ProSeries® by Blue-White Ind.

CHEM-FEED® Engineered Skid Systems

Engineering and Technical Data

CHEM-FEED® CFPS

- Single pump and dual pump systems
- Chemically resistant polyethylene structure
- Leak free, threadless connections
- Flow indicator
- Optional Chemical Feed Flowmeter
- Built-in spill containment
- Ships fully assembled
- Comes equipped with a pressure relief valve and check valve

CFPS-2 Dual pump system

CFPS-1 Single pump system

Sold and serviced exclusively by highly skilled, factory authorized technicians.

*Complete the system by ordering any of the following **ProSeries**® metering pumps:*

- **Flex-Pro® A2, A3 or A4 series Peristaltic Metering Pump with Integral Controller**
- **Chem-Pro® C2 or C3 series Diaphragm Metering Pump with Integral Controller**

Optional chemical feed flowmeter

Applications:

- Chemical metering
- Chlorination
- Fluoridation
- Potassium Permanganate
- Alum
- Sodium Bisulfite / Bisulfate
- Hydrochloric Acid
- Polymers
- Caustics
- Flocculants

Chem-Feed Skid System Features:

Chem-Feed Engineered Skid Systems were designed and engineered using solid modeling tools for superior piping installation and easy component maintenance. Custom engineered universal mounting blocks provide for easy component servicing and replacement. Lightweight for wall of floor mounting. Each factory built and tested system includes the following standard components:

Pressure Relief Valve - Protects the system from over-pressurization, 10-150 psi setting range, 150 psi maximum system pressure.

Check Valve - Protects the user from back-flow during pump maintenance.

Flow Indicator - Provides a visual indication of chemical movement through the system.

Inlet Y Strainer - Recommended for Diaphragm Pump systems.

The following optional components are available for specification (see the ordering matrix):

Calibration Cylinder - Confirm pump output under system conditions. Specify cylinder volumes from 1.6 GPH to 64 GPH.

Pulsation Dampener - Protect the system components from pulsation. Recommended for diaphragm pump systems.

Pressure Gauge with Guard - Isolate and protect the system pressure gauge. Specify pressure ranges from 0-30 psi, 0-100psi, or 0-200 psi.

S6A Chemical Flowmeter - Provides 4-20mA and pulse output data to SCADA and to the pump to verify chemical feed - see S6A data sheet for more details.

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Specifications:

Skid
Chemically resistant polyethylene structure. Welded joint construction.

Pump (sold separately)
Flex-Pro model A2, A3 or A4 peristaltic pumps or Chem-Pro model C2 or C3 diaphragm pump. See page 6 for metering pump data.

Piping
PVC Schedule 80 (optional CPVC).

Seals
FKM seals (optional EPDM).

Tubing (T)
Reinforced braided PVC, 200 psi max, meets NSF std. 51. The pump inlet and outlet flexible tubing connections are terminated to half unions and secured to the barbed fitting with stainless steel clamps.

Tubing clamps
300 series SS band, 400 series SS screw

Unions (U)
PVC body, schedule 80

Ball valves (V)
True unions, PVC body, PTFE shaft bearings and seats

Pressure Relief Valve (PRV)
PVC body, PTFE primary diaphragm seal. Non-wetted components: EPDM secondary seal, zinc plated steel spring, stainless steel external hardware, HDPE pressure adjustment screw. Infinite adjustment from 10-150 psi.

Calibration Cylinder (CC)
PVC body, PVC end caps, 1/2” PVC pipe outlet vent.
Available volumes: 1.6 GPH (100ml), 4 GPH (250ml), 8 GPH (500ml), 16 GPH (1000ml), 32 GPH (2000ml), and 64 GPH (4000mL).

Pulsation Dampener (PD)
CPVC body,10 cubic inch volume

Gauge w/guard (G)
Gauge: liquid filled stainless steel with blowout plug, bottom mount, 1/4” NPT theads. Available pressure ranges: 0-30 psi, 0-100, psi, 0-200 psi.
Guard: PVC body, temperature compensated oil filled.

Check Valve (CV)
PVC body. Cracking pressure: 1.0-1.5 psi. Maximum working pressure: inlet = 150 psi, back = 100 psi.

