Shimi Azar Jaam

GLASS LINED, FLUOROPOLYMERS

ABOUT US

Shimi Azar Jaam Co., (SAJ Co.) has been established in 2004 in Tehran/Iran. It is specialized in manufacturing glass lined and fluoropolymer lined equipment such as: chemical reactors, storage tanks, distillation tanks, bolted tanks, columns, heat exchangers, pipes and fittings, and all kinds of nonstandard chemical equipment and accessories.

For year's effort, SAJ Co., has established technical cooperation relations with international leading glass lined manufacturers. The company boasts advanced manufacturing technology, perfect condition of equipment, and advanced testing methods.

Our Main Services

- Designing and manufacturing of anti-corrosion glass lined & fluoropolymer lined equipment
- Consultancy services & choosing the right anti-corrosion lining system
- Periodic inspection services of the glass lined equipment
- Supplying spare parts and accessories of glass lined equipment
- Re-glass lining
- Offering training seminars about usage and maintenance of the glass lined equipment

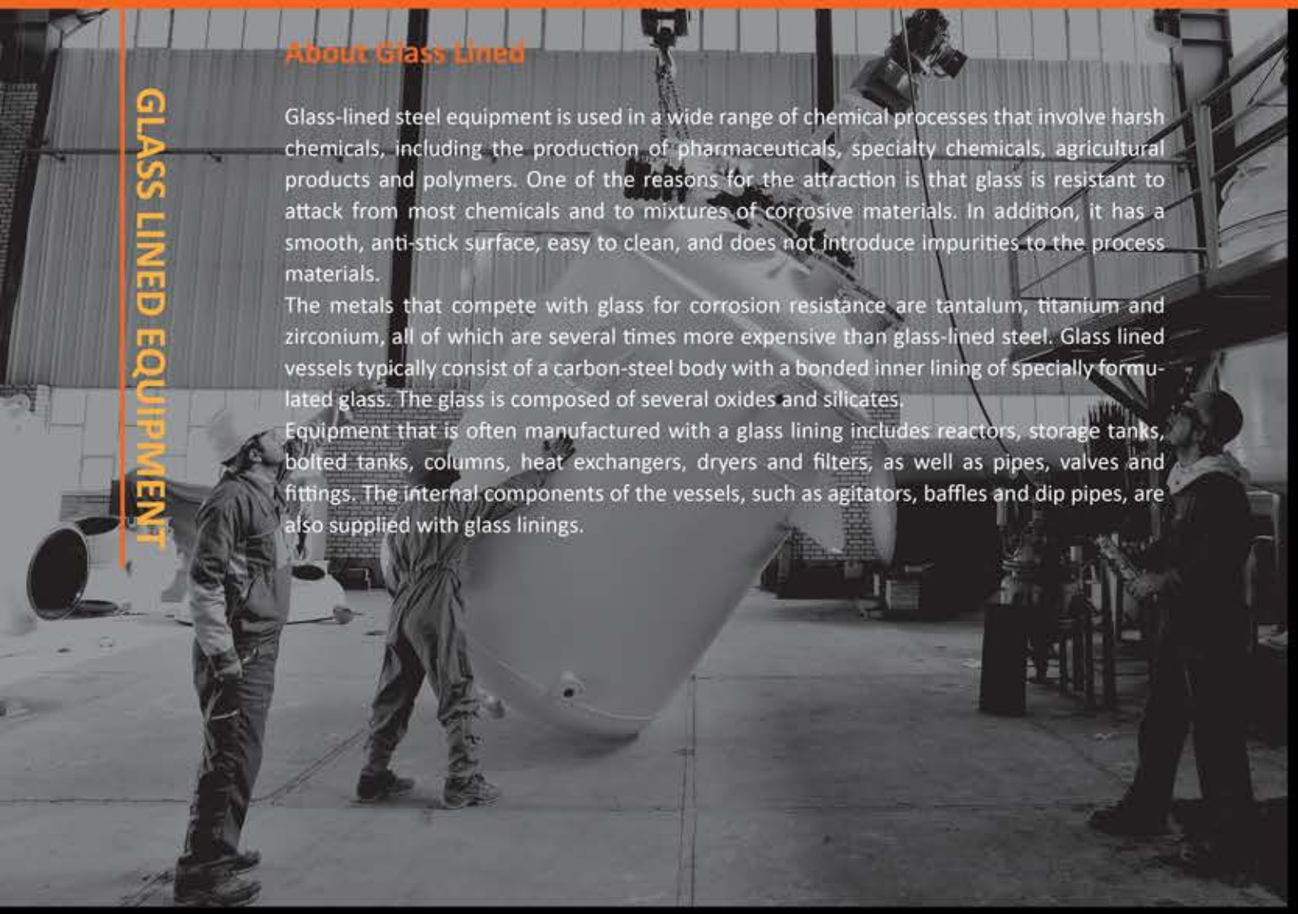
Introduction

In the industry the protection against corrosion and increases the useful life of equipment is very important. Corrosion of equipment caused a loss of production and the cost of repairs and reconstruction of the equipment. That's where the protection of materials and better utilization of them will be important. There are several ways to prevent corrosion and Shimi Azar Jaam company's main activities are in the field of glass lining and fluoropolymer lining of equipment. Position of these coatings among other methods of preventing corrosion is shown in the front diagram.

Choose the right material
