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Communications

EDITOR CONTACT:  
Linda Barlow, Kapnek

215-830-9890 / [Linda@kapnek.com](mailto:Linda@kapnek.com)

### Quick Tips: Selecting Chemical Barrier Apparel

- There are two primary ways to evaluate a garment's chemical barrier performance: permeation testing and penetration testing.
- **Permeation testing** measures a chemical's movement through a material on a *molecular level*. It typically applies to Level A (per EPA) garments that protect against unknown hazards or gaseous/vapor phase chemicals that represent the highest level of respiratory and skin threats.
- The **permeation testing** scenario is much more severe than situations typically found in settings where only splash or intermittent contact occurs. It is equivalent to being fully immersed in a liquid chemical or being in a gaseous environment at 100 percent concentration for an entire work shift.
- **Penetration testing** measures the bulk flow of liquids through a material or seam in a garment. It applies to Level B and C (per EPA) garments that protect against moderate-skin-threat liquid chemicals.
- **Penetration testing** is more appropriate for situations where splash exposure is anticipated. Unlike permeation testing, test results are not open to interpretation; they are presented as either PASS or FAIL.
- In many cases of liquid chemical splashes and sprays, the liquid either evaporates quickly or runs off the garment before having the chance to penetrate through the garment and reach the skin.
- Overemphasizing permeation performance over penetration performance may result in a garment selection process that is overprotective, creating undue worker stress and productivity loss as well as higher cost. Applying penetration resistance data, on the other hand, provides the ability to evaluate more comfortable, lighter weight clothing with acceptable splash protection, versus heavier weight, high-permeation-resistant clothing.

For more information on selecting the proper chemical protection garments, visit [www.kc-safety.com/kn](http://www.kc-safety.com/kn).

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