

CertainTeed

# CERTASPRAY<sup>®</sup>

Spray Foam Insulation Safety Guidelines

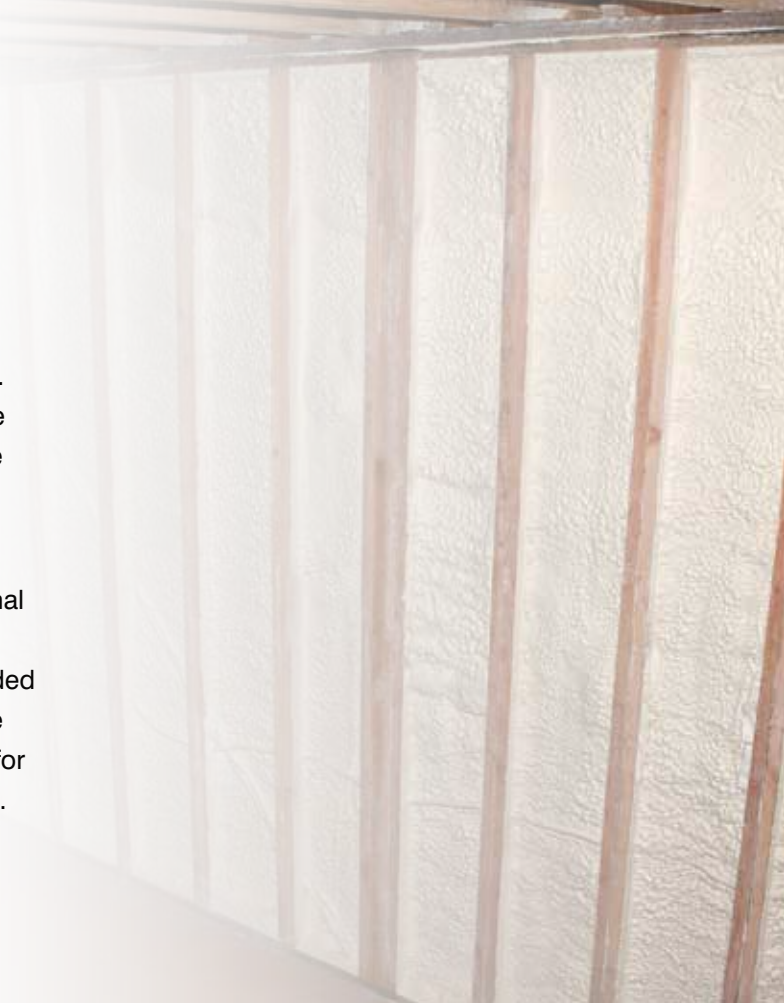


# CERTASPRAY®

## Spray Foam Insulation

It's vitally important to be aware that workers who install CertaSpray® may be exposed to a variety of hazards on the job. Contact with CertaSpray's two chemical ingredients, isocyanate (A-side) and resin (B-side) — whether in vapor, liquid or particle form — can affect the skin, eyes and respiratory system.

While measures such as ventilation equipment can be used to limit the amount of airborne chemicals in the work zone, personal protective equipment (PPE) is required when working with CertaSpray. And please remember: This brochure is only intended as a brief overview of health and safety guidelines related to the handling and installation of CertaSpray. It is not a replacement for a complete training course, which is available from CertainTeed.



## Required Protective Gear

- Supplied air respirator\*
  - Air source
  - Full face mask, hood or helmet
- Protective eyewear: goggles (if eyes not protected by respirator head gear)
- Gloves and boots: butyl, nitrile or neoprene rubber
- Coveralls: Saranex-coated Tyvek® or equivalent Tyvek® if airborne concentrations of isocyanate are known

\* An air purifying respirator (APR) with HEPA/OV cartridge is NOT an approved alternative to a supplied air respirator when installing spray foam or working in close proximity to such an installation.

## Personal Protective Equipment

### Supplied Air Respirators

Supplied air respirators — also called Type C systems or air-line respirators — consist of a full face mask, hood or helmet to which air is supplied through a small-diameter hose connected to an air source. This equipment provides the greatest protection for the installer.

Air is either supplied by a compressor, drawn from bottled (compressed) air through a hose, or carried by the installer (a self-contained breathing apparatus, or SCBA).

**Note:** When using a compressor to supply fresh air, a carbon monoxide monitor should also be used.

Here are some tips on setting up a compressor as the air source.

- Position the compressor intake in an area where the air is clean, away from internal combustion engines and the spray site (so that it doesn't pick up foam particles or vapors).
- The air source should always have normal ambient oxygen content (19.5%-23.5%) and should be monitored for carbon monoxide content (below 10 ppm).
- There should be no more than 5 milligrams per cubic meter of condensed hydrocarbon contamination, no pronounced odor, and a maximum of 1000 ppm of carbon dioxide.
- Compressors should be equipped with breathing air purifier assemblies.
- Never use pure oxygen in any part of the gas supply system for air-supplied respirators. Respirators should be supplied with air of at least Grade D quality.
- Use only compressor oil suitable for breathing air systems, preferably made by the compressor or breathing air manufacturer. Check before each use and frequently during use.
- Before starting and operating a compressor and purifier system, inspect all system parts for structural damage that could cause an explosion. Inspect safety relief valves carefully, and check that they are in good working order.
- Air-line couplings must be incompatible with outlets for other gas systems to ensure that the respirator's air line is not inadvertently switched to non-breathable gases or pure oxygen.

