FLUOROTHERM POLYMERS INC

PTFE FEP PFA PVDF ETFE CTFE ECTFE

A Letter from Fluorotherm

To Our Valued Customers:

Fluorotherm started out as a specialty manufacturer of fluoropolymer products in 1992, under the aegis of Norton Performance Plastics, now St. Gobain Performance Polymers. That was 16 years ago!

With a strong R&D background in fluoropolymers, gained by our key people during their employment with DuPont; we have continued to progress toward a wider product range to serve a broad range of applications in diverse markets.

Now, not only have we moved to expand our operations here in the US and overseas, but are responding to customer demand more than ever. Our newest products include:

- Expanded tubing line to cover a broad range of sizes in PTFE, FEP, PFA, ETFE and PVDF
- Immersion Coil Heat Exchangers in high temperature usage PVDF frames and either FEP or PFA tubing
- Custom fabricated tube products with flared, flanged, and custom shapes

We hope that you will join us in helping Fluorotherm pave a successful path for the future. We are grateful to all of our customers for their continued support.

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In This Issue:

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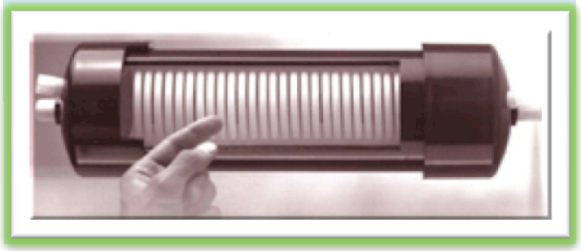

Dual FEP Tubing

In this issue we introduce our dual FEP tubing product and discuss the effects of radiation exposure to fluoropolymers.

Fluorotherm introduces dual FEP tubing for applications where equal lengths of two different sizes of tubing are required. Examples of these are in environmental sampling and down hole applications where the bonded tubing pair carries different fluid streams. This product is available for a range of size pairs and lengths as long as 1000 ft. A typical example of our dual tubing product is shown at right:

Fluorotherm's Dual FEP Tubing

The preference for FEP tubing for down hole applications is dictated by the temperature and pressures of the fluids as well as the need to maintain sample integrity during its passage through the tube. Selection of the correct grade of material, as determined by its properties, is important because identification and repair of the damaged tubing by abrasion and/or rupture is problematic at best.

Effects of Irradiation on FEP and PTFE

Irradiation of nearly all polymers from various sources generally leads to degradation of structure. Irradiation sources may include electromagnetic, x-rays, beta rays and high energy electrons, among others.

Controlled or limited irradiation, generally for short time, leads to some desirable properties. For example, PTFE is irradiated by electron beam to make it friable; i.e., break it down to very small particles such as micropowder used as a processing aid (lubricant) or as a printing ink additive. PTFE exposed to ionizing radiation in the presence of oxygen results in degradation rather than crosslinking. Apparent molecular weight decreases; as suggested by the increase in density of the irradiated polymer.

However, much of this degradation can be avoided if oxygen is excluded (i.e., in vacuum), and the secondary radicals resulting from the carbon-fluorine bond cleavage may recombine to form crosslinks. Irradiation in the presence of oxygen results in a lower melt viscosity and an increase in electrical conductivity. In general for the same level of radiation, absence of oxygen increases the tolerance to exposure. FEP has an order of magnitude higher tolerance level than PTFE, in air as well as in vacuum.

For additional information please click on the following link:
http://www.fluorotherm.com/chemical_resistance.html