

Application Note: Introduction to ECTFE coated sensors		AN0013GE
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APPLICATION NOTE

INTRODUCTION TO ECTFE COATED SENSORS

Revision Record:

Date	Description	Written by	Rev.
07/04/2004	Initial release	Savion Greenberg	1.00

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1. SCOPE

This document introduces new Solid AT sensors with ECTFE coating.

2. OBJECTIVES

- Familiarize the user with ECTFE specification and coating.
- Familiarize the user with ECTFE coating sensors applications.

3. INTRODUCTION TO ECTFE

Ethylene Chlorotrifluoro Ethylene (ECTFE) also known as Halar is a partially fluorinated semi-crystalline polymer offering a unique combination of mechanical properties, thermal and chemical resistance with an outstanding ease of process ability. Halar ECTFE, a copolymer of ethylene and chlorotrifluoroethylene is a very versatile polymer available in all forms to meet processing needs. Halar offers excellent resistance to abrasion, harsh chemicals and permeation. These characteristics have made Halar ECTFE a material of choice for several applications in the field of corrosion protection in the chemical, pharmaceutical and microelectronic industry.

Halar ECTFE is a high purity fluoropolymer with a very smooth surface. Halar meets the demands of fire-safe, non-fire propagating plastics.

4. ECTFE GENERAL ADVANTAGES

Solid AT' sensors with ECTFE coating have the following advantages:

- Excellent chemical resistance against highly concentrated chemicals, even for a broad range of alkaline (up to pH 14).
- Low permeability to liquids, gases and vapors.
- High elongation at break.
- Excellent impact resistance.
- Good resistance to stress cracking even in caustic solutions, chlorine and alkaline areas.
- Excellent weather proof and radiation proof.
- Low coefficient of thermal expansion.

5. ALUMINUM SENSOR WITH ECTFE COATING

The ECTFE coating is used with Solid AT' Aluminum sensor. The fact that Solid AT' Aluminum sensor is now coated with Halar coating enables one to use the Aluminum coated sensor in high corrosive applications. Aluminum sensor is well known for its high sensitivity to low echo, excellent signal to noise ratio and good performance in liquid and solid applications. However, up to date it wasn't suitable for high corrosive applications. Now with the use of the ECTFE coating, this sensor is applicable for all type of applications without reducing its quality and performance. The ECTFE extends the variety of applications in which the Aluminum sensor can be used. The ECTFE coating is 100-200 μ thickness.

6. ECTFE COATED SENSORS APPLIATIONS

The ECTFE-coated sensors can be used in complex environments such as highly acidic or alcoholic environments where non-conductive vapors or highly corrosive materials are involved. In other cases, use Solid AT' guidance (Application Guides, User Manual, etc.) to select the right product and sensor for your application considering the ultrasonic frequency, temperature, measured materials and ranges.

7. READING REFRANCES

More information on ECTFE can be found on the Internet. More than few companies offer ECTFE coating for cable wiring, corrosion protection of exhaust duct systems, transducers coating, etc. These companies usually offer more detailed explanation on the ECTFE structure and coating process.

More information can be found at:

http://www.boedeker.com/ectfe_p.htm

<http://www.vink.com/Default.asp?ID=6452>