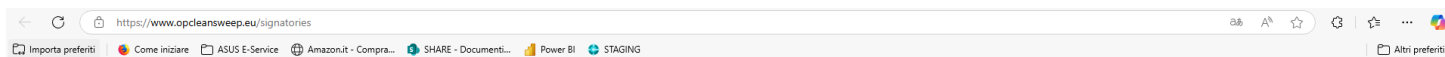
Name: Luigi D'Auria

Date: 26/09/2019

Signature:

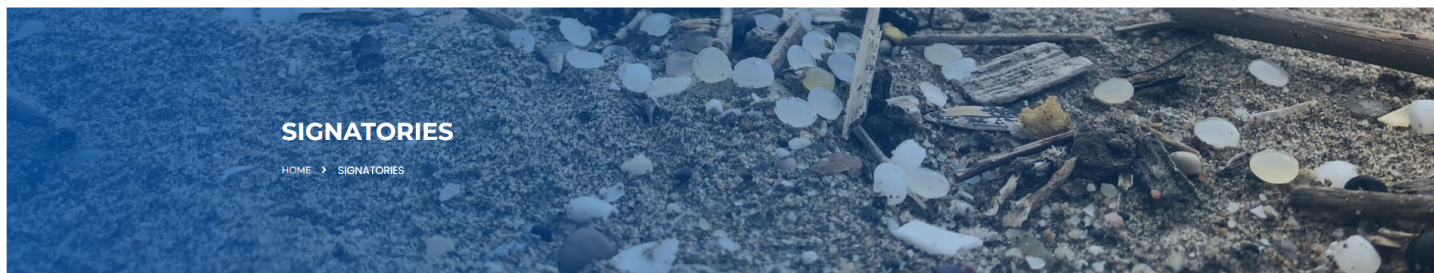


# https://www.opcleansweep.eu/signatories



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## SIGNATORIES

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**The following companies have signed up the Operation Clean Sweep® (OCS) pledge in Europe and are implementing zero pellet loss measures.**



**Operation Clean Sweep<sup>®</sup>**  
Objective: zero pellet loss

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## INTRODUCTION

### How to use this manual?

The Operation Clean Sweep® (OCS) manual contains guidelines to help plastics industry operations managers reduce the loss of pellets to the environment.

Each procedure contained herein may or may not be applicable to your specific operation. Manual users are free to implement the sections and steps that help achieve their company's specific goals.

None of the guidelines presented hereafter are intended as a mandate. Compliance with national and local regulations is mandatory. These guidelines may help you achieve compliance and avoid penalties.

There are many ways to work towards zero pellet loss.

The Operation Clean Sweep® materials are designed to provide maximum utility for all types of plastic handling and transport operations.

Operation CleanSweep® is trademarked by SPI

### Acknowledgements

PlasticsEurope wishes to thank the Plastics Division of The American Chemistry Council (ACC) and The Society of the Plastics Industry (SPI) for allowing the use and translation of Operation Clean Sweep (OCS) original manual.

### Information

PlasticsEurope is one of the leading European trade associations with centres in Brussels, Frankfurt, London, Madrid, Milan and Paris.

We are networking with European and national plastics associations and have more than 100 member companies producing over 90% of all polymers across the EU28 member states, plus Norway, Switzerland and Turkey.

### Copyright

All companies that produce, process or handle plastic pellets may use the OCS material for the purpose of being a good environmental steward by working to contain and prevent the discharge of pellets.

The OCS logo and name are copyrighted. These materials are intended for use within an individual company or facility. These materials may be shared with other individuals or companies with the intention of improving pellets retention.

No Operation Clean Sweep® materials may be copied for sale or any other use beyond the specified use of improving a containment of plastic pellets. Unauthorised use will be subject to fines and other penalties.

# Plastic Pellets in the Environment

## Plastic Pellet Loss: Impacts and Possible Actions?

In recent years and with increasing frequency, researchers have reported that seabirds, turtles and fish are ingesting a wide variety of plastic items that are affecting their health or killing them. Most of these plastics are used consumer products that have been carelessly discarded.

Some of this litter is resin pellets that entered the waste stream and the oceans. When these pellets are eaten by wildlife, they may not be passed through their digestive tracts, leading to malnutrition and starvation.

