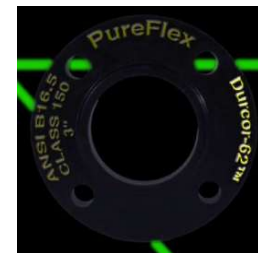


Corrosion Resistant Products for the Chlor-Alkali Industry



PureFlex, Inc.

- Founded in 1994
- Products
 - Fluoropolymer Hoses
 - Composite Valves
 - Specialty PTFE Gaskets
 - FEP Sight Tube
 - Composite Flanges



Ethylene, LLC

- Founded in 1950's
- Acquired in August 2005
- Products
 - PTFE Expansion Joints
 - PTFE Dip Tubes / Spargers
 - Glass Sight Flow Indicators
 - Specialty Lined Pipe / Fittings
 - Lined Pump Strainers



PureFlex & Ethylene Facility

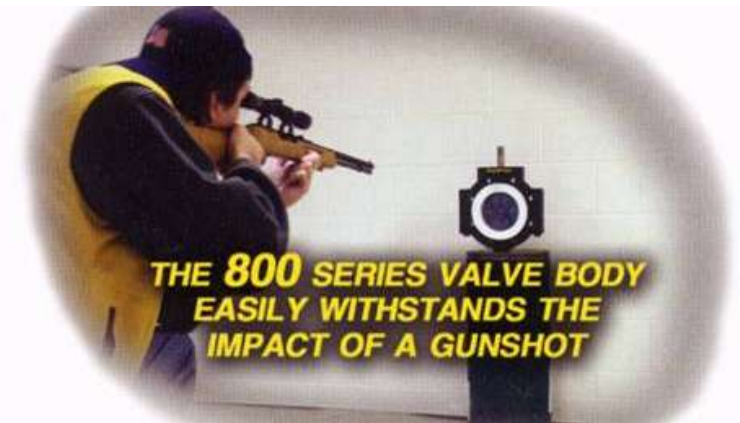


- Location in Kentwood (Grand Rapids), MI
- 170,000 ft² Manufacturing Space
- ~ 100 employees



PureFlex Durcor-62™

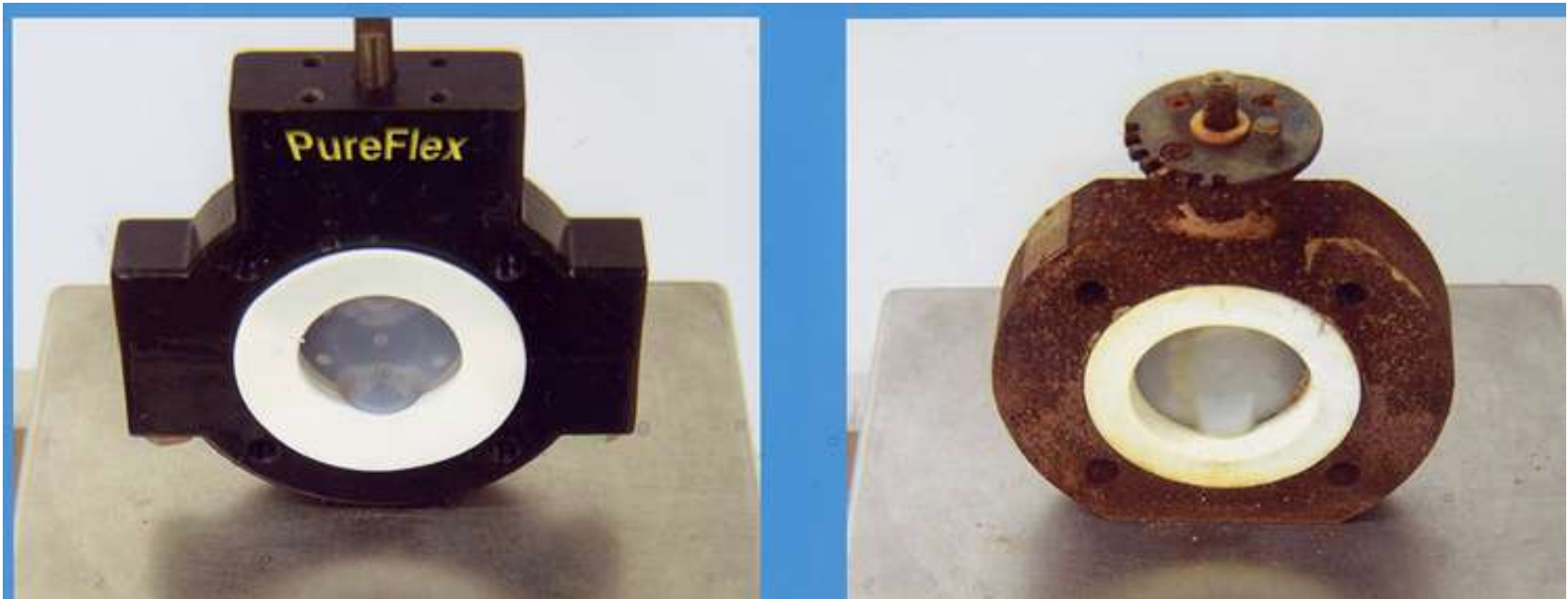
- **Fiberglass / Vinyl Ester Composite with High Glass / Resin Ratio**
- **1" Fiber Length**
- **High Tensile Strength**
 - 50,000 psi per ASTM D-638
- **High Impact Resistance.**
 - 30 ft-lb/in per ASTM D-256
- **High Lug Torque Strength**
 - Tested to 250 ft-lbs
 - No Metal Inserts Required!



