Products & Applications
Real solution for corrosive fluids

Built to last...
SAFI
« You are in good hands »

Founded in 1963, SAFI has unrivalled experience in handling corrosive and abrasive chemicals with thermoplastic materials in many applications.

SAFI designs, manufactures and supplies to a global customer base a wide range of thermoplastic valves for demanding industries.

Many of our valves can be adapted as a flexible solution, while our R&D department can offer a tailor-made solution to your own specification.

Through SAFI’s network of companies, consultants and distributors we give a fast and dedicated response to your enquiries.

Why SAFI thermoplastic valves ?
“Fit and forget”

At SAFI we understand the importance of product reliability and believe that thermoplastic valves are a great solution to corrosion:

- Inert to corrosion of the most aggressive chemicals
- Less expensive than alloy metals and lined valves
- Light weight
- Robust

SAFI offers valves that are reliable and trouble free over a long time. Our selection of polymer materials and valve design enable our valves to last many years without maintenance.

Quality equipment from Europe Product conformity to the most stringent standards.
PRODUCT RANGE

Valves, strainers, flow control equipment which can be actuated and customized with useful accessories

Ball Valve

Diaphragm Valve

Butterfly Valve

Check Valve

Flow Control

Strainer

Accessories
Glass reinforced Polypropylene. Contains PPH and 20% borosilicate glass reinforced of type «C» chemically resistant with UV stabilizer. Very good mechanical and UV resistance. Resistant to temperatures from -10°C to 100°C.

Polypropylene. Good mechanical and chemical properties. Good thermal stability from 0°C up to 90°C, as well as good shock resistance. Good chemical resistance in particular with salts, acids and alkalis and numerous organic solvents.

Chlorinated PolyVinyl Chloride. Superior density than U-PVC and greater range of thermal behavior from 0°C up to 90°C.


Unplasticised PolyVinyl Chloride. Widely used thanks to its good chemical behavior. But resist only to moderate temperature from 0°C up to 60°C and has a low shock resistance, which limits its application in the industry. Poor resistance to UV.

PPH thermoplastic with carbon fibers which makes the plastic semi-conductive and compliant with the ATEX norm.
Why THERMOPLASTIC in environment?

- Excellent resistance to chemical products
- No external corrosion
- Good resistance to abrasion
- Light weight
- Easy maintenance

References
VEOLIA, SUEZ, VIRIDOR, GEA WIEGAND

Environment

- GRPP
- PVDF
- PPH
- U-PVC
- C-PVC
- ATEX

PRODUCT FOCUS

Actuator with Positioner
Ventilation Damper DN 900 in PPH
UV Resistant Coating
Tightness compliant with standard EN 1751

Actuated ventilation damper
Applications of SAFI products

Water treatment
- Drinking water process
- Waste water treatment
- Water treatment mobile water units
- Desalination plants

Industrial process water
- Water intake and filtration
- Industrial water treatment
- Gas scrubbers

Waste treatment & recycling
- Landfills and gas collection
- Incineration plant
- Recycling facilities

Gas Fume Scrubbers
Geothermal

Gas ventilation and scrubber
Geothermal
Why THERMOPLASTIC in chemical process industry?

- Excellent resistance to very aggressive chemical products
- No external corrosion
- Good resistance to abrasion
- Light weight
- Easy maintenance

References
BASF, SOLVAY, ARKEMA, BAYER, EVONIK, SANOFI-AVENTIS, QATAR CHEMICALS, NCP CHLOROCHEM,

PRODUCT FOCUS

«Heavy Duty» Pneumatic Actuator

4" Compact Flanged Ball Valve in GRPP
+ UV Resistant
+ Reinforced Metal Flanged

4" Actuated flanged ball valve
Applications of SAFI products

Production of raw chemical products
- Chemical plants (chlor alkali, sulphuric acid, ...)
- Polymer industry

Production of fine and derived chemical products
- Fine chemicals
- Pharmaceutical
- Paints manufacturers
- Detergents manufacturers
- Body products manufacturers

HCl production

Sulphuric acid line
Why THERMOPLASTIC in transport and storage?

