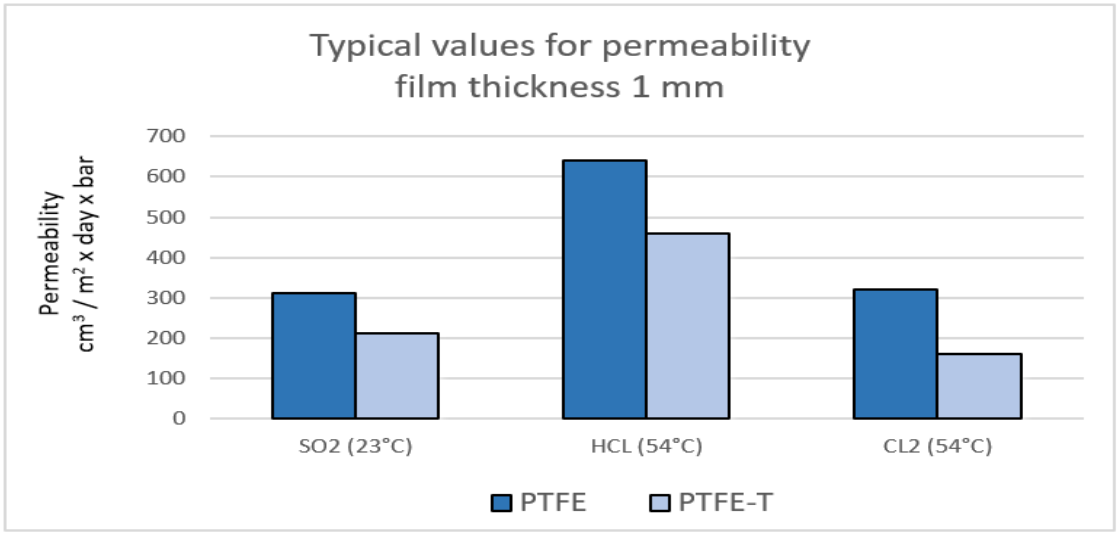
PTFE-T - PolyTetraFluoroEthylene-T

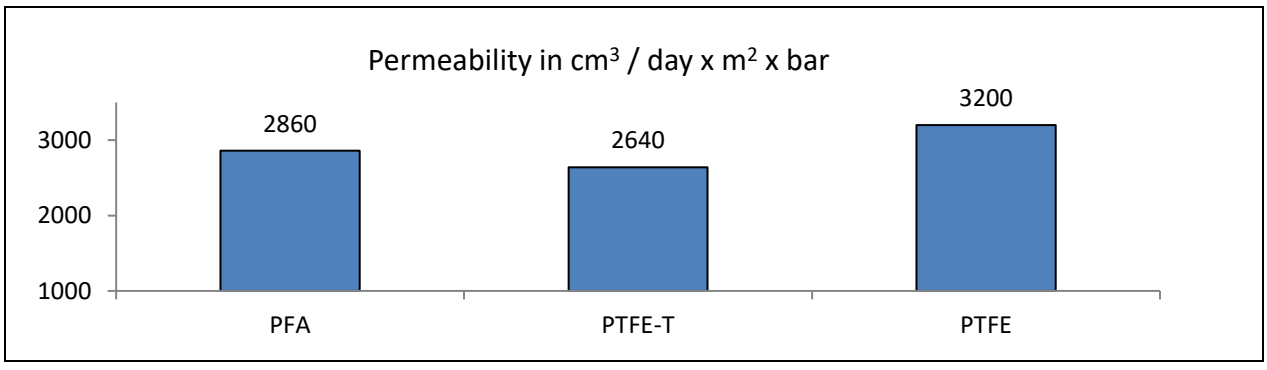
The super plastic, chemically modified PTFE fills the gap between fully fluorinated polymers (PTFE) and copolymers (PFA, FEP). With a small modification factor (less than 1 %), PTFE-T is classified as a PTFE Homopolymer according to ASTM D4894.
Unlike conventional PTFE, PTFE-T features a:

❖ Better Permeation Resistance

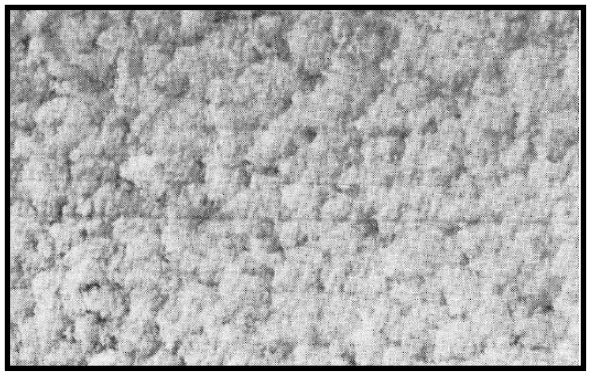
The following graphic shows the lower permeation rate of PTFE-T compared with standard PTFE. Permeation was measured on 1 mm sheet material, using sulfur oxide, hydrochloric acid and chlorine as test medium.



