

A CARTRIDGE SIMULATOR FOR TESTING END OF LIFE OF SERVICE INDICATORS

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The respirator user community has had a long standing interest in end-of-service life (ESLI) indicators for air purifying respirator cartridges. However there are no ESLI devices for organic vapors so users must rely upon ESLI calculators or professional judgment to know when their cartridge should be changed. Since 2002 the National Institute for Occupational Safety and Health (NIOSH) has been carrying out a program to research ESLI technologies and evaluate promising systems. Among the most promising systems being considered are chemical micro-sensors. It is highly desirable to have a means to evaluate prototype ESLI systems in a laboratory setting that can simulate real workplace operations. A cartridge simulator was developed for this purpose. It permits evaluation of sensors and sensor systems inside and outside of an activated carbon bed. This presentation will focus on the development and validation of the cartridge simulator and discuss some preliminary results from testing prototype ESLI systems for organic vapor cartridges.