ASEPTCONN AG

Why choose PFA over PTFE?



About us

Aseptconn is a leading supplier of components, products, software, and systems for sterile liquid technology, primarily serving the pharmaceutical and biopharmaceutical sectors. With innovative products and expert advice, Aseptconn helps its clients sustainably improve their processes. Its extensive portfolio and diverse services make it the preferred supplier for many renowned international pharmaceutical companies.

Product Description

To meet the high-quality standards of the pharmaceutical industry, we offer exceptional products meticulously tested for compliance. This is why we provide a wide range of high-quality PFA (Perfluoralkoxy) flexible hoses. These PFA hoses offer numerous advantages over PTFE flexible hoses, ensuring optimal performance for your specific applications.

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PFA

What is PFA?

PFA (Perfluoralkoxy) belongs to the family of perfluorinated polymers, renowned for their exceptional technical performance. Their primary characteristic lies in their unique chemical composition: highly stable molecules that provide remarkable resistance to high thermal stress and chemical aggression. Thanks to these properties, PFA is considered an almost universal material, suitable for a wide range of demanding applications.

Structure of PFA

PFA is a derivative of PTFE, whose molecular structure has been modified to provide increased flexibility and improved resistance to mechanical stress. This polymer also exhibits the characteristic properties of a plastomer, allowing it to be processed through extrusion. Thanks to this process, PFA achieves an extremely compact and mirror-smooth surface, ensuring an exceptional level of purity.

The main characteristics of PFA

Surface with low coefficient of friction

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Guarantees easy flow of transported liquids and prevents adhesion of foreign substances

Resistant to environmental factors and corrosion

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Oxidation resistant, therefore the resistance to acids and oxidizing agents is excellent

Chemical resistance

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Does not dissolve on contact with the most common solvents and is resistant to chemical corrosion

Thermal resistance

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Resistant to high and low temperatures (from -30°C to +260°C)

long durability

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Even with aggressive chemicals, aging resistance is excellent

Biological resistance

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Resistant to attack by microorganisms

PFA vs PTFE

Comparatif PFA et PTFE

Specifications	PFA	PTFE
Advantages	+++	+
Permeability	PFA liners are made by extrusion of a liquid homogeneous mass. Therefore, a waterproof product with excellent molecular compactness is obtained, which reduces the risk of contamination.	PTFE liners are produced from powder by sintering, producing a discontinuous product. This leads to micropores and a permeable product.
Thermal resistance	High thermal stability, which prevents the hose from collapsing due to material expansion/deformation at high temperatures. Excellent thermal resistance at high temperatures. PFA retains its mechanical strength properties almost unchanged.	Above 100°C, PTFE undergoes severe permanent deformation with a shape memory that can weaken the wall thicknesses that are under mechanical stress. It can also lead to the formation of microcracks.
Flexibility	It is very flexible and can be extruded into a 0.4 mm thick tube to provide flexibility, a small bending radius and low force when bending the hose.	To expand the PTFE coating (at the opening or end), a thicker coating is required. This makes the hose stiffer.
Adhesion	Very strong adhesion of the liner to the rubber hose, even at high temperatures (150°C).	Low adhesion of the liner to the rubber hoses and higher storageload. This increases the risk of problems such as: complete implosion of the liner.
Purity	PFA hoses eliminate the risk of contamination of the transported products, as they are processed by extrusion. This avoids the addition of plasticizers or solvents.	PTFE hoses are created by sintering and extrusion. Tube is achieved by adding solvents, which must then be removed by other processes.