Flow Indicator (F)
Machined cast acrylic, PVC connections, ceramic ball, PVDF ball stop, PVC half unions.

Y Strainer (S)
PVC body, 1/32” Mesh

Universal mounting blocks
PA 12

Pump extended mounting brackets
316 Stainless Steel

Skid mounting foot pads
316 Stainless Steel

Mounting hardware
18-8 Stainless Steel

Maximum working pressure
150 psig (10.3 bar)

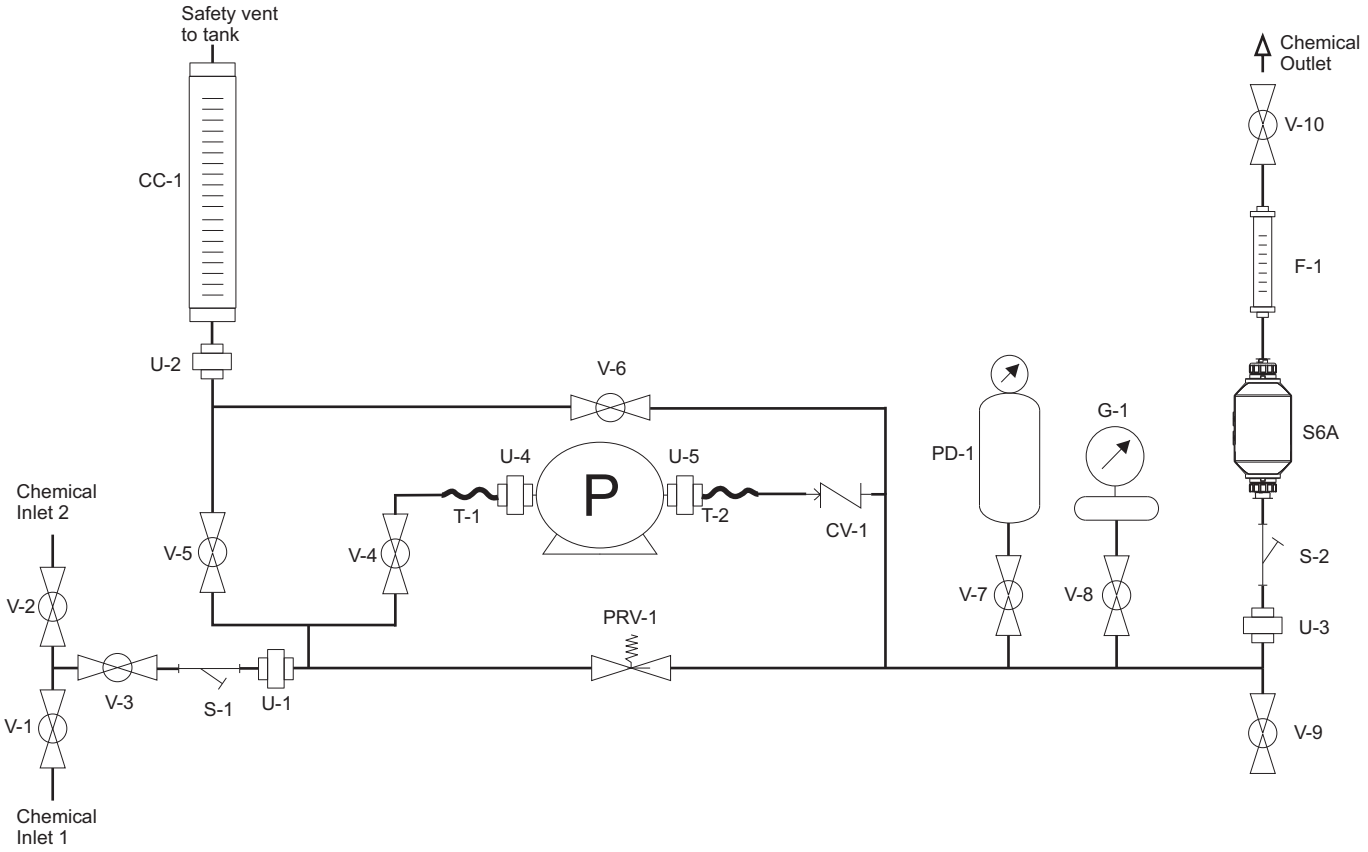
Operating Temperature
14°F to 115°F (-10°C to 46°C)

