



 Operation Clean Sweep®

RAIL MANUAL





Foreword

The intent of the OCS Rail Manual is to help rail transportation and related companies handle plastic resin properly during operations so that it is fully contained and does not escape into the environment. The manual is free to use, with routine legal provisions and requirements that are listed below.

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Acknowledgments

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Information

Questions about or suggestions to improve the OCS program or materials may be submitted to info@opcleansweep.org.



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SECTION I: INTRODUCTION

THE OCS PROGRAM

The vision of the Operation Clean Sweep® (OCS) program is to support a future where plastic resin is responsibly handled and remains outside the natural environment and our oceans. Our mission is to operate a rigorous, forward-thinking program that safeguards plastic resin throughout the value chain.

PLASTICS created OCS in the early 1990s to reduce resin loss by plastic producers, transporters, bulk terminal operators and processors. Public service materials were then developed and disseminated to companies nationwide. The message was simple then and remains clear now: plastic resin should be contained, reclaimed and/or disposed of properly. The industry continues to focus on this ambition and expand the OCS initiative and programs.

The OCS program and associated resources contain guidelines to help plastics industry supply chain operations managers reduce the accidental loss of plastic resin to the environment. OCS encourages companies throughout the value chain to join their peers globally by adopting and promoting the program. To learn more about the overall OCS program and its mission, vision, and core values, please visit <https://opcleansweep.org/about/>.

OCS RAIL PROGRAM

Initially, the OCS program was tailored to material suppliers and processors, and the original program materials and OCS Manual were designed to provide general utility for all types of plastic handling and transporting operations. However, the growing interest in plastic resin stewardship drove the need to expand OCS to better engage the entire supply chain—most notably, the rail transportation and handling sector.

OCS Rail was developed as a supplementary program under [OCS Logistics](#) and the broader OCS program, tailored specifically to railroad industry members and their OCS needs. The OCS Rail program officially launched in 2024 with the following core objectives:

- Create a singular, clear, shared goal towards ending plastic resin loss in rail sector operations.
- Develop resources and frameworks for identifying areas of potential risk and methods for continual improvement.
- Foster a venue for pre-competitive collaboration and peer-learning opportunities.
- Incubate and amplify solutions to prevent resin spills and strategies to recover and recycle resin.
- Accelerate technology transfer for effective tools to prevent loss and recover resin.
- Elevate success stories of companies reducing and eliminating plastic resin loss.

The checklists included in the OCS Rail Manual have been created to enable customization for your company and its needs. For example, each checklist has the potential to incorporate a unique company logo, and specific process steps may be added or removed to integrate with your existing processes.



SECTION II: IMPORTANCE OF PLASTIC RESIN STEWARDSHIP

Plastic resin loss can have a range of negative impacts on individual companies, on company supply chain partners, on the rail transportation and handling industry, and on the environment.

- Slips and falls are a major cause of workplace safety incidents, which may result in injuries, higher worker compensation costs, and lower employee morale. Spilled plastic resin can contribute to slips and falls.
- The Clean Water Act (CWA) specifically regulates the polluting of U.S. waterways, and failure to comply with the CWA can result in civil or criminal penalties of various cost and severity. Complying with local, state, and national regulations is essential to maintaining a high-functioning business with sustainable practices.
- Violations of storm water regulations in states like California can result in civil penalties of thousands of dollars per incident (e.g., Cal. Code. Regs. title 23 § 13385). Any person discharging unauthorized waste in violation of CWC § 13264, could be found guilty of a misdemeanor and may face fines.
- Spilled plastic resin can eventually end up on land, in waterways, and in the ocean. Whether handled at an inland plant or a seaside facility, spilled plastic resin can be inadvertently transported to storm drains that lead to rivers and then to the ocean, posing a threat to marine life such as sea birds, turtles, and fish. Spilled resin on land can be consumed by local animals and livestock if not recovered quickly and efficiently.
- Plastics spilled and not reclaimed represent lost economic value, as it necessitates product replacement, cleanup, and disposal costs. When plastic resin is handled properly, more material stays a valuable product or gets recycled rather than becoming waste, improving efficiency and relationships between value chain members and stakeholders.

Environmental stewardship is key to the rail transportation and handling industry's sustainability and organizational goals, and responsible handling of plastic resin contributes to meeting these goals. Companies can also enhance their reputations as good stewards of the environment—an increasingly important factor for attracting investment and high-quality supply chain partners, and in demonstrating community values and commitment to a clean environment.



SECTION III: IMPLEMENTATION

The following are steps to implement Operation Clean Sweep for railroads and transportation partners, with a focus on rail yards and plastic resin transfer locations.

1. Commit to making zero plastic resin loss a priority.

- Complete the required OCS Membership Application and join OCS as a member.

2. Assess your company's situation and needs.

- Conduct a site inspection at rail yards and plastic resin transfer locations, as well as any other plastic resin-handling locations.
- Determine if you have appropriate equipment and/or appropriate vendor relationships to manage plastic resin loss.
- Determine if supply chain partners have and are following appropriate procedures.
- Identify problem areas and develop new procedures to address them.
- Monitor compliance with all applicable environmental laws and regulations that address plastic resin containment.

3. Make necessary upgrades in facilities and equipment as appropriate.

- The [OCS Vendor Directory](#) may be used to find equipment or services relevant to plastic resin loss prevention, containment, and clean up. However, listing of a company in the vendor directory does not imply endorsement by OCS.

4. Raise employee awareness and create accountability.

- Establish written procedures on plastic resin handling. The procedures and checklists in this manual may need to be modified to suit your needs.
- Make all plastic resin handling procedures readily available to workers.
- Conduct regular employee training and awareness campaigns on OCS.
- Assign workers the responsibility to monitor and manage plastic resin containment.
- Solicit employee feedback on the company's OCS program.
- Use visible workplace reminders such as stickers, posters, etc.



