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A Practical Method for Interpreting Breathing Curves in the Selection of Negative Pressure Respirators

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ABSTRACT

Certain aspects of a spirograph breathing curve may seem obscure even to professionals in the field of respiratory protection. Yet, a solid understanding of the spirograph can be highly useful in the evaluation of negative pressure respirators.

A few factors form the basis of such insight. Firstly, the difference between minute flow and peak flow, and the relationship between them. Secondly, the extra load the pressure drop over the filter places on the wearer, and the consequent increase in energy consumption.

Armed with a good understanding of how a spirograph test is conducted and what the breathing curve actually shows, the safety professional can glean much more information from a single curve than seems possible at first sight. The usefulness of the spirograph becomes all the more evident when comparing the curves for two different respirators.

This paper presents a new method designed to demonstrate, in a practical way, the long-term impact a negative pressure respirator has on the wearer. By taking basic data from a spirograph curve, the user can rapidly gain a clear idea of the difference between respirators during actual work. This new method can be of great use in equipment comparison and selection.