Approximate Shipping Weight
Single Pump System
- Standard: 150 lb. (68 Kg)
- With Mounted Pump: 175 lb. (79 Kg)

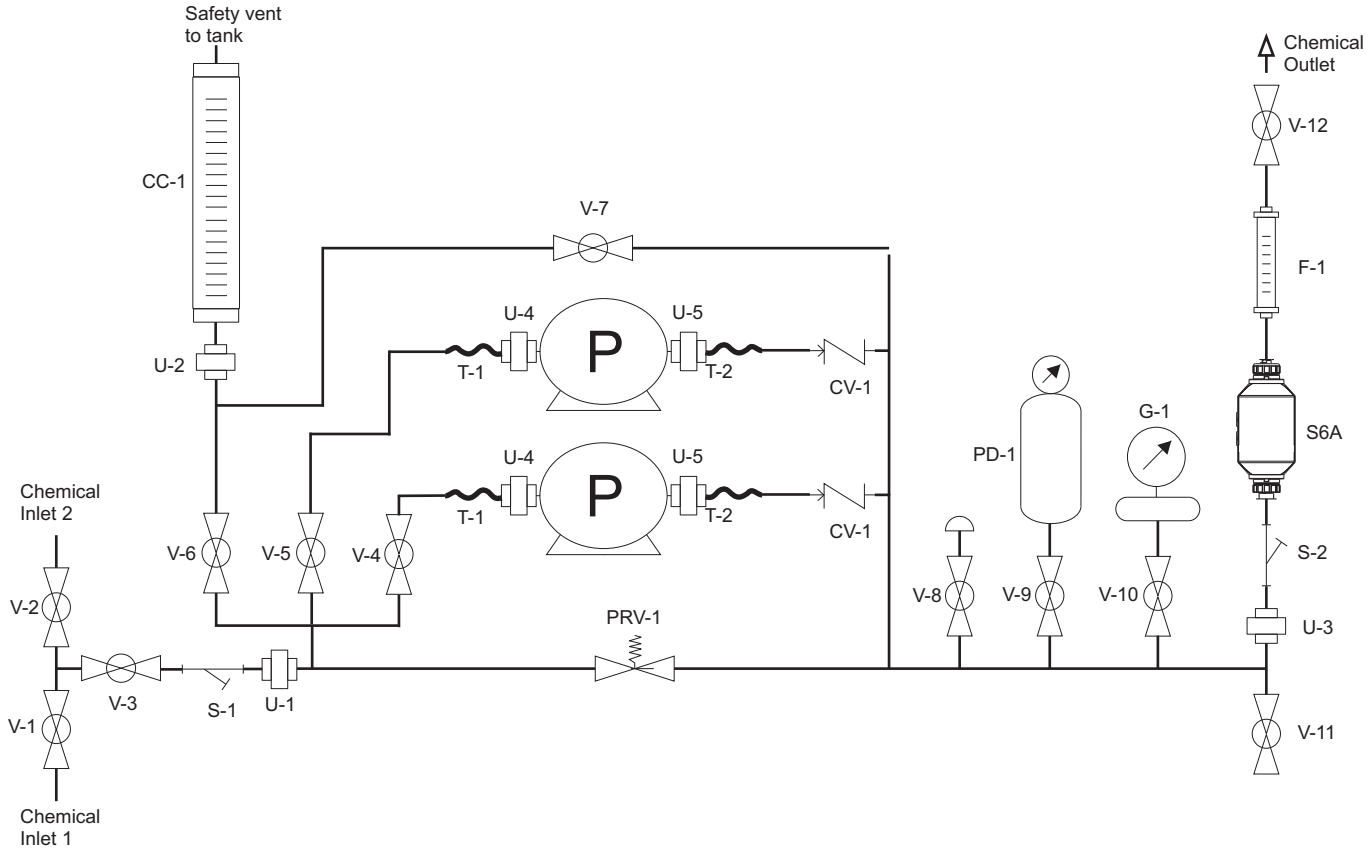
Dual Pump System
- Standard: 200 lb. (90 Kg)
- With Mounted Pumps: 265 lbs (120 Kg)