5. Follow up and enforce procedures.

- Conduct routine inspections of the facility grounds—rail yards, transloading facilities, parking lots, drainage areas, driveways, etc.
- Consider external verifications such as those outlined in the OCS Blue Verification and OCS Logistics Verification Programs.
- Annually update contact information for shippers and plastic resin producers to maintain an open line of communication should a problem arise.
- Continuously look for ways to improve your program.

6. Encourage supply chain partners to prevent resin loss and join OCS.



SECTION IV: COMMITMENT

To demonstrate commitment to a plastic resin-free environment, please have an officer of your company complete and email a copy of the relevant OCS Membership Application to PLASTICS at info@opcleansweep.org. Once membership is activated, your company will receive a certificate suitable for display affirming your commitment to being an Operation Clean Sweep member.

Joining OCS as a member will qualify your company's name to be added to the [OCS Member Directory](#) on the Operation Clean Sweep website. Listed member company names may be used in publicity for the program.

OCS RAIL MEMBER REQUIREMENTS

- Commit to making zero plastic resin loss a priority.
- Assess your company's situation and needs.
- Make upgrades to facilities, equipment, and procedures as appropriate.
 - » Improve worksite set-up to prevent and address spills.
 - » Create and publish internal procedures to achieve zero resin loss goals.
 - » Provide employee training and accountability for spill prevention, containment, cleanup, and disposal.
- Raise employee awareness and create accountability by encouraging them to sign the Employee Commitment Pledge.
- Comply with all applicable state and local regulations governing plastic resin containment.
- Follow up and enforce procedures, including conducting routine inspections and looking for ways to continuously improve your program.
- Maintain up-to-date records of facilities and contacts with the OCS program.
- Participate in OCS data reporting on a quarterly basis beginning in 2025.



SECTION V: SITE INSPECTIONS AND EXTERNAL VERIFICATIONS

SITE INSPECTIONS

One of the most effective ways to improve your company's containment of plastic resin is to identify and inspect the areas where spills and losses are most likely to occur, or have occurred, and address them. These inspections should be focused on all areas where there is risk of plastic resin loss or containment issues.

1. Use the [Site Inspection Checklist](#) to inspect every transfer point at your site(s) with a focus on rail yards and transloading locations.
2. Identify the major risk areas using the OCS Risk Assessment Guide.
3. Determine the cause and likelihood of spills in each area.
4. Research/brainstorm ways to solve each problem.
5. Implement the simplest, most effective solution at your site(s).
6. Educate workers of any process or operational changes.
7. Follow up to measure success.
8. Repeat as necessary.

Companies may not need to perform all the operations on the [Site Inspection Checklist](#). Please customize the checklist to suit your company's needs and add any missing operations.

Case Study Example: Storage-in-Transit Site Inspection Practices

Shortline Rail #1 is a shortline rail carrier that offers railcar storage-in-transit services for plastics industry shippers. Under current operations, plastic resin pellets are not unloaded or transloaded to or from railcars by Shortline Rail #1. As such, Operation Clean Sweep (OCS) training and guidance for the company's crews places an emphasis on avoiding, minimizing, and eliminating any potential plastic resin pellet loss to the environment from closed and sealed railcars that are in active transit or storage status. A multi-pronged approach is taken by company management so that proper resin handling practices are both understood and implemented in the field by Shortline Rail #1 crews.

Training on OCS principles is handled through regularly scheduled safety meetings. To accompany these safety meetings, Shortline Rail #1 crews are provided with handouts that contain emergency response and management contact information specific to plastic resin pellet incidents, railcar visual inspection points targeted for plastic resin and covered hoppers, and an incident report form from the OCS Rail Manual. Finally, Shortline Rail #1 management establishes lines of communication with each of its plastics industry customers to address any railcar defects noted by company crews and to coordinate response plans for any incident(s) resulting in product escaping from a railcar(s).



EXTERNAL INSPECTIONS

While internal site inspections are essential to identifying and resolving problem areas in operations, external or third-party inspections provide transparency and an additional layer of defense against plastic resin loss. External inspections involve an inspector visiting the resin-handling operation (e.g. rail yards and transloading locations) such as an OCS Blue Verifier, who then assesses the company's implementation of OCS practices. The [OCS Blue Verification Framework](#) is available as a tool to evaluate whether OCS management practices have been properly implemented at a company and may be used as a guide for OCS Rail members that wish to elevate their commitment to ending plastic resin loss. Please see the "OCS Blue Verification" section for additional information.

Some companies may already have external inspection systems in place, such as Responsible Care® or customer audits by the shipper, that occur on a quarterly basis. These inspections are helpful to catch issues that shippers may not have originally predicted, who then have the opportunity to implement effective solutions at all facilities based on these assessments. They are also an important and visible reminder for teams on site regarding their OCS commitment and resin loss prevention methods.

OCS BLUE VERIFICATION

The OCS Blue Verification program was launched in 2023 as a mandatory program element for OCS Blue material suppliers and processors. OCS Rail members currently have the option to participate in OCS Blue Verification and the forthcoming OCS Logistics Verification program launching January 2025 for applicable facilities.

Verification represents the next step in the evolution of a company's resin handling practices and commitment to end plastic resin loss in operations. The OCS Blue Verification program substantiates implementation of required OCS Blue management practices at the facility-level for OCS Blue member companies in the United States; OCS Blue Verification is then achieved through a successful on-site inspection by an approved OCS Blue Verifier of these management practices, which are detailed in the [OCS Blue Verification Framework](#). For a list of eligible OCS Blue Verifiers, consult the "Companies with OCS Blue Verifiers" document on the [OCS Blue](#) page of the OCS website that is updated on an ongoing basis.