- The same thermoplastic material can resist a wide range of chemicals
- Excellent resistance to chemical products
- No external corrosion
- Good mechanical resistance
- Attractive price

Reference

SCHOELLER ALLIBERT PROMENS, BRENNTAG, UNIVAR

Transport and storage

PRODUCT FOCUS

GRPP PVDF PPH U-PVC C-PVC ATEX

Lockable Handle

Customizable connection to the container

IBC Ball Valve

IBC Ball valve
Applications of SAFI products

Manufacturers of IBCs
Manufacturers of +1000L tanks
Manufacturers of Flexitanks
Chemical storage facilities
Chemicals distributors
Why THERMOPLASTIC in mining?

- Excellent resistance to chemical products
- No external corrosion
- Good resistance to abrasion
- Light weight
- Easy maintenance
- Attractive price compared to metals

References

ANGLO AMERICAN, ERAMET, RIO TINTO, CODELCO, AREVA, OFFICE CHÉRIFIEN DES PHOSPHATES, MAADEN, SNC LAVALIN, BHP BILLITON, IMPALA PLATS, SIBANYE GOLD

PRODUCT FOCUS

Special coating and painted version gearbox

Hastelloy shaft

LUG type flanges with 316 L threads

DN 400 Butterfly valve – LUG type
Applications of SAFI products

Mines
- Copper mines
- Zinc mines
- Nickel mines
- Uranium mines
- Phosphate mines
- Potassium mines
- Gold mines
- Rare earth

Processes
- Heap leaching
- ISL
- Solvent extraction
- Electrowinning
- Acid plants
Why THERMOPLASTIC in surface treatment?

- Excellent resistance to highly concentrated chemicals
- No external corrosion
- Good resistance to abrasion
- Light weight
- Easy maintenance

References

ARCELOR MITTAL, UGINE, AGFA, FEDERAL MOGUL

PRODUCT FOCUS

Surface treatment

GRPP  PVDF  PPH  U-PVC  C-PVC  ATEX

Limit Switch Box

Double Acting Pneumatic Actuator

2" Diaphragm Valve in PVDF FPM Diaphragm

PVDF actuated diaphragm valve
Applications of SAFI products

- Metal pickling
- Metal plating
- Galvanizing
- Photovoltaic panels construction
- Semi-conductor industry
- Glass manufacturing
- Degreasing

Metal picking

Zirconium sheet degreasing
Why THERMOPLASTIC in food products?

- Excellent resistance to chemical products
- Suitable for food products and potable water
- Good resistance to abrasion
- Light weight
- Easy maintenance
- Attractive price

References
UNILEVER, DANONE, MARS, KALLE, VISKASE, CHAPOUTIER

PRODUCT FOCUS

Electric actuator IP68 with signal feedback
Secure manual override
GRPP ball valve DN50

2” electrically actuated GRPP Ball valve
Applications of SAFI products

Food industry
- CIP (cleaning in place)
- Manufacturing process
- Brine process
- Waste treatment plant

Slaughter house

Beverage industry (Wine, sodas, brewery malt production)
- Equipment cleaning
- Water processing
Why THERMOPLASTIC in energy?

- Long lasting resistance to chemical products
- No external corrosion
- Good resistance to abrasion
- Light weight
- Easy maintenance
- Attractive price

References
EDF (ELECTRICITÉ DE FRANCE)
BRITISH ENERGY
E.ON, GENERAL ELECTRIC

PRODUCT FOCUS

Electric Actuator
ATEX - 11260 Exd II BT 5

2" Flange Ball Valve (PP ATEX)

ATEX electric actuated ball valve
Applications of SAFI products

**Power plants**
- Demineralised water
- Anti-scaling treatment
- Amibia treatment
- Electrochlorination
- Desalination
- Water treatment
- Sodium hypochlorite systems

**Waste to energy**
- Methane
- Biogas
Why THERMOPLASTIC for OEM?

- Excellent resistance to a wide range of chemical products
- No external corrosion
- Good resistance to abrasion
- Light weight
- Easy maintenance
- High robustness

References

BIOQUELL, HONEYWELL, JOHN DEERE, EXEL INDUSTRIES, MEBCO

PRODUCT FOCUS

- Low consumption electric actuators
- 3 way modular compact ball valve in PA
- Main collector
- Modular crop sprayer valve

OEM (Original Equipment Manufacturer)
Applications of SAFI products

- Battery manufacturing
- Medical equipment (dialysis skids)
- Bath and spa manufacturing
- Fountains manufacturers
- Material cleaning systems
- Crops sprayers
- Air flow control
Why THERMOPLASTIC in oil & gas & refineries?