Piping and Instrumentation Diagrams:

Single Pump Skids:

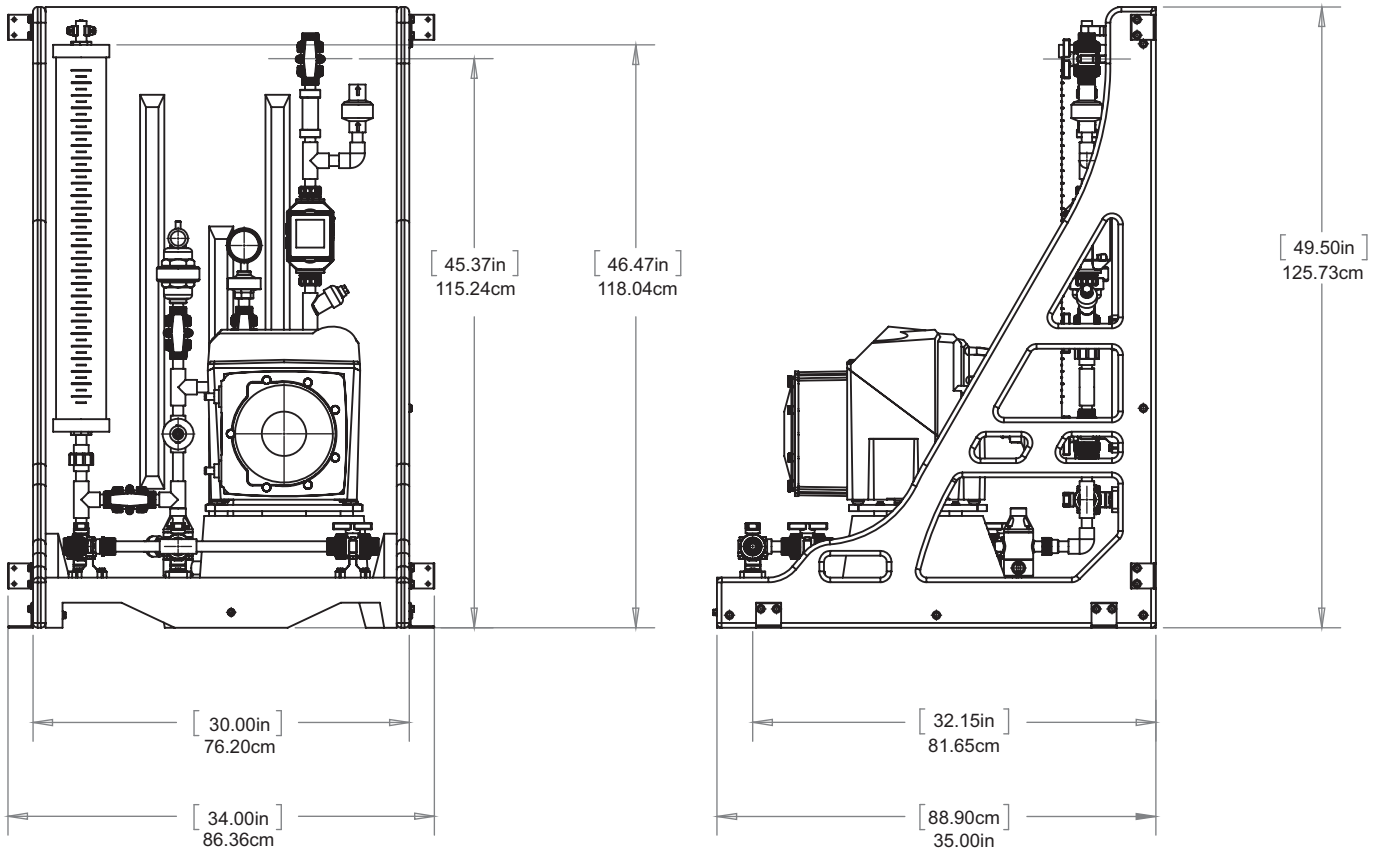


Dual Pump Skids:

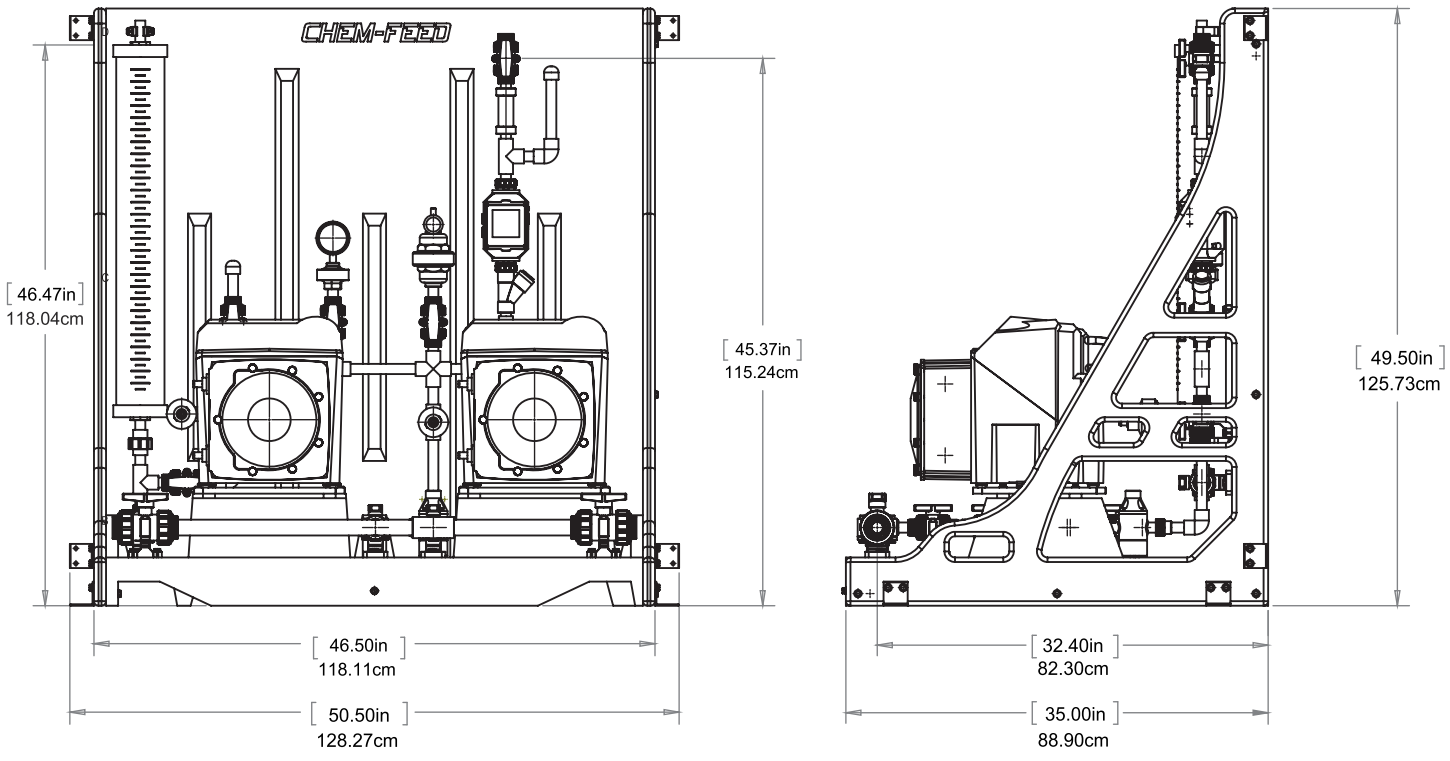


Dimensions:

Single Pump System:



Dual Pump System:



Chem-Feed® Engineered Plastic Skid System Matrix

System type	
CFPS-1	Single pump system - single chemical / single outlet, PE structure
CFPS-2	Dual pump system - single chemical / single outlet, PE structure

