Sector Y: Rubber products, plastic products and miscellaneous products manufacturing
Industrial stormwater pollution prevention

Sector Y includes facilities described by the following Standard Industrial Classification (SIC) codes: 3011, 3021, 3052, 3053, 3061, 3069, 3081-3089, 3931, 3942, 3944, 3949, 3951, 3953, 3955, 3961, 3965, 3991, 3993, 3995, 3996, and 3999.

Materials and activities at Sector Y facilities that can impact stormwater include pellet loading and unloading, material storage, and equipment and vehicle maintenance.

Pollution prevention practices
Minnesota’s industrial stormwater permit requires a written Stormwater Pollution Prevention Plan (SWPPP). Use the SWPPP to assess potential sources of pollutants at your facility and then identify practices that will minimize these pollutants in runoff from the site. This fact sheet lists pollution prevention (P2) practices that can be incorporated into your facility’s SWPPP.

Keep in mind that P2 is best achieved by qualifying for the No Exposure exclusion. No Exposure means that rain, snow, and runoff do not contact pollutant-containing materials or activities. Your facility can apply for the No Exposure certification as soon as you qualify, even if you already have the full permit. For more information visit the MPCA’s No Exposure webpage at http://www.pca.state.mn.us/noexposure.

General strategies
- Keep materials and activities indoors as much as possible. Confine outdoor activities to areas that are covered, away from high traffic areas, out of drainage paths, and on impervious surfaces.
- Regularly clean up areas used for handling, processing, and storage using dry methods such as sweeping or squeegee and dustpan.

Shipping and receiving
- Cover or plug storm drains during loading and unloading activities.
- Provide overhangs or door skirts to enclose trailer ends at loading docks.
- Avoid loading or unloading materials in rain or high winds.
- Inspect containers for leaks or damage before loading or unloading, especially pellet packaging.
- Where liquid or powdered materials are transferred in bulk, make sure hose connection points are inside containment areas or drip pans are used.
- For rail transfer, install a drip pan within the rails to collect spillage from the tank.
- Provide dust control if needed by sweeping and/or by applying water or other materials that will not impact surface or groundwater.
Rubber manufacturers: minimize contact of zinc with stormwater

- Store in-use materials in sealable containers. Make sure there is airspace between the container and the cover to minimize ‘puffing’ losses when the container is opened.
- To reduce spills during handling, buy chemicals in pre-weighed, sealed, polyethylene bags that can be thrown directly into the mixer.
- Use automatic dispensing and weighing equipment.
- Establish a plan to prevent spills during zinc stearate coating operations.
- Use 25 pound bags instead of 50 or 100 pound bags of zinc.
- Consider alternative compounds in place of zinc stearate.

Plastic manufacturers: minimize contact of plastic resin pellets with stormwater

- Develop standard operating procedures for pellet handling, containment, spill cleanup, and daily housekeeping.
- Pave all pellet handling areas, including loading docks and rail sidings, to make spill cleanup and daily housekeeping easier and more thorough.
- Seal expansion joints in concrete floors with a flexible material to make cleanup easier.
- Put screens in storm drains.
- Install grating at doorways for wiping feet.
- Equip bag-handling stations with vacuum hoses to make spill cleanup quicker and easier.
- Use tarps, screens, or containment devices to collect pellets at connection points or where pellets spill.
- Install alarms in the pellet conveying system.
- Make sure hoses are equipped with valves that will close automatically when a connection is broken.
- Modify loading systems so transfer lines can be completely emptied and any residual resin is contained when loading ceases.
- Direct the water flow from rail hopper cars and bulk trucks through a screen to capture the pellets rather than spilling them onto the ground.
- Visually confirm that each compartment and tube of shipping vehicles is empty.
- Identify the person responsible for sealing the ports on rail hopper cars and bulk trucks; document that ports are sealed before moving them whether empty or full.
- Close and secure the rail hopper car valve with strong wire or aircraft cable in addition to the normal sealing mechanism.
- Minimize the use of valved bags, or seal valved bags immediately after filling. Repair punctured bags immediately.

Raw material and waste management

- Use tight sealing lids on all fluid containers. Keep containers and associated valves and caps closed.
- Store materials in close proximity to where they will be used to minimize the chance of spilling.
- Organize storage for easy access in case of a leak or spill.
- Use drip pans to prevent and contain spills.
- Keep an inventory of all raw and spent materials to identify leaks and manage waste streams.
- Provide secondary containment for storage areas.
• Avoid on-deck pellet storage.
• Properly label waste pellet storage containers.
• Clean containers indoors before storing outdoors.
• Check broken and discarded packaging for residual pellets.
• Cover and plug dumpsters stored outside or move them inside.
• Keep floors clean and dry to minimize what is tracked outdoors.
• Do not pour liquids (including wash water) into floor drains, sinks, outdoor storm drain inlets or other storm drain or sewer connections.
• Be prepared for immediate spill cleanup.