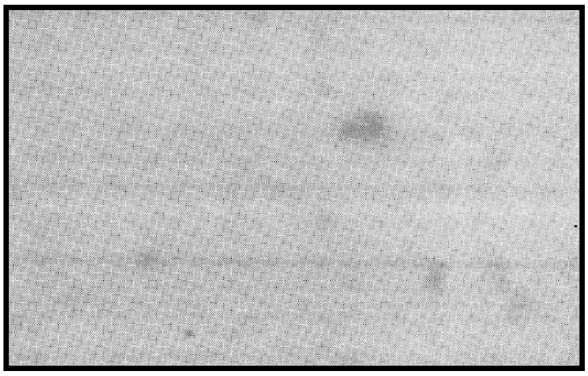
The following graphic shows the lower permeation rate of PTFE-T compared with standard PTFE and PFA. Permeation was measured on 1 mm sheet material, using Helium as testing medium.



Properties of PTFE-T:
Generally, diffusion rates through PTFE depend very much on the void content, the intermolecular bonding, the coalescence of the particles and the grade of crystallinity.
PTFE-T has a much more homogenous distribution of the crystals than conventional PTFE which results in a better cold flow resistance.



Standard PTFE



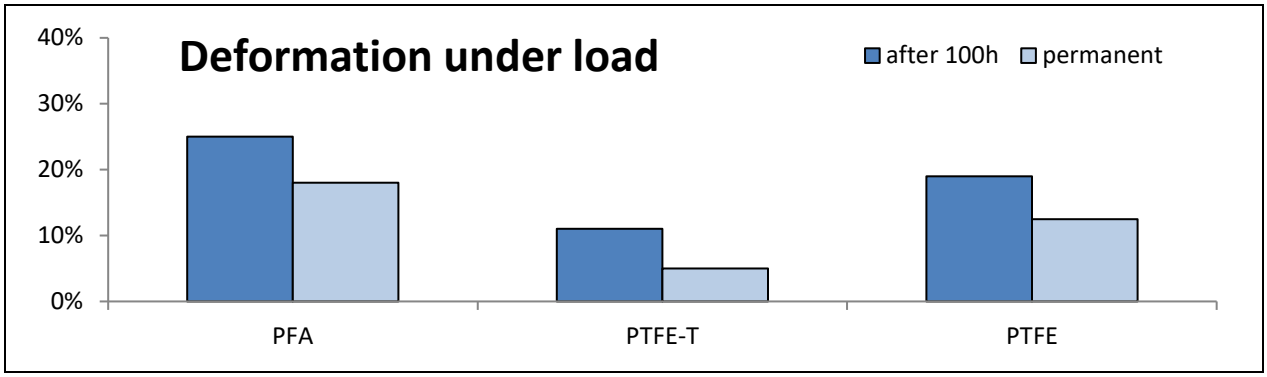
PTFE-T

The above photomicrographs of skived sheets illustrate the content of voids of both materials and the coalescence of the single particles.

❖ Better Cold Flow Resistance

Because of the lower void content, the intermolecular bonding, the coalescence of the individual particles and homogenous distribution of the crystals, PTFE-T has a much higher resistance against cold flow. In addition, particularly at elevated temperatures, PTFE-T has less deformations and a better recovery-factor than other polymers.
The material is processed at much higher pressure rates than conventional PTFE in order to minimize the content of voids. During a special, very long sintering process, the single particles (powder) merge together and result in optimized material properties.

The following graphic demonstrates deformation rates of different Polymers with 5.2 N/mm^2 at 260°C.



PTFE-T therefore, is an ideal material for improved linings, encapsulations, diaphragms or solid parts that are exposed to high temperatures or aggressive chemicals.
The smooth and void-free surface prevents any contamination in biological or semiconductor applications!