PureFlex

PureFlex Durcor-62™

No Exterior Corrosion!



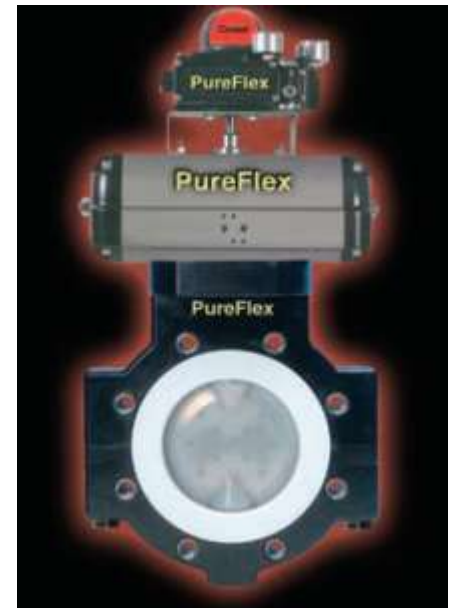
Durcor-62™

Ductile Iron



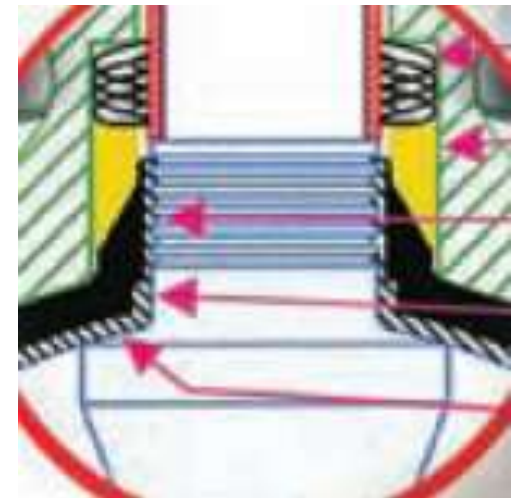
PureFlex 800 Series Butterfly Valves

- **Sizes 2" – 12"**
- **Wafer & Lug Style**
- **Locking Lever, Gear Operators, or Automated**
- **ANSI Dims**
- **Lightweight, High Strength, Corrosion Resistant, Durcor-62™ Body**
- **Applications**
 - Chlorine Header
 - Caustic
 - HCL
 - H2SO4