The [Guide to OCS Blue Verification](#) provides an overview of the verification program, the requirements for OCS Blue members, and the process for a facility to achieve OCS Blue Verification. The OCS Blue Verification program and related documents will be updated periodically, and all versions will be accessible on the OCS website (opcleansweep.org).

OCS DATA REPORTING

Data reporting was introduced to the OCS Blue tier of the program in 2020, which required all OCS Blue members to report the [OCS Core Metrics](#) on an annual basis. OCS Rail members are slated to begin reporting the OCS Core Metrics in April of 2025. The OCS Core Metrics as of 2024 consist of:



The number and volume or weight of any unrecovered release of plastic pellets, flakes, powders¹, or granules, within the physical custody² of a member company, from containment to ground or water outside member-operated facilities' physical boundary³ and estimated to be greater than 0.5 liters or 0.5 kilograms per incident.

In 2024, the data reporting program shifted from an annual to a quarterly reporting cadence to align with other international OCS programs' reporting practices and enable companies to better track plastic resin incidents. Data reporting is mandatory for all OCS Blue, OCS Logistics, and OCS members in the base tier of the program.

¹ See Section VIII's "PROCEDURES FOR DUST AND POWDER" for provisions regarding plastic dust.

² "Physical custody" means holding the property under physical (visible) possession.

³ "Physical boundary" - Limit point where land owned/controlled by the person/organization is legally recognized, including point where surface water drains and sewers discharge into the public sewer or controlled waters.



SECTION VI: EQUIPMENT AND SYSTEMS

EQUIPMENT

Having appropriate equipment and resources to deal with spills should they occur is essential. Slips and falls are the number one cause of plastic industry accidents, and having the proper equipment in place is a preventative measure that can protect workers and avoid costly incidents. A clean work area reduces slips and falls, improves employee morale, and is a visible example of a company's plastic resin stewardship.

If unsure of what types of equipment or services are available, please visit the [OCS Vendor Directory](#) for members to search for vendors that support resin loss prevention efforts, provide customized resin cleanup equipment, and lend assistance when a spill occurs.

Some examples of appropriate equipment include:

- Manual floor sweeping tools such as brooms, dustpans, shovels, rakes, etc.
- Catch pans, collection trays, and tarps.
- Heavy-duty vacuums for rail yard/transfer point use.
- Portable vacuums for outside use and cleanups in-transit.
- Wide-mouth sample collection jars or poly-bags.
- Tape for temporarily repairing bag or box damage.
- Scrap containers (drums, bulk boxes, etc.) and additional containment screens.
- Procedures that workers are expected to undertake and checklists to assist in follow-through.

Routine inspections and maintenance of the equipment used to capture and contain plastic resin are recommended to be conducted on a biannual basis.

CONTAINMENT SYSTEMS

Rail yards and transfer sites should be equipped to handle every size range of plastic resin being transported, and have systems in place to contain these materials should a spill occur. Storm drain screens are the last line of defense against accidental plastic resin release and are often considered the top priority for installation. Containment systems (such as stormwater filtration and capture systems) should be installed wherever necessary to prevent plastic resin from escaping rail yard and transfer facility boundaries.



A portable vacuum used to clean spilled plastic resin at a transloading site.



Screens should be placed in all storm drains, and the mesh of the screening should be smaller than the smallest type of resin handled. Storm drains should be cleaned frequently (e.g. weekly) to prevent clogging and overflow, and particular attention is needed when cleaning screens after it has rained. Multi-stage screen systems minimize clogging problems and are preferable.

The containment system should be capable of handling heavy rains and flooding, including multi-year flood conditions. Filter bags are another containment system option for flat grates and storm sewers, and utilizing them can reduce the need to flush or clean inlets.

To help prevent storm drain contamination, employ dry cleanup methods whenever possible. Examples of dry cleanup methods include manually sweeping or vacuuming rail yards or transfer points where there has been a visible resin spill, which prevents rain or wind from increasing the perimeter of the spill or carrying materials where it can no longer be recovered by on-site workers. Dry cleanup procedures also prevent plastic resin from being further contaminated by compounds in the storm water. This is particularly important to enhance the likelihood that the resin can be recycled.

EPA Regulations

EPA regulates the discharge of storm water effluents via the National Pollutant Discharge Elimination Systems (NPDES) permitting program (40 C.F.R. §122)



A storm drain with mesh underneath for catching resin and other materials.



Picture of a typical filter bag being used in a storm sewer.



SECTION VII: EMPLOYEE TRAINING AND AWARENESS

OCS Rail member companies need to make their commitment to plastic resin stewardship clear to their employees through training, communication, and actions. Companies' OCS programs will benefit from verifying whether workers are aware of and accountable for plastic resin loss prevention, containment, cleanup, and disposal by establishing written procedures and making certain they are easily available. The procedures and checklists in this manual may need to be modified to suit your needs. Initial OCS training should be performed for all new employees that physically handle plastic resin as a part of their job responsibilities, and annually thereafter.

DESIGNING AN OCS TRAINING PROGRAM

Designing an OCS training program involves a sequence of steps that can be grouped into five phases: conducting a needs assessment, defining training objectives, detailing program specifics, implementing the training, and evaluating its effectiveness.

