

Isocyanites – A Sweet Smelling Hazard

Isocyanates are chemical compounds derived from cyanide and hydrocarbons, such as toluene or methylene. Common compounds are Toluene Di-Isocyanate (TDI) and Methylene Bisphenyl Isocyanate (MDI). These types of hydrocarbons have a sweet, pleasant smell, and so are called "aromatics." Don't let their sweet smell fool you.

Chemical compounds containing isocyanates are frequently used in the production of pharmaceutical intermediates and in other Life Sciences processes.

The OSHA Threshold Limit Value (TLV) for these types of compounds is as low as .02 parts per million (PPM). TLVs represent the limit of exposure that an average worker can safely be subject to over the course of an 8-hour day, without the aid of engineering controls or personal protective equipment. Controls must be in place for any exposure above this level. This is an extremely low TLV level and affirms the hazards represented by this compound. Clip-on, direct-read dosimeters are available in the marketplace to monitor worker exposure levels to isocyanates.

Conditions associated with overexposure can be immediate and long-lasting. Immediate, acute effects can include: eye and throat irritation; choking; shortness of breath; tightness of chest; dizziness; abdominal pain; nausea; vomiting; headache and dermatitis. After continued exposure to these compounds some workers become sensitized to isocyanates, creating a chronic health hazard. Once this happens, extremely low exposures to isocyanates can trigger an asthma-like response, or a severe allergic reaction.

Exposure usually occurs during an application or wet granulation process when droplets of the material can become airborne. Not only may the operator be exposed, but so may anyone working in the area of the operation. In general, organic cartridge respirators or other air-purifying respirators are not adequate protection against isocyanates. In situations where a worker's exposure is above the 8-hour TLV, an approved air-supplied respirator must be used.

With isocyanate compounds it is critical to review the specific chemical MSDS prior to using the product. Check the TLV, the recommended or required personal protective equipment (PPE), and all other manufacturer's information. If you don't thoroughly understand the information, have someone explain it to you.

Beware of the risks associated with all the chemicals in your workplace. If isocyanates are part of your firm's operations, respect the benefits and hazards of this chemical and take every precaution to stay safe and accident free.

Products and services are provided by one or more insurance company subsidiaries of W. R. Berkley Corporation. Not all products and services are available in every jurisdiction. Certain coverages may be provided through surplus lines insurance company subsidiaries of W. R. Berkley Corporation through licensed surplus lines brokers. Surplus lines insurers do not generally participate in state guaranty funds and insureds are therefore not protected by such funds. Berkley Life Sciences conducts business in California as Berkley LS Insurance Solutions, LLC, a licensed surplus lines broker (License Number 0H44165).

This material is provided to you for general informational purposes only. Coverage afforded under any insurance policy issued is subject to the individual terms and conditions of that policy as issued. Claims scenarios are hypothetical in nature and for illustrative purposes.

Maintaining safe operations and a safe facility in accordance with all laws is your responsibility. We make no representation or warranty, express or implied, that our activities or advice will place you in compliance with the law; that your premises or operations are safe; or that the information provided is complete, free from errors or timely. We are not liable for any direct, indirect, special, incidental or consequential damages resulting from the use or misuse of this information. You are not entitled to rely upon this information or any loss control activities provided by us and you may not delegate any of your legal responsibilities to us. All loss control activities are conducted solely for the purpose of, and in accordance with, our underwriting activities.