PureFlex 800 Series Butterfly Valves

- **PTFE or UHMWPE Seats with Viton® or Silicone Energizers**
- **One-piece disk stems:**
 - PFA lined
 - UHMWPE Lined
 - 316 SS
 - Hastelloy C276, Titanium
- **Triple Stem Seals Top and Bottom**
 - Coil Spring & Taper Ring
 - Machined Barbs on Stem Seal w/ Interference Fit on Seat
 - Machined Disk Hub to Match Seat Radius



PureFlex 860 Series Butterfly Valves

- Sizes 2" – 12"
- Wafer & Lug Style
- ANSI Dimensions
- Locking Lever, Gear Operators, or Automated
- EPDM or Hypalon® Rubber Seats
- One-piece disk stems:
 - EPDM Lined
 - Hypalon® Lined
 - 316 SS
 - Hastelloy C276, Titanium
- Durcor-62™ Body



PureFlex 890 Series Butterfly Valves

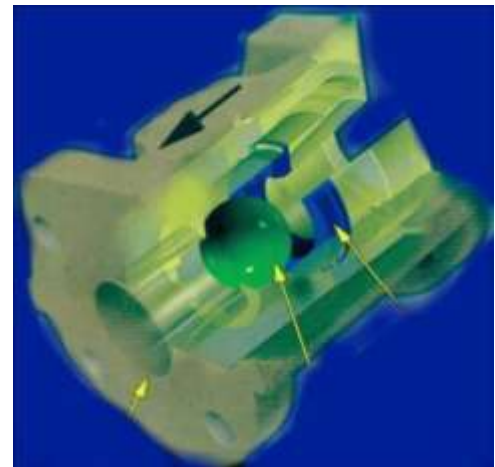
- 14" – 42" Sizes!
- Wafer & Lug Style
- Gear Operator or Automated
- Glass / Derakane® 411 Body
- Derakane® 470 Liner
- Double Offset Design
- Derakane® 470 Encapsulated 17-7 Stainless Steel Shaft
- Glass / Derakane® 470 Disk
- Viton® Seat



PureFlex

PureFlex Ball Valves

- 1" – 6" Sizes
- ANSI B16.10, B16.5
- Resin Encapsulated Hastelloy Stem
- Durcor-62™ Live Loaded Packing Gland
- PTFE Chevron Packing
- Micropolished Carbon Graphite / Resin Ball
- Cavity Filling, Energized, PTFE Seats
- Locking Hand Lever or Automated
- Ball Check Valves Available



PureFlex

PureFlex Ball Valves



**Derakane® 470 Vinyl Ester
Glass Fiber Reinforced
-50 to 215°F**



**Derakane® 470 Vinyl Ester
Carbon Graphite Fiber Reinforced
-50 to 250°F**



**Z-Core® Epoxy Resin
Glass Fiber Reinforced
-50 to 250°F**

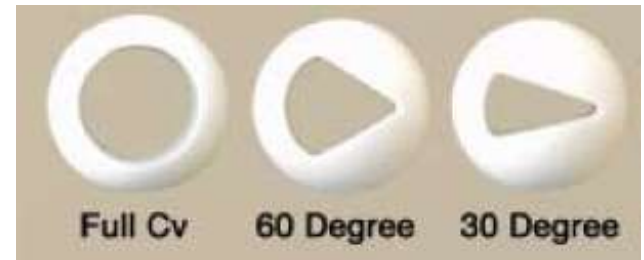


**Z-Core® Epoxy Resin
Carbon Graphite Fiber Reinforced
-50 to 275°F**

PureFlex

PureFlex 459 Series Ball Valve

- **Zirconia Ceramic Ball & Seats**
 - **Excellent Abrasion Resistance**
 - **Superior Mechanical & Thermal Shock Resistance v. Alumina**
- **1" – 6" Sizes**
- **ANSI B16.10, B16.5**
- **Carbon Graphite / Z-Core® Epoxy Resin**
- **Resin Encapsulated Hastelloy Stem**
- **Durcor-62™ Live Loaded Packing Gland**
- **Locking Hand Lever or Automated**
- **Characterized Balls Available**



