



Bradford Soap

Hubbard Hall

Hydrochloric acid (also called muriatic acid, spirits of salt, or acid salts) is used industrially to process steel, the material of choice for suspension bridges and automobiles. Hydrochloric acid is used in the production of batteries, photoflash bulbs, and fireworks. HCl is also used in many pharmaceutical and biotech manufacturing processes.

When storing H₂O:HCl there are many factors to be considered, such as proper venting, filling slowly and under low pressure delivery, and not overfilling the tank.

Technical Specification for a Hydrochloric Acid Tank:

Crosslink polyethylene with the tank be rated at a minimum of 1.9 specific gravity. Fiberglass (fiber reinforced plastic or FRP) tanks by customer preference, due to footprint constraints, or larger storage volume requirements

- **Fitting Material:** PVC, CPVC or Hastelloy C-276 for nozzles
- **Gaskets:** VITON material
- **Bolting Hardware:** Hastelloy C-276
- **Special Considerations:** Bolted and gasket manway cover recommended. HCl has a very pungent odor. Venting to the exterior of the building is strongly recommended.

Secondary Containment

End users should check local regulations to meet secondary containment requirements. Containment must be adequate in capacity and suitable for hydrochloric acid. By accepting the delivery of the tank, the customer accepts full responsibility for providing appropriate and adequate containment for the stored material. Eastern Reliability offers a variety of secondary containment options.

Connections

All connections below liquid level must prevent the chemical from contacting tank wall cross section. Bulkhead style connections can be used on tanks 2,000 gallons and below. For tanks above 2,000 gallons, sidewall connections should be Hastelloy C-276 construction (flange style fittings are not recommended).

Sidewall connections should be installed a minimum of 7" above the tank floor. Internal siphon drains can be used if required. Sidewall connections should be kept to a minimum amount and should be placed no closer than 22° apart. Whenever possible, sidewall connections should not be greater than 3". There are no restrictions on dome fittings.

Flexible Hoses or Expansion Joints (not required for FRP tanks)

Flexible hoses or expansion joints must be used on all lower ½ sidewall connections. A lightweight isolation valve is permitted prior to the flexible joint. Nipple and valve weight must not exceed 8 lbs. All piping must be supported independent of tank. Pipe supports must be installed after the flexible joint to allow the tank to expand and contract under normal service conditions. Polyethylene tanks expand and contract both laterally and vertically; expansion hose or joint must accommodate for this expansion. Tank must maintain atmospheric pressure. Vents must be sized for a minimum of two times the largest inlet or outlet port for pneumatically filled tanks. Pump fill tank's vent should be a minimum of one and a half times larger than the largest fill or discharge point. Tanks vented through a scrubber system, the vent size cannot be reduced passing through the scrubber. If a dispersion pipe is used in the scrubbing system, the pipe should not be submerged in more than 6" of liquid. A perforated dispersion pipe must allow for the same cross-sectional area of the pipe to prevent vent restriction. Under no circumstances should tank be placed under pressure or vacuum conditions.

Hydrochloric Acid

Make sure that hydrochloric acid does not exceed 100°F, under any circumstance, at delivery or during storage. When practical, tanks should be kept from direct sunlight to avoid excessive heat.

Excessive heat will degrade the chemical and will accelerate chemical reaction with tank materials. Heat will also cause additional off gassing and additional odors. HCl storage sometimes requires an accompanying Sodium hydroxide (NaOH) scrubber tank for vent odor scrubbing to prevent excessive odors.

Delivery

All deliveries must be regulated. Maximum delivery pressures must not exceed 12 PSI. Ideally, hydrochloric acid fumes should be vented back into delivery truck during offloading of chemical. If fume scrubbing system is being used, be sure that airflow through system is adequate to keep up with delivery pressure and airline surge. Under no circumstances should tank be placed under pressure or vacuum conditions.