



## **Spray Polyurethane Foam (SPF) Systems Containing Unreacted Diisocyanates**

**Priority Product description:** SPF systems are used for home and building insulation, weatherization, sealing and roofing. The systems are designed to be sprayed directly onto walls, floors and roofs, creating insulation from air and moisture or sealing cracks. Exposure to diisocyanates generally occurs when you breathe in or come into skin contact with vapors, aerosols and dust associated with SPF materials.

### **Why was this Priority Product selected?**

Diisocyanates in unreacted SPF systems have been identified as a leading cause of occupational asthma in the United States and the European Union. The chemical is widely used – about 50 percent of SPF products on shelves today are comprised of diisocyanates. DTSC selected these products due to their potential for adverse impacts on public health, including fatalities, lung damage, asthma, and respiratory problems and potential exposure to people who use them.

### **Who is at risk?**

Workers using these products, "Do-it-Yourselfers," and residents who use or are exposed to these materials in their homes.

### **What are the hazards of diisocyanates?**

- Known to cause severe asthma in humans
- Cause allergic and immune reactions
- Skin, eye and respiratory irritants
- Sensitizers; repeated exposure can cause more severe responses (e.g., difficulty breathing)
- Suspected to cause cancer

### **Are there safer alternatives to diisocyanates in SPF systems?**

Potential alternatives for insulation include cellulose (recycled paper), natural fibers (such as straw and hemp), plastic fibers, phenolic foam, rock and slag wool, and fiberglass. For sealing, caulking products may be an alternative to SPF.

### **How do I reduce my exposure?**

- Consider using non-SPF products.
- If you do need to use SPF:
  - Use proper exhaust and ventilation.
  - Restrict areas exposed to diisocyanates to essential workers.
  - Wear protective clothing with face shields and respiratory equipment if handling SPF materials.
  - Follow the manufacturer's use directions. Some manufacturers offer training to professional users of SPF (i.e., contractors).