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Safety level for gas facilities and handling gas at Umeå University

The university's work with flammable products (chemicals, gases) is subject to a range of regulatory requirements, including:

• Act on the transport of hazardous goods, SFS 2006:263

• Ordinance on the transport of hazardous goods, SFS 2006:311

• Act on flammable and explosive goods, SFS 2010:1011

• Regulation on flammable and explosive goods, SFS 2010:1075

• Environmental Code 1998:808

• Regulation on chemical products and biotechnical organisms, SFS 2008:245

Regulations on gases can be found in regulations from the Swedish Work Environment Authority:

• Gases, AFS 1997:7

• Gas cylinders, AFS 2001:04

• Use of pressurised devices, AFS 2002:01

Code of Statutes of the Swedish Rescue Services Agency

• Swedish Rescue Services Agency regulations on explosive environments when handling flammable gases and liquids, SRVFS 2004:7

• Flammable gas in loose containers, SÄIFS 2000:3

As a business operator, the university is responsible for ensuring that acceptable levels of safety are achieved and that the requisite expertise is present within the organisation. The objective is to ensure the general technical standard at a specific level in connection with new construction and refurbishments. This should be acceptable even in 15 or 20 years' time.

The university's safety level for handling gas includes the following elements:

1. Distribution of gases which are used regularly, takes place at outlet points via central pipe systems.

2. A monitoring system is installed. This records gas consumption and insures that levels of flammable gases such as hydrogen and LPG do not exceed the maximum permitted instantaneous flows. Safety systems shut off the gas supply if these volumes are exceeded.

3. Safe system for restarting after an outage is present. A sectioned distribution system with key switches at the laboratories.

Handling of gas cylinders should be avoided as far as possible. Local distribution systems may be used for certain special gases. Handling gas cylinders requires storage or a separate area in the lab.

There must be a safe zone around outlet points for flammable gases with regard to electrical equipment not protected against explosive environments (SÄIFS 2004:7). At least one solenoid valve (main shut off valve) must be available on every floor.

Operating procedures and organisational responsibility for various parts of the system, handling permits, etc. are established in other documents. It is important to point out that a risk assessment must be carried out prior to new work on any hazardous activity (Gases, AFS 1997:7, Chemical work environment risks, AFS 2011:19). This must form the basis for the safety level defined and the handling procedures to be applied.