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LETTER TO THE EDITOR

Asbestos dust levels inside firefighting helmets with chrysotile asbestos covers

Sir,

Attention has been drawn by BAMBER and BUTTERWORTH (1970) to a possible asbestos hazard caused by wearing asbestos protective clothing. Naval firefighting teams wear firefighting helmets which have chrysotile asbestos covers. Since the helmet completely encloses the head and shoulders it seemed possible that the wearer might be exposed to harmful levels of asbestos dust. Tests were therefore made to assess the dust levels which are likely to arise in the breathing zones of the wearers of these helmets.

Three helmets were tested. The first was a new helmet with an unlined chrysotile asbestos cover, the surface of which seemed to contain loose fibres. The second helmet was identical to the first except that it had been laundered several times and its appearance suggested that most of the loose fibres had been removed by washing. The third helmet was covered with asbestos cloth aluminised on its inner and outer surfaces, and it appeared least likely to liberate asbestos dust.

A subject protected by an approved dust filter respirator wore each helmet for twenty-five min. Dust samples were collected inside each helmet in the breathing zone of the wearer. The samples were collected on millipore membrane filters, 37 mm dia. and pore size 0.8 μm, using a long running Casella Type C personal sampler at 3 l/min. The method of preparing and counting the samples was that described by HOLMES (1965) using a light microscope under phase contrast conditions at ×400 magnification.

The dust levels recorded for each helmet are shown in the Table. The figures

Type of helmet	Dust concentration (fibres/cm³)	Sampling period (min)
New helmet with unlined asbestos cloth cover	2·30	22·4
Old helmet with unlined asbestos cloth cover	1·38	20·6
Helmet with aluminised asbestos cover	0	20·5

suggest that asbestos dust levels encountered by the wearers of helmets with unlined asbestos covers are likely to be close to the tentative threshold level of 2 fibres/cm³ for chrysotile adopted by HM FACTORY INSPECTORATE (1969). This value is based

on the concept that there is probably a 1 per cent risk of developing asbestosis with 100 fibre yr/cm³ of asbestos exposure. The time weighted average concentrations of asbestos dust associated with wearing firefighting helmets will be lower than those found in these tests because the helmets are not worn continuously. The risk from asbestos dust is very small and is far outweighed by the protection against fire provided by the helmets. The use of aluminised asbestos cloth covered firefighting helmets is to be recommended because no airborne asbestos associated with this type of helmet was detected in these tests.

I am grateful to Mr. D. SWEET for carrying out the dust sampling and to the MEDICAL DIRECTOR GENERAL (Naval) for permission to publish this letter.

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