



OPERATION CLEAN SWEEP RESIN MANAGEMENT PRACTICES

OPCLEANSWEEP.ORG

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The OCS program contains guidelines to help plastics industry operations managers reduce the loss of pellets, flakes and powder to the environment. Each procedure contained herein may or may not be applicable to your specific operation and users must satisfy themselves the applicability or suitability of the information contained herein for their intended purpose prior to use. Users are free to implement the sections and steps that help achieve your company's specific goals. None of the guidelines are intended as a mandate. Compliance with state and local regulations is mandatory. These guidelines may help you to achieve compliance and avoid penalties. OCS Sponsors do not make any warranty or representation either express or implied, with respect to the accuracy or completeness of the information contained in this document nor do OCS Sponsors assume any liability of any kind resulting from the use or reliance upon anything contained in this document. Compliance with applicable laws and regulations remains the full responsibility of the parties to which the law or regulation applies.

Information

For further support regarding the OCS program or materials contact ocs@plasticsindustry.org or (202) 974-5200. Full manual and checklists are available at opcleansweep.org.

OPERATION CLEAN SWEEP RESIN MANAGEMENT PRACTICES

Operation Clean Sweep is an international program designed to prevent resin pellet, flake, and powder loss and help keep pellets, flakes and powder out of the marine environment. OCS materials are designed to provide maximum utility for all types of plastic handling and transporting operations. None of the guidelines are intended as a mandate. Compliance with state and local regulations is mandatory.

This document serves as a summary of the full Operation Clean Sweep manual and gives suggestions for each step of the resin-handling process in order to reduce pellet, flake and powder loss. Consider the guidelines as one available resource as you establish management practices suited for your company's conditions and operations. Several approaches can be taken based on individual situations.

Implementation

1. Conduct a site audit

- Ensure your worksite is properly set up to prevent loss and assist cleanup
- Identify potential spill areas and causes, and brainstorm solutions
- Implement simplest effective solution and follow up to measure success

2. Make necessary upgrades in facilities and equipment as appropriate

- Assess and install containment systems
- Ensure that employees have ready access to cleanup equipment

3. Raise employee awareness and create accountability

- Establish written procedures (OCS procedures and checklists may need to be modified to suit your needs)
- Identify what training is needed to help ensure procedures are being followed
- Conduct regular employee training and awareness campaigns on Operation Clean Sweep procedures
- Use workplace reminders such as stickers, poster, etc.

4. Follow up and enforce procedures

- Conduct routine inspections of facility grounds-production areas and parking lots, drainage areas, driveways, etc.

Worksite Setup Steps

Choose whether to pave or not: A paved area facilitates cleanup, but allows pellets, flakes and powder to be carried into storm drains and the environment by wind and water. Unpaved areas are more difficult to clean, but pellets, flakes and powder tend to stay where they fall and can be easily recovered.

- Include a slope or a berm to contain pellets, flakes and powder within paved areas.

Install area-specific containment systems in each pellet, flake and powder handling area. Area-specific containment systems would be the primary pellet, flake and powder containment systems and the facility-wide system would serve as a backup.

- E.g. storm drain screens.

Install facility-wide containment systems, which are effective in controlling pellet, flake and powder releases from facilities covering a large area and handling large volumes of pellets, flakes and powder.

Ensure employees have ready access to equipment at all locations where spills might occur

- E.g. brooms, dustpans, rakes, shop vacuums, catch trays, tarps, employee checklists

Employee Training Program Steps

Conduct a needs assessment: Determine employee role in following procedures during the site audit, and modify procedures prior to launching program

- Consider hiring a full-time housekeeping/warehouse sweeper to improve worker efficiency.

Identify what training is needed to help ensure procedures are followed

- E.g. explaining the environmental impact of pellet loss, using workplace reminders like stickers and posters

Determine how, who, when and where you will train

Schedule classes, facilities, participants and instructors, deliver materials, conduct training

Determine participant reaction to the training, how much they learned and to what degree the department goals were met. Re-evaluate all procedures to assess the effectiveness of the OCS program annually

Prevention, Containment and Cleanup Procedures

There are many steps involved in the movement of plastic pellets, flakes and powder from the resin production facility, through the distribution network, to the processor. Spills and pellet, flake and powder loss to the environment can occur at any step. Below are common pellet loss challenges and examples of management practices that have been implemented to address those challenges:

□ Transport and Packaging

- Cleaning empty hopper cars and trucks.
 - ▶ Use air lance to help make total pellet, flake and powder removal easier.
 - ▶ Ensure hopper car and truck cleaning areas have wastewater collection and pellet, flake and powder filtration systems installed.
- Top loading hopper cars and trucks.
 - ▶ 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, flake and powder loss and always place a catch pan or tarp under the connection.
- Sealing loading cars/trucks
 - ▶ Close all outlet caps properly before cars/trucks are moved (and request customers to do the same when returning empties).
 - ▶ Apply seals on all outlet caps (e.g., 1/8" stranded steel cable or its equivalent is common)
- Storing at intermediate sites
 - ▶ Establish security procedures as necessary (e.g. fencing and lighting)
- Unloading hopper cars and trucks
 - ▶ Contain possible spill during hook-up by placing a catch pan under the unloading valve before opening.
 - ▶ Surges in unloading lines can cause pellets, flakes and powder to be vented into the environment. To help prevent this, install a bag house, filter bag assembly or other control device at the unloading system vent
- Completing unloading
 - ▶ Visually confirm that each compartment is empty.