PureFlex

PureFlex Valve Applications

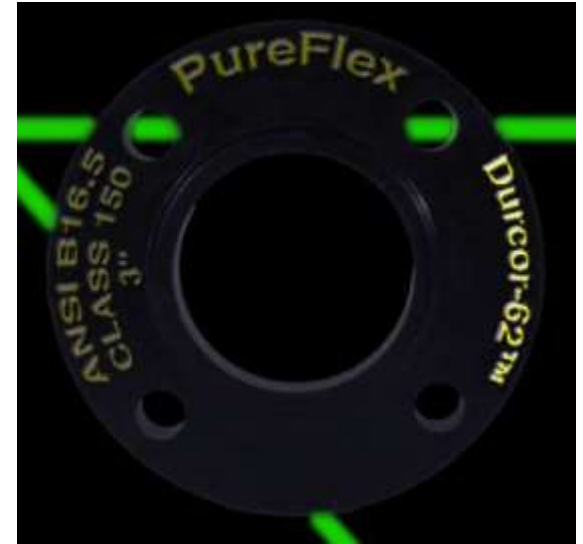
- HCl
- NaOH
- KOH
- Brine
- H₂SO₄
- H₃PO₄
- NaOCl
- Demineralized Water
- Chlorine Wastewater
- Liquid Chlorine



PureFlex

PureFlex Durcor-62™ Flanges

- Corrosion Resistant, High Strength Composite Flanges
- 1/4 Weight of Stainless Steel
- Less Expensive than Stainless Steel
- 1" – 6", ANSI B16.5 Class 150
- Lap Joint, Blind, & PTFE Lined Blind
- -60° to 300° F
- Applications
 - FRP Piping Systems
 - Thermoplastic Piping Systems
 - FRP, PPL & PE Tanks
 - Stainless Steel / Alloy Piping
 - Hose Assemblies
 - Plastic Lined Pipe



PureFlex

PureFlex Hose Assemblies

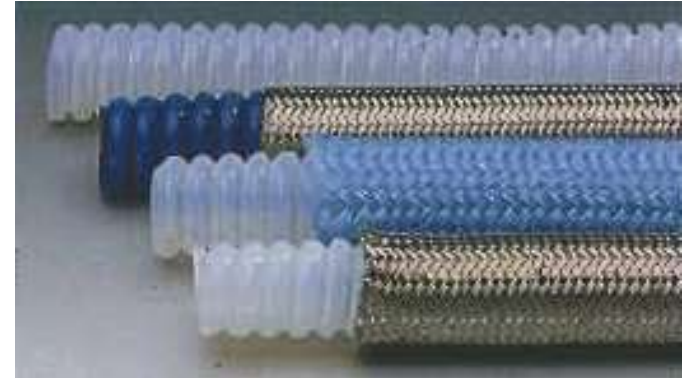
- $\frac{1}{8}$ " – 6" sizes
- PTFE / PFA / FEP
- Conductive Available
- Convoluted & Smooth Bore
- SS Braid / PP Braid / Rubber Cover
- Multitude of Fitting Options
 - Flare Thru Flanged
 - Threaded
 - JIC Swivel
 - Sanitary
 - CamLock
 - PFA Encapsulated



PureFlex

UltraFlex™

- Heavy Duty, Convuluted PTFE (virgin or conductive)
- SS or PPL Slip Braid or Bare Tubing
- Multiple Fitting Options
- Flare-Thru Liner Available



Temperature Range: -65°F (-54°C) to +450°F(232°C)

I.D. NOMINAL	OPERATING PRESSURE (PSI)			MINIMUM BEND RADIUS (in)	VACUUM RATING (In-Hg)	WEIGHT PER FOOT
	S.S. Braid	Polypropylene Braid	Bare Hose			
1/2	400	400	40	1.75	29.9	0.20
3/4	400	400	30	2.25	29.9	0.35
1	350	350	30	2.50	29.9	0.50
1-1/4	325	275	20	3.00	29.9	0.70
1-1/2	325	250	20	3.25	29.9	0.80
2	275	225	15	5.25	29.9	0.95
2-1/2	225	200	15	8.50	29.9	1.50
3	150	150	15	9.50	29.9	1.79
4	125	125	15	11.95	24.0	2.25