## How Can You Help?

Each segment of the industry, including resin producers, transporters, bulk terminal operators and plastic processors, have a role to play in eliminating resin pellet loss.

It's the little things that count. A few pellets here. A handful there. They all add up when you consider the thousands of facilities in the plastic industry and the many times resin is handled.

While consumers are responsible for the proper disposal of the products they use, the plastics industry must focus on proper containment of the products we handle - plastic pellets. We must prevent the pellets from getting into waterways that eventually lead to the sea.

All employees in every aspect of the plastics industry must be educated on how to properly handle and dispose of plastic pellets **with the goal of zero pellet loss.**

Commitment by everyone in every company, from top Management to the shop floor employee is essential eliminating definitely pellet loss.

Pellet containment is good for the environment. It's good business performance.

With your help and cooperation, we can make significant progress to help our industry protect the environment.



# The Value of Operation Clean Sweep®

Operation Clean Sweep can help strengthen your company's:

- contribution to preserving water quality and wildlife,
- compliance with state regulations and avoidance of fines,
- safety/housekeeping programme,
- employees' safety,
- operational efficiency,
- financial bottom line,
- and reputation in the neighbourhood.

The Operation Clean Sweep® programme is a product stewardship programme. It has the goal to help every plastic resin handling operation implement good housekeeping and pellet containment practices to work towards achieving zero pellet loss in the environment.

## Better control the risks...

**Pellet loss has many negative impacts on individual companies, on the plastic industry as a whole and on the environment.**

- Slips and falls can be a cause of accidents, meaning lost time, higher worker compensation costs and lower employee morale.
- Violations of storm water regulations can result in penalties.
- Spilled pellets eventually end up in our oceans. Whether they are handled in a plant located inland or a seaside facility, pellets get to storm drains that lead to oceans, causing eyesores and a threat to marine life.

## ...to improve your performance and your image:

When the industry handles pellets as responsibly as possible:

- Pellets are kept out the natural environment including waterways and oceans.
- Companies enhance their reputation as good stewards of the environment.
- More material becomes product rather than waste.

OCS' ultimate goal is to help keep plastic pellets out of the natural environment, but these efforts can also help improve relations with stakeholder groups and community organisations that expect the industry to minimise its environmental footprint.

The industry needs the help of every resin producer, every transporter or plastics processor to get results.

**This manual and its website, [www.opcleansweep.eu](http://www.opcleansweep.eu) provide all necessary information and tools you need to launch an employee outreach programme in your company.**

## Implementing Opération Clean Sweep®: Five Basic Steps for Management

### 1 Commit to making "zero pellet loss" a priority

- Sign the "Pledge to Prevent Resin Pellet Loss".

### 2 Assess your company's situation and needs

- Comply with all environmental regulations that address pellet containment,
- Conduct a site audit,
- Determine if you have appropriate facilities and equipment,
- Determine if employees have and are following appropriate procedures,
- Identify problem areas and develop new procedures to address them,
- Communicate your experiences to peers in the industry.

### 3 Make needed upgrades in facilities and equipment as appropriate

### 4 Raise employee awareness and create accountability

- Establish written procedures,
- Make certain the procedures are readily available to employees,
- Conduct regular employee training and awareness campaigns on Operation Clean Sweep®,
- Assign employees the responsibility to monitor and manage pellet containment,
- Seek employee feedback on your programme,
- Use workplace reminders such as stickers, posters, etc.

### 5 Follow up and enforce procedures

- Conduct routine inspections of the facility grounds (production areas, storage areas, sampling zones, driveways, parking lots, drainage areas, etc.),
- Continuously look for ways to improve the programme.

