

# Comparison of Ensemble Total Inward Leakage Tests – FY12 (927ZKQZ)

## Objective

To evaluate the three most commonly used inward leakage tests for personal protective equipment (PPE) ensembles including the Inward Leakage Test (SF6), Man-In-Simulant-Test (MIST) and Total Inward Leakage Test (Corn Oil)



## Applicable Standards

- ASTM F2588, Man-In-Simulant Test Method
- 42 CFR Part 84 - Respirators (Corn Oil)
- NFPA 1991 (SF6), 1994 (MIST), 1971 (MIST), 1951 (MIST)
- NIJ CBRN for Law Enforcement PPE (MIST)
- ASTM for Air-Fed Ensembles (SF6)

## Key Partners

- N.C. State University
- Underwriters Laboratories
- Lion Apparel

## Stakeholders

- First Responders
- SDOs
- Test Labs



## Project Scope

- The proposed research effort will result a greater understanding of the three most commonly used inward leakage tests.
- A range of ensembles will be selected and human subject testing will be conducted to compare and contrast the TIL tests.
- Information on the TIL tests will aid SDOs in the development of standards and help to ensure consistent evaluation and certification.
- Creation of ASTM standards for the SF6 and corn oil tests.

## Milestones FY 12

- Project will be ending in FY12 due to lack of project officer availability.

## Expected Outputs

- Presentations at Standards meetings (ASTM, NFPA, NIJ)
- Input to standards development organizations (SDOs) for further TIL test development
- Conference presentations and peer reviewed journal articles
- Final technical report

## Expected Outcomes

- Completed ASTM Test Methods for the Inward Leakage (SF6) Test and possibly the Total Inward Leakage Test (Corn Oil)
- Incorporation of any recommended changes to NFPA, ASTM or NIJ Standards

Updated: 28 March 12