

OSHA Hazard Information Bulletins Fire Hazard of Polyurethane and Other Organic Foam Insulation Aboard Ships and in Construction

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May 10, 1989

MEMORANDUM FOR:

REGIONAL ADMINISTRATORS

THRU:

- LEO CAREY
- Director
- Office of Field Programs

FROM:

- EDWARD J. BAIER
- Director
- Directorate of Technical Support

SUBJECT:

Safety **Hazard Information Bulletin** on Fire Hazard of Polyurethane and Other Organic Foam Insulation Aboard Ships and in Construction

The Seattle Regional Office has brought to our attention a Potential fire hazard involving the use of Polyurethane and other organic foam insulation found aboard ships and in building construction. Instances of fires associated with this insulation, have been documented demonstrating the need for better understanding of the fire hazard of this type of material.

Rigid polyurethane and polyisocyanurate foams will, when ignited, burn rapidly and produce intense heat, dense smoke and gases which are irritating, flammable and/or toxic. As with other organic materials the most significant gas is usually carbon monoxide. Thermal

decomposition products from polyurethane foam, consist mainly of carbon monoxide, benzene, toluene, oxides of nitrogen, hydrogen cyanide, acetaldehyde, acetone, propene, carbon dioxide, alkenes and water vapor.

All organic cellular plastics, whether or not they contain fire retardants, should be considered combustible and handled accordingly. Terms like "fire-retardant", "flame-resistant", and "self-extinguishing", sometimes used to describe the combustibility characteristics of foams are valid measures of the performance of these materials under small fire exposure, and are not intended to reflect hazards under exposure to large scale fire conditions.

In building construction, fire usually is of serious concern because there may be storage of exposed foam, incomplete installation, other dangers of improper application and disposal practices, poor housekeeping conditions, and the potential for exposure to open flame from allied trades during certain construction activities.

Polyurethane and other organic foam materials are finding increased use on vessels because of their excellent insulating properties and light weight. Since serious fires involving the use of these materials have occurred on several ships, the United States Coast Guard has issued a Navigation and Vessel Inspection Circular No. 8-80, addressing the fire hazards of polyurethane and other organic foam materials.

Enclosed for your information are two bulletins which address the fire hazards of polyurethane and other organic foams

1. United States Coast Guard Navigation and Vessel Inspection Circular No. 8-80.
2. "Fire Safety Guidelines for Use of Rigid Polyurethane or Polyisocyanurate Foam Insulation in Building Construction", Published by the Urethane Division, the Society of the Plastics Industry.

One of the major safety precautions to be taken around organic foams is to prohibit sources of ignition such as open flames, cutting and welding torches, high intensity heat sources and smoking. The safety recommendations of the foam supplier must be observed in addition to the minimum requirements set by OSHA for fire protection.

Please distribute this bulletin to all area offices, State Plan States and Consultation Project Officers.