

## **PROTECTION AGAINST CHEMICALS**

- For every chemical a **label** contains with information about warnings, risks and precautions. Before handling a chemical these labels should carefully be read. The following symbols are some examples that one may come across when holding a given chemical containers:



### **Corrosion**

This pictogram on a chemical label means that the substance causes skin burns, eye damage, or destroys metals.



### **N (Toxic to environment)**

They harm the livings in water and nature. It shouldn't be spilled and released to nature.



### **Exploding Bomb**

The exploding bomb pictogram appears on the chemical labels of substances that are: Explosives—which is a solid or liquid chemical capable of a chemical reaction that causes damage to the surroundings, Self-Reactive—heating may cause fire or explosion without the need for air, or Organic peroxides—again, heating may cause fire or explosion.



### **Flame**

It appears on chemical labels for substances that are: Flammables—which are gases, aerosols, liquids, or solids that will burn or ignite under certain conditions, *and* Organic peroxides—which, when heated, may cause fire or explosion; may be sensitive to impact or friction; and may react dangerously with other chemicals.



### **Skull and Crossbones**

Substances with a hazard of acute toxicity will have this symbol on their chemical label. Acute toxicity means that exposure to a single dose of the chemical may be toxic or fatal if inhaled or swallowed, or if it comes into contact with the skin.



### Flame over Circle

This symbol on a chemical label means that the substance is an oxidizer. Oxidizers may cause a fire by increasing the concentration of oxygen in the air.



### Health Hazard

This pictogram is put on a chemical label when a substance presents these health hazards:

- Carcinogen—may cause cancer
- Respiratory sensitizer—may cause respiratory irritation
- Reproductive toxicity—may damage fertility or the unborn child
- Target organ toxicity—may cause damage to bodily organs
- Mutagenicity—may cause genetic defects
- Aspiration toxicity—may be fatal if swallowed and it enters the airways



### Exclamation Mark

It is used on a chemical label for substances that represent the following hazards:

- Irritant—irritates the skin or eyes;
- Skin sensitizer—which is an allergic response following skin contact;
- Acute toxicity—which may be fatal or cause organ damage from a single short-term exposure;
- Narcotic effects like drowsiness, lack of coordination, and dizziness; and
- Respiratory tract irritation.



### Gas Cylinder

This pictogram on a chemical label means that the substance is a compressed, liquefied, or dissolved gas under pressure at 29 pounds per square inch or more.



### Radioactive

These substances are radioactive. Radiation can damage cells and cause cancer.

Adapted from

<https://ehsdailyadvisor.blr.com/2018/04/ghs-pictogram-training-cheat-sheet/>

**Practice**

**Activity One:** read each scenario and sketch the correct symbol that should be on the label

- 1- You are cleaning out the garage at home and you look at some of the empty bottles of antifreeze left over from the winter. The symbol states it is highly dangerous and poisonous. \*.....
- 2- Wet weather is approaching and you decide it is time to protect your shoes with spray-on protectant. You look at the label and see a symbol suggesting you to be mildly cautious when you use the spray can as it could explode if put under the incorrect conditions. \*.....
- 3- You are going camping for the weekend and decide to take along a small stove. On the way you stop at Canadian Tire and purchase a small bottle of propane. You are warned by the symbol on its label that it is very dangerous and may be flammable if put under the improper conditions. \*.....
- 4- You enter a chemistry lab and you notice that the teacher has several chemical bottles on the desk for a demonstration. One jar contains the element calcium. Your teacher tells you during the demonstration that the calcium will cause burns to body tissues if it comes into contact with them. As well, it also catches fire easily.  
\*.....
- 5- At a local hospital you see a truck deliver new oxygen tanks. These industrial sized tanks have large warning symbols on them suggesting that the gas inside is under high pressure. \*.....

**Answer key:**

1.  2.  3.  4.  5. 