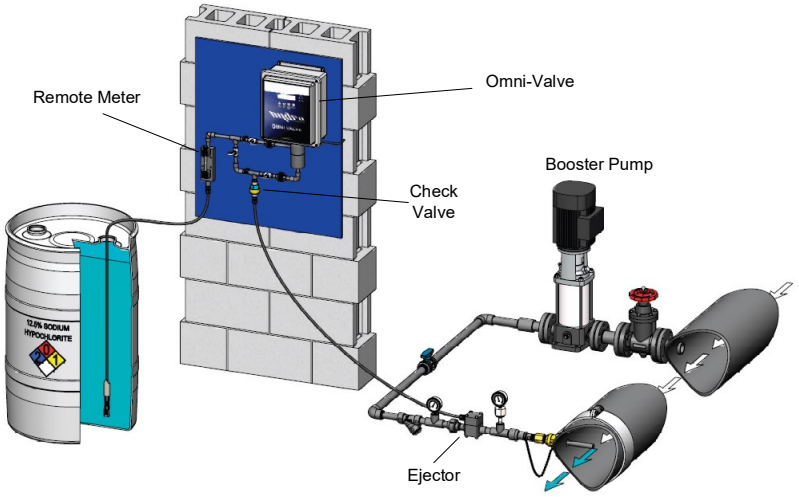
Series LF
Materials Guide for vacuum feed systems

Overview

The following information is intended to be used as reference information during material selection related to vacuum liquid feed systems. The application temperature and the chemical concentration must be considered in each application. Information is provided here for several more commonly encountered chemical solutions. The information contained herein may be considered, but should not be the entire basis for material selection decisions. For other chemicals and detailed support, please consult the factory.



Ratings: A = Good, B = some discoloration or minor corrosion, C = moderate effect, not recommended, swelling may occur, D = Severe effect, not recommended, N/A—no information available

Solution Line piping materials

The solution line is the piping in between the ejector and the injection point. In this piping, the chemical has been mixed with the motive water flowing through the ejector. The chemical has been greatly diluted (to less than 1% strength) with this water upon entering the ejector, but it must be kept in mind that this solution piping will be under pressure that is somewhat greater than the pressure of the injection point.

For many applications Schedule 80 PVC (UPVC) piping is used up to 90 PSI (6 bar) at standard temperatures. However, for some chemicals, Temperatures and pressures, other materials may be required. For this portion of the system, consider the following table.

Material	Sodium Hypochlorite (<1%)	Peracetic Acid (<1%)	Sulfuric Acid (<1%)	Hydrochloric Acid (<1%)	PAC (<1%)
PVC	A	B	A	A	A
CPVC	A	D	A	A	N/A
PVDF	A	A	A	A	A
HDPE	A	A	A	A	A
Carbon Steel	D	D	D	D	A
Hastelloy C276	A	A	A	B	A
316 SS	D	A	C	D	C

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Vacuum tubing / hard piping materials

The undiluted chemical is flowing through this section under vacuum from the chemical storage container to the ejector. During operation this section is the safest portion of the system and since it is under vacuum then any leaks would result in air leaking into the system rather than chemical leaking out. This section should use plastic materials for best corrosion resistance. However, in the event of primary check valve failure water could return to this piping section and mix with the chemical and this must be considered.
For some chemicals the joints can be threaded using PTFE tape or paste products for sealant. However, for sodium hypochlorite and some others, it is recommended to use socket glued PVC or CPVC connections using specific socket glues. Consult factory for details.

Material	Sodium Hypo-chlorite (15%)	Peracetic Acid (15%)	Sulfuric Acid (30%)	Sulfuric Acid (78%)	Sulfuric Acid (93%)	Hydrochloric Acid (25%)	PAC (10%)
PVC	A	B	B	C	D	A	A
CPVC	A	D	A	A	B	A	N/A
PVDF	A	A	A	A	A	A	A
HDPE	A	A	A	N/A	N/A	A	A
LDPE	A	A	B	C	C	A	A
PTFE	A	A	A	A	A	A	A
Polypropylene	A	A	A	B	D	A	A

Vacuum Feed Equipment

The Hydro Instruments vacuum feed equipment components (remote meters, rate valves, automatic control valves, check valves and ejectors) must be constructed of materials suitable for the chemical of use. The same components are made with parts in various materials in order to accommodate various chemical solutions. Below is a table provided in consideration of these selections for this part of the system.

Material	Sodium Hypo-chlorite (15%)	Peracetic Acid (15%)	Sulfuric Acid (30%)	Sulfuric Acid (78%)	Sulfuric Acid (93%)	Hydrochloric Acid (25%)	PAC (10%)
Viton	A	A	A	A	A	A	A
EPDM	D	B	A	C	C	A	A
PTFE	A	A	A	A	A	A	A
PVDF	A	A	A	A	A	A	A
PVC	A	B	B	C	D	A	A
CPVC	A	D	A	A	B	A	N/A
HDPE	A	A	A	N/A	N/A	A	A
LDPE	A	A	B	C	C	A	A
Polypropylene	A	A	A	B	D	A	A
Hastelloy C276	A	A	A	A	A	B	A
316 SS	D	A	C	C	C	D	C