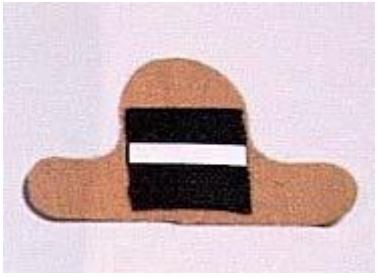
PERMEA-TEC™
(patent no. 5,976,881)
Sensor for ***Solvents***

Glove and Protective Clothing Breakthrough Indicators

Selection of PPE, especially gloves, is a complex process of weighing many variables to achieve optimal protection, cost effectiveness, and encourages productivity.

Due to wide variations in solvent resistance of glove and protective clothing compositions, the best choice for protection becomes even more difficult when different solvents or mixtures of solvents are present in the workplace. Although useful in the selection process, permeation data exists for only a limited number of chemicals; data on solvent mixtures is almost non-existent.

The **PERMEA-TEC**™ ***Solvent*** sensor detection system was developed to provide a method for field validation of chemical protective gloves. ***Field validation allows the industrial hygienist to give first consideration to safety when choosing a glove or personal protective clothing.***



sample **PERMEA-TEC**™ ***Solvent*** sensor

The **PERMEA-TEC**™ ***Solvent*** sensor is a colorimetric screening tool for glove evaluation under actual use conditions. CLI's micro-encapsulation detection indicator provides a color change (white to gray) indicating permeation for many common polar organic solvents. The activated charcoal pad is a highly efficient absorption medium to trap the permeating solvent(s) for laboratory identification. Based on the identification of the permeating solvent(s), a more effective glove material can be chosen

Simply attach the **PERMEA-TEC**™ ***Solvent*** sensor to workers' hands before gloving. It is recommended that the sensors be placed on the thumb, middle finger and palm as these locations represent the areas of greatest contact and possible abrasion that could enhance chemical penetration.

Instructions for Use

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

1. Affix **PERMEA-TEC**™ ***Solvent*** 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**™ ***Solvent*** sensors.
3. A positive indication of breakthrough results in a color change of white to gray on the indicator. The sensitivity of the reaction varies with the solvent, but is normally in the range of .5 – 5mg.
4. If no breakthrough is indicated, apply fresh **PERMEA-TEC**™ ***Solvent*** 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.

When using a solvent mixture, thermal desorption or solvent desorption can be used to identify the permeating solvent. Remove the charcoal pad from the **PERMEA-TEC**™ ***Solvent*** sensors and place in an airtight vial for shipment to the laboratory and analysis via GC. For highly toxic solvents or solvents with a poor indicator response, such as benzene or other non-polar solvents, the charcoal pad should be relied on as the primary detection method.

Other **PERMEA-TEC**™ sensors are available for:

Aromatic Amines:	MDA, aniline, o-toluidine, etc.
Aromatic Isocyanates:	TDI, MDI, etc.
Aliphatic Isocyanates:	HDI, HMDI, etc.
Hydrazines:	N_2H_4, MMH, and UDMH
Acid/Base:	HCL, HF, H_2SO_4, NH_3 and aliphatic amines
Phenols	