

## **A Proposal to Establish a Proficiency Testing System for Chemical Challenge Testing of Respirator Cartridges**

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While laboratories around the world perform chemical challenge testing of air purifying respirators, few publish their test methods in open literature. International standards describe tests in a general fashion, leaving details unspecified, to permit individual labs freedom to perform tests in different ways. In the USA, NIOSH provides more detailed test descriptions. Still, no publication provides principles and guidelines for chemical challenge tests that could serve as a guide for labs seeking to achieve accurate and precise test procedures.

We believe the lack of standardization of test methods has created a situation where different laboratories performing the same test on the same article may be likely, at times, to get differing results. This proposition cannot currently be proved one way or the other, as respirator cartridge reference materials for inter-laboratory comparisons are currently not available.

This presentation will provide a proposal for establishing a round robin testing system that could initially assess the degree of agreement among different labs performing the same chemical challenge test. Eventually, round robin testing could evolve into a proficiency test system including: (a) establishment of reference materials; (b) challenge tests to be used for initial lab-to-lab comparisons; (c) an administrative structure for dispensing reference materials and collecting results; (d) statistical evaluation of round robin data; (e) uniform reporting of study results.

We would hope that round robin testing of reference materials could lead to development of a community of labs committed to improving the accuracy of testing and the level of agreement among test labs.

(Suggested as a Podium Presentation)