**PERMEA-TEC™**
**(patent no. 5,976,881)**
**Sensor** for **Acid/Base**

# Permeation Detection of Acids and Caustics

Permeation of acids and caustics through gloves and protective clothing may be enhanced with solvent usage. Intermittent exposure to these solvents may not be well represented by the ASTM permeation test protocol which measures glove breakthrough times based on continuous exposure to the solution tested.

The **PERMEA-TEC™ Acid/Base** sensor detection system was developed to provide a method for field validation of chemical protective gloves. The colorimetric sensors are worn underneath the glove to detect breakthrough of acids or bases during actual work use conditions.

Field validation of gloves, rather than a non-representative laboratory validation, allows for optimal consideration of productivity, safety, and cost when choosing a glove or other personal protective clothing.

## Instructions for Use

To determine a user-safe time period for the particular glove, double gloving is necessary.

1. Affix **PERMEA-TEC™ Acid/Base** sensors to the thumb, middle finger and palm on the outside of the glove currently being worn. Don the glove to be evaluated over the first glove.
2. After one hour, remove the outside glove and the underlying **PERMEA-TEC™ Acid/Base** sensors.
3. A positive indication of breakthrough results in a color change. An acid will change from a neutral (orange) color to fuchsia/magenta at pH 3. A base will change from a neutral (orange) color to blue at pH 9.5.
4. If no breakthrough is indicated, apply fresh **PERMEA-TEC™ Acid/Base** sensors and continue to wear the outside glove for another hour. Follow Step 2 to determine if breakthrough has occurred.
5. By repeating Steps 3 and 4, you can determine a user-safe time period for gloves.

**Acid** Compounds = hydrochloric, sulfuric, hydrofluoric, phosphoric, nitric and acetic
**Basic** Compounds = ammonia, sodium hydroxide, triethylamine, 1-amino-2 propanol