

RAILCAR UNLOADING CHECKLIST

- ✓ Secure track with derailer and blue flag.
- ✓ Ground car body to protect against static discharge.
- ✓ Open hatch cover and attach filter on the compartment to be unloaded.
- ✓ Remove outlet caps on both sides of outlet.
- ✓ Attach clean filter to far side of outlet.
- ✓ Wipe valve and adapter clean.
- ✓ Connect and support unloading hose at outlet adapter.
- ✓ Begin unloading car and adjust flow to rate desired.
- ✓ Complete unloading; ensure that car is empty.
- ✓ Disconnect unloading hose and remove filter; close and lock outlet caps.
- ✓ Remove hatch ring filter; close and lock hatch covers.
- ✓ Prepare car for return shipment.



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SERVICE BULLETIN

PNEUMATIC UNLOADING OF ARL CENTER FLOW® COVERED HOPPER CARS



PNEUMATIC UNLOADING has become commonplace in bulk-materials handling circles, however, many times product becomes contaminated or cars are damaged due to improper unloading methods. This service bulletin discusses the proper methods of sampling and pneumatically unloading a Center Flow® covered hopper car.

SHIPMENT AND DELIVERY

Center Flow® covered hopper cars used in the transport of powders and resins are subject to extreme changes in the climatic conditions that may affect the atmosphere inside the car. It is not uncommon for the covered hopper to breathe while in transit due to changes in altitude or temperature. As this occurs there is a possibility for the top surface of the product to acquire “wet resin” appearance. This is usually due to a build up of humidity inside the car, which causes the top surface to appear wet. To ensure that the product is not wet, a sample should be drawn from below the surface for testing.



SAFETY PROCEDURES

Most facilities have procedures in place for unloading covered hopper cars. The following is offered as a guideline for car unloading and is not intended to supplant any in-house procedure.

Prior to unloading a Center Flow car, several safety issues should be addressed.

- The car should be spotted on a secure track protected by a car derailer and a blue flag.
- The handbrake should be applied and the wheels chocked.
- The car body should be grounded to protect against static discharge.
- All personnel in the unloading area should be wearing the appropriate safety equipment specified in plant procedures.
- All personnel working on top of the car should be outfitted with the appropriate safety belt or harness specified in plant procedures.

Once these items have been addressed, unloading of the Center Flow car can safely begin.

AVOIDING CONTAMINATION

Product contamination is critical in the plastics industry. The plastics processor may find the need to stop production because of the smallest amount of contaminants in the unloaded material. When contamination is experienced, the source must be identified and isolated to prevent subsequent or repetitive problems. Installing screens at or near the outlet of the hopper car and after the rotary valves or air locks will aid in identifying the source of the contamination.

UNLOADING PROCEDURES



WARNING

Pneumatic unloading is accomplished by establishing an air flow through the product discharge tube, and vacuuming the product from the car. To equalize pressure in the car body and prevent roof implosions or vacuum pulls, sufficient air flow must be allowed to enter the car to displace the product and air being removed. This air flow is maintained by opening at least one hatch cover per compartment prior to beginning the unloading operation. Failure to open the hatch covers will result in serious damage to the car body and roof.

PRIOR TO UNLOADING

- Place resin containment trays or tarps under the railcar to capture and recycle spilled or purged product.
- Connect a ground wire to the car body.
- Procure air filters for the hatch ring and discharge tubes.

Product samples found contaminated should be evaluated to determine the type and cause of contamination. Many times the sample can become contaminated by improper sampling procedures. Should this be suspected, a second sample should be obtained and evaluated. If it is determined that the product has an unacceptable contamination level, contact the supplier immediately. Do not unload the car.

SAMPLING FROM BOTTOM OUTLETS

All railcars should be sampled prior to unloading. Sampling procedures should be closely followed to avoid introduction of contaminants while sampling.

- (1) Protect hands with clean gloves.
- (2) Cut outlet cap seal and remove caps. Remove plastic adapter seal if so equipped.
- (3) Wipe outlet discharge tube and adapter with a clean lint-free cloth.
- (4) Blow out discharge tube with clean filtered air.
- (5) Open outlet valve. Obtain sample with clean sampling device and place in clean container.
- (6) Close outlet valve and sample container.



SAMPLING FROM THE TOP HATCH

- (1) Protect hands with clean gloves.
- (2) Sweep clean the area around the hatch cover to be opened.
- (3) Remove car seal from hatch cover.
- (4) Unlock hatch and open cover.
- (5) Protect open compartment from dirt and water.
- (6) Obtain sample with clean sampling device and place in clean container.
- (7) Close hatch cover, lock and reapply a car seal if the car will not be unloaded immediately.



VACUUM PNEUMATIC UNLOADING

- Open at least one hatch cover on the compartment to be unloaded. Attach a filter to the hatch opening to filter air entering the car.
- Prepare the outlet for unloading by removing the outlet caps on both sides of the outlet.
- Make vacuum conveying line hook up to the outlet, ensuring that the flow is in the direction the hose spirals or direction indicated on the hose. Avoid abrupt bends and ensure that the hose is supported at the outlet adapter nozzle.
- Attach a filter to the opposite side (far side) of the outlet.
- Start the system and operate for 20-30 seconds with outlet valve fully closed to clear the line.



- Begin unloading by opening the FAR SIDE of the outlet first. Meter the valve to obtain the desired mixture (air/product). When possible, keep the velocities below 5000 ft. per min. to avoid creating streamers and excessive product degradation.
- When the flow of product ceases, close the far side valve and open the near side valve to continue unloading.
- When the flow again ceases, the compartment is nearly empty. Rotate the valve from far side to near side for final cleanout.
- Repeat sequence for subsequent compartments.
- Close and secure all hatches and outlets when the car is empty.