Sulphuric Acid Site Audit Unloading Checklist

Key considerations when qualifing a facility for sulphuric acid unloading. We recognize each facility is unique and not all of these consideration may apply or there may be additional requirements from the site or regulatory body.

Section A-- General Information

Customer _____
Location _____
Primary Point of Contact _____
Telephone _____
Survey Conducted by _____
Date _____
Next Survey Due Date _____

Type of Delivery ☐ Rail ☐ Truck

Deliveries Per Year _____

Are tank certifications required by the state where tank is located? ☐ Yes ☐ No
Review copy of State Certifciation if required ☐ Yes ☐ No

Storage Tank(s) Description ☐ Horizontal ☐ Vertical Size/Capacity _____
☐ Indoor ☐ Outdoor
Material of Contruction (Carbon steel, stainless steel, etc.) _____

Storage Tank(s) Description ☐ Horizontal ☐ Vertical Size/Capacity _____
☐ Indoor ☐ Outdoor
Material of Contruction (Carbon steel, stainless steel, etc.) _____

Does the receiver have procedures in place for unloading ☐ Yes ☐ No
Verifying room in tank ☐ Yes ☐ No
Tank/Valves Clearly marked ☐ Yes ☐ No
Does the receiver have training records in place for unloading ☐ Yes ☐ No

Section B-- Safety

Unloading rack operations/fall protection

Is the following Personal Protective Equipment available and used for unloading?

☐ acid suit ☐ chem resistent gloves ☐ boots
☐ hard hat ☐ goggles ☐ face shield
☐ hood ☐ respiratory protection ☐ other
☐ fall protection ☐ harness
☐ hearing protection

Hard hat (ANSI/ISEA Z89.1-2009) • Face shield (ANSI Z87.1-2003) • Chemical splash goggles (ANSI Z87.1-2015) • Acid resistant full body outer garments • Acid resistant gloves (ANSI/ISEA 105-2000) • Acid resistant boots (boots should meet ASTM F 2413-11 standard for steel toe caps and made of material, such as neoprene, that stands up to acid)

Emergency Action Plan for Chemical Exposure

☐ Shower ☐ Eyewash ☐ Water Hose ANSI Z358.1
☐ Tested before unloading operations begin

Are Emergency response contact numbers posted? ☐ Yes ☐ No
Identify the local medical facility prepared for chemical burn treatment? ☐ Yes ☐ No
How many people are present during unloading? _____
If operating alone, is there constant video monitoring conducted? ☐ Yes ☐ No
If video monitored, how far from monitoring to unload site? _____
Is there a stand-by person during connect? ☐ Yes ☐ No
Are unauthorized personnel kept clear during unloading? ☐ Yes ☐ No

SECTION C -- STORAGE TANK AREA

Is storage tank located in a secured area? ☐ Yes ☐ No
Is tank clearly identified with concentration of sulphuric acid? ☐ Yes ☐ No
Is National Fire Protection label present? ☐ Yes ☐ No
Are hazard signs located in the area? ☐ Yes ☐ No
Does tank have nozzles below the liquid surface? ☐ Yes ☐ No
Has spill control been considered? ☐ Yes ☐ No
Is tank dike free of water (proper drainage) and free of debris? ☐ Yes ☐ No
Is there over-fill protections on the tank? ☐ Yes ☐ No
Description of overfill protection _____
Is sulphate build up present on flanges or fittings? ☐ Yes ☐ No
Does tank have redundant level gauges? ☐ Yes ☐ No
Type of gauge? _____
Has tank been thickness tested? ☐ Yes ☐ No

Date of last thickness test _____
Has tank been internally inspected? ☐ Yes ☐ No
Date of last inspection _____
Has piping been thickness tested? ☐ Yes ☐ No
Date of last thickness test _____

SECTION D -- Unloading Hoses, Fittings, Air and Pump

Is the unloading hose in good condition? ☐ Yes ☐ No
Is hose proper material of construction? What material? _____ ☐ Yes ☐ No
Is hose rated for sulphuric acid? ☐ Yes ☐ No
Is hose properly supported and stored when not in use? ☐ Yes ☐ No
Has hose been pressure/hydro tested? ☐ Yes ☐ No
Date of last test? _____
Are flanges cleared of sulfate build up? ☐ Yes ☐ No
Are flange guards used? ☐ Yes ☐ No
Has piping been (sonic) thickness tested? ☐ Yes ☐ No
Last test date: _____
Fitting Supplied? ☐ Carrier (truck) ☐ Facility
Fittings proper material ☐ Yes ☐ No
Is Pump required ☐ Carrier (truck) ☐ Facility