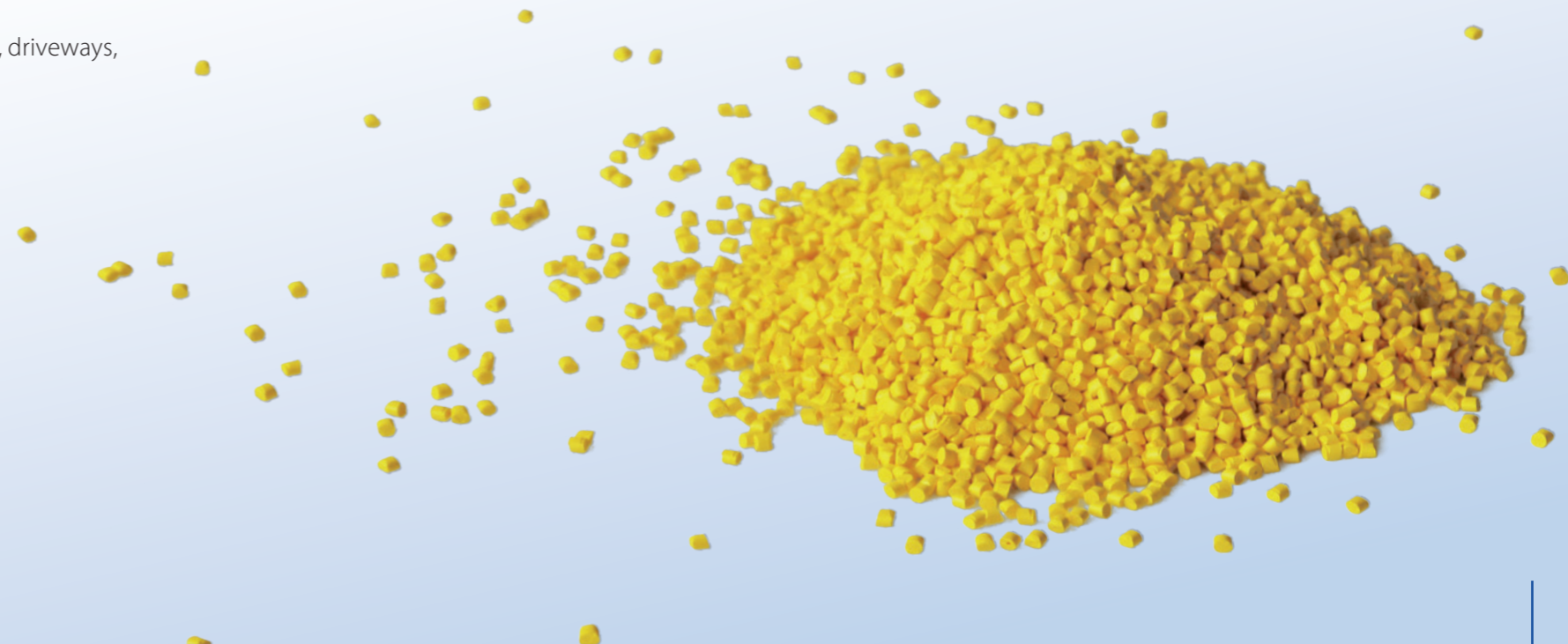
When management cares, employees will, too.

## Conducting a Site Audit

One of the most effective ways to improve your facility's containment of pellets is to identify the areas where spills/losses occur most frequently and fix them.

- 1 Check every transfer point at your site,
- 2 Identify the major spill areas,
- 3 Determine the cause of spills in each area,
- 4 Research/Brainstorm ways to solve each problem,
- 5 Implement the simplest effective solution,
- 6 Follow up to measure success,
- 7 Repeat if necessary.

For the site audit, customise the checklist to suit your facility. Add any missing operations. (Checklist proposals included on [www.opcleansweep.eu](http://www.opcleansweep.eu))



# Designing a Training Programme

Designing a training programme can be structured into five steps:

## 1 Needs assessment

- Conduct a site audit and determine if employees have and are following appropriate procedures,
- Make necessary site improvements and write/modify procedures prior to launching a training programme.

## 2 Instructional objectives

- Identify what training is needed to ensure procedures are being followed,
- Make necessary site improvements and write/modify procedures prior to launching a training programme.

## 3 Details

- Determine who, where, when and how you will train,
- Consider the following areas: explaining the environmental impact of pellet loss, defining the role each individual plays in affecting change and ensuring knowledge of appropriate procedures,
- Use Operation Clean Sweep® to design and develop training programme and programme contents,
- Select the techniques used to facilitate learning (crew meetings, hand-outs, video, website, etc.),
- Select the appropriate setting for your meetings,
- Prepare materials,
- Identify and train the instructors,
- Create department goals.

## 4 Implementation

- Schedule classes, facilities, participants and instructors, deliver materials.

## 5 Evaluation

- Determine participant reaction to the training, how much they learned and to what degree the department goals were met.

