

# Polyurethane Foam Health Hazards



## Health Hazard Information Card HH-3

Polyurethane foam products are used to help seal ventilation controls and stabilize the mine roof in high stress areas. The most commonly used products are flexible and rigid foams, which are injected into the mine roof or ribs, or sprayed on or applied to ventilation controls.

If proper safety precautions are followed, polyurethane foam products can be used safely without exposing miners to the hazards associated with the chemicals found in these products. However, misuse of these products may result in serious health problems, such as asthma, respiratory diseases, or death.

- **How are miners likely to be exposed?**

Miners are likely to be exposed by mishandling or using the products without wearing appropriate personal protective equipment. The most common way miners are exposed is by contact with unprotected skin while handling the components or unreacted liquid coating foam. However, exposure may also occur by inhalation of vapors or aerosols.

- **What are the harmful effects?**

Exposure to chemicals commonly found in most polyurethane foam products may cause serious or fatal respiratory disease. These chemicals are powerful irritants to the mucous membranes of the eyes,

gastrointestinal tract, and respiratory system. Persons exposed to these chemicals may become sensitized, making them subject to severe asthma attacks if re-exposed, even at very low concentrations. Direct skin contact can result in marked inflammation to the exposed skin.

- **What are the symptoms of overexposure?**

Persons who become sensitized often experience flu-like symptoms which develop 4 to 6 hours after exposure. The symptoms include: fever, muscle aches, headaches, dry cough, chest tightness, and difficult breathing. Persons suffering with chronic hypersensitivity often experience fatigue, more difficult breathing, and unexplained weight loss. Continued exposures in sensitized persons, even at very low concentrations, can result in death.

- **What can be done if symptoms develop?**

If you begin experiencing these symptoms, you should seek medical attention immediately. You should provide the attending physician with as much information as possible regarding the type of polyurethane foam you were exposed to, the length of exposure, and what you were doing at the time of exposure. If the physician determines that you are suffering from a job related illness, you should inform the mine operator. Operators are required to report all job related illnesses on the Mine Accident, Injury and Illness Report, MSHA Form 7000-1.

- **What can be done to limit exposure?**

MSHA requires coal mine operators to detail the control measures and areas of use for polyurethane foam in underground coal mines in the appropriate approved ventilation or roof control plans. All persons working with, or in the areas where these types of products are being used, should be fully trained in the safe use and handling requirements for these products. All persons who have the potential of being exposed should be provided with the approved personal protective equipment such as: respiratory protection; chemical goggles or face shields; chemical resistant gloves; and full body coverings such as long-sleeve shirts and full length pants, or disposable coveralls.

If you have any questions regarding the safe use of polyurethane foam products, contact your local MSHA office or MSHA's national office at (202) 693-9414.

***Our job is to protect your health***