
	GILES CHEMICAL ~ PREMIER MAGNESIA		
	Company Procedure		
	Title: Acid Unloading Procedure	Number: P12-PR-200-005	
	Owner: Patrick Owen	Revision: 7	
	Effective Date: 05/08/2013	Page: 1 of 10	

1.0 Purpose

This procedure spells out how to properly unload sulfuric acid.

2.0 Scope

This procedure applies to all manufacturing workers.

3.0 Responsibility

Material Handler

4.0 Safety Considerations

1. **Before approaching the Tank Car or Truck containing Sulfuric Acid put on the following Personal Protective Equipment: Safety Goggles, Face Shield, Rain Suit, and Rubber Gloves**
2. **The warning sign (blue) must be in place during unloading.**
3. **Giles lock must be on track derail before hooking up cars.**

Safety is a condition of employment. Employees are not authorized to work in an unsafe manner and are prohibited from harming the environment of the facility or community.

5.0 Materials/Equipment

- proper clothing and gear for acid work
- tool or wrench

6.0 Procedure

This section provides specific directions for unloading Sulfuric Acid, a hazardous chemical. Employees are carefully trained prior to proceeding with any unloading tasks.



Prepare for Unloading and Refilling:

Storage Tanks

1. Make sure that the storage tank(s) can accommodate the contents of the rail car.
2. Ensure that there is no pressure on the tank to be filled.
3. Open the dump valve to the storage tank to be filled.
4. If swapping tanks is necessary, refer to the acid tank procedure.

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5. Inspect all ports on the storage tanks to make sure they are secure.

Rail Car

1. Obtain an *Acid History Log (P12-PR-200-F007)* from the documentation center.
 - a. Fill out all appropriate information following the Acid History Log Procedure
2. Make sure hand brake on Rail car is engaged
3. Assure the derail and caution signs are in place.
4. Assure derail lock is in place
5. Make sure wheels are Blocked or Chocked.

Obtain an Acid Sample

1. Obtain the special dipstick used for sampling an acid car, and a sample bottle
2. Put on safety equipment before going up on the car.
3. Align safety hoop walkway with top of acid car ladder.
4. Let the safety hoop down and extend the walkway to the acid car.
5. Check the hatch to make sure the Load Seal is intact. If it is not, inform the Safety or Plant Manager. Do not unload the car until told to do so. The acid may have been tampered with.
6. Check the safety vent (rupture disk) to insure the cap is intact.
7. Carefully depressurize the car by slowly removing the air inlet plug and opening the air valve.



8. Remove the sample bottle cap, put it aside, and screw the bottle firmly into the perforated bottle cap attached to the stick.
9. Remove the dump cap and lower the bottle and stick through and down into the acid, thus filling the bottle.

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10. Retract the bottle carefully.
11. Replace cap and rinse acid residue from out side of sample bottle
12. Label sample properly and place in Acid Cabinet as a retained sample

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Prepare the Car for Unloading

1. Check the unloading hose and fittings for damage or wear.
2. Remove the plug from the discharge hose.
3. Check the gaskets on the quick-coupling on the discharge hose. Replace if necessary.
4. Check bolts on load hole and tighten if necessary.
5. Connect the proper Discharge pipe to the discharge port of the Acid car.

6. Connect the unloading hose to the discharge port on the tank.
7. Connect the small air line to the Discharge pipe acid shutoff valve actuator.





8. Coat the threads of the air inlet pipe with Teflon paste or tape.
9. Connect the air supply hose to the tank car air inlet port



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Transfer Acid to the Storage Tank

1. Check the acid transfer line at the storage tanks to assure that the acid will go to the proper storage tank.
2. Close the air dump and open the valve on the air supply line to pressurize the car. (20 psi).
3. Close the shutoff air dump and open the valve to the acid shutoff valve.



4. When acid is moving through the line (you can tell by the weight), start the acid offloading pump.



5. Do not run the pump if no acid is in the line. Running the pump dry will destroy it.





WARNING:

**Never pressurize the car to more than 30 psi
(20 psi is preferred to unload with the pump)**

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Attend the Unloading

Continuously check the acid transfer line for leaks.