# Employee Participation and Accountability

Ensure employees are aware of and accountable for pellet loss prevention, containment, cleanup and disposal.

- Establish written procedures,
- Make certain the procedures are easily available,
- Conduct regular training and awareness campaigns on the Operation Clean Sweep® programme.

### Be alert!

For each identified spill, ensure that employees:

- take ownership,
- immediately clean up the spill,
- recycle or dispose of loose pellets properly.



- Explain the impact of pellet loss on the environment and the company.

- Make spill prevention, clean-up and containment a company philosophy and priority.

- Promote that philosophy daily.

- Assign specific employees the responsibility to monitor and manage pellet containment.

If it gets assigned as a regular part of employee jobs, it gets done.

- Consider hiring a full-time housekeeping/warehouse sweeper, if appropriate.

Having one person assigned this job improves the efficiency of other workers.

- Stress the importance of immediate clean-up of any spills by the person associated with the spill.

- Review current procedures and identify whether there has been a problem history in a certain area.

- Reaffirm existing or develop new procedures.

- Use workplace reminders such as stickers, posters, etc.

- Encourage teamwork and employee feedback.

- Conduct regular inspections of the entire facility to assure compliance with OCS principles.

Reward and/or recognize milestones and significant achievements of the crew(s) that achieve designated goals of the pellet loss prevention programme.

## Worksite set-up

### Facilities

Ensure your worksite is properly set up to prevent loss and assist cleanup.

#### Take the following steps wherever possible:

##### ■ To pave or not to pave? - that is the question.

- A paved area facilitates cleanup, but allows pellets to be carried out into the environment by wind and water.
- Unpaved areas are more difficult to clean, but pellets tend to stay where they fall and can be recovered.
- Choose the solution that is best for your facility.

##### ■ Pave loading/unloading areas where unavoidable spills occur to facilitate cleanup.

- Include a slope or a berm to contain pellets on paved areas.
- Equip areas with vacuums or brooms.

- Cordless vacuums may be best suited for outdoor cleanup.



##### ■ For cleanup in gravel yards, consider fitting vacuums with screen or mesh on intake hoses to collect pellets without disturbing gravel.

##### ■ Provide catch trays for use at all car/truck unloading valves.



##### ■ Use bulk-handling equipment that is designed to minimise pellet leakage.

##### ■ Install central vacuum systems where practical.

##### ■ Install connecting hoses equipped with valves that will close automatically when the connection is broken.



##### ■ Properly empty and seal bulk containers (rail or truck) after unloading



Loss of residual pellets from unsealed "empty" bulk cars or trucks during their shipments is a significant problem.

##### ■ Assure proper handling when storing and removing waste pellets.

All contractors should follow "zero pellet loss" procedure.

##### ■ Seal expansion joints in concrete floors with flexible material to avoid pellet accumulation in hard to clean spaces.

##### ■ Conduct routine inspections and maintenance of equipment used to capture and contain pellets.

## Containment Systems

##### ■ Storm drain screens are the last line of defence against accidental pellet release

They should be every facility's number one priority for installation.

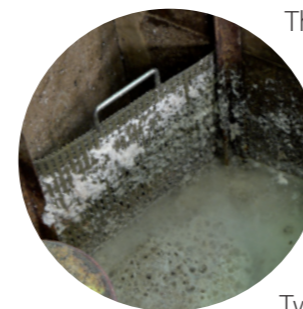
##### ■ Install zero loss containment systems wherever necessary to prevent pellets from escaping plant boundaries.

Two containment systems could be installed:

- Area-specific containment systems in each pellet handling area.
- Facility-wide containment systems, which are effective in controlling pellet releases from facilities covering a large area and handling large volumes of pellets.

Area-specific containment systems would be the primary pellet containment systems and the facility-wide system would serve as a backup.

##### ■ Place screening in all storm drains.



The mesh of the screening should be smaller than the smallest pellet handled at the facility.

Clean the storm drains regularly to prevent drain clogging and overflow. Pay particular attention to cleaning screens after each rain.

Two-stage screens minimise clogging problems.



##### ■ Install baffles, skirts and booms in containment ditches or ponds

Use surface skimmers or vacuum systems to remove accumulated pellets.

To prevent storm drain contamination, employ dry clean-up methods whenever possible. Dry clean-up procedures also prevent pellets from being further contaminated by compounds in the storm water.



