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Instrumentation and Measurement Issues in the Proposed NIOSH TIL Rulemaking

NIOSH TIL Rulemaking Meeting, December 3, 2009

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Presented on behalf of TSI Inc. by Jeff Weed



WeedRPS
Weed Respiratory Protection Solutions, LLC

- TSI's intent is to help NIOSH create a document that...
 - clearly and precisely specifies the measurements to be made and the instrumentation to be used.
 - is technically correct.
 - is generic, i.e. not dependent on a specific commercial instrument or manufacturer.

Current Rule as Proposed:

- Specifies a Condensation Nuclei Counter (CNC) but is unclear about use of:
 - Electrostatic classifier
 - a.k.a. N95-Companion accessory for PortaCount
 - a.k.a. Differential Mobility Analyzer (DMA)
 - Aerosol neutralizer
 - some CNC's have neutralizer built-in

Current Rule as Proposed:

- Contains ambiguous specifications regarding challenge aerosol characteristics

(6) The TIL will be measured in the presence of a sodium chloride challenge aerosol with a concentration of 1,500 to 3,000 particles/cm³ within the size range of 0.02 to 0.06 micrometers.

(ii) Measure only the concentrations of sodium chloride challenge aerosol in the approximate size range of 0.02 to 0.06 micrometers (mass median aerodynamic diameter); and

Some specifications appear to be for a CNC alone, and others appear to be for a CNC with a classifier

Current Rule as Proposed:

- Contains a confusing specification regarding instrument linearity

(iii) Respond linearly to changes in the aerosol concentration, within ± 5 percent, over the ambient concentration range of 70 to 3,000 particles/cm³ and TIL ≤ 5.0 percent, within the particle size range of 0.02 to 0.06 micrometers.

TSI is concernrd about the measurement of TIL instead of face seal leakage alone.

Measuring face seal leakage simultaneously with filter quality seriously complicates the rulemaking.

- Filter efficiency and particle size issues should be addressed separately from face seal leakage issues in 42 CFR 84.
- This rulemaking should focus on face seal leakage alone, not TIL.

Extension of Comment Period

- Laboratory work that will support the comments TSI intends to submit to the docket is in progress.
- This work cannot be completed by the end of December.
- TSI will be submitting a request to extend the comment period by 60 days.