



WHMIS

Quick Facts

Workplace Hazardous Materials Information System



Carcinogens, Mutagens, Teratogens and Reproductive Toxins

Carcinogens, mutagens, teratogens and reproductive toxins are regarded as especially hazardous because they can **cause very serious health problems** (e.g. cancer, birth defects, sterility and genetic mutations) in workers and/or their children, and because there may be **no early warning signs** of the harmful, and possibly irreversible, effects that may occur long after exposure.



D2A – Very Toxic
D2B – Toxic

Reproductive Toxins

Reproductive toxins can cause sterility, reduced fertility, or other adverse reproductive effects (e.g. a mother's ability to produce milk) in animal studies or in people exposed in the workplace.

Examples: ethylene oxide, lead, some glycol ethers (e.g. 2-ethoxyethanol)

Carcinogens

Carcinogens are identified by their ability to cause cancer in exposed workers, other human populations, or in test animals. Many occupational cancers have a long latency period, meaning that cancer may develop 10–20 years or longer after exposure to the carcinogen.

Examples: asbestos, benzene, vinyl chloride and carbon tetrachloride

Mutagens

Mutagens can cause changes (mutations) in the genetic material (DNA) of cells from people or test animals, which may result in disease or abnormalities in future generations. In WHMIS, mutagens are classified as **VERY TOXIC** if they are shown to affect cells of the reproductive system (sperm and egg cells – the cells from which children develop). Mutagens are classified as **TOXIC** if studies show genetic changes only in cells (e.g. skin or lung cells) that are not part of the reproductive system.

Examples – Very Toxic: chloroform, ethylene oxide
Examples – Toxic: benzene, lead, and vinyl chloride

Teratogens and Embryotoxins

Teratogens and embryotoxins can cause birth defects, abnormalities, developmental delays, or death in animal offspring in the absence of significant harmful effect on the mother. These materials are usually identified using test animals and may cause similar effects in humans.

Examples: carbon monoxide, lead and xylene

Working Safely with Very Toxic and Toxic Materials



CONSULT the Material Safety Data Sheet (MSDS) for information about the hazards and necessary precautions for the material you are using.

UNDERSTAND all of the hazards associated with the material, including additional health concerns (e.g. serious short-term health effects or irritation), reactivity and flammability.

KNOW how to use them safely to protect yourself and co-workers.

ENSURE engineering controls (e.g. ventilation) are operating. Closed handling systems may be necessary to prevent the release of the material (dust, mist, vapour, gas) into the workplace.

USE the smallest quantity possible.

FOLLOW safe work practices specified by your employer.

WEAR the appropriate personal protective equipment specified for the job. This may include respiratory protection and chemical protective clothing, such as an apron and gloves, made from materials that protect against the chemicals being handled.

REPORT ventilation failures, leaks, or spills to your supervisor immediately.

UNDERSTAND and **PRACTICE** emergency procedures so that you know what to do in case of a spill or other emergency.

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For additional information and resources visit www.whmis.gc.ca and/or www.ccohs.ca