1. **Needs assessment**—Conduct a site inspection and determine if employees have and are following appropriate resin handling procedures. Make needed site improvements and create or modify procedures prior to launching an OCS training program.
2. **Instructional objectives**—Identify what training is needed so that appropriate resin handling procedures are followed.
3. **Program specifics**—Determine how, who, where, and when you will train. Consider the following areas: explaining the environmental impact of pellet loss, defining the role each individual plays in affecting change, and effectively conveying knowledge of appropriate procedures.
 - Use OCS Rail Manual guidelines as one of your resources in the design and development of the training program and its content.
 - Select the techniques used to facilitate learning (crew meetings, handouts, videos, websites, etc.)
 - Select an appropriate setting for your OCS training.
 - Prepare materials.
 - Identify and train the instructors if conducting in-person or employee-led meetings.
 - Create department goals for employee OCS training (e.g. 100% of site employees have completed training).
4. **Implementation**—Schedule training sessions; select the setting, participants, and instructors (if applicable); deliver materials; and conduct training.
5. **Evaluation**—Determine participant reaction to the training, how much was learned, and to what degree goals were met. Re-evaluate all procedures to assess the effectiveness of the OCS training program annually.



EMPLOYEE TRAINING & AWARENESS CAMPAIGNS

Conduct regular **employee training and awareness campaigns** on OCS to reinforce OCS practices and program implementation at your company. OCS training and awareness efforts consist of, but are not limited to, the following activities:

- Have vendors take ownership by joining the OCS program as a member.
- Explain the impact of plastic resin loss on the environment and the company.
- Make spill prevention, cleanup, and containment a company philosophy and priority.
- Assign specific employees the responsibility of monitoring and managing plastic resin containment if applicable.
- Consider hiring a full-time housekeeping/worksite sweeper, if appropriate. Having one person assigned this job improves the efficiency of other workers.
- Stress the importance of immediate cleanup of any spills, as well as the recycling or disposal of loose resin properly.
- Review current procedures and identify whether there has been a history of problems in a certain area.
- Reaffirm existing, or develop new, procedures when necessary.
- Use workplace reminders such as stickers, posters, annual OCS badges, etc.
- Encourage teamwork and employee feedback on OCS-related procedures.
- Conduct regular inspections of worksites to evaluate compliance with OCS principles.
- Reward and/or recognize milestones and significant achievements of the crew(s) that achieve designated goals of the company's plastic resin loss prevention program, including nomination for an OCS Difference Maker Award.

Simple actions, such as bringing in a special lunch to acknowledge employees' hard work preventing resin loss, can go a long way in keeping the company's commitment to properly managing plastic resin front and center.

Case Study Example: Annual Employee Training & Reporting

While working at 123 Polymers, annual retraining for employees was done so that the procedures were always fresh on the mind. The procedures included resin spill reporting and cleanup, visual inspection of rail cars that could create a resin spill, and any areas that could become a problem in the future. The company made the reporting simple for employees and created incentives for reporting incidents, such as entry into annual prize drawings. Employee participation improved and the reporting increased significantly.



SECTION VIII: PREVENTION, CONTAINMENT, AND CLEANUP PROCEDURES

In the rail transportation and handling industry, there are many steps involved in the movement of plastic resin from the resin production facility, through the distribution network, to the processor. Spills and resin loss to the environment can occur at any step. The procedures in this section provide helpful practices for each handling step.

PROCEDURES: PELLET, FLAKE AND POWDER TRANSPORT AND PACKAGING

Hopper car and hopper truck cleaning, loading, sampling, storage and unloading present special resin handling challenges. Assess hopper car areas for wastewater collection and filtration systems installed to recover all plastic resin from wastewater. After cleaning is finished, it is equally important to **recycle, resell, or dispose** of all recovered plastic resin properly. Recycling is the preferred method to support a circular value chain but may not always be feasible depending on location and level of contamination or mixture of resins.

Loading and Unloading Hopper Cars



A catch pan with a tarp underneath to prevent spills during loading/unloading.

Preventing plastic resin loss during the loading and unloading of hopper cars is a fundamental step to assist in the safe and effective management of this material by rail transportation and handling companies. Inspect truck and rail shipments containing palletized bags of plastic resin 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 in cases of significant damage.

Work in a paved containment area to facilitate plastic resin containment and cleanup. Include a slope or berm to contain plastic resin within paved areas. Workers can help contain possible spills during hook-up by placing a catch pan under the unloading valve before opening. Unloading tubes should be purged within containment areas, which should be swept up or vacuumed regularly. Cordless vacuums may be best suited for outdoor cleanup.

Design or modify loading systems so that transfer lines can be easily emptied, with any residual resin being discharged into a container (such as a catch pan) after loading is completed. Anticipate the potential for plastic resin loss before opening the line. 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.



Having proper equipment in place during the loading and unloading process is critical to successfully managing resin loss. Place plastic resin collection cans at rail yards for loading and unloading. Have a catch pan or tarp ready to catch plastic resin at any point in the loading/unloading process. Immediately clean up and properly dispose of any spilled resin. Surges in unloading lines can cause plastic resin 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.

When completing the unloading of hopper cars, verify that the car is fully unloaded, and cycle the outlet valve while air is flowing. Visually confirm that each compartment is empty and purge the line before disconnecting, with special attention to containing all purge material.

Cleaning & Sealing Empty Hopper Cars

When cleaning empty hopper cars, use air lances to make complete plastic resin removal easier. When sealing cars, close all outlet caps, valves, and top hatches properly before the cars are moved, and request unloading facilities to do the same when returning empties. Plastic seals should be applied on all outlet caps to lower risk of plastic loss once railcar is unloaded, in the event a heel is unintentionally left in the railcar.

Focus Areas

Open valves, outlet caps and top hatches are frequent causes of material spills.

Make sure to close off all pellet “escape routes” once the car is unloaded.

