



Magnesium hydroxide is often used for pH adjustment, most commonly wastewater treatment. MgOH₂ is also used as a fire retardant, a food additive, and for many medical applications. Magnesium hydroxide (or magnesia) is valuable industrially because it is a poor electrical conductor while also being an excellent thermal conductor. Magnesium hydroxide is one of the few known compounds that simultaneously exhibit these two characteristics. When storing the concentrated MgOH₂, also commonly referred to as magnesia (MgO), 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 Storage of Magnesium Hydroxide:

- **Tank:** Crosslink polyethylene with the tank rated at a minimum of 1.9 specific gravity. Fiberglass (FRP or fiber reinforced plastic) tanks by customer preference or due to footprint constraints or larger storage volume requirements
- **Fitting Material:** PVC or 316 stainless steel for nozzles
- **Gaskets:** EPDM material
- **Bolting Hardware:** 316 stainless steel
- **Special Considerations:** Liquified magnesium hydroxide has a high freeze point, most outdoor applications will require heat tracing and insulation.

Secondary Containment

All end users should check local regulations to meet secondary containment requirements. Containment must be adequate in capacity and suitable for sodium hydroxide. 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 basins.

Connections

All connections below liquid level must prevent chemical from contacting tank wall cross section. Bulkhead style connections can be used on tanks 2,000 gallons and below. Tanks above 2,000 gallons, sidewall connections should be stainless steel 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. Adequate venting must always be maintained.

Magnesium Hydroxide

MgOH₂ must not exceed 100°F during delivery storage. When practical, tank should be kept from direct sunlight to avoid excessive heat.

Delivery

Deliveries must be regulated. Maximum delivery pressures must not exceed 12 PSI. Ideally, fumes should be vented back into delivery truck during offloading of chemical. Under no circumstances should tank be placed under pressure or vacuum conditions.