

AGRUCHEM
ECTFE
PIPING SYSTEM



The Plastics Experts.

Ethylene chlorotrifluoroethylene (ECTFE) is a thermoplastic copolymer with an alternating arrangement of ethylene and chlorotrifluoroethylene. The AGRUCHEM ECTFE piping system is designed for the toughest industrial applications. It can transport most media in the pH range 0-14 at temperatures between -30 °C and +120 °C under pressure (up to +140 °C if unpressurized). ECTFE is our best solution for aggressive chemicals (e.g. free chlorine in the medium and 98 % sulphuric acid).

The AGRU success story has been unfolding now for around seven decades. Founded back in 1948 by Alois Gruber senior, nowadays the company is one of the world's most important single-source suppliers for piping systems, semi-finished products, concrete protection liners and lining systems made from technical plastics. Our ability to supply everything from a single source sets us apart. We use only top-grade thermoplastic polymers as our raw materials. When it comes to application-technical consulting, we are your best partner in the field.

Quality

At AGRU, customer satisfaction comes first. Technical consultations, training courses, welding training and expert induction training at the construction site are the basic conditions for this. AGRU operates a quality management system that is compliant with ISO 9001:2015 and an environmental management system in line with ISO 14001:2015. This means that the products comply with international standards, and are monitored and evaluated on an ongoing basis by independent testing agencies.

The start-to-finish attention to quality ensures that the products meet and beat the strictest technical specifications, ensuring safe transport of aggressive and pure media.



The cost-effective piping system for the toughest conditions

Chemical resistance to concentrated acids and alkalis under high pressure and at temperatures above 80 °C is what characterizes the AGRUCHEM ECTFE piping system. Whether sulfuric acid (H₂SO₄), nitric acid (HNO₃), hydrogen peroxide (H₂O₂) or sodium hypochlorite (NaClO) - ECTFE is the only chemically resistant plastic with an excellent price/performance ratio.

MADE IN AUSTRIA SINCE 1990

Production of all components in the state-of-art cleanroom plant in Bad Hall

Top safety and best performance also under extreme conditions

- Pipes, fittings, valves and IR welding technology from a single source
- 100 % quality assurance for all components
- Installed pipes in operation for more than 30 years

EXCELLENT RESISTANCE

to chemicals, pressure and temperature

Ideal for all industrial applications with tough requirements

- A single piping system for concentrated acids and alkalis in the pH range 0-14
- Optimized for applications in the chemical process industry and water treatment
- High operating reliability and a very long system service life

LATEST IR WELDING TECHNOLOGY

Optimized for the toughest demands in various industries such as the fertilizer industry, metallurgy, semiconductor industry, water treatment

- Top weld quality with 100% reproducibility
- Additional safety due to the traceability of each individual weld seam
- Ergonomic and cleanroom-optimized machine design

EXTENDED INVESTMENT INTERVALS

Offers longer service life due to processing of premium raw materials

Excellent and continuously monitored product characteristics

- Safe operation of the pipe systems even with 98% sulfuric acid
- Reduced maintenance overhead and avoidance of production downtime
- Important safety reserves even under the highest stresses

COST-EFFECTIVE INSTALLATION

thanks to complete range with fittings, pipes, diaphragm valves and IR welding technology

A lean product design with high pressure resistance offers

- Small footprint for easy installation even in confined areas
- Fast installation with proven routing methods
- Cost reductions and improved pressure resistance



AGRUCHEM ECTFE Piping system

For the toughest requirements in the chemicals industry

The AGRUCHEM ECTFE piping system is the number one choice for conveying concentrated chemicals at high temperatures or operating pressures.

MADE IN AUSTRIA SEIT 1990

Our comprehensive range of pipes, fittings, valves, and IR welding machines is the result of decades of research and development. In our clean room plant, opened in 2016, the production of all components of the AGRUCHEM ECTFE pipe system is 100% quality-assured. Our AGRUCHEM ECTFE piping system has seen successful deployment in the chemicals, pulp and paper, and battery industries, and in waste water and drinking water engineering, fertilizer production, metallurgy, and the semiconductor industry for more than 30 years.

AMAZING CHEMICAL RESISTANCE

With its excellent chemical resistance, ECTFE exhibits remarkable resistance to most inorganic and organic chemicals (pH 0 to 14, up to max. 140 °C) and also to solvents (up to max. 120 °C).

This applies in particular to:

- Sulfuric acid H_2SO_4 (98%)
- Hydrochloric acid HCl (37%)
- Hydrofluoric acid HF (70%)
- Caustic soda solution NaOH (50%)
- Hydrogen peroxide H_2O_2 (60%)
- Nitric acid HNO_3 (65%)

COST-EFFECTIVE INSTALLATION

The lean product design with high pressure resistance allows for installation in confined spaces using proven routing methods. The high mechanical and excellent impact strength ensure higher pressure resistance. AGRU offers pipes, fittings, diaphragm valves and IR welding technology from a single source. For the highest safety and best performance also under extreme conditions.



LATEST IR WELDING TECHNOLOGY

The new generation AGRU SP series offers state-of-the-art infrared welding. A fully automated welding sequence enables 100% reproduction of high-quality welded joints at the push of a button. Infrared technology is used to heat the pipe ends in a targeted manner and melt them without contact. The traceability of each individual weld seam offers additional assurance. This ergonomic machine was designed for cleanroom use. Its smooth surface allows for easy, quick and reliable cleaning.