### Anticipate Rain and Flood

Design containment systems to withstand heavy rains and handle 100 year flood conditions.

Use a collector grate and filtered storm drain system with a screen consistent with the range of pellet size handled.

NB



## Employee Equipment:

### Ensure that employees have ready access to:

- Brooms, dustpans, rakes, etc.,
- Heavy-duty shop vacuums for inside use,
- Portable shop vacuums for outside use,
- Catch trays or traps,
- Wide-mouth sample collection jars or poly-bags,
- Tape for repairing bag or box damage,
- Scrap pellet containers,
- Procedures you expect them to undertake and checklists to assist in follow-through,
- Forklift clean-up kit.



### Slips and Falls

Slips and falls are one of the causes of accidents.  
A clean work area reduces the risks

### No Blowing in the Wind!

"Blowing" too frequently moves the debris to another area rather than contains it. It also uses large amounts of energy.

Using compressed air to remove pellets from an inaccessible zone must be completed by a clean-up.

NB



## Prevention, Containment & Clean-up Procedures

There are many steps involved in the movement of plastic pellets from the resin production facility, through the distribution network, to the processor.

Spills and pellets loss to the environment can occur at any step. The procedures in this section provide best practices for each handling step.

## Bulk Transport

Tank railcar and truck cleaning, loading, storage and unloading present special resin handling challenges

### Cleaning Empty Tank Railcars and Trucks

- Use air lance to make total pellet removal easier.
- Recover all pellets from wash water.
- Ensure tank car or truck cleaning areas have wastewater collection and pellet filtration systems installed.
- Recycle, resell or dispose of collected pellets correctly.

## Loading

### Top Loading

- Operate the conveying system properly to avoid clogging and necessitating the opening of lines.
- If a line must be opened to clear blockage, anticipate the potential for pellet loss and always place a catch pan or trap under the connection.
- Remove any spilled pellets from the top of the car/truck before leaving the containment area - residual pellets will fall to the ground as cars are moved outside the plant.

- Position the filler pipe the closest possible to the manhole to minimize the drop height.
- Use devices avoiding over-filling: chronometer, volumetric dosing valves, etc.



### Sealing Loading Railcars/Trucks

- Close all outlet caps properly before cars/trucks are moved (and request customers to do the same when returning empties).

### Storing at Intermediate Sites

- Consider exposure to vandalism when selecting sites.
- Establish security procedures as necessary (e.g. fencing and lighting).
- Advise companies to report any incidents (e.g. shippers, railroads, trucking companies and processors).

- Apply seals on all outlet caps.

- Design or modify loading systems so that transfer lines can be completely emptied, with any residual resin being discharged into a container after loading is completed.

### Hierarchy of clean-up methods

- 1 Vacuum it.
- 2 Sweep it.
- 3 Wash it down (only with appropriate containment systems in place).
- 4 Blow it (only as a last option).

NB



### The "Usual Suspects"

Open valves, outlet caps and top hatches are frequent causes of material spills. Make sure to close off all pellets "escape routes" once the truck is unloaded.

## Unloading

### Valve Opening

- Contain any possible spill during hook-up by placing a catch pan under the unloading valve before opening.
- Purge unloading tubes within containment area.
- Keep area swept up or vacuumed.
- Consider installing connecting hoses equipped with valves that will close automatically when the connection is broken. Clogged hoses, material bridging in outlets, etc., can require unloading lines to be opened, which presents the risk of spillage.

- Anticipate the potential for pellet loss before opening the line.
- Place pellet disposal cans at the loading and unloading areas.
- Have a catch pan or trap ready to catch pellets.
- Immediately clean up and properly dispose of any spilled pellets.
- A swell of pellets in unloading lines can cause pellets to be vented into the environment. To prevent this, install a bag house, filter bag assembly or other control device at the unloading system vent.

### Completing Unloading

- Ensure that the car/truck is thoroughly unloaded.
- Cycle the outlet valve while air is flowing.
- Visually confirm that each compartment is empty.
- Purge the line before disconnecting.

### Sealing Valves

- Close all valves.
- Secure outlet caps and exit hatches.



### Be Vigilant

- Pellet loss can occur at any stage of operations.
- Be vigilant to ensure that pellets don't leak into the environment.

