

Instructions

Solvent

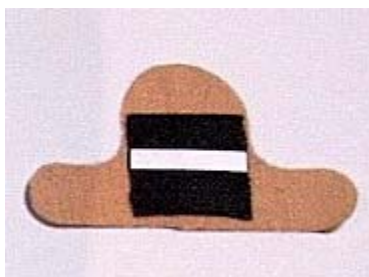
PERMEA-TEC™ Pads

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 encourage 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™ detection systems were developed to provide a method for field validation of chemical protective clothing. ***Field validation allows the industrial hygienist to give first consideration to safety when choosing a glove or personal protective clothing.***



Sample Solvent PERMEA-TEC™ Pad

The Solvent PERMEA-TEC™ is a screening tool for glove evaluation under actual use conditions. CLI's micro-encapsulation detection indicator (patent pending) 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 solvents for laboratory identification. Based on the identification of the permeating solvent(s), a more effective glove material can be chosen.

Simply attach PERMEA-TEC™ pads to workers' hands before gloving. It is recommended that the pads 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

- **Glove Selection and Evaluation**

To help determine the period of “safe use” for a glove, “PERMEA-TEC™ pads are worn under gloves on both hands. As a safety precaution, it is recommended that during the initial evaluation of a new glove, workers should be doubled gloved. Place “PERMEA-TEC™” pads on the outside of the glove currently in use. Then wear the glove to be evaluated over the first. After one hour remove one outside glove and inspect the PERMEA-TEC™ for indication of chemical breakthrough. If no breakthrough occurred, continue working for another hour and then check the “PERMEA-TECs™ again. These intervals can be increased or decreased until the effective “safe use” period is determined.

- **Normal Use**

After a “safe use” time period for a glove has been determined, design a change-out schedule for gloves and PERMEA-TECs™ that assures and documents protection from chemical exposure.

- **Laboratory Analysis**

The micro-encapsulated indicator turns from white to gray with solvent exposure. The sensitivity of the reaction varies with the solvent, but is normally in the range of .5 – 5 mg.

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™; place it 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™ indicators are available for:

Aromatic Amines: MDA, aniline, o-toluidine, etc.

Aromatic Isocyanates: TDI, MDI, etc.

Aliphatic Isocyanates: HDI, HMDI, etc.

Hydrazines: N₂H₄, MMH, and UDMH

Acid/Base: HCL, HF, H₂SO₄, NH₃, and aliphatic amines