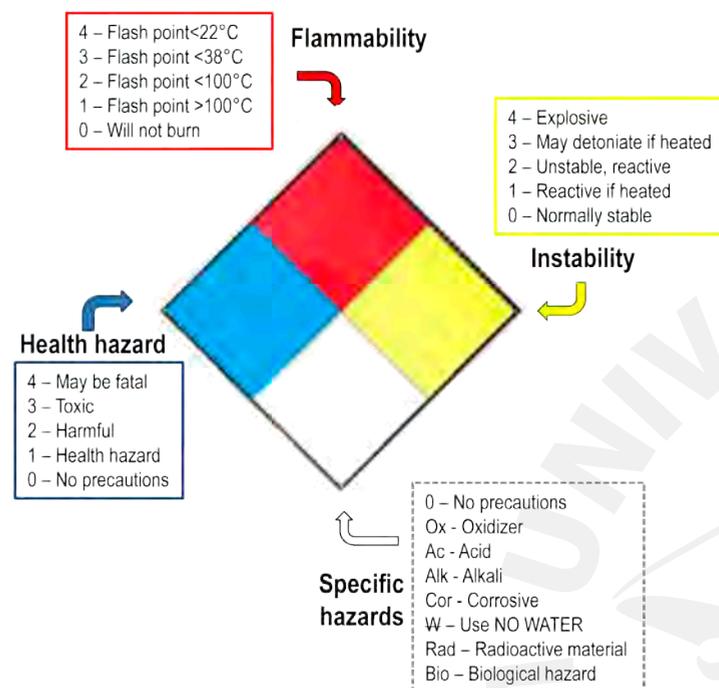




The diamond

The diamond sign outside each laboratory provides information on the chemicals stored there. The diamond tells you whether the chemicals are hazardous to your health, flammable or reactive. There is also the option to add specific warnings. Four colours are used alongside a value from 0 to 4, whereby 0 indicates little or no danger and 4 means considerable danger. It is important that you familiarise yourself with these warnings.



Chemical safety in the laboratory

Important telephone numbers

- Emergency services 112
- Poison Information Centre 543 2222
- University Health and Safety Committee 525 5218 (working hours)
- Securitas, campus security 533 5533
- Facilities Management supervisor on shift outside normal working hours and on weekends 525 5112



UNIVERSITY OF ICELAND

Safety first!

University of Iceland Health and Safety Committee
<http://oryggi.hi.is/>

This applies to work in research laboratories within the University of Iceland, not least work involving chemicals and chemical compounds. It is important that all students and staff know these rules and what to avoid

Basic rules in research laboratories

- Follow health and safety guidelines carefully.
- Never conduct an experiment without permission.
- Never work alone in the laboratory.
- Inform someone if rules are broken.
- Keep your work area clean. Clean up after every experiment.
- Food and drink are forbidden in the laboratory.

Dressing safely in the laboratory

- Always wear a lab coat when working.
- Always use appropriate safety goggles.
- Do not use contact lenses in the laboratory.
- Tie long hair up and ensure that clothes are not loose or hanging.
- Limit use of jewellery - rings, for example, reduce the effectiveness of gloves.
- Wear closed shoes. Open shoes such as sandals are forbidden.
- Wear clothing that protects you from splashes or spray.

Hygiene

- Wash your hands with soap and water before you leave the laboratory.
- Do not touch "common" surfaces such as door handles, lift buttons, computers and telephones with gloves that have been used in the laboratory. Remove your gloves first.
- Do not breathe chemical fumes.
- Do not wear lab coats and gloves outside of the laboratory except when transporting chemicals between locations.