Operating pressure ratings are one fourth the minimum burst pressure at 70°F (21° C)
All ratings stated are @ 70° F (21° C)

FlexChem™

- FEP 1/2" -6" sizes
- Conductive PTFE 1/2"-2"
- EPDM Cover with Wire Helix
- Multiple Fitting Styles (including Flare-Thru)
- Rugged, Heavy Duty



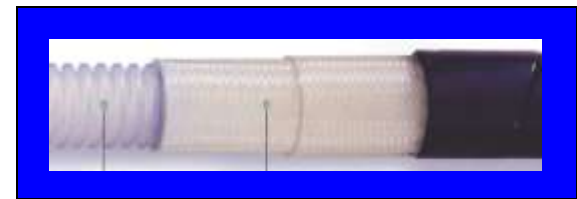
Temperature Range: -40°F (-40°C) to 350°F (177°C)

I.D. NOMINAL	O.D. NOMINAL	WORKING PRESSURE (psi)	MINIMUM BURST PRESSURE (psi)	VACUUM RATING (In. Hg.)	MINIMUM BEND RADIUS (in)	WEIGHT PER FOOT (lbs)
1/2	0.97	525	2,100	29.9	2.65	0.34
3/4	1.27	525	2,100	29.9	4.15	0.51
1	1.57	450	1,800	29.9	5.75	0.72
1 1/4	1.75	375	1,500	29.9	8.50	0.89
1 1/2	2.15	350	1,400	29.9	10.50	0.99
2	2.70	300	1,200	29.9	13.00	1.38
3	3.90	250	1,000	29.9	21.00	2.46
4	5.02	175	700	29.9	39.00	3.50
6	7.15	100	400	29.9	58.00	4.75

Operating pressure ratings are one fourth the minimum burst pressure at 70° F (21° C)
 All ratings stated are @ 70° F (21° C)

PureFlex CL2™ Hose

- Chlorine Transfer Hose
- 1/2" – 2"
- 375 – 500 psig
- Heavy Duty, Convuluted PTFE
- Double Kynar® Braid
- Spiral HDPE, Kynar Braid, or CPE Rubber Cover
- Monel or Hastelloy Fittings
- Compliant w/ Chlorine Institute Pamplet 6



HOSE I.D. NOMINAL (in)	HOSE O.D. NOMINAL (in)	MAX. OPERATING PRESSURE* (psi)	MIN. BURST PRESSURE* (psi)	PROOF PRESSURE TEST* (psi)	NOMINAL WEIGHT** (lbs/ft)
1/2	1.0	500	2500	1000	.19
1	1.5	375	1875	750	.50
1-1/2	2.1	375	1875	750	.90
2	Consult Factory	Consult Factory	Consult Factory	Consult Factory	Consult Factory



PureSite™ Sight Gage

- FEP Sight Tube Material Will Not Corrode, Shatter Or Degrade.
- 1/2" – 4" Sizes
- Pressures up to 150 psig
- Multiple Fitting Options
 - Flanges
 - Threaded
 - Sanitary
- Customized Scaling Available
- Ideal for Cell Level Gage



PureFlex

Task-Line® Gaskets

- **Stainless Steel encapsulated in PTFE (other metals available)**
- **Resists creep (“cold flow”)**
- **Reusable up to 20x**
- **½” – 24” sizes, ANSI 150/300#**
- **Conductive PTFE Available for Static Electricity Grounding**
- **Line Blinds Available**
- **Orifice Flange Available**
- **Approved by the Chlorine Institute**



PureFlex

Flexijoint® PTFE Expansion Joints

- 1/2" – 42" diameters
- 2 through 12 convolutions
- Cable and Limit Bolt Styles
- T-Band Technology
- Ductile Iron , SS, Alloy, & Durcor-62 Flanges / T-Bands
- Custom Designs Available
- Lower Spring Rate than Metal & Rubber Bellows
- Temperature to 450°F
- Full Vacuum Available