Check for and remove any spilled plastic resin from the top of the car before leaving the containment area to prevent residual resin from falling to the ground as cars are moved.

When repairing hopper cars, make sure to properly contain, handle, or recycle small quantities of residual plastic resin. If larger quantities are involved, contact the shipper to report the large heel, and arrange for collection.

Deheeling & Cleaning Empty Hopper Cars

Deheeling and cleaning empty hopper cars is a common practice in the plastic manufacturing industry. Deheeling is done first to evacuate all plastic resin left in the hopper car from the unloading process. This is a key step to prevent plastic resin from reaching storm water drains. Deheeling is typically accomplished with a vacuum truck or stationary vacuum system. There should be site-specific procedures for deheeling including any environmental and safety protections, resin cleanup, car status change reporting (from dirty to clean), and any loss resin.

Following the deheeling process, the cars would be ready for the car wash cycle. Most hopper cars are washed with either water or air. The choice of either water or air is dependent on what works best for that facility. This process should also have a site-specific procedure for the equipment being used. When employees are trained on these procedures, OCS principles should be included to minimize resin loss.



Sampling

When taking samples of plastic resin, conduct sampling only in areas protected by containment equipment and review any company procedures for taking samples to reduce the chance of spillage. Use wide-mouth containers or poly-bags for samples, and a funnel collection system to effectively channel plastic resin into containers.

When sampling from unloading tubes, place a catch pan or heavy-duty tarp under the outlet before opening to catch any spills. Several commercial devices have been developed specifically for preventing and containing spills during sampling. When sampling from top hatches, exercise extra caution to avoid spillage as this can also pose a slipping hazard. Close hatches and apply cable seals to prevent access by vandals.

While proper handling of resin is imperative during sampling processes, the storage and eventual disposal (recycling being first choice method, if and when possible) of sampled resin is of equal importance. Sampled resin should be clearly labeled by type prior to storage and disposed of in the waste/recycling bin designated for that material. If a spill should occur at any point in the sampling process, screens and vacuums can be used to clean up spilled resin while leaving the ballast.

Recognizing that finding recyclers who accept sampled resin can be a challenge, OCS is dedicated to building a network of recyclers who will process this material. Please visit the [OCS Vendor Directory](#) on the OCS website, which will be updated regularly with companies and recyclers committed to ending plastic resin loss during company operations.

RESIN CONTAINMENT AND RECOVERY PROCEDURES FOR RAIL YARDS

Plastic resin loss can occur at any stage of transfer, so it is important to remain vigilant so that resin doesn't escape into the environment. Consider the risk of vandalism at rail yards and transfer facilities and establish security procedures as necessary, such as proper fencing and lighting.



Photo example of an plastic resin spill at a rail yard.

Make proper equipment readily available for employees at rail yards in case of a resin spill. Dust pans and brooms are simple and cost-effective solutions for cleaning plastic resin, which should then be stored for recycling or disposal. For cleanup in gravel yards, consider fitting vacuums with screen or mesh on intake hoses to collect plastic resin without disturbing gravel. Place resin collection cans at rail yards for loading and unloading and supervise proper handling when storing and removing waste plastic resin.

Advise rail yard workers to report any incidents of vandalism or plastic resin loss. The [Plastic Resin Release Report](#) is a resource that can be used to report any spill incidents and inspections of rail yards should be performed regularly.



RESIN CONTAINMENT AND RECOVERY PROCEDURES FOR TRANSFER POINTS (TRANSLOADERS)

Transloaders are a critical handling risk point in the transportation of plastic resin by rail, as they deal with frequent loading and unloading of products to and from trucks and rail cars. Transloaders should take the same precautions and procedures when loading/unloading as described in the previous section for “Loading and Unloading Hopper Cars.”

Operate the pump/pneumatic conveying systems properly to avoid clogging. If a pipeline must be opened to clear a blockage, anticipate the potential for plastic resin loss and always place a catch pan or tarp under the connection. Remove any spilled plastic resin from the top of the car/truck before leaving the containment area—residual plastic resin will fall to the ground as cars are moved outside the transload facility.

Be aware of any spillage when taking samples, as outlined in the “Sampling” section.

PROCEDURES FOR DUST AND POWDER

This section specifically focuses on methods to help minimize generation and the release of plastic dust and powder in a rail or transloading setting. There are several approaches that can be taken and some examples to follow. However, you may wish to consider whether other methods 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 and flakes. In addition to conveying, plastic dust may be generated when plastic raw materials or finished products are transported during rail operations.

Plastic powder is a form of plastic raw material used in operations where a fine particle size is necessary for processing. Plastic powder can escape plastic handling or processing equipment more easily than pellets or flakes. 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.
- Open hatches, pipes or connections.
- During loading/unloading operations or transfer operation.



Methods to Consider for Minimizing the Release of Plastic Dust and Powder

There are several approaches that can be taken to help minimize the release of plastic dust and powder including:

- Keep rail cars and storage containers in good condition to help avoid holes, cracks, or leaks.
- Maintain loading/unloading and transfer equipment with good seals to help avoid leaks.
- Conveying equipment should be appropriate for the task and maintained in good condition.
- 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.

Encourage employees to look for dust/powder leaks and to promptly address any that occur. Promote employee awareness through training and reminders regarding the need to prevent dust/powder from escaping into the environment and manage it appropriately.

Methods for the Capture and Containment of Plastic Dust

There are several approaches that can be taken to help in the capture and containment of plastic dust including:

- Use properly designed and sized dust collection equipment in all operations that generate or liberate plastic dust.
- Maintain the dust collection equipment according to manufacturers' 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 cleanup of plastic dust spills, or plastic dust that has settled on surfaces in and around transfer points.
- Promote maintenance/housekeeping procedures that minimize dust accumulation.
- Store captured plastic dust in containers that are designed to help minimize leaks.
- Comply with applicable federal, state, and local regulations for containment systems.
- Review the Safety Data Sheet (SDS) 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.

