

The *BSO Plus Safety Topic* is a review designed from the BSO Plus agenda. This safety topic is your way to stay current on the safety information over the 3 years between BSO Plus and BSR.

## DESIGNATED SUBSTANCES

### Overview

A designated substance is a biological, chemical or physical agent, or a combination of these, to which the exposure of a worker is either prohibited, regulated, restricted, limited or controlled.

Exposure to hazardous or designated substances can cause or contribute to a wide variety of adverse health effects ranging from mild allergic reactions, to chronic illnesses, to death from either long-term or immediate exposure.

As workers in Ontario, you have the right to know about hazards in your workplace. Most Ontario workplaces are covered by regulations for the control of hazardous substances, such as Regulation 860 for *WHMIS*, and Regulation 490 for *Designated Substances*.



### Why are certain hazardous substances “designated”?

The 11 designated substances were chosen because of the known hazards they cause in industry and workplaces. Designated substances are treated much more strictly than other biological or chemical agents that are regulated under the Occupational Health and Safety Act (OHSA). The rules governing exposure to these substances are very specific. One of these, asbestos, even has two separate regulations, 490 and 278, governing its use in construction and industrial establishments.

### The following are the designated substances in Regulation 490:

1. Acrylonitrile
2. Arsenic
3. Asbestos
4. Benzene
5. Coke oven emissions
6. Ethylene Oxide
7. Isocyanates
8. Lead
9. Mercury
10. Silica
11. Vinyl Chloride

### What are some of the potential health hazards associated with exposure to designated substances?

Exposure to designated substances can cause cancer, strong allergic reactions, liver and lung disorders, and damage to the nervous system. However, the signs are not always immediate or obvious. Sometimes it can take years or even decades before the symptoms of a disease or disorder appear. Factors such as genetics, allergies, pre-existing conditions, lifestyle, and age can affect how quickly the effects of exposure can be seen or felt.



#### Latency Period

**Definition:** The time it takes for an adverse health effect to develop after first exposure to a hazard.

Exposure to designated substances may cause:

- Permanent damage to the human organ systems, including:
  - liver
  - lungs
  - reproductive system
  - nervous system
- Various forms of cancer such as:
  - mesothelioma from long-term exposure to asbestos
  - leukemia from long-term exposure to benzene



Welcome to

## By the Numbers

2017 WSIB STATISTICAL REPORT



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- In 2017 alone, the WSIB allowed 4002 claims resulting from exposure to harmful substances or environments.
- Since 2000, the number of claims registered with the WSIB for occupational diseases related to exposure to chemical, biological or physical agents has almost doubled.
- Between 2006 and 2017, claims for acute exposures and effects accounted for more than half of allowed occupational disease claims.
- Between 2006 and 2015, the WSIB allowed approximately 125,000 occupational disease claims which accounted for over \$950M in benefit costs.
- The construction sector accounts for 30% of allowed long latency claims. Workers are predominantly male and are generally retired, with an average age of 67 years when diagnosed with a long latency illness.

(Source: WSIB, By the Numbers)

### How are designated substances controlled in the workplace?

In workplaces where designated substances are present, the employer has a legal duty to put in place a control program to reduce the risks of exposure. The control program must include:

- A written plan specific to each designated substance
- Exposure control measures such as engineering controls, work practices, and hygiene practices
- Air monitoring measures and methods of analysis
- Medical surveillance program (worker participation is voluntary)

Each designated substance will present their own set of dangers and must be addressed with their own specific work procedures. At each site your permit will tell you if there is potential of exposure to these hazards and what precautions must be taken. People working in a building with designated substances must be aware of precautions to take to limit their exposure.

It is important to remember that while a control plan must be in place for all known designated substances in the workplace, you may still come into contact with designated substances that are hidden. Being aware of where you may encounter these substances can help keep you safe.