

Chemical Hazards in the Textile and Garment Industry



**Practical Solutions for avoiding injuries and
occupational diseases**

Introduction

How dangerous substances effect the human bodies
Routes of exposure and the hierarchy of safety measures
Examples of “unacceptable” and “acceptable” situations



Fig. 1 by F. Kraugmann

Hazards caused by dangerous substances

Chemical burn of hands

- Pouring the rest liquid formic acid into a full container
- A heavy chemical reaction happened
- Worker burned his hands and arms badly
- Did not wear gloves but safety goggles
- Accidentally the worker took a wrong container full of chlorine bleach

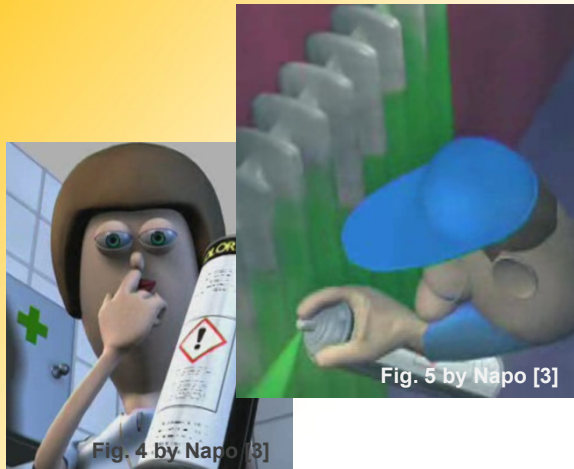


Hazards caused by dangerous substances

Routes of exposure

Inhalation

gases, vapours, dust, aerosols



Ingestion

powder, liquids



Cutaneous absorption

gases, liquids



Principles

Examples of hazardous substances in the Textile Industry



Principles

Hierarchy and principles of protective measures