HIGH-QUALITY RAW MATERIAL

Processing the high-quality raw material, Halar®, results in important safety reserves even under the most demanding conditions caused by concentrated chemicals, high temperatures and a high operating pressure. The robustness and durability of the components reduces the need for maintenance and avoids production downtime. In addition to improving operational reliability, this also allows potential cost savings to be realized.

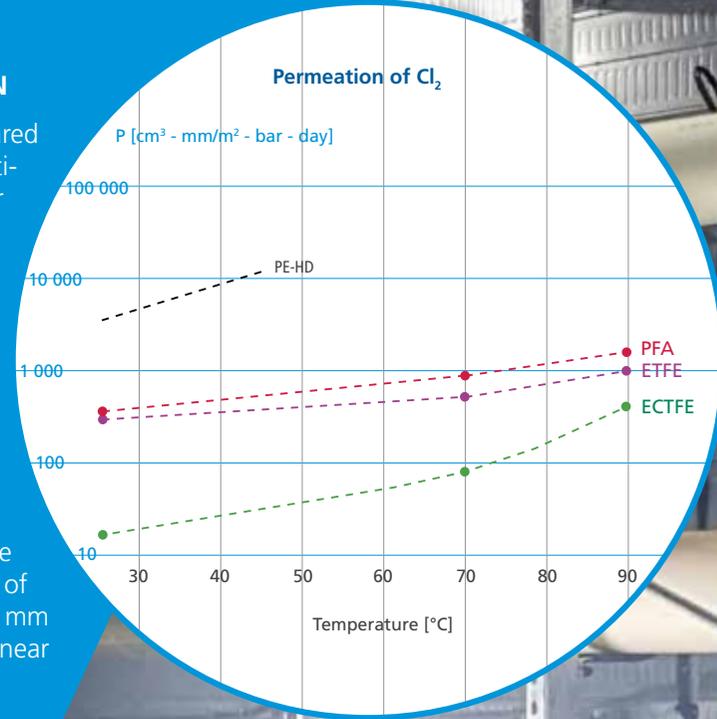
Material characteristics ECTFE

The premium class among engineering plastics

ECTFE is resistant to UV and gamma radiation. The permeation here is very low compared with other thermoplastics. This stable, high impact plastic is of a high purity, flame retardant and extremely durable.

LOWEST PERMEATION

ECTFE is unique compared with other materials particularly due to its barrier properties. Permeation of oxygen, carbon dioxide, chlorine gas or hydrochloric acid is extremely low. Compared with PFA, this enables cost savings in terms of materials and installation. In addition, the permeation resistance is higher, the range of dimensions, up to 200 mm / 8", is larger and the linear expansion is lower.



Product range AGRUCHEM ECTFE piping system



Pipes
 OD 90 mm SDR 33
 OD 20 mm - 160 mm SDR 21
 Ventilation pipes
 OD 110 mm - 200 mm



Elbow 45°
 OD 20 mm - 160 mm
 SDR 21



Multi-bend 90°
 OD 20 mm - 160 mm
 SDR 21



Tee
 OD 20 mm - 160 mm
 SDR 21
 Tee, reduced
 OD 110/63 mm SDR 21
 OD 160/63 mm SDR 21



Stub flange DIN
 OD 20 mm - 160 mm
 SDR 21



Reducers concentric
 Long spigot
 OD 25/20 mm - 160/140 mm
 SDR 21
Reducers concentric
 Short spigot
 OD 110/63 mm SDR 21



VERSATILE FIELDS OF APPLICATION

ECTFE is primarily used in the chemicals, semiconductor, photovoltaics, pharmaceuticals and petrochemicals industries for the following:

- Chemical supply systems
- Process lines and plant construction
- Twin-wall piping systems
- H₂SO₄ injection lines in sewage treatment plants
- Ventilation lines for aggressive waste air
- Heat exchangers for highly aggressive media
- Linings for corrosion protection for steel, GRP and concrete containers



End cap
OD 20 mm - 63 mm
SDR 21



Union type 24
OD 20 mm - 63 mm
SDR 21



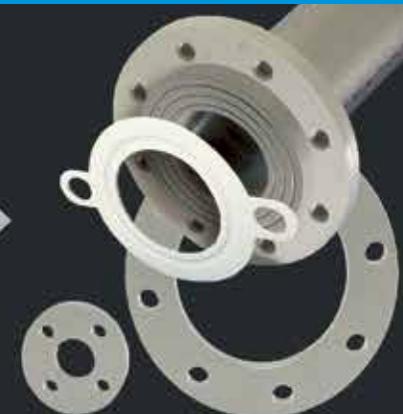
Adaptor male thread
OD 20 mm - 32 mm
SDR 21
Adaptor female thread
OD 20 mm - 32 mm
SDR 21



Diaphragm valve
manually controlled
OD 20 mm - 63 mm SDR 21
Diaphragm valve
pneumatic: open or closed under
spring force/double action drive
OD 20 mm - 63 mm SDR 21



AGRU also offers
ECTFE **semi-finished** products:
Filler wire, welding rods and plates



The ECTFE portfolio also includes **accessories:**
Backing rings, pipe clips and seals for flanges (Seal Clean).

AGRU - A GLOBAL BRAND

