



# PREVENTING OVEREXPOSURE TO HAZARDOUS SUBSTANCES THROUGH RESPIRATOR CERTIFICATION

## WHAT IS THE PUBLIC HEALTH PROBLEM?

- When engineering and other controls do not reduce exposures below hazardous levels, workers must use personal protective equipment as a condition of employment. Industries that often require workers to use such equipment include mining, fire fighting and other emergency response, health care, and agriculture.
- People who respond to hazardous incidents or terrorist activities need assurance that the protective equipment they use will perform to specifications and meet minimum performance standards.

## WHAT HAS NIOSH ACCOMPLISHED?

The National Institute for Occupational Safety and Health (NIOSH) conducts a respirator certification program that ensures respiratory protective equipment will perform to the established minimum standards. The program assesses the ability of the equipment's design to meet regulatory performance and quality standards. Since 1972, NIOSH has issued more than 8,200 approvals, 187 of which were issued within the last year. In 2003, NIOSH processed 399 certification applications for respirators produced by 90 manufacturers in 102 sites located in 18 countries. Forty-one product audits were completed. Eleven respirator manufacturing sites were audited, including two foreign sites. Twenty-three reports of problems with NIOSH-approved respirators were received and 18 related investigations were completed; seven of these investigations led to product recalls or field retrofit actions. Five new policies were developed and implemented to assess new and innovative respirator designs. According to a recent study conducted jointly with the Bureau of Labor Statistics, approximately 3.3 million workers use NIOSH-certified respirators.

### *Examples of program in action:*

- In early 2002, NIOSH certified the first self-contained breathing apparatus (SCBA) for chemical, biological, radiological, or nuclear (CBRN) exposures, the type of respirator most likely to be used by first responders to potential terrorist incidents.
- In 2003, NIOSH issued criteria for testing and certifying CBRN air-purifying respirators used by emergency responders.
- In 2003, NIOSH issued criteria for testing and certifying CBRN air-purifying escape respirators intended to help employees escape life-threatening toxic exposures in terrorist attacks at their workplace.
- NIOSH also initiated a CBRN SCBA retrofit certification program that allows existing SCBA to be upgraded to CBRN performance requirements, using a NIOSH-approved retrofit kit. This will enable responders to obtain CBRN protection without purchasing new equipment. The first retrofit kit was approved in September 2003.
- NIOSH developed and implemented a CBRN research and development test program to increase respirator manufacturers' ability to conduct research and development; manufacturers can test the effectiveness of their respirators against chemical warfare agents at a U.S. Army chemical test laboratory, before submitting them for NIOSH certification testing.
- NIOSH developed a new computer program that can be used to accurately predict when a respirator's cartridge filter will lose its ability to protect the wearer from toxic air contaminants.

## WHAT ARE THE NEXT STEPS?

NIOSH currently is updating its existing quality assurance standard to promote improved respirator quality and reliability. NIOSH also is developing standards for certifying self-contained, closed-circuit escape breathing apparatus such as the self-contained self-rescuers that are used in the mining industry.

*Additional information is available at [www.cdc.gov/niosh/npptl](http://www.cdc.gov/niosh/npptl). For more information on other NIOSH programs, visit [www.cdc.gov/niosh/docs/pib/](http://www.cdc.gov/niosh/docs/pib/).* March 2004