- ▶ Purge the line before disconnecting.
- Sealing valves
 - ▶ Close all valves and secure outlet caps and top hatches.
- Sampling
 - ▶ Use wide-mouth containers or poly-bags for samples
 - ▶ Use a funnel collection system to effectively channel pellets, flakes and powder into containers

□ Spills and Packaging

- Clean up any spills immediately
- Use proper packaging, filling and material-handling.
 - ▶ Use packaging designed to minimize the possibility of breakage and pellet, flake and powder leakage. Use puncture-resistant shipping containers where possible.
 - ▶ Consider reinforced bags, such as woven polypropylene bags, and line larger containers with puncture-resistant material.
- Bag filling
 - ▶ Inspect all pallets for protruding nails or broken boards.
 - ▶ Use bags that are not easily punctured
- Bag emptying
 - ▶ Collect, handle, store and transport the empty bags to avoid/contain the escape of pellets, flakes and powder.
 - ▶ Recycle plastic resin bags, shrink-wrap and stretch-wrap, whenever possible. Visit www.plasticfilmrecycling.org for more information.
- Improving palletizing methods
 - ▶ Move and stack bags immediately after filling to avoid seepage from valves.
 - ▶ Stack bags on pallet in tight, interlocking patterns.
- Handling materials
 - ▶ Train forklift operators so they are skilled in damage prevention as well as proper cleanup.

- ▶ Place catch trays between the dock and trailer at shipping and receiving bays.
- Storage
 - ▶ Consider covering all packaging resin stored outside (gaylords, supersacks, etc.) to prevent photo degradation of the containers.

□ **Transport Vehicles**

- Container trucks shipping and receiving
 - ▶ Carefully inspect empty trailers for damaged interior walls or defective floors that can tear bags. Consider refusing to use such containers or cover problem areas with corrugated liner board.
 - ▶ Inspect truck and rail shipments containing palletized bags of pellets, flakes and powder 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 car and truck repair
 - ▶ Work in a paved area to facilitate containment and cleanup
- Transport accidents
 - ▶ Contact the shipper for assistance/advice if a derailment or highway accident results in a spill of resin pellets, flakes and powder.

□ **Marine Transport**

- Properly contain and handle any pellets, flakes and powder from previous shipments when cleaning ship holds or ocean containers
 - ▶ Do NOT sweep pellets, flakes and powder into the water.
 - ▶ Avoid stowing resin containers on deck. Place resin containers in ship holds

□ **Waste Recycling and Disposal**

- Store waste pellets, flakes and powder in properly labeled container
 - ▶ Install pellet-specific waste container (e.g., one or more) in each pellet-, flake- and powder-handling area
- Use separate containers for recyclable and non-recyclable pellets, flakes and powder
- Preferred disposal methods are:
 - ▶ Recycle or resell waste pellets, flakes and powder.

- ▶ Approved incineration of waste pellets, flakes and powder in properly licensed and operated incinerators.
- ▶ Deposit in a controlled landfill only after confining pellets, flakes and powder in such a manner that prevents their loss due to rain, wind, flooding, etc.
- ▶ Consider using waste pellets, flakes and powder in a fuel-blending program

□ Dust and Powder

- Minimizing generation of plastic dust
 - ▶ When pelletizing or flaking, keep cutting equipment in good condition with sharp blades
 - ▶ Use appropriately sized granulators
 - ▶ Design conveying systems to treat the plastic gently and take other steps to help avoid collisions and impacts with hard surfaces
- Minimizing release of plastic dust and powder
 - ▶ Keep storage silos, tanks and containers in good condition, to help avoid holes, cracks or leaks
 - ▶ Place collection trays under discharge/loading valves and connection points when making or breaking connections
 - ▶ Clean up all spills promptly; wind and traffic can quickly disperse dusts and powders
- Capturing and containing plastic dust
 - ▶ Use properly designed and sized dust collection equipment in all operations that generate or liberate plastic dust
 - ▶ Use the recommended filters for the type and amount of dust generated and clean or replace filters as needed
- Disposal
 - ▶ Review the MSDS for each type of plastic used in the process
 - ▶ Dispose of dust or powder using a method that complies with all federal, state and local regulations and guidelines and/or applicable codes and standards.



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