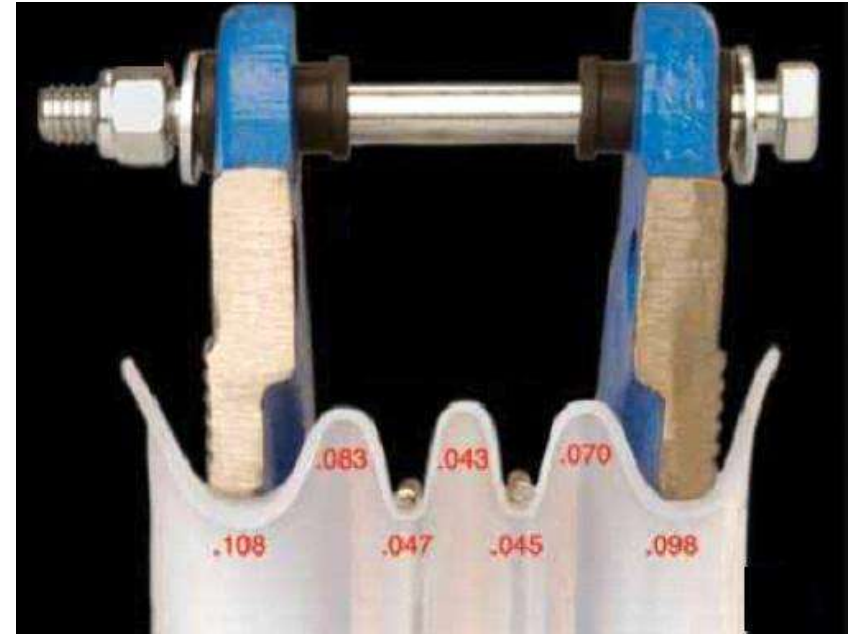


Flexijoint® - There is a difference!



Flexijoint®

- Isostatically Molded
- Mechanically Formed
- Consistent Thickness
- T-Bands



Competition

- Paste Extruded
- Blow Molded
- Inconsistent Thickness
- Root Rings

Flexijoint® w/ Durcor-62™ Flanges

- Same Flexijoint® PTFE expansion joint technology
- Lightweight, Durcor-62™ Composite Flanges
- 1 - 12" sizes w/ 150# flanges
- 2 through 12 convolutions
- -60°F to 250°F
- Cost competitive v. SS or alloy flanged joints
- Good for Chlorine header



FlexArmor® Expansion Joints

- Multi-Ply 321SS bellows
- PTFE Liner
- 1 1/2" – 24" diameter
- 4 through 12 convolutions
- Other Alloys Available
 - Hastelloy C276 for VCM reactor
- Up to 200 psig @ 350°F



Ethylarmor® Dip Pipes & Spargers

- **PTFE Lined & Covered CS.**
- **3/4" – 8" sizes**
- **Single Flange, Double Flanged**
- **Options**
 - Reinforced
 - Sparger Holes
 - Bent for Diverted Flow
 - Solid PTFE



T-Line Strainer®

- **Cast Ductile Iron Body**
- **ETFE or PFA Liner**
- **Heavy Duty PTFE Basket**
 - One Piece Construction
 - 1/8" , 1/4" , or 1/2" Holes
- **2" – 8" Sizes w/ 2" Drain**
- **Options**
 - Custom Lids
 - Stand
 - Drain Elbows
 - Fluoropolymer Mesh



Large / Complex Lined Piping

Monoderm™ Rotolining

- ETFE, ECTFE, PVDF, PFA, Nylon
- Parts up to 42" diameter
- 100 – 250 mils
- Vacuum Resistant
- Ideal for Complex Shapes