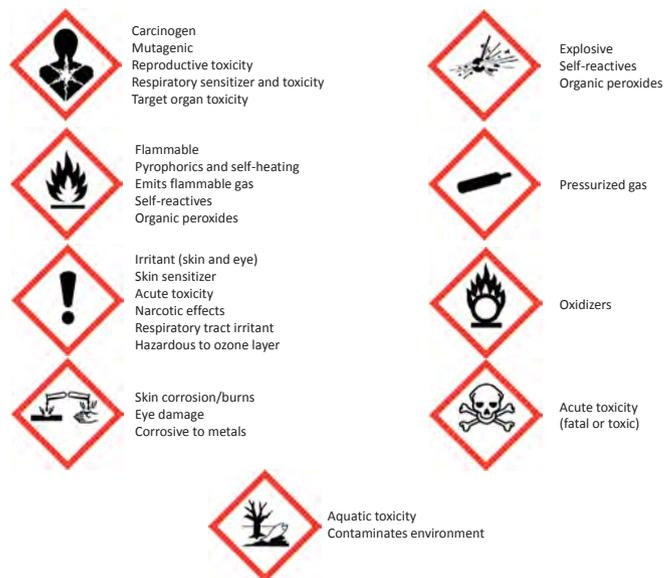
Health and safety around chemicals

- Familiarise yourself with the locations of the emergency exit, emergency shower, eyewash station, fire extinguishers and other safety equipment.
- Familiarise yourself with health and safety considerations and protective equipment before beginning work.
- Familiarise yourself with the chemicals you will be working with before beginning an experiment.
- Report all accidents involving chemicals to a member of teaching staff immediately.
- Learn how and where to access material safety data sheets (MSDS) for chemicals.
- Do not place hazardous materials in the bin, sink or drain.
- Use an appropriate container when transporting chemicals between locations.
- Return all chemicals to their proper places when you have finished with them. Ensure that containers are well sealed.

Globally Harmonized System, GHS

International regulations on the classification of chemicals and hazard communication labelling apply in Iceland. This is necessary in order to ensure that all chemicals are properly labelled. The GHS ensures that you can find out how hazardous a chemical is by reading the packaging. Learn the hazard symbols and what they mean.

Hazardous chemicals are chemicals that will damage the environment and/or human health if handled incorrectly. Below are definitions and descriptions of a few common chemicals that can be found in research laboratories.



Flammable chemicals are those that ignite at a temperature of 38°C or lower. The flashpoint is the temperature at which the chemical forms sufficient vapours to cause spontaneous combustion. Examples of such chemicals are acetone, acetylene, methanol and so on. Avoid working with flammable chemicals in the same area as gas fires, open flames or hotplates.

Caustic chemicals are those that cause visible damage or harm to living tissue, e.g. skin. This category includes strong acids (e.g. sulphuric acid, hydrofluoric acid, hydrochloric acid, nitric acid) and strong alkalis (e.g. sodium hydroxide, ammonium hydroxide, potassium hydroxide). If caustic chemicals come into contact with skin, symptoms include burns, bleeding and blistering as well as pain. If they are inhaled, they can cause difficulty breathing, nausea, vomiting, a stinging or burning sensation and coughing. If they come into contact with eyes, symptoms include pain, blurred vision, and watering and bloodshot eyes.

Oxidising chemicals release oxygen in chemical reactions and thereby intensify fires. Examples of chemicals in this category are hydrogen peroxide, fluorine and iodine.

Irritants cause swelling of mucous membranes (e.g. eyes, skin, the respiratory system and the digestive system). Examples of such chemicals are sulphuric acid, hydrochloric acid and hydrogen sulphide.

Sensitising chemicals can produce allergic reactions (e.g. skin rashes, watering eyes, sneezing, coughing). Examples of such chemicals are isocyanide, formaldehyde, nickel and chrome.

Carcinogenic chemicals can cause cancer if personal protection and appropriate safety equipment are not used. Prolonged and repeated use is particularly dangerous since the effects of these chemicals are not immediately apparent. Examples of carcinogenic chemicals are benzene, asbestos, vinyl chloride, acrylonitrile and ethylene bromide.

Fetotoxic chemicals are those that affect sex cells and can harm a foetus and its development. These chemicals can affect fertility in both men and women if personal protection and safety equipment are not used. Examples of fetotoxic chemicals are ethylene bromide, mercury, cadmium and benzene.

Safety cabinets

Safety cabinets are intended to remove all vapours, gases and dust that may come from toxic, flammable, caustic and other hazardous chemicals and are one of the most important pieces of safety equipment in the laboratory. If the cabinet is used correctly, it protects the user from material which would otherwise enter the atmosphere. The cabinet thereby creates a safe work environment for anyone who needs to work with hazardous materials. Correct usage entails the following points:

- The sash shall be completely lowered when boiling chemicals or working with reactive chemicals; in this way it forms a barrier and protects the user.
- A limited amount of chemicals shall be kept in the safety cabinets, since everything placed in the cabinet affects airflow.
- The cabinet shall be cleaned immediately in case of spillage.
- Everything used inside the safety cabinet should be at least 10-15 cm from the sides and the sash of the cabinet.
- When work is completed, the cabinet must be cleaned and the sash pulled down.

MSDS

All material safety data sheets are accessible online. Familiarise yourself with the chemicals you will be working with. The safety data sheets provide important information about the chemical::

- What sort of chemical is it and how hazardous is it?
- How should you react if a problem arises when using the chemical?
- What personal protection is necessary when working with the chemical?
- Is there anything else you need to know about the chemical?