If a leak occurs – **immediately do the following.**



1. Press one of the emergency air stop buttons (on the rack, near the pump switch, or inside the plant door)



2. Open both the air bleed offs as a precaution
3. Wait for the leak to subside
4. Stop the acid unloading pump if it has not stopped in 10 seconds
5. Carefully open the vent valve on the top of the rail car to ensure the car is depressurized
6. Notify the Safety and/or Plant Manager
7. Neutralize the spill(s) with lime.
8. If the spill is larger than 50 gallons, call 911.
9. If only a small spill, large quantities of water may be used, but only at the direction of the Safety or Plant Manager.
10. After the leak has been repaired check the entire system, as above, before resuming the unloading.

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Complete the Unloading

The acid pump will stop and rushing air in the acid line indicates that the acid is out of the car.

1. An audible alarm will sound 15 minutes after the acid car is empty
(air remains on during this 15 minutes to ensure acid line is clear)
2. Close the main air supply valve and open the dump.
3. Remove the air supply hose.
4. Ensure the car is depressurized by opening the vent valve on the top of the tank.
5. Disconnect the acid line, replace the plug, and carefully place back in rack.
6. Close the small air line and open its dump.
7. Remove the small air line.
8. Remove the Discharge pipe (Christmas Tree).



**Extreme care should be taken when handling Acid Hose.
Major safety issues can come from damage**

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Prepare the Acid Rail Car for Release to the Railroad

1. Inspect the hatch cover gasket for damage and replace it if necessary.
2. Replace the educator pipe cap and tighten it with the chain in place.





3. Replace the air inlet plug and tighten it with the chain in place.
 - a. **Both the educator pipe and inlet plug must be "Tool Tightened"** before releasing to the railroad. (firmly tighten each with a tool or wrench)

4. Confirm that the rupture disk assembly is intact.
5. Add a return seal on hatch cover and note seal number on Acid History Log
6. Store all hoses and couplings on the racks, clear of the siding and rail cars.
7. Pull the walkway in and raise the safety hoop to the upright position.
8. If the drip pan has water in it (verify with pH paper if there is any question), squeegee the water out of the pan.
9. Check the general condition of the rail car, (ladders. Hand rails, platforms, etc.), and report any problems to the appropriate personnel.
10. Remove the wheel chocks and the warning sign.
11. Sign off on *Acid History Log* and notify the appropriate personnel that the car is ready for release.



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7.0 Reference Documents

Acid History Log (P12-PR-200-F007)

8.0 Change Information

Document review- updated format using new template and numbering system.

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ACID UNLOADING TEST

Name: _____ Date: _____
Trainer: _____

- 1) What is the most acid that can be in a storage tank and still safely hold another railcar?
 - a. 14000 gallons
 - b. 5000 gallons
 - c. 25000 gallons
 - d. 19000 gallons
- 2) Before connecting a railcar, make sure the wheels are:
 - a. Locked and loaded
 - b. Blocked or chocked
 - c. Rocking and rolling
 - d. Smooth and silky
- 3) Safety equipment is not required when obtaining a sample. T F
- 4) The maximum pressure to ever pressurize a railcar for any reason is:
 - a. 10 psi
 - b. 30 psi
 - c. 15 psi
 - d. 20 psi
- 5) You can neutralize acid spills with _____.
- 6) The most important thing to make sure of before removing the dump cap is that the car is:
 - a. Black
 - b. Pressurized
 - c. Hooked up
 - d. Depressurized
- 7) When should you check you lines?
 - a. Before Unloading
 - b. After Unloading
 - c. Both before and after Unloading
 - d. What lines?
- 8) After the acid has unloaded and the alarm sounded, close the _____ valve and then depressurize the car.
- 9) Unloading Acid with a pump takes about _____ hours.
- 10) The acid tank graph on the Monitoring System can be used to ensure acid is unloading properly. T F

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