

Lining Solutions – Symalit Liner Pipes





Symalit liner pipes are a first-choice option to build long-lasting tailor-made pipe systems for almost all corrosive media. The pipes can be connected flange-less to practically endless piping's. The well-proven Symalit fluoropolymers confer the protection against chemical tank and permeation, whereas mechanical stiffness and pressure resistance is yielded by FRP-reinforcement. For the latter, all Symalit liner pipes are surface-modified to achieve the bond strengths exceeding all existing norms.

Bond Strengths of Symalit liner pipes

- ❖ Requirement of DIN 16964 (PVDF): 5 N/mm²
- ❖ Test method segment shear test according to DIN 53769

Typically measured values on Symalit Liner Pipes

- ❖ 1000 PVDF HV Liner: 6-9 N/mm²
- ❖ 1000 ECTFE GK: 9-12 N/mm²
- ❖ 1000 FEP / 1000 PFA GGS: 9-12 N/mm²

Symalit 1000 ECTFE GK Liner Pipes



Type of surface modification

- ❖ Symalit GK synthetic knitted fabric backing, providing high bond strengths up to high temperatures with a better chemical resistance against the strong mineral acids hydrochloric acid (HCl) and hydrofluoric acid (HF), than standard glass fabric backings, and a much better resistance against hydrolysis, than standard polyester fabric backings. Symalit GK can also be used with all other chemical media in the application range of Symalit 1000 ECTFE and moreover provides additional safety for the weld seam preparation, when the equipment is manufactured.

Applications

- ❖ Most neutral and acidic media, up to approx. 120°C (248°F), anti-static applications.

Availability

- ❖ Pipes

Symalit PVDF and Symalit ESd PVDF HV Liner Pipes



Type of surface modification

- ❖ Symalit HV liner chemical-thermal treatment provides since more than 30 years outstanding process reliability and safety for applications with Symalit 1000 PVDF and Symalit ESd PVDF liner pipes. The chemical-thermal surface treatment creates a three-dimensional structure, enabling a mechanical anchoring of the FRP from the mechanism similar to a fabric backing. The Symalit HV liner treatment thereby has outstanding chemical resistance against media used with Symalit 1000 PVDF and Symalit ESd PVDF, and does not suffer low bond strengths or bond strength loss over time like etched pipes.



Applications

- ❖ Most neutral and acidic media, up to approx. 120°C (248°F), anti-static applications.

Availability

- ❖ Symalit 1000 PVDF: Pipes, elbows, fittings Symalit ESd PVDF: Pipes

Advantages of FRP-reinforced liner pipes

- ❖ Lightweights
- ❖ Tailor-made, flange-less (welded) connections
- ❖ Less risk of breakdowns than with steel-based pipes
- ❖ Less permeation-caused damages than with steel-based pipes
- ❖ Easy maintenance

Symalit 1000 and Symalit 1000 PFA GGS Liner Pipes



Type of surface modification

- ❖ Symalit GGS glass knitted backing, still the industrial standard for a remarkable wide selection of media also in the hottest and most aggressive environments. Symalit GGS can be used with high melting point polymers like Symalit 1000 FEP and Symalit 1000 PFA.

Applications

- ❖ Highly corrosive media, up to approx. 180°C (356°F, PFA)

Availability

- ❖ Pipes, elbows

How to fabricate fittings from sheet materials

Elbows, fittings (T-connectors, reductions) and pipes of big diameters can be manufactured from sheet material or standard liner pipe item, if these are not available otherwise.