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Risk assessment contents

Aim:
In order to be able to offer everyone a safe working environment, it is important that all laboratory activities involving hazardous substances are risk assessed according to Swedish Work Environment Authority regulations. Full text regulations are available at: https://www.av.se/en/. A summary of these, and a minimum of what we need is presented below.

The regulations states that:
- A risk assessment must be made
- Exposure must be avoided or controlled
- Control measures must be taken and withheld
- Information and education must be given

Under some circumstances, especially when there is risk for severe exposure, if the control measures are not sufficient, and/or if a measurement is needed in accordance with some regulation, one of the following might also be considered:
- Exposure surveillance
- Medical control measures

Routines:
The health risk is dependent on; A) The properties of the substances, and B) The level of exposure. The risk assessment uses these two criteria to evaluate the level of protection needed for a specific method. The result from the risk assessment should be written down and the report should contain:

1. **Classification of risk** and relevant biological effect.

Categorization: a) Very high risk. b) High risk. c) Moderate risk. d) Low risk.
Note associated hazard statements according to CLP classification. And, if applicable, occupational exposure limit values that are used to generate the classification.

2. **Level of exposure**.

Categorization: i) Low. ii) Medium. iii) High.
The level of exposure is set by combining the; amount, physical properties (volatile, powdery etc), the way/time/occasions of exposure and the nature of the work. The level of exposure is dependent on the way of working. Note the categorization and summarize the way in which it was generated.

Classification of risk	**Level of exposure**		
	i) Low	ii) Medium	iii) High
a) Very high risk	Protection level 2	Protection level 3	Protection level 3
b) High risk	Protection level 1 or 2	Protection level 2	Protection level 2
c) Moderate risk	Protection level 1	Protection level 1 or 2	Protection level 2
d) Low risk	Protection level 1	Protection level 1	Protection level 2

3. **Level of Protection**. Evaluate the need for protection using the risk- and exposure-data obtained above. Feed the risk category and exposure level data into the matrix and receive the level of protection needed.
    a. Protection level 1 = Open bench
    b. Protection level 2 = Safety-ventilated workstations such as fume hoods, fume benches, local exhaust ventilation, microbiological safety cabinets
    c. Protection level 3 = Special premises or special local routines

Note the level of protection obtained above and state what personal protective equipment (protective glasses, protective gloves, protective clothing etc.) that is required for the work, and the procedures for which the equipment is to be worn.

4. **Environment and Waste**. Note what chemical waste that will be generated and how it should be taken care of
5. **Emergency actions**. Note special requirements for cleaning spillage and first aid measures, refer to MSDS.
6. **Final evaluation**. A final assessment should be prepared of the work as a whole. The matrix below should be used to help with this. If the assessment reached using the matrix is "high risk", additional risk precautions should be taken to enable the procedure/laboratory experiment to be carried out.

Probability *Of the accident* Different factors are taken into consideration # Frequency and duration. # Historic events. # Possibility of avoiding or limit the damage; training on the equipment, awareness of the risk, sudden - quick or slow event # Existing protection	**Consequence** (Gravitas) *If the accident occurs.*					
	Safe or bagatelle	Short sick listing	Long sick listing	Disable-ment	Casualties	Many casualties
Very common *Once a day.*	2	3	4	4	4	4
Common *Once a month.*	1	2	3	4	4	4
Rather common *Once a year.*	1	2	3	3	4	4
Rare *Once every ten years.*	1	1	2	3	4	4
Unlikely *Once every hundred years*	0	1	2	2	3	3
Very unlikely *Less then once every hundred years*	0	0	1	1	2	2

0 = Negligible risk
1 = Acceptable risk, no action needed
2 = Some risk, action needed
3 = Severe risk, action needed
4 = Very severe risk, action needed