### Skin Protection

The use of protective equipment is required whenever there is a possibility of direct contact with isocyanate. Overspray is difficult to prevent, so spray applicators should wear disposable coveralls, gloves, hoods, and shoe protectors in addition to respiratory protection. Precautions must also be taken to protect other individuals and vehicles from overspray.

### Eye Protection

When there is potential for airborne or liquid isocyanate to contact the eyes, workers must wear appropriate eye protection, such as a full face mask. An eyewash fountain or eyewash bottles should be installed in an easily accessible location, such as the spray rig.



## Isocyanate Health Issues

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Isocyanate (commonly referred to as the A-side) should be handled with great caution and respect. Remember that this chemical has poor odor warning properties — if you smell it, exposure limits have probably been exceeded.

Exposure to isocyanate is irritating to the skin, mucous membranes, eyes and respiratory tract. The most common adverse health effect is asthma-like symptoms due to sensitization; sensitization of the skin may also occur.

The intensity of these symptoms will vary with the degree of sensitization; as with asthma, different individuals will react differently. Skin and/or respiratory sensitization may not develop until many months or years of overexposure have occurred. However, there are reports of sensitization from a single exposure above the OSHA permissible exposure limits (PEL). Once sensitization has occurred, even staying within recommended exposure limits will not protect the individual; it's likely he or she will never be able to work with spray foam insulation again. This is why following the required safety precautions is so important.



**Note:** Workers with a history of adult asthma should be restricted from working with isocyanate or in areas where isocyanate is being used.

## Resin Health Issues

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Resin normally contains several different chemicals, including polyol — the principal ingredient — and smaller amounts of amine or metal catalysts, blowing agents, surfactants and fire retardants.

Polyols may be slightly irritating to the eyes, skin and respiratory tract at high exposure levels, especially during spray application. Some frequently used amines are ammonia derivatives and have a characteristic fishy

or rancid odor. They are generally highly irritating to the eyes, skin and respiratory system. Direct eye contact may cause permanent eye damage and, in extreme cases, blindness due to corrosive tissue damage.

Exposure to amine vapors may also produce temporary and reversible hazy or blurred vision, often referred to as “halo vision.” Symptoms disappear when exposure is terminated.

### General Symptoms

- Respiratory and skin sensitization
- Asthma
- Tight feeling in chest
- Headaches
- Vomiting
- Chemical pneumonia

### Routes of Exposure and Specific Symptoms

- Inhalation
  - Irritation of respiratory tract
  - Wheezing
  - Sore throat
  - Coughing
  - Respiratory sensitization (allergy)
  - Reduced pulmonary function
- Skin contact
  - Brown discoloration
  - Skin rash (prolonged or repeated contact)
- Eye contact
  - Pain/irritation possible
  - Possible corneal burns if not treated

## First Aid

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### Eyes

- Immediately flush eyes with large amounts of water for at least 15 minutes. Seek medical attention at once.

### Skin

- Remove contaminated clothing.
- Wash exposed areas with soap and water for at least 15 minutes. If irritation develops or persists, seek medical attention.
- Contaminated leather articles that cannot be decontaminated (including shoes) should be discarded. Launder contaminated clothing before reuse. Do not take clothing home to be laundered.

### Inhalation

- Remove the affected person to fresh air.
- If breathing is difficult, administer oxygen and/or artificial respiration if necessary and seek medical attention.

### Ingestion

- Seek immediate medical attention or advice.
- Do NOT induce vomiting. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration.
- Have victim rinse mouth thoroughly with water. However, never give anything by mouth to a victim who is unconscious or is having convulsions.

## Spills

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Care must be taken to keep chemical containers closed at all times. However, in the event of a spill, the first priority is to protect the workers in the area. The same solution can be used to clean up both A and B.

### Isocyanate (A-side)

- Evacuate the area. (Cleanup personnel must wear respiratory protection.)
- Cover spill with a dry oil-absorbent material, scoop up material and place in open-top drums.
- Remove drums to an outdoor area and treat with decontamination solution.
- Leave drums unsealed, and allow to stand for 72-96 hours.
- Dispose of spill material in compliance with local regulations and codes.
- Wash down spill area with aqueous detergent.

### Resin (B-Side)

- Cover spill with a dry oil-absorbent material, scoop up material and place in open-top drums.
- Dispose of spill material as ordinary industrial waste in compliance with local regulations and codes.
- Wash down spill area with aqueous detergent.



## Decontamination Solution

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### Iso

Water  
(90%)

Ammonia solution  
(8%)

Liquid detergent  
(2%)

(Mix thoroughly)

### Resin

Water  
(90-95%)

Sodium carbonate  
(5-10%)

Liquid detergent  
(0.2-0.5%)

## Job Site Safety Information

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Safety-related documents must be available at every CertaSpray job site: the appropriate Material Safety Data Sheets (MSDS) and the manufacturer's technical data sheet.

The MSDS includes the following information: product identification, hazardous ingredients, physical data, fire and explosive data, health hazards, reactivity data, spill data and special precautions. In addition to isocyanate and resin MSDSs, material safety data sheets for coatings, gun cleaner and other materials may also be required.

The manufacturer's technical data sheet is the main source of general information concerning the materials being used, including product description, combustibility credentials, chemical and physical properties, processing reactivity, and health and safety data. This document should be easily accessible at every job site in accordance with employee "right to know" laws.



## The Importance of Safety

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Safety is especially important when working with CertaSpray. The consequences of failing to follow the requirements spelled out in this brochure can be very serious, so we urge you to make sure everyone on the job site understands them and takes appropriate measures to protect themselves.

CertainTeed offers a comprehensive training program that covers how to safely handle and install CertaSpray. Contact us for more information.

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