### Sampling

- Conduct sampling only in areas protected by containment equipment.
- Review procedures for taking samples to eliminate any possible spillage.
- Use wide-mouth containers or poly-bags for samples.
- Use a funnel collection system to effectively channel pellets into containers.

### Sampling from unloading tubes:

- Place a catch pan or heavy duty tarp under outlet before opening to catch any spills. Several commercial devices have been developed specifically for preventing spills during sampling.

### Sampling from top hatches:

- Exercise extra caution to avoid spillage, which can also pose a slipping hazard.
- Close hatches and apply cable seals to prevent access by vandals.

## Packaging

Using the proper packaging, filling and material-handling procedures can go a long way in minimizing pellet loss.

### Selecting Packaging Materials

- Use packaging designed to minimise the possibility of breakage and pellet leakage.
- Use reinforced bags, such as woven polypropylene bags, and plastic-lined octabins.
- Use puncture-resistant shipping containers where possible or line them with puncture-resistant material.
- Minimise the use of valved bags, or seal valved bags immediately after filling.

### Collecting spilled pellets

Collecting spilled pellets reduces contamination, permitting normal usage rather than requiring disposal.

**NB**

### Bags: Filling and Handling

- Inspect all pallets for protruding nails or broken boards.
  - Use bags that are not easily punctured.
  - Use a heavier weight container/bag if breakage is a recurring problem.
  - Move and stack bags immediately after filling to avoid seepage.
  - Tape leaks or replace leaking bags.
  - Regularly clean up pellets spilled during the filling process.
- Where possible, select filling equipment designed to prevent pellet loss.
- Implement warehouse and handling procedures that minimise the risk of pellet spillage.
  - Dispose of collected pellets properly.



### Caution

Shipping bags often use a mechanical closure that does not provide a positive seal against leakage once the bag is filled.

### Bags: Emptying and Disposal

- Thoroughly empty bags.
- Collect, handle, store and transport the empty bags to avoid/contain the escape of pellets.
- Recycle plastic resin bags, shrink-wrap and stretch-wrap, whenever possible.
- Otherwise, dispose of packaging properly.

### Octabins

- Use octabins that are not easily punctured.
- Tape leaks or replace leaking octabins.
- Regularly clean up pellets spilled during the filling process.
- Dispose of collected pellets properly.



### Caution

Some loss also occurs during the filling process.



## Improve Palletizing Methods

- Move and stack bags immediately after filling to avoid seepage from valves.

- Use corrugated cardboard caps on the top and bottom of pallets to minimise puncturing of tearing bags and to contain loose pellets.

- Stack bags on pallet in tight, interlocking patterns.

- Shrink or stretch-wrap pallet to stabilize stacks and help contain lost pellets.

- Block and brace outbound loads to avoid broken bags in transit.



### Select Proper Bags and Pallets

NB

- Bags typically are stacked 40 to 50 per pallet, and pallets are usually stored at least two high.
- Both individual and palletised bags are subject to the warehouse rules/constraints ref. movement and storage.
- Proper bag and pallet selection can help reduce damage.

## Handling Materials

- Forklift operators must be trained and skilled in damage prevention as well as proper clean-up.

- Consider outfitting all forklifts with a clean-up Kit.

- Institute handling procedures that minimise puncture of bags and boxes with forklift tines.

- Place catch trays between the dock and trailer at shipping and receiving bays.

- Repair or replace punctured packages and immediately clean up any spills to prevent loss of pellets. Sealing a leak when it occurs is much easier than sweeping 100 meters of warehouse.

- Inspect pellet packaging before offloading, particularly pellets bagged in unreinforced paper or corrugated octabins. This will prevent pellet release through the gap between the vehicle and the loading dock.

## Storage

- Consider covering all packaging resin stored outside to prevent photo degradation of the containers.



### Forklift Clean-up Kit

1. Broom, 2. Long-handled dust pan, 3. Repair tape, 4. Bucket for collection/disposal.

Select these items to fit together in the bucket. Secure the bucket to the forklift using elastic cords.

Situate the kit so as not to interfere with the safe operation of the forklift.

## Other Concerns

### Container Trucks

#### Shipping

- Sweep or vacuum any loose pellets in the trailer/container.

- Carefully inspect empty trailers/containers to identify damaged interior walls or defective floors that can tear bags. Consider refusing to use them or cover problem areas with corrugated liner board.