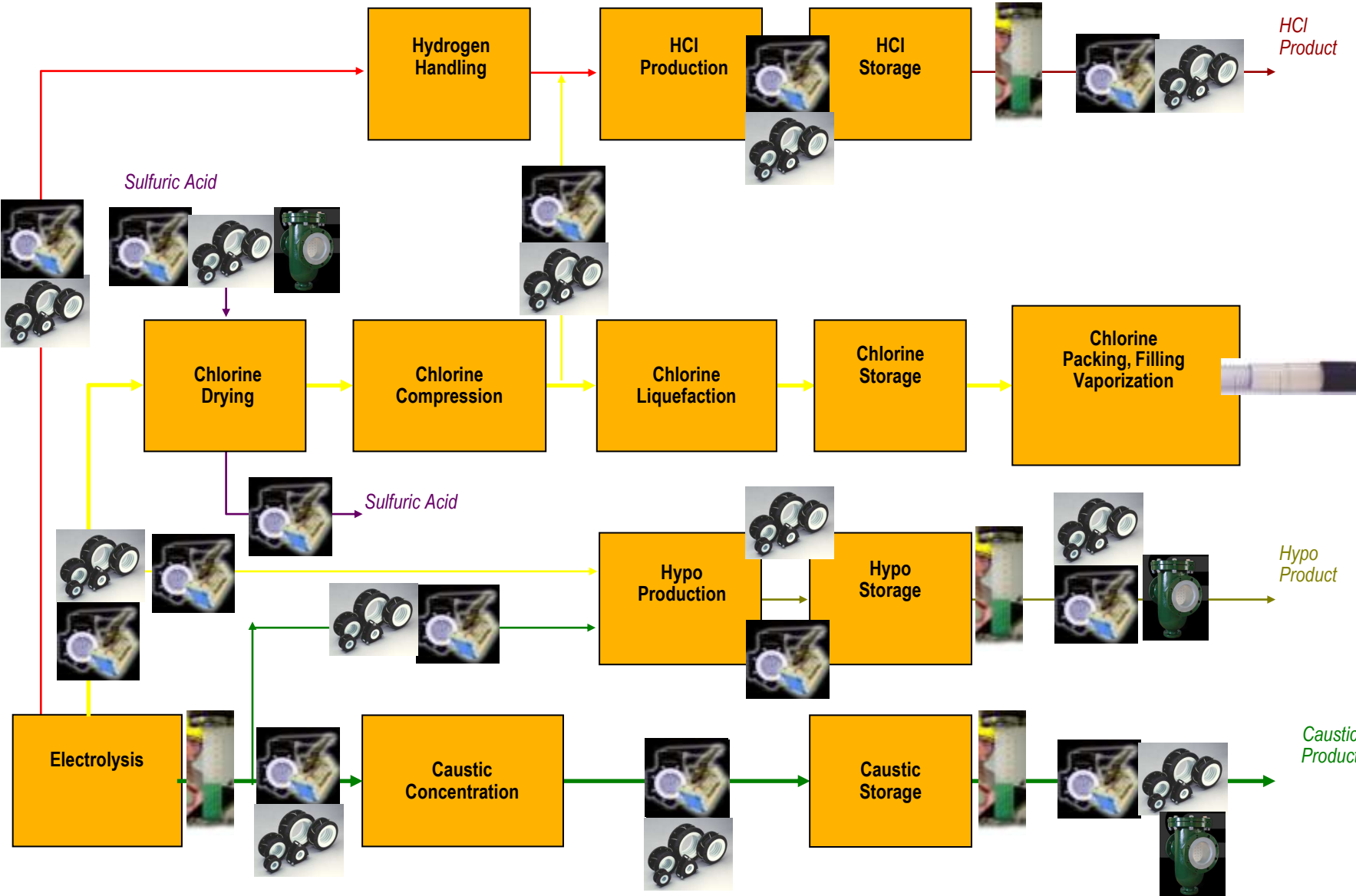


Monoderm™ PTFE

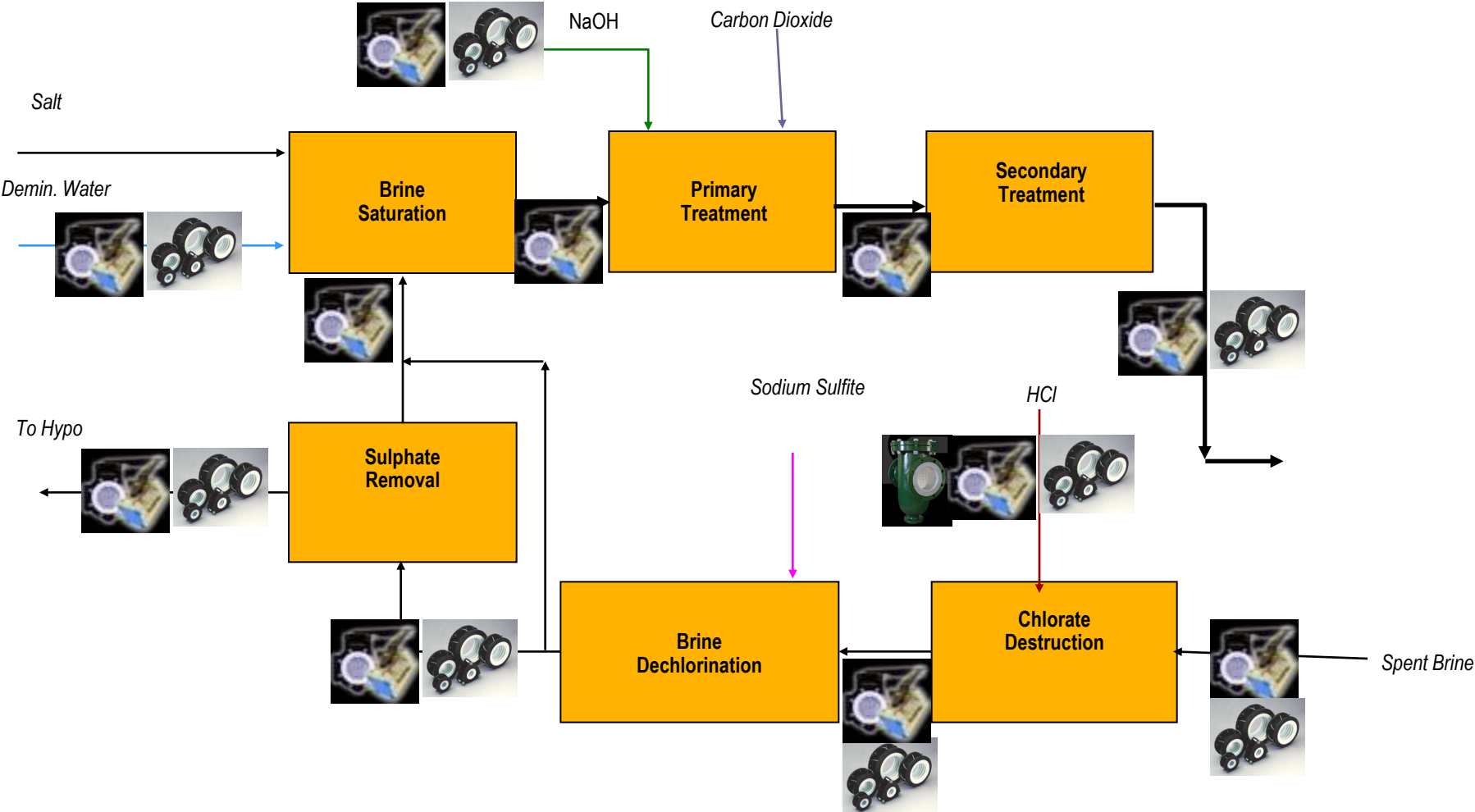
- Heavy walled PTFE (up to .375")
- 12" to 42" diameter
- Formed Nozzle Liners with no welds
- Ideal for Column Sections



Our Products in Chlorine/Caustic Area



Our Products in Brine Treatment Area



Some of our Customers.....



Georgia Gulf



JOHN ZINK

BASF
The Chemical Company



AkerSolutions

 **Formosa Plastics**

lin
CHLOR ALKALI
PRODUCTS

The logo for PureFlex features the word "PureFlex" in a bold, yellow, sans-serif font with a red outline. The letters are set against a solid red rectangular background. A thin black line runs horizontally across the bottom of the red box, with a small red arrow-like shape pointing downwards from the end of the line.

www.pureflex.com



www.ethylene.com

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