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OPERATING INSTRUCTION

according to § 14 GefStoffV



HAZARDOUS CHEMICALS

Cryogenic liquids (Nitrogen, Argon, Helium)

HAZARDS TO HUMANS AND ENVIRONMENT

Cryogenics are extremely cold and can cause instant, **severe frostbite and eye damage**.

On vaporization, liquid nitrogen, will expand about 700 times, therefore is a risk of oxygen deficiency. Symptoms may include drowsiness, loss of mobility, difficult breathing and unconsciousness.

Danger of suffocation! Extremely cold liquids and their vapors are heavier than air and can accumulate near the floor. **Suffocation is an invisible danger and may occur without warning!**

The cold "boil-off" gases condense the moisture in the surrounding air, creating a highly visible fog.

At working with cryogenics in open storage vessels exists the risk of oxygen deficiency (light blue colour). This can lead to an explosion.

Cryogenic liquids cause many common materials such as carbon steel, plastic and rubber to become brittle or possibly fracture under stress. This may lead to malfunction or even failure of safety components.



SAFETY AND HANDLING INSTRUCTIONS

Store, refill and use only in well ventilated area. In closed areas use an oxygen deficiency shield. At working with large amounts provide respiratory protection with independent air supply.

Use suitable equipment for the transport or for storage. Provide pressure relief devices and adequate venting on closed containers. If transported by an elevator, persons are not permitted to travel with the load.

Do not keep the cryogenic liquids over a longer period in an open container. The dewar must be emptied before filling up again.

Always wear cryo gloves, face shield, long sleeve shirt and trousers and closed shoes. Do not roll up sleeves or trouser legs, no tight clothes. Clothes may be removed more easily in case of a spill.

Instruction for working with cryogenics must be provided prior to the start of work.



CONDUCTING IN EMERGENCY CASE

Evacuate the area by releasing of a large amount of cryogenic liquid. Alert other people in the area to the emergency . Ensure adequate ventilation.

Call the Technical Emergency Service and inform your supervisor about the release.

Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.

Let small amounts of cryogenic liquid evaporate in an outdoor area.



FIRST AID

In an emergency respiratory protection must be worn. Remove the victim to uncontaminated area. Apply artificial respiration if breathing stopped.

After skin contact: Rinse skin with excess water for at least 15 minutes.

Apply a sterile dressing. Call a doctor.

After eye contact: Call a doctor

After inhalation: Provide plenty of fresh air.

EMERGENCY DIAL : 2500 (DESY phone) or 040 8998 2500 (mobile)



MAINTENANCE AND DISPOSAL

Repairment only by specialists.

Prevent from entering drains. Small amounts of cryogenic liquid evaporate rapidly without any damage.