

POF032: General platform presentation

Evolution of Qualitative Fit Test Protocols in the United States

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Abstract:

The concept that facepieces of respiratory protective devices must fit the wearer in order to provide optimum protection has existed for some time in the United States.

In the 1930s, the US Bureau of Mines evaluated respirators for fit using coal dust for certification. This concept of proper fit of the facepiece to the face has evolved. An important part of respirator training for the wearer became how to determine if the respirator fits properly.

With the advent of the Occupational Safety and Health Administration (OSHA), individual fit testing became a requirement intended to: 1) find the brand of a particular respirator type that fits, and 2) ensure that the wearer knows when the respirator fits properly.

Both of these issues can be resolved by performing a respirator fit test. There are two major type of fit testing, qualitative and quantitative.

Qualitative fit testing (QLFT) uses wearer input to determine whether the fit is adequate. Historically, qualitative fit tests included tests such as negative-pressure, positive-pressure, irritant smoke, and isoamyl acetate.

In the 1980s, the procedures for qualitative fit tests evolved, for instance to include specific test exercises. Today's validated test protocols include agents for saccharin, isoamyl acetate, irritant smoke, and Bitrex.™ The validated protocols have been adopted in several standards and regulations. The differences between the original protocols and the OSHA and ISO versions will be pointed out.