TRADEMARK NITROGEN CORPORATION

Aqua Ammonia Materials Compatibility

Preliminary engineering screening guide for 19.5% and 29.5% aqueous ammonia (ammonium hydroxide). The tables below are not an approval of any particular component.

Metallic materials

Material	Preliminary selection guidance
Carbon steel	Common candidate for storage and piping; assess corrosion, fabrication and product cleanliness.
304 / 316 stainless steel	Common candidate; confirm grade, welds, contaminants and operating conditions.
Aluminum / cast iron	Potential candidates; evaluate the specific equipment, environment and service.
Copper, brass, bronze	Avoid copper-bearing alloys in wetted service.
Zinc / galvanized steel, cadmium, silver-bearing parts	Avoid wetted contact; inspect plating, brazed joints and fittings.
Nickel alloys and specialty metals	Do not approve by alloy family alone; request grade-specific engineering review.

Engineering considerations

Evaluate liquid versus vapor contact, ammonia concentration, maximum and minimum temperature, pressure, contaminants, cleaning agents, exposure duration, cycling, permeation and mechanical design. Confirm materials with the equipment manufacturer for the intended application.

How to use this guide

These classifications are intended to help screen candidate materials before procurement. Final selection must be based on current manufacturer documentation and, where appropriate, application-specific testing.

Product information: TradeMark Nitrogen — Aqua Ammonia

Elastomers, seals & gasket materials

Elastomer performance depends on the precise compound, not simply the polymer family. The classifications below are conservative preliminary screening guidance.

Material	Screening status	Supplier confirmation required
EPDM (ethylene propylene)	Preferred candidate	Verify compound designation and service limits.
PTFE (fluoropolymer)	Preferred candidate	Check seat/gasket geometry, creep and loading.
Neoprene (CR)	Conditional candidate	Obtain written compound-specific approval.
Butyl rubber (IIR)	Conditional candidate	Obtain written compound-specific approval.
Buna-N / nitrile (NBR)	Not preferred	Do not approve generically; obtain test evidence and written approval.
FKM / Viton	Not preferred	Do not assume standard grades are suitable for ammonia.
Silicone, polyurethane, natural rubber	Not preferred	Use only with specific supplier qualification.

Required supplier verification

Before selecting O-rings, valve seats, gaskets, diaphragms, hose liners or other wetted components, obtain written confirmation from the component manufacturer for 19.5% and/or 29.5% ammonia, temperature and pressure range, continuous or intermittent exposure, and cleaning agents. Request the exact compound number, restrictions and expected service life when available.

Technical clarification

Buna-N is commonly another name for nitrile rubber (NBR), so these should not be treated as independent materials with conflicting generic approvals. PTFE is a fluoropolymer, not an elastomer, but is included because of its widespread use in seals and gaskets.

Technical resources

TMN Aqua Ammonia Product Page | Parker Hannifin | Trelleborg Sealing Solutions | Garlock

Supplier links are provided for consultation only. No written compound-specific approval from these suppliers is represented or implied.