- Excellent resistance to chemical products
- No external corrosion
- Good resistance to abrasion
- Light weight
- Easy maintenance
- SAFI products are approved by TOTAL

References
TOTAL, SHELL
PETRONAS, AGIP, ENI

PRODUCT FOCUS

Limit Switch Box SS316
Filter Regulator
Pneumatic Actuator SS316
Flange Ball Valve in PVDF

PVDF ball valve pneumatic actuated SS316
Applications of SAFI products

Offshore plateforms and on shore extractions
- Electrochlorination
- Waste water, drinking water, demineralized water skids
- Prevention of contamination of the marine environment

Refineries
- Alkilation process
- Dozing plants
- Scrubbers
- Treatment of effluents

Utilities
- Chemical injection skids
- FPSO
  - Sodium hypochlorite processing

Electrochlorination
FPSO (Sodium hypochlorite processing)
Why THERMOPLASTIC in marine?

- Excellent resistance to chemical products and salty environment
- No external corrosion
- Good resistance to abrasion
- Light weight
- Easy maintenance
- Robust products
- Attractive price compared to metal valves

References
SUNSEEKER, PRINCESS YACHT RNLI, NAVY BOATS, HAMANN

PRODUCT FOCUS

Compact electrically actuated ball valve

Actuated compact valve
Valve & actuator in same casing
1” compact ball valve in GRPP
Applications of SAFI products

- Fresh water
- Engine cooling system with sea water
- Bilge water system
- Black & grey water systems (waste water systems from showers, sinks)
- Desalinization unit
- Fuel system
- Hydraulic oil system
- Anti-freeze system
- Air-conditioning unit
Metal and lined metal valves replacement

Replacement of PTFE lined metal valves by thermoplastic valves

- PTFE lined metal valves often get replaced by thermoplastic valves
- PTFE cracks
- PTFE is easily eroded through abrasion

Resistance to abrasion

<table>
<thead>
<tr>
<th>Materials</th>
<th>Abrasive Disk</th>
<th>Weight Loss (mg/1000 rev.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solef ® PVDF homopolymers</td>
<td>CS-10, CS-17</td>
<td>5-10, 7-10</td>
</tr>
<tr>
<td>PP (homopolymers)</td>
<td>CS-10, CS-17</td>
<td>15-20, 18-28</td>
</tr>
<tr>
<td>304 stainless steel</td>
<td>CS-10</td>
<td>50</td>
</tr>
<tr>
<td>PTFE</td>
<td>CS-10</td>
<td>500-1,000</td>
</tr>
</tbody>
</table>

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Replacement of rubber lined metal valves by thermoplastic valves

- Rubber lined metal valves are replaced by plastic valves
- Rubber gets eroded
- No external corrosion protection
Replacement of diaphragm valves by ball valves

- Diaphragm valves (regulation valves) are often used for on/off applications and are replaced by ball valves which close faster and last longer.
- Diaphragm valves need regular maintenance.
- Diaphragms break (PTFE)
Replacement of metal valves by thermoplastic valves

- Metal valves are replaced by plastic valves when pressure and temperature are right.
- Corrosion of metal through uniform and attack and other forms of corrosion/abrasion.
- Some metals, like hastelloy, do not corrode easily but cost 10 times more than thermoplastics.
The advantages of THERMOPLASTIC valves:

- **PTFE Lined metal valves**: X 100 times less resistant to abrasion than PVDF.
- **Hastelloy valves**: X 10 times more expensive than PPH valves.
- **Metal valves at least X 5 times heavier than thermoplastic valves for the same DN**.

Material advantages:
- Resist the worst corrosion (internal and external).

Client advantages:
- Reduces operational costs.
- Makes your budget go further.
- Reduces support and logistic costs. Critical in some applications (boats).
RESULT: highly reliable & secure product

- Long lasting
- UV resistant
- Extremely mechanically resistant
- High chemical and abrasive resistance

The advantages of THERMOPLASTIC valves:

- (+ 40 years old valve)
- (30 years old valve)
- (360 kg)

$$\text{RESULT : highly reliable & secure product}$$