- Block and brace outbound loads to avoid broken bags in transit.



#### Receiving

- Inspect truck shipments containing palletized bags of pellets and document the condition of bags and pallets received. If the shipment is significantly damaged, notify the transporter and manufacturer. Consider refusing to accept delivery.

#### Hopper Cars and Trucks - Repair

- Work in a paved area to facilitate containment and clean up.

- Properly contain, handle or recycle small quantities of residual pellets. If larger quantities are involved, contact the shipper.

#### Transport Accidents

- Contact the shipper for assistance/advice if a derailment or road accident results in a spill of resin pellets.



## Marine Transport

### Marine transport of pellets requires special attention due to the high potential for release into the environment.

Because of the close proximity to water, loose pellets in and around water-front warehouses, docks, ocean-going containers and on ships themselves must receive extra attention.

Anyone handling pellets directly or managing their shipment must be well-informed about the importance of spill prevention, the need for prompt clean-up and proper disposal practices.

- DO NOT SWEEP pellets into the water.
- Properly contain and handle any pellets from previous shipments when cleaning ship holds or ocean containers.
- Keep ocean containers in good repair - eliminate protrusions that could tear bags and boxes.
- Avoid stowing resin containers on deck. Place resin containers in ship holds.
- Do not jettison containers of resin.
- If a plastic resin container is lost at sea (due to the weather conditions or after a collision), please inform the port authorities.

## Waste Recycling and Disposal

### Ensure pellets are properly disposed of to avoid contaminating the environment.



#### Storage of waste pellets

- Do not permit loose pellets to accumulate on the ground or floors.
- Install a minimum of one pellet-specific waste container in each pellet-handling area.
- Use properly labelled containers.

#### Preferred Disposal Methods

- Recycle or resell waste pellets.
- Energy recovery through incineration in appropriate efficient incinerators or use as alternative fuel.
- Prevent waste pellets going to landfills.

#### Requirements to Waste Disposal Companies

- Routinely check that there is adequate waste storage capacity.
- Use separate containers for recyclable and non-recyclable pellets.
- Use only covered containers or vehicles without leaks.



- Include pellet retention capabilities and practices in criteria for selecting waste disposal companies.
- Stress the need for "zero pellet loss" procedures.
- Inspect and confirm proper handling and storage procedures of these service providers.

#### Preferred Disposal Methods

- Recycle
- Resale
- Incineration (with energy recovery)
- Use as alternative fuel (e.g. in cement kilns)



## Minimize Generation and Release of Plastic Dust and Powder

**This part specifically focuses on methods to help minimise generation and release of plastic dust and powder.**

There are several approaches that can be taken. You may wish to consider whether other ways are more appropriate for your operations. Consult with the manufacturer of the resin you are handling for specific handling, containment and disposal information.

### For purposes of this discussion:

**Plastic dust** is particulate matter that may be formed when plastics are handled, conveyed and/or processed.

One of the most common means of generation is via abrasion during the air conveying of plastic pellets.

In addition to conveying, plastic dust may be generated when plastic raw materials or finished products are:

- granulated or pelletised,
- cut,
- machined,
- filed,
- or transported.

**Plastic powder** is another form of plastic resin.

Plastic powder can escape plastic handling and processing equipment.

If that occurs; handling, containment and recovery considerations are similar to plastic dust.

Typically powders may escape through:

- leaks in storage silos, tanks and containers,
- leaks in pneumatic or mechanical conveyors,
- leaks in blenders or other processing equipment,
- during loading/unloading operations or transfer operations.

## Minimizing the Generation of Plastic Dust

**The best way to control dust is to minimize its creation in the first place.**

There are several approaches that can be taken to help minimize the generation of plastic dust. For example:

- When pelletising, keep cutting equipment in good condition with sharp blades.
- Design conveying systems to treat the plastic gently and avoid plastic fracture :
  - Limit the conveying air speed /pressure,
  - Avoid impacts, in piping, with hard surfaces / diameter restriction / dents or between pellets, for example :
    - by using self-centering drawstrings or long sweep elbows (likely to reduce frictions between pellets),
    - or by avoiding having the plastic pass through a blower.
- Use appropriately sized granulators with adequate flow.
- When machining plastics, use an appropriate machine set up for the material and provide appropriate waste collection equipment.
- Store plastic and additives in appropriate containers maintained in good condition.
- Promote awareness to employees of methods of handling and processing of the plastic to help minimise dust production.

