

Negative Reactions

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What you need to know to protect your body shop and your painters from isocyanates.

Isocyanates are highly reactive chemicals typically found in the hardener of two-part paints and primers and on occasion in some quick drying body fillers. They are present in two forms, monomer and polymer, and both are a health risk when they are released into the air during paint or primer spraying.

Due to the highly reactive nature of these chemical solvents, it is no wonder that they have been named a “designated substance” under the *Occupational Health and Safety Act of Ontario*, and are subject to special regulations and controls, especially in an auto body shop.

The health affects are numerous, with the most common affects being coughing, chest tightness, fever, fatigue and sensitization. Sensitization is the most prevalent symptom of exposure. Contact with the skin may also cause rashes, blistering and reddening of the skin; direct contact with the eye may cause damage to the cornea; and airborne isocyanates can cause eye irritation and temporary blurred vision. Once a worker is sensitized, further exposure to even very small amounts of isocyanates will cause distressing asthma-like reactions and/or skin rashes.

WHAT TO DO

As with any health hazard, the first step is to recognize the hazard. This is a pretty simple process. First, get a copy of the Regulations for Designated Substances—Isocyanates (Regulation

842) and the Guide for Auto Body Shop Isocyanate Control Program from your local Ministry of Labour office.


To begin, simply list all the products in your organization that contain isocyanates, including the name of the product, the type of isocyanate, the manufacturer’s name, the concentration or percentage of isocyanate in the product, and how much of it you use in a given week or month. You also need to identify how these products are handled and stored while not in use, and list everyone who comes into contact with them.

ASSESSING THE HAZARD

Under the *Occupational Health and Safety Act*, auto body shops which use designated substances, like isocyanates, are required to establish a joint health and safety committee (s.9(2)(b)), even if there are fewer than 20 employees.

Employers are required to conduct an inspection and provide a written review in conjunction with the joint health and safety committee. The written review addresses all the equipment and processes in the workplace related to the use of isocyanates, from receiving, to storage, to use and disposal.

The assessment determines whether there is potential for exposure to any employee, and whether the equipment and processes that exist meet current Ministry of Labour guidelines. This includes, but is not limited to, the appropriate supplied air, full face piece respirators, an approved spray paint booth, proper clothing and gloves, an adequately ventilated mixing room, and spill clean-up equipment.

Air sampling can be an effective means of evaluating the effectiveness of your control program. An industrial hygienist can assist with this process. There are different sampling methods for monomeric and polymeric isocyanates so it is critical that the hygienist is aware of the types of isocyanates that are used in your workplace. Ideally, sampling should be done both prior to the development of a control program for benchmarking purposes, and after the control program is implemented. However, conducting sampling twice can be costly. If you are only going to sample once, you are better to sample after the control program is in place so that you can assess the effectiveness of the program. 

ESTABLISHING A CONTROL PROGRAM

The risks of isocyanate exposure are numerous and that is why it is so important to have a control program in place. The elements of an isocyanate control program include the following:

- **Limit worker exposure.** Be sure you have appropriate respirators and a ventilation system that meet safety standards, purchase spill control supplies, and install an emergency eyewash station and/or shower, etc.
- **Establish a worker information program.** Workers are to be trained on the hazards presented by isocyanates in the workplace, where they are found, and the proper written procedures on how to effectively control the exposure to them. In addition to WHMIS training, they also need to be trained on spill clean up and other emergency procedures.
- **Establish a medical surveillance program.** This program should involve a medical history, a physical examination, chest X-rays and lung function tests. Although the employer must establish the program, worker participation in the program is voluntary.
- **Document everything.** A program that is not documented is not an established program. In the event of miscommunication or confusion, the documents may provide clarity to workers. Furthermore, in the event of an unfortunate incident, a documented program can go a long way in protecting the employer by demonstrating compliance with the regulations.
- **Continuously review your program.** Review your isocyanate control program each year when you do an annual review of your WHMIS program. Reviews must also be

Safety Bit

Recently, SKC Inc. a producer of quality air sampling products, developed a simple and cost-effective method to determine whether isocyanates are being released into the workplace. Easy-to-use colorimetric “Swype” indicators detect contaminants, such as isocyanates, on work surfaces and skin. “Swype” are sensitive to levels equal to or below permissible exposure levels for a comparable airborne exposure. “Swype” are easy to use. Simply spray developer solution on a surface and wipe with a “Swype” or wipe skin with a “Swype” and immerse in the developer solution. “Swype” provide a rapid, positive color change if the isocyanates are present. Therefore, if the “Swype” shows surface contamination, chances are great that airborne particles are also present. Further air sampling may then be required.

conducted when new products or processes are introduced, and when new employees are hired.

While dealing with the many health and safety issues surrounding the use of isocyanates can be challenging, the good news is you are not alone—the Ontario Service Safety Alliance is here to help you. Our consulting services can assist you with conducting the written review and establishing a written control program. OSSA’s Spray Paint Operations Hazard Kit contains great

information on isocyanates and other hazards associated with this process and our WHMIS training program provides excellent information about the safe use of all chemicals. We have helped many clients address this issue in their workplaces. We can provide coaching, consulting services, and have products that can help you protect your shop and your employees. Visit us at www.ossa.com or call our Client Services Line at 1-888-478-6772. ◆