Pump Material ☐ Stainless Steel ☐ other (compatible with Sulphuric Acid)

Facility Pump ☐ Submerged ☐ Self Priming ☐ Bottom outlet

Type pump _____

Is pump seal in good working order? ☐ Yes ☐ No

Pump feed ☐ Self Priming ☐ Padded with pressure

Can pump be remotely shut off (from control room)? ☐ Yes ☐ No

Is Air Compressor required ☐ Carrier (truck) ☐ Facility

Pressure used to unload Material ☐ Yes ☐ No

PSI required

☐ Clean dry air ☐ Nitrogen

Is pressure system in good order? ☐ Yes ☐ No

Does system have pressure regulator? ☐ Yes ☐ No

Does system have relief valve? ☐ Yes ☐ No

Is relief valve on PM schedule? ☐ Yes ☐ No

Can pressure be released remotely? ☐ Yes ☐ No

How is pressure vented? _____

Other transfer considerations

Is there a vent line? ☐ Yes ☐ No

Is fill line and vent line identified? ☐ Yes ☐ No

Where does vapor from storage tank vent to during unloading _____

Is fill line and vent line identified? ☐ Yes ☐ No

Prevention system for backflow into storage tank and then to tank truck/rail car ☐ Yes ☐ No

Lines vented to ensure liquid and pressure free before disconnect. ☐ Yes ☐ No

Is trailer depressurized securely closed before departue? ☐ Yes ☐ No

Ability to clear unloading hose ☐ Yes ☐ No

Is connection for Sulphuric Acid clearly marked? ☐ Yes ☐ No

Recommend not splitting cargo holds when unloading

Section E-- Rail Tank Car Unloading Area

Is the following equipment available and used? (AAR Pamphlet 34, § 1.2 – 173.31)

Wheel Chocks ☐ Yes ☐ No 49 CFR 173.31

Derailer ☐ Yes ☐ No

Blue flag or hazard signal ☐ Yes ☐ No

Foam generator ☐ Yes ☐ No

Chemicals on hand for spills ☐ Yes ☐ No

☐ Caustic ☐ Limestone

☐ Soda Ash ☐ Other

Are tank cars kept/stored in secure area prior to unloading? ☐ Yes ☐ No

Is there adequate lighting in the unloading area? ☐ Yes ☐ No

Is unloading area cleared of tripping hazards? ☐ Yes ☐ No

Is Tank Car securely closed before releasing back? ☐ Yes ☐ No

Section F-- Tank Truck Unloading Area

Is roadway in good condition ☐ Yes ☐ No

☐ Gravel ☐ Concrete

☐ Asphalt ☐ Dirt

Is unloading pad have adequate containment, drainage? ☐ Yes ☐ No

Could tractor/trailer driver deliver in inclement weather? ☐ Yes ☐ No

Is there adequate lighting in the unloading area? ☐ Yes ☐ No

Is there adequate overhead clearance for truck? ☐ Yes ☐ No

Is there an area that would create a turn around problem? ☐ Yes ☐ No

Unloading method ☐ Bottom ☐ Top Unload

Is the following equipment available and used? (AAR Pamphlet 34, § 1.2 – 173.31)

☐ Wheel Chock ☐ Hazard signs

☐ 5th wheel support

Chemicals on hand for spills ☐ Yes ☐ No

☐ Caustic ☐ Limestone

☐ Soda Ash ☐ Other

Is unloading area cleared of tripping hazards? ☐ Yes ☐ No

Are flanges cleared of sulfate build up? ☐ Yes ☐ No

Are flange guards used? ☐ Yes ☐ No

SECTION G-- PROCESS AREA

TSI RECOMMENDS SAME QUESTIONS ASKED FOR PROCESS AREA BUT NOT REQUIRED

Is tank/reactor free of exterior corrosion? ☐ Yes ☐ No

Is there over-fill protention on the tank/reactor? ☐ Yes ☐ No

Is there overflow back to storage tank? ☐ Yes ☐ No

Is sulfate build-up present at flanges or fittings? ☐ Yes ☐ No

Has piping been thickness tested? When last tested? ☐ Yes ☐ No

Is piping identified as used for sulphuric acid? ☐ Yes ☐ No

last revised: 2/2/2026