## Minimizing the Release of Plastic Dust and Powder?

**Several approaches can be taken to help minimize the release of plastic dust and powder. For example:**

- Keep storage silos, tanks and containers in good condition, to help avoid holes, cracks or leaks.
- Maintain loading/unloading and transfer equipment with good seals.
- Conveying equipment should be appropriate for the task and maintained in good condition.
- Place collecting trays under discharge/loading valves and connecting points.
- Use processing equipment that helps minimise the release of dust.
- Clean up all spills promptly; wind and traffic can quickly disperse dusts.
- Encourage employees to look for dust/powder leaks and to correct any that occur.
- Increase employee awareness through training and reminders regarding the need and the means to prevent dust/powder from escaping into the environment.

## Capture and Containment of Plastic Dust

### Plastic dust creation can be minimised but not eliminated entirely.

However, several approaches can be taken to help in the capture and containment of plastic dust. For example:

- Use properly designed and sized dust collection equipment (e.g. cyclones) in all operations that generate or liberate plastic dust.
- Maintain the dust collection equipment according to manufacturer's recommendations.
- Use the recommended filters for the type and amount of dust generated.
- Clean or replace filters or other collection equipment as needed.
- Promote awareness of procedures for clean-up of plastic dust spills, or plastic dust that has settled on surfaces in and around the plant.
- Promote maintenance/housekeeping procedures that minimize dust accumulation around the facility.
- Store captured plastic dust in containers that are designed to help minimize leaks.
- Promote employee awareness for handling plastic dust, including industrial hygiene considerations.
- Comply with applicable regulations for containment systems.

## Disposal

### Proper disposal of plastic dust and powder can be critical to help minimise the amount released to the environment.

Choosing a disposal method involves considering the materials that constitute the dust/powder:

- Review the MSDS for each type of plastic resin used or handled in the process.
- Dispose of dust or powder using a method that complies with all applicable regulations and guidelines.

### About Plastic Dust

Dust from plastics may combine with dust from other materials within the plant site. Review MSDS for information on the proper capture, containment and disposal equipment and procedures.

Any dust, no matter what the material, can be explosive if in the proper concentration in air. When handling dusts, take precautions not to aerate it and to keep ignition sources away.



## Take the Pledge for Your Company

To demonstrate your commitment to implement the recommendations of the Operation Clean Sweep®, please fill and sign the "Pledge to Prevent Resin Pellet Loss", and send a copy to PlasticsEurope:

Fax: +32 2675 3935

e-mail: [info@plasticseurope.eu](mailto:info@plasticseurope.eu)

The pledge must be signed by an official company representative.

Signing this pledge will qualify your company's name to be added (unless otherwise specified) to the list of OCS Programme Partners on the Operation Clean Sweep® ([www.opcleansweep.eu](http://www.opcleansweep.eu)) website.

Listed partner company names may be used in publicity for the programme.

# Company Pledge to Prevent Resin Pellet Loss

**Our company recognises the importance of preventing the loss of resin pellets into the environment and is committed to implementing the Operation Clean Sweep® programme.**

We will be an OCS Programme Partner, strive towards "Zero Pellet Loss" and make changes to:

- 1** Improve our worksite(s) set-up to prevent and address spills,
- 2** Create and publish internal procedures to achieve «zero pellet loss» goals,
- 3** Provide employee training and accountability for spill prevention, containment, clean-up and disposal,
- 4** Audit our performance regularly,
- 5** Comply with all applicable local and national regulations governing pellet containment,
- 6** Encourage our partners (contractors, transporters, etc.) to pursue the same objectives.

Operation CleanSweep® is trademarked by SPI

## Company Pledge to Prevent Resin Pellet Loss

Company name : .....

Address: .....

.....

City : .....

Zip Code: |\_|\_|\_|\_|\_| Country: .....

Company / Site Manager

Name and Title: .....

Email Address: .....

Phone: ..... Fax : .....

*(Company stamp)*

Date : .....

Signature :





# PlasticsEurope

Association of Plastics Manufacturers

PlasticsEurope AISBL  
Avenue E. Van Nieuwenhuyse 4/3,  
1160 Brussels, Belgium