

Representative specimens of flexible polyurethane foam and polyester fabric were thermally decomposed separately and together in order to compare the toxicity of the combustion products from the combined materials with those from the single homogeneous materials and to compare the toxicological results obtained with the NBS Toxicity Test Method with those using a cone radiant heater toxicity test apparatus.

Gas concentrations (CO, CO<sub>2</sub>, O<sub>2</sub> and HCN), blood carboxyhemoglobin, and LC50 values in Fischer 344 rats were determined for the separate and combined materials under both flaming and non-flaming conditions. Using the NBS Toxicity Test Method, the non-flaming combined experiments indicated that both materials contributed in an additive manner to the concentration of the combustion products.

However, under flaming conditions, the generation of HCN is greater than that predicted from the addition of the maximum amounts produced by the materials separately.

With the cone radiant heater apparatus operated so as to generate the maximum concentrations of combustion products in the animal exposure chamber, deaths were observed in the combination experiments, but not in the single material exposures.

In the combined material testing with both toxicity test systems, flaming conditions produced deaths within the 30 minute exposures; whereas, non-flaming conditions produced deaths following the exposures. Estimated LC50 values for the combined materials in the radiant furnace were not greatly different from the calculated values obtained with the NBS Toxicity Test.

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