Waste generation reduction

• Practice just-in-time manufacturing to avoid accumulation of stored contaminants.
• Use inventory control to reduce waste, including tracking the date received and expiration dates.
• Install baghouses or dust collectors if needed. Replace or repair improperly operating dust collectors or baghouses.
• Avoid buildup of dust or other deposits on exhaust vents and roof stacks. Make sure filters are in good condition and not torn or otherwise allowing dust to escape.
• Remove obsolete equipment before it has a chance to leak or rust. Recycle unused equipment rather than stockpiling it.
• Place scrap or waste products directly into covered transport containers rather than stockpiling until there is a full load.
• Reuse cleaners and find non-toxic ones.

Inspections

• Inspect interiors of trailers for defects that may puncture pellet packaging.
• Inspect equipment maintenance areas to identify problems and reduce fluid waste.
• Inspect handling and storage areas for spills.
• Inspect equipment for debris and proper function.
• Inspect loading and unloading areas for material spills and engine fluid drips.
• Conduct routine inspections for the presence of loose pellets on the facility grounds.
• Inspect drainage diversions such as berms and dikes to ensure they are operating properly.
• Regularly inspect emission and particulate control systems for proper function. Provide cover for outdoor components of these systems.

Employee training

• Train pellet handlers to operate equipment in ways that minimize the potential for pellet spills and loss.
• Develop employee education materials on plastic pellet management for who move or transport pellets.
• Educate key officials and company managers about the environmental fate and effects and the economic disadvantages of plastic pellet loss.
• Train employees how to handle and empty bags of zinc.
• Train employees on proper chemical use, storage, cleanup, and waste reuse, recycling or disposal.
• Train employees on good housekeeping measures including all SWPPP components.
• Ensure that all employees are familiar with the facility’s spill prevention and response plan.
Cold climate considerations

Minnesota experiences challenging climatic conditions that require thoughtful P2 design and operation. Cold weather, snow, and ice result in extended storage of pollutants in the snowpack. The following P2 activities can help minimize the impact of cold climate on stormwater:

- Inspect, maintain, and carefully handle zinc bags, pellet packaging, and other storage containment devices that may become more brittle in freezing temperatures.
- Sweep sand, salt, and spilled pellets from paved surfaces throughout the winter and before snow melts.
- Store materials away from areas where it could get mixed with snow and moved around when the area is plowed. Keep materials out of accumulated or dumped snow.
- Cover salt storage areas to help minimize contact with stormwater.
- Use judicious amounts of de-icing and anti-skid chemicals and road salt.
- Keep plowed snow out of retention ponds. This ensures the treatment capacity of the pond is available during snowmelt or rain on frozen ground.

Stormwater treatment best management practices

Stormwater treatment Best Management Practices (BMPs) are engineered structures that treat stormwater runoff or reduce the stormwater runoff rate, volume, and velocity. In combination with P2 practices, stormwater treatment BMPs such as retention ponds act as a second line of defense against polluting downstream waterbodies. Treatment BMPs should be used down-gradient of areas where P2 activities have been fully implemented. Specific guidance on stormwater treatment BMPs is in the Minnesota Stormwater Manual and the BMP Guidebook, which are linked in the Resources section at the end of this fact sheet.

Groundwater pollution potential

Groundwater contamination is of greatest concern where there is a high water table and in karst regions. A water table that is close to the surface can allow pollutants to enter the groundwater system quickly, which does not allow time for pollutant levels to be reduced by the soil. Karst is common in southeastern Minnesota and is largely shaped by the dissolving action of water on limestone. Over time, this creates features such as sinkholes, disappearing streams, complex underground drainage systems, and caves. Water and pollutants can flow rapidly through these features to wells and streams.

Extra precautions to prevent groundwater contamination in these areas include P2 measures such as proper storage and handling of materials, spill prevention planning, good housekeeping, and employee training. In addition, stormwater treatment BMPs used downstream of P2 practices should be designed with sensitivity to local conditions.

Resources


Industrial stormwater webpages on the MPCA website at http://www.pca.state.mn.us/industrialstormwater.


Low Impact Development for Businesses webpage on the MPCA website at http://www.pca.state.mn.us/veiz7d0.

No Exposure: Qualifying for and keeping the exclusion (fact sheet #wq-strm3-13) is available on the MPCA website at http://www.pca.state.mn.us/publications/wq-strm3-13.pdf.

Operation Clean Sweep Pellet Handling Manual is available at the Operation Clean Sweep website at http://www.opcleansweep.org. Operation Clean Sweep is a product stewardship program of the American Plastics Council (APC) and the Society of the Plastics Industry (SPI).

More information

For more information e-mail the MPCA’s industrial stormwater program at iswprogram.pca@state.mn.us or call the stormwater hotline at 651-757-2119 or 800-657-3804 (non-metro only).