Proper design
Cathodic and anodic protection
Applied coatings

- Metal coatings
- Inorganic coatings
  - Enamels
  - Ceramics
  - Glass
- Organic coatings
  - Paints
  - Rubbers
  - Fluoropolymers

GLASS LINED EQUIPMENT



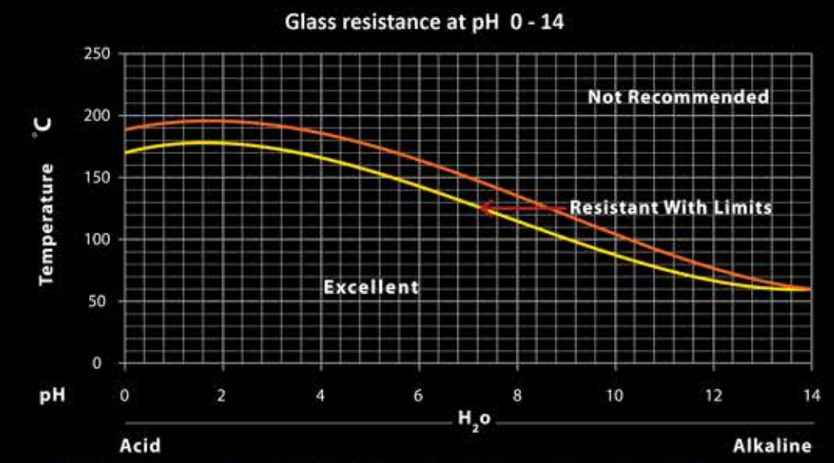
About Glass Lined

Glass-lined steel equipment is used in a wide range of chemical processes that involve harsh chemicals, including the production of pharmaceuticals, specialty chemicals, agricultural products and polymers. One of the reasons for the attraction is that glass is resistant to attack from most chemicals and to mixtures of corrosive materials. In addition, it has a smooth, anti-stick surface, easy to clean, and does not introduce impurities to the process materials.

The metals that compete with glass for corrosion resistance are tantalum, titanium and zirconium, all of which are several times more expensive than glass-lined steel. Glass lined vessels typically consist of a carbon-steel body with a bonded inner lining of specially formulated glass. The glass is composed of several oxides and silicates.

Equipment that is often manufactured with a glass lining includes reactors, storage tanks, bolted tanks, columns, heat exchangers, dryers and filters, as well as pipes, valves and fittings. The internal components of the vessels, such as agitators, baffles and dip pipes, are also supplied with glass linings.

Glass-lined steel can be used with most acid or alkaline media, since glass withstands attack from most substances in both oxidizing and reducing environments. The exceptions include fluorides at any temperature or concentration; hot, concentrated phosphoric acid; and highly alkaline chemicals at elevated temperatures.