Piping / Valves / Unions / Seal Materials	
A	PVC piping, 1/2" OD PVC braided tubing connections
B	CPVC piping, 1/2" OD PVC braided tubing connections
C	PVC piping, 1/4" OD Polyethylene tubing connections
D	CPVC piping, 1/4" OD Polyethylene tubing connections
X	Skid Frame only without piping

Seal Material	
V	FKM
E	EPDM

Calibration Cylinder	
A	64 GPH (4000 ml)
B	32 GPH (2000 ml)
C	16 GPH (1000 ml)
D	8 GPH (500 ml)
E	4 GPH (250 ml)
F	1.6 GPH (100 ml)
X	None

Pulsation Dampener	
A	10 cubic inch, CPVC body, PTFE diaphragm
X	None

Pressure Guage w/Guard	
A	200 PSI gauge with guard, PTFE diaphragm
B	100 PSI gauge with guard, PTFE diaphragm
C	30 PSI gauge with guard, PTFE diaphragm
X	None

Flowmeter and Strainer	
C	Model S6A12 Chemical Feed Flowmeter, 10-5,000 ml/min (0.158 - 79.2 GPH)
D	Model S6A22 Chemical Feed Flowmeter, 100-10,000 ml/min (1.58 - 158 GPH)
X	Inlet Strainer only

Miscellaneous Options - (leave blank if not specified)	
1	Install with and ship with a specific pump model
2	Perform pressure and fluid testing with a specific pump model
3	Perform pressure, fluid testing, and ship with pump model installed

Note: When ordering pumps for single or dual skids, pump head orientation is standard LEFT facing only.

CFPS-1	A	V	-	A	A	A	X	-	3	Sample Chem-Feed Engineered Skid System Part Number

ProSeries® Pumps:

ProSeries Pump Features (see the specific technical data sheets for additional pump features)	Flex-Pro Peristaltic	Chem-Pro Diaphragm
Valveless peristaltic technology self primes against maximum back pressure. Cannot Vapor lock. Linear output.		
Diaphragm technology for system pressures to 175 PSI. PVDF/Ceramic/TFEp head resists most chemicals.		
SCADA Input: Remote speed control via 4-20mA, 0-10VDC, high speed digital pulse, contact closure pulse		
SCADA Input: One, contact closure (remote start / stop)		
Remote/Local control lockout settings		
SCADA Output: One, high switching current alarm relay		
SCADA Output: Three, dry contact or maximum 30VDC/115VAC 1 amp contact closures		
SCADA Output: Programmable 4-20mA signal or high speed pulse, proportional to pump output		
TFD (Tube Failure Detection) or DFD (Tube Failure Detection) System Alarm		
FVS (Flow Verification System) Alarm *		
NEMA 4X (IP66) wash-down rating		
Variable speed motor		
Variable speed brush-less DC motor		

Chem-Pro® Diaphragm Pump Models:

See additional pump models and more information at www.blue-white.com

Feed Rate Operating Range			Maximum Pressure	Maximum Speed	Pumphead Materials	Chem-Pro Model Numbers	
GPH	LPH	ML/Min	PSI (bar)	Strokes per Minute		115V AC	230V AC
.067 - 6.7	.254 - 25.4	4.23 - 423	175 (12.0)	166	PVDF/PTFE/Ceramic/TFEp	C2V243XVA	C2V253XVA
.10 - 10	.38 - 38	6.31 - 631	175 (12.0)	166	PVDF/PTFE/Ceramic/TFEp	C2V241XVA	C2V251XVA
.165 - 16.5	.625 - 62.5	10.41 - 1041	175 (12.0)	166	PVDF/PTFE/Ceramic/TFEp	C2V242XVA	C2V252XVA
.406 - 40.6	1.54 - 154	25.60 - 2560	100 (6.8)	130	PVDF/PTFE/Ceramic/TFEp	C3V242XVA	C3V252XVA

Flex-Pro® Peristaltic Pump Models:

See additional pump models and more information at www.blue-white.com

Feed Rate Operating Range			Pump Tube Material	Maximum Pressure	Maximum Speed	Flex-Pro Model Numbers	
GPH	LPH	ML/Min		PSI (bar)	RPM	115V AC	230V AC
.001 - 2.10	.003 - 7.80	.053 - 133	Flex-A-Prene®	125 (8.6)	125	A3V24-MND	A3V25-MND
.013 - 33.3	.050 - 126	.840 - 2100	Flex-A-Prene®	125 (8.6)	125	A3V24-MNK	A3V25-MNK
.02 - 50.7	.08 - 192	1.28 - 3200	Flex-A-Prene®	80 (5.5)	125	A4V24-MNK	A4V24-MNK
.04 - 100.0	.15 - 378	2.5 - 6300	Flex-A-Prene®	50 (3.4)	125	A4V24-MNL	A4V25-MNL
.06 - 158.5	.24 - 600	4.0 - 10000	Flex-A-Prene®	30 (2.1)	125	A4V24-MNP	A4V25-MNP
.006 - 15.06	.022 - 57.0	.4 - 950	Flex-A-Chem®	50 (3.4)	125	A3V24-MTH	A3V25-MTH
.014 - 35.1	.053 - 133.2	.9 - 2220	Flex-A-Chem®	50 (3.4)	125	A3V24-MTK	A3V25-MTK
.02 - 54.0	.08 - 204	1.36 - 3400	Flex-A-Chem®	30 (201)	125	A4V24-MTK	A4V25-MTK
.002 - 4.6	.007 - 17.4	.116 - 290	Flex-A-Thane®	65 (4.5)	125	A3V24-MGE	A3V25-MGE
.004 - 10.1	.015 - 38.4	.255 - 637	Flex-A-Thane®	65 (4.5)	125	A3V24-MGG	A3V25-MGG
.011 - 28.5	.04 - 108	.72 - 1800	Flex-A-Thane®	65 (4.5)	125	A3V24-MGK	A3V25-MGK
.02 - 55.5	.09 - 210	1.4 - 3500	Flex-A-Thane®	65 (4.5)	125	A4V24-MGK	A4V25-MGK
.04 - 100.0	.2 - 378	2.5 - 6300	Flex-A-Thane®	65 (4.5)	125	A4V24-MGKK	A4V25-MGKK

Tubing chemical resistance data

Flex-A-Prene® Tubing Meets FDA criteria for food | Excellent chemical resistance

Alcohol general	Calcium hypochlorite 20%	Formic acid	Lactic acid	Sodium hydroxide 50%
Aluminum sulfate	Ethylene glycol	Glucose	Magnesium chloride	Sodium Bisulfite
Ammonium chloride	Ferric chloride	Hydrochloric acid 33%	Magnesium sulfate	Sodium Hypochlorite 12.5%
Ammonium hydroxide	Ferric nitrate	Hydrocyanic acid	Phosphoric acid	Sodium sulfide
Benzyl alcohol	Ferric sulfate	Hydrogen peroxide	Plating solutions	Sulfuric acid up to 50%
Bleach	Ferrous chloride - 43% in water	Hypochlorous acid	Potassium hydroxide	Tannic acid
Brine solutions	Ferrous sulfate	Iodine	Propylene glycol	

Flex-A-Chem® Tubing - Ultra smooth plasticizer-free bore (inner liner) Meets FDA criteria for food | Superior chemical resistance

Ferrous Chloride (up to 40%)	Hydrofluoric Acid (up to 48%)	Potassium Hypochlorite (up to 70%)	Bases	Alcohols
Fluoboric Acid (up to 48%)	Nitric Acid (up to 71%)	Sodium Phosphate (up to 30%)	Salts	Isobutyl Alcohol
Fluosilicic Acid (up to 25%)	Phosphoric Acid (up to 85%)	Sulfuric Acid (up to 98%)	Ketones	

Flex-A-Thane® Tubing Meets FDA criteria for food | Resistant to oils, greases and fuels

Cyclohexane	Heptane	Mineral spirits	ASTM reference No.1,2,3	Oils:
Diesel Fuel	Hexane	Soap solutions	Castor	Linseed
Fatty acids	Kerosene	Turpentine	Coconut	Lubricating
Gasoline	Lard	Oils:	Fuel	Mineral