



To Students who Handle Organic Solvents and Specified Chemical Substances

The use of organic solvents and Specified Chemical Substances (hereafter, SCS) is sometimes necessary when performing research. However, failure to use caution with these substances can lead to serious health risks. Please handle them with extreme caution when performing experiments and research.

How do organic solvents and SCS cause health problems?

If organic solvents or SCS are spilled during experiments, they will partially vaporize and diffuse through the air, polluting the laboratory. In liquid form, these substances can enter the body through the skin via soiled clothes or direct contact. Toxic substances that enter the body can accumulate and impact health.



What are the characteristics and health risks of organic solvents/SCS?

Organic solvents and SCS diffuse easily in the air, so improper handling by just one person can have an impact on the health of everyone in the vicinity. Please use caution when handling these substances in your laboratory.

Characteristic 1: They are highly volatile.

Characteristic 2: They are highly flammable.

Health Effects 1:

Organic Solvents and SCS in the Body

High concentrations:

Substances enter and paralyze cranial nerves (reduced consciousness).

Low concentrations:

Substances can cause a sensation of heaviness in head, headache, fatigue, dizziness, irritability, nausea, vomiting, loss of appetite, abdominal pain,

weight loss, palpitations, insomnia, anxiety, reduced concentration, tremors (slight shaking in hands), upper respiratory irritation, eye irritation, skin/mucosa abnormalities, aching in limbs, altered perception, loss of strength, abnormal tendon reflex (knee, Achilles), and reduced vision.

Health Effects 2:

Examinations may detect neurological abnormalities, impaired liver function, or decreased white blood cells.

Caution!

Safety Measures

- ① Keep air currents moving in one direction only; perform experiments upwind of fume sources.
- ② Do not touch chemicals with your bare hands; wear rubber gloves. Wear a mask and protective eye-wear.
- ③ Always replace bottle stoppers etc. after use.
- ④ Dispose of cotton wadding or gauze used when wiping up organic solvents/SCS in sealed plastic bags.

Preventative Measures

- ① Do not use organic solvents or SCS, or use less harmful solvents and solvents that do not evaporate easily.
- ② Improve experiment methodology to prevent fumes.
- ③ Keep experimenters isolated from solvents by using sealed equipment, automation, remote operation, etc.
- ④ Reduce the spread of fumes with local exhaust systems and push/pull ventilation.
- ⑤ Reduce ambient concentrations with general ventilation.
- ⑥ Periodically check the condition of the laboratory and experiments.
- ⑦ Use protective equipment. Shorten the experiments.
- ⑧ Undergo regular medical examinations to detect any health problems at an early stage.

If you think organic solvents/SCS are causing health problems...

● Contact the head of research in your department.

● Contact the Student Health Care Center.

TEL: 022-795-7829 or 022-795-7824

● In case of emergency, undergo an examination at the Tohoku University Hospital Emergency Center.

TEL: 022-717-7024



Tohoku University Student Health Care Center

October 2023