



HOME OFFICE

Horseferry House, Dean Ryle Street, LONDON S.W.1

Telex: 24986

Telephone: ~~01-834 6655 ext.~~ 01-211-3000

Library

Our reference: FIR/72 41/9/11
Your reference:

17 December 1974

To all Chief Fire Officers

47345

Dear Chief Officer

TOXIC HAZARDS AND RIGID POLYURETHANE FOAMS

1 You may be aware of concern recently expressed about reports of experiments carried out in the USA, relating to highly toxic substances produced by the combustion of a certain type of fire-retarded polyurethane foam. The Home Office and the Fire Research Station have been informed of these experiments, which were brought to the attention of the Joint Committee on Fire Research of the Central Fire Brigades Advisory Council at a recent meeting. The Committee agreed that I should inform chief fire officers of the situation.

2 The experiments have been concerned with specially made rigid polyurethane foams made from trimethylolpropane (TMP) of low molecular weight and containing a phosphorus based fire retardant. When this foam was burnt under small scale laboratory conditions, within a narrow temperature band, believed to be about 300°C, the toxic physiological effects on rats of the gases produced were much more severe than those attributed to carbon monoxide and hydrogen cyanide known to be present in polyurethane fires. On the basis of the limited amount of information available it is not yet possible to assess the exact nature of the toxicity problem or the types and extent of use of the foams involved. But I think it is important to appreciate that the laboratory conditions were highly maximised exposures in which the rats were held in the steam of combustion gases for an appreciable period of time and also that it has not yet been established whether the appropriate combustion conditions could be reproduced in a "real" fire.

3 The Fire Research Station is carrying out intensive studies to elucidate fully the types of material and combustion conditions involved and is working in close consultation with the Chemical Defence Establishment at Porton and with the International Isocyanate Institute (III) and in particular with ICI who act as the focus for III in this country. We understand from ICI that similar experiments involving flexible foam have not produced comparable results to those obtained with rigid foam. The Home Office is being kept informed of the progress of these various studies.

4 The primary concern of the Home Office is with the possible dangers to firemen. The Department takes the view on the basis of the information so far obtained that breathing apparatus would provide complete respiratory protection and that it would not be justified in recommending that firemen should take additional precautions when attending fires, other than those which should normally be taken when the presence of polyurethane foam is suspected. I hope that the information which I have given you will put the American findings in perspective and will assist you in dealing with any enquiries which you may receive. I shall, of course, inform you of further developments.

Yours sincerely



No. 46/1974