Designing, manufacturing, metal working, glass lining and quality control of all Shimi Azar Jaam's glass lined equipment is in accordance with the relevant codes at ASME, DIN, ISO and IPS standards.

Glass - Lined Benefits

- Excellent resistance to corrosion
- Thermal allowance for variant temperatures (25°C - 220°C)
- Mechanical resistance to shocks and abrasion
- Smooth, non-stick properties
- Non-catalytic inertness
- Multipurpose material for versatility
- Impervious to contamination
- Meets GMP requirements for cleaning, cleanliness and sterilization
- Customization upon specification
- Suitable for high pressure and full vacuum at elevated temperatures
- High abrasion resistance

FLUOROPOLYMER LINED EQUIPMENT

About Fluoropolymers

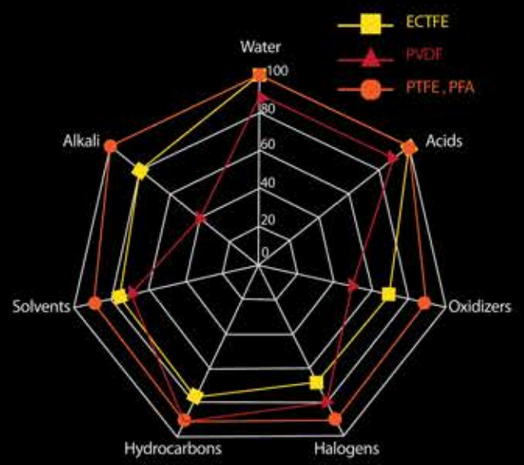
Fluoropolymers are a class of olefinic, thermoplastic polymers where some or all of the hydrogen has been replaced by fluorine. The result is either a fully fluorinated polymer such as PTFE and PFA, or a partially fluorinated polymer, such as ECTFE. This type of polymers has very high resistance to chemical corrosion in the most acidic and alkaline environments, for this reason and also because of the high temperature resistance, they are widely used in the chemical industries.

These coatings are applicable on the inner surfaces of chemical industry equipment such as tanks, columns, pipes, fittings and valves. Of course, coating method; due to the nature and condition of any of fluoropolymers and also corrosive environments and equipment design, Should be determined by our experts.

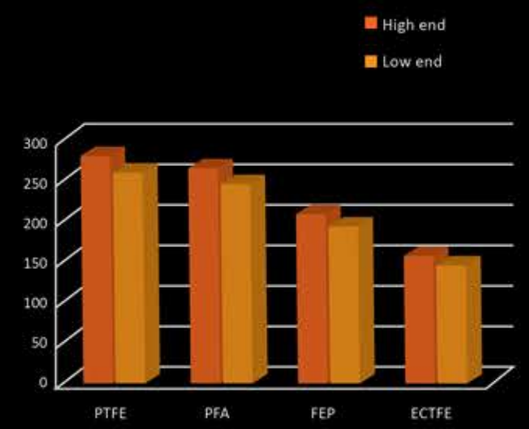
Fluoropolymer types which are used in the Shimi Azar Jaam as a coating on the internal surfaces of equipment are as follows.

Row	Name	Description
1	PTFE	Polytetra fluoroethylene
2	PFA	Perfluoroalkoxy
3	FEP	Perfluorinated ethylene propylene
4	ECTFE	Ethylene chlorotri fluoroethylene

Fluoropolymers Chemical Resistance



Fluoropolymers Operating Temperature Range



Fluoropolymer Lined Benefits

- High chemical (PH 14-0) and thermal resistance
- Low coefficient of friction
- Mechanical resistance to shocks and abrasion
- Excellent adhesion to a broad range of customer parts
- Impervious to contamination
- Meets GMP requirements for cleaning, cleanliness and sterilization
- Customization upon specification
- Suitable for high pressure and full vacuum at elevated temperatures

Overall fluoropolymers show extraordinary resistance in all acidic and alkaline environments and they are resistant up to 270°C (Depending on the type of fluoropolymer and chemical environment).

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