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FORM 33

NEW SOUTH WALES
DEPARTMENT OF PUBLIC HEALTH

ML 5402

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ATTN:

11th September, 1962.

Dr. I. D. Letham,
Physician,
Occupational Health,
Department of Public Health,
Box 114 G.P.O.,
PERTH, Western Australia.

Dear Dr. Letham,

Reference Your Letter of 14th August, 1962,
concerning dust retention by filter pads of
respirators.

Size analysis of dust particle sizes retained by filter pads of respirators is difficult to achieve accurately. The major drawback is the incomplete removal of dust from the pad, unless the latter can be chemically dissolved, or eliminated in some way, leaving the dust in suspension, without affecting it. The type of material in the filter is not mentioned, e.g. whether paper, cotton wool, or resin wool.

The efficiency of such filters can be much more readily obtained by artificial means, such as dust testing on each side of pads through which dust laden air is drawn, or by the methylene blue penetration test, which includes particles down to 0.1 micron. High efficiency pads retain in excess of 99 per cent of the methylene blue.

A number of methods can be used to get out a great deal of the dust from a pad, such as teasing in a beaker of alcohol-water mixture or the use of sound waves (ultrasound). Not all dust is removed in this way, which could lead to a false impression of the efficiency of the pad.

It is possible to carry out chemical analysis of the dust, for free silica, by dissolving the dust in a suitable solvent and analysing the solution. This method is not recommended for the purpose of dust analysis.

It is also possible to carry out particle size analysis of dust, for example, by using a light microscope. This method is not recommended for the purpose of dust analysis.

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