ISOPROPYL ALCOHOL BASED SOLUTION

Typical end products
Housewrap, vehicle covers, envelopes, medical and industrial packaging, protective apparel.

Chemical curve: Isopropyl alcohol based solution R.I. per Conc % b.w. at Ref. Temp. of 25˚C

Introduction
Polyethylene fiber is known for its high strength and durability features. The material is used in a variety of applications, for example, Tyvek® HouseWrap, vehicle covers, envelopes, medical and industrial packaging, and as protective apparel.

Application
The polyethylene sheet is breathable and water repellent, prevents infiltration of air and water and allows vapor to pass through. The material is also strong, durable and puncture resistant. The sheet is made by spinning extremely fine high-density polyethylene fibers fused together to produce a strong uniform web.

Inside the sheet antistatic agent is applied as a thin microporous film on a coarse fabric consisting of millions of small pores. An isopropyl alcohol-based solution (Zelec®) is used as the antistatic agent.

Before the antistatic agent is applied, it must be diluted to a 1.5 or 2.5 % solution by the addition of water.

Instrumentation and installation
The K-Patents Process Refractometer PR-43-GC is used to measure the concentration of antistatic agent after it is diluted, and before it is applied to the polyethylene sheet.

The refractometer is installed in a pipe bend to control the concentration of the diluted agent before it is forwarded into 1.5 % or 2.5 % solution tanks. The antistatic solution is then applied to the polyethylene sheet to form a thin film.

The output signal from the refractometer can be used to control the water feed valve for an automated dilution control. The accurate measurement from the refractometer ensures the target concentration is achieved.

The measurement using ultrasonic flow meter has proved to be inaccurate and unreliable. Moreover, it is maintenance intensive. Hand held and lab sample refractometry have proved to be time consuming and disruptive. The K-Patents Process Refractometer is maintenance-free and provides an accurate and reliable continuous measurement of the agent solution in-line.
**Instrumentation Description**

K-Patents Process Refractometer PR-43-GC is a compact refractometer for smaller pipe sizes in general industrial applications. Available in 2 inch and 2.5 inch process connections and via reducing ferrule in 1.5 inch process connection. The refractometer is installed directly in a pipe elbow by an L coupling connection or in a straight pipe via a Wafer flow cell or a Pipe flow cell.

**User Interface**

Selectable multichannel MI, compact CI or a web-based WI user interface options allow the user to select the most preferred way to access and use the refractometer measurement and diagnostics data.

**Measurement range**

Refractive Index (nD) 1.3200 – 1.5300, corresponding to 0-100 % by weight.