Proper disposal of plastic dust and powder can be critical to help minimize the amount released to the environment. Choosing a disposal method involves considering the materials that constitute the dust or powder and the disposal requirements of those materials.

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



PROCEDURES FOR WASTE RECYCLING AND DISPOSAL

Preferred Disposal Methods

- Recycle
- Resale
- Controlled Landfill

Ensuring plastic resin is properly disposed of to avoid contaminating the environment and to capture any economic value is the final step of plastic resin management. Recycling is the preferred method to support a circular value chain but may not always be feasible depending on location and resin contamination levels. See the [OCS Vendor Directory](#) for recycling options in your company’s region.

After cleaning up spilled resin, be sure to store waste plastic in properly labeled containers. Install one or more resin-specific waste containers in each resin-handling area. Use separate containers for recyclable and non-recyclable plastic resin.

Routinely check that there is adequate waste storage capacity, and do not permit loose plastic resin to accumulate on the ground or floors. Use only covered containers or hopper cars/trucks without leaks. Inspect and confirm proper handling and storage procedures if an outside vendor is used for waste removal. Stress the need for “no loss to the environment” procedures with any vendors and share this OCS Rail Manual with them to share appropriate practices.

Possible disposal methods are (in order of preference):

1. Recycle or resell collected plastic resin.
2. Appropriately regulated processing of waste plastic resin in properly licensed and operated waste-to-energy facility.
3. Deposit in a controlled landfill only after confining plastic resin in such a manner that prevents loss due to rain, wind, flooding, etc.

Include pellet, flake and powder retention capabilities and practices in criteria for selecting waste disposal companies.



Photo of a designated plastic waste storage area.



Workplace signage including instructions for the proper handling of plastic pellets and placed near designated plastic waste storage containment drums.



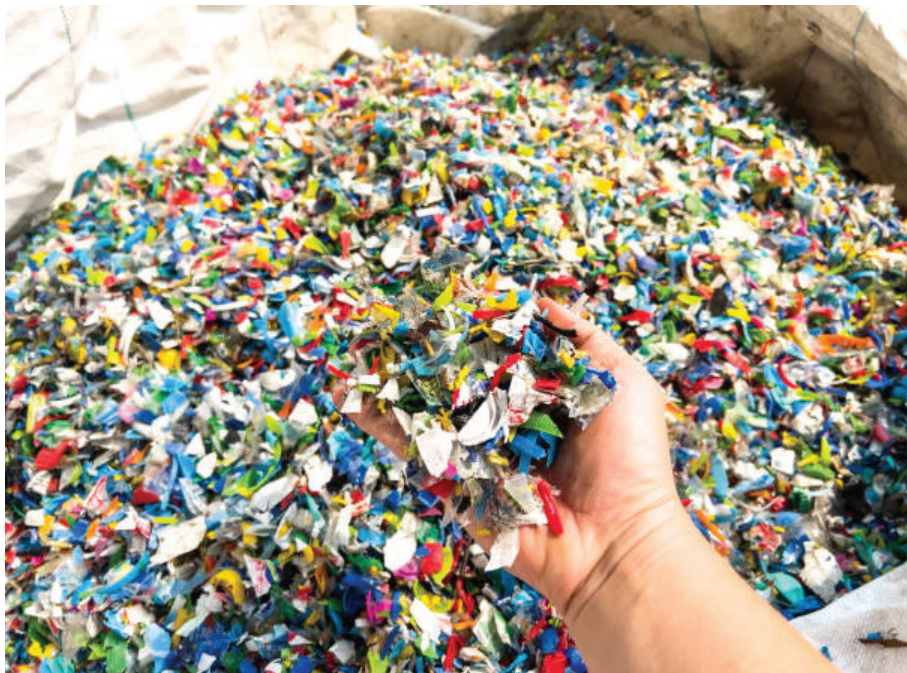
SECTION IX: UNPLANNED SPILLS IN-TRANSIT

Unplanned spills of plastic resin while in-transit, such as derailments, can be some of the most difficult to manage. Cleanup strategies are situational, based on the quantity and environment where a spill occurs (e.g. gravel versus grass, flat versus sloped, proximity to water), weather conditions, ease of access for clean-up crews, and the type of product spilled. Cleanup procedures for plastic powders and flakes may differ from pellets, so it is important that employees be trained to easily identify different types of plastic resin and estimate the amount that was spilled. Workers can then more effectively report any spills that occur to an emergency response team equipped to handle plastic resin spills quickly and efficiently.

Companies can search for emergency response service providers that clean up plastic resin using the [OCS Vendor Directory](#), which will be updated on an ongoing basis. Supply chain partners or employees that have witnessed the spill occur, should complete a [Plastic Resin Release Report](#) located at the end of this manual.

RESIN IDENTIFICATION AND ESTIMATION

When assessing the amount and type of resin in a spill, whether in-transit or on facility grounds, it is important to encourage consistent reporting and estimates. Doing so enhances internal risk assessments and enables workers to address spills as effectively as possible. Visual aids may be used to help workers more readily recognize different forms of plastic resin and estimate the volumes of releases on various surfaces.



An example of plastic resin flakes, which are small, often irregularly shaped fragments of plastic that have been broken up by cutting, crushing, and grinding operations.



An example of plastic resin powder, a form of plastic raw material used in operations where a fine particle size is necessary for processing.



An example of plastic resin pellets, which are small granules used as the base material to create other plastic products. Preproduction plastic pellets vary in size but are typically between 1mm and 5mm.



0.5 kg of clear plastic resin pellets inside a 1 ft² yellow square on asphalt beside a size 10 shoe.



0.5 kg of clear plastic resin pellets inside a 2 ft² blue square on asphalt beside a size 10 shoe.



0.5 kg of clear plastic resin pellets inside a 3 ft² pink square on asphalt beside a size 10 shoe.



An image of clear plastic resin pellets in grass.



0.5 kg of clear plastic resin pellets inside a 1 ft² yellow square on grass beside a size 8 shoe.



SECTION X: FOLLOW-UP AND ANNUAL PROCESSES

Some of the recommendations mentioned in this manual will require routine follow-up to verify that a rail transportation and handling company is keeping up with proper resin handling practices and implementing changes when beneficial. Suggested activities include, but are not limited to, the following:

- Updating contact information for shippers and plastic resin producers annually.
- Performing rail yard and transloading site assessments on a yearly basis to determine if workers are following proper resin handling procedures and where there may be issues.
- Checking that there is adequate waste storage capacity at rail yards and transfer points.
- Conducting routine inspections and maintenance of equipment used to capture and contain plastic resin.
- Holding initial training sessions for new workers that physically handle plastic resin or could come in contact with a yard spill as a part of their job responsibilities.
- Follow-up training sessions should be performed at least once per year.
- Conducting employee training and awareness campaigns to reinforce OCS resin handling practices.
- Consider involving a third-party for an external inspection to catch issues that may not have yet been identified and implement solutions at all facilities based on these inspections.
- Re-evaluating all resin handling procedures to assess the effectiveness of OCS program implementation annually.
- Communicate your experiences to peers in the industry.



SECTION XI: CHECKLISTS AND FORMS

This section includes several checklists to assist you in implementing OCS. The checklists are divided into two categories: Management and Worker.

MANAGEMENT CHECKLISTS

- [Site Inspection](#)
- [OCS Implementation & Training](#)
- [Facility Equipment](#)
- [Worker Equipment](#)

WORKER CHECKLISTS

- [Rail Yard](#)
- [Rail Car Cleaning/Loading](#)
- [Transloading Inspection](#)

FORMS

- [Plastic Resin Release Report](#)
- [Employee Commitment Pledge](#)

The checklists have been created to be customizable for each company; for example, companies can insert their respective logos and specific process steps may be added or removed to reflect those involved in a particular operation. These enhancements will make it easy to create and copy forms that have the greatest value for your company. The purpose is not for this information to be sent back to OCS, but for internal use.

The [Plastic Resin Release Report](#) is an additional resource located at the very end of this document that can be used by workers, management, or other personnel when/if a spill occurs during rail processes.



Site Inspection Checklist

Company: _____

Department: _____

Inspected By: _____

Inspection Date: ___/___/___

Bulk Hopper Car/Truck Unloading Area

Spill Problem: Yes No

Cause of Spill: _____

Solution: _____

Implementation Date: ___/___/___

Receiving Dock—Bags and Boxes

Spill Problem: Yes No

Cause of Spill: _____

Solution: _____

Implementation Date: ___/___/___

Transfer Equipment—Blower

Spill Problem: Yes No

Cause of Spill: _____

Solution: _____

Implementation Date: ___/___/___



Packaging Areas—Bulk Boxes and Bags

Spill Problem: Yes No

Cause of Spill: _____

Solution: _____

Implementation Date: ___/___/___

Transfer Equipment—Line Connectors

Spill Problem: Yes No

Cause of Spill: _____

Solution: _____

Implementation Date: ___/___/___

Sweeping Disposal

Spill Problem: Yes No

Cause of Spill: _____

Solution: _____

Implementation Date: ___/___/___

Containment Systems & Outfalls

Spill Problem: Yes No

Cause of Spill: _____

Solution: _____

Implementation Date: ___/___/___

Signature of Inspector: _____



OCS Implementation & Training Checklist

Company: _____

Department: _____

Date: ___/___/___

PROCEDURES

- Company has joined the OCS program as a member
- Conducted a site inspection
- Create/review written procedures for handling plastic resin
- Assign responsibilities for each plastic-handling employee
- Put inspection program in place
 - Internal site inspections External/third-party inspections OCS Blue or OCS Logistics Verification
- Plan follow-up and review processes

TRAINING

- Training meetings scheduled, and instructors assigned
- Training setting and participants selected
- Training materials delivered to each participant
- Training conducted and employees informed of their plastic resin handling responsibilities
- Evaluations performed and accomplishment of departmental goals assessed
- Hired worker(s) agrees to and are informed of “zero loss” plastic resin procedures
- Procedures and checklists that workers are expected to undertake are displayed

Manager: _____

Signature: _____



Facility Equipment Checklist

Company: _____

Department: _____

Inspected By: _____

Inspection Date: ___/___/___

STORM DRAIN SCREENS

- Number of drains: _____
- Number of drains with screens: _____
- Target date to complete screen installation: _____
- Drain screen inspection/cleaning frequency: _____
- Screen repairs required: _____

UNLOADING AREAS

- Paved
- Unpaved
 - Tarps/catch pans available in area
 - Disposal receptables in area

TRANSFER SYSTEMS

- Pipe, hoses, and connections leak-free
- Disconnects with auto closing valves

SWEEPINGS DISPOSAL

- Employee agrees to “zero loss” disposal procedures
- Proper interim storage containers available



MISSING/DEFECTIVE FACILITY EQUIPMENT

Name of management personnel informed if equipment found missing/defective:

Date reported to management: ___/___/___

Signature of Inspector: _____



Worker Equipment Checklist

Company: _____

Department: _____

Inspected By: _____

Inspection Date: ___/___/___

WORKER EQUIPMENT IDENTIFIED ON SITE

- Manual floor sweeping tools (brooms, shovels, rakes, etc.)
- Manual floor containment tools (e.g. dustpans, collection bags)
- Heavy-duty vacuums for rail yard/transfer point use
- Portable vacuums for outside use and cleanups in-transit
- Wide-mouth sample collections jars/poly-bags
- Tape for repairing bag/box damage
- Scrap pellet, flake and powder containers (drums, bulk boxes, etc.)
- Catch pans
- Trays
- OCS procedures/posters/checklists for worker use

MISSING/DEFECTIVE FACILITY EQUIPMENT

Name of management personnel informed if equipment found missing/defective:

Date reported to management: ___/___/___

Signature of Inspector: _____



Rail Yard Inspection Checklist

Company: _____

Department: _____

Inspected By: _____

Inspection Date: ___/___/___

STORAGE IN TRANSIT AREAS

- Secureness
 - Fenced
 - Adequate lighting
 - Regular inspections
 - Grounds are free of plastic resin
 - No visible signs or risk of spills
 - Storm drain screens installed and not overflowing
 - Dry cleanup equipment (brooms, vacuums, dustpans, etc.) is available should a spill occur
 - Plastic resin disposal collection cans are available
 - Car valve covers and seals in place
 - If valve covers not in place, shipper has been notified
- Date notified: ___/___/___

Signature of Inspector: _____



Railcar Cleaning/Loading Checklist

Company: _____

Department: _____

Inspected By: _____

Inspection Date: ___/___/___

RECEIVING AREA

- Containment for wash area operational and intact.
- Compartments empty and clean
 - Air lance operational
 - Unloading outlet tubes completely clean
 - Pellet, flake and powder recovery from wash water 100%
- Plastic resin disposal collection cans are available

CAR LOADING

- No line blockages or clogging
- Catch pans in place for connections
- Transfer lines flushed after each car loading completed
- All outlets secure and sealed after filling (Seals are all 1/8 inch braided steel or stronger)
 - Top
 - Bottom
- Top of car clear prior to release
- Plastic resin disposal collection cans are available

Signature of Inspector: _____



Transloading Inspection Checklist

Company: _____

Department: _____

Crew/Shift: _____

Shipper: _____

Terminal: _____

Railcar #: _____

RAILCAR ARRIVAL INSPECTION

- No visible damage to car
- No sign of leakage/product loss
- Loading dock catch pans in place for receipt of container shipments
- Rail truck unloading valve catch pans in place before opening
- Container trucks cleaned after unloading
- Hopper car/truck valve covers in place before moving
 - Full walk around conducted
 - Transfer lines flushed and clean
- Dock area swept clean
- Car/Truck unloading area clean
- Covered hopper's product outlets sealed
Seal numbers: _____
- Covered hopper's hatches sealed
Seal numbers: _____
- Sample(s) collected in approved containers
Sample Bin #/Location: _____
- Car seals in place before start of transfer
Seal numbers: _____
- Waste collection containers emptied



Unloading problems experienced?: Yes No

Comments:

Shipper Contacted: _____ By: _____ Date: ___/___/___

Railroad Contacted: _____ By: _____ Date: ___/___/___

Signature of Inspector: _____ By: _____ Date: ___/___/___

RAILCAR DEPARTURE INSPECTION

- No visible damage to car
- No sign of leakage/product loss
- All tools and fittings removed
- Container trucks cleaned after unloading
- Hopper car/truck valve covers in place before moving
 - Full walk around conducted
 - Transfer lines flushed and clean
- Dock area swept clean
- Car/Truck unloading area clean
- Covered hopper's product outlets sealed
Seal numbers: _____
- Covered hopper's hatches sealed
Seal numbers: _____
- Company seals applied
Seal numbers: _____
- All product has been removed
- Waste collection containers emptied



Comments:

Is there any product left in the car that could not be unloaded? Yes No

If YES, why?: _____

Shipper Contacted: _____ By: _____ Date: ___/___/___

Railroad Contacted: _____ By: _____ Date: ___/___/___

Signature of Inspector: _____ By: _____ Date: ___/___/___



Plastic Resin Release Report

This is an optional report for internal use only and is not to be distributed to OCS.

Reporting Company: _____

Department: _____

Reported By: _____

Incident Reported Date: ___/___/___

Incident Reported Time: _____

Incident Occurred Date (if known): ___/___/___

Incident Occurred Time (if known): _____

Incident Location	
Location (street/address)	
City	
State	
Country	
County/Province	
Carrier name	
Railcar/car #	

Spill Description	
Type of resin identified (PE, PET, PP, etc.)	
Color, shape, and estimated size of resin	
Estimated quantity of resin	
Surrounding environment (e.g. gravel, grass,)	
Weather conditions	



Overall Incident Description

Fire department on scene?: Yes No

Police on scene?: Yes No

Referred to 911? Yes No

Injuries? Yes No

If YES, how many?: _____

Other entities on scene?: Yes No

If YES, please describe: _____

Root cause identified?: Yes No

If YES, please describe:

Corrective Actions Taken (if any)

Signature of Reporter: _____



Employee Pledge to Help Prevent Resin Pellet, Flake and Powder Loss

I recognize our company's commitment to Operation Clean Sweep and the goal of preventing pellet, flake and powder loss into the environment. I will do my daily job in a manner that strives to:

- Prevent pellet, flake and powder loss;
- Contain spills;
- Cleanup swiftly and effectively; and
- Dispose of pellets, flakes and powder appropriately

Company Name: _____

Department/Crew: _____

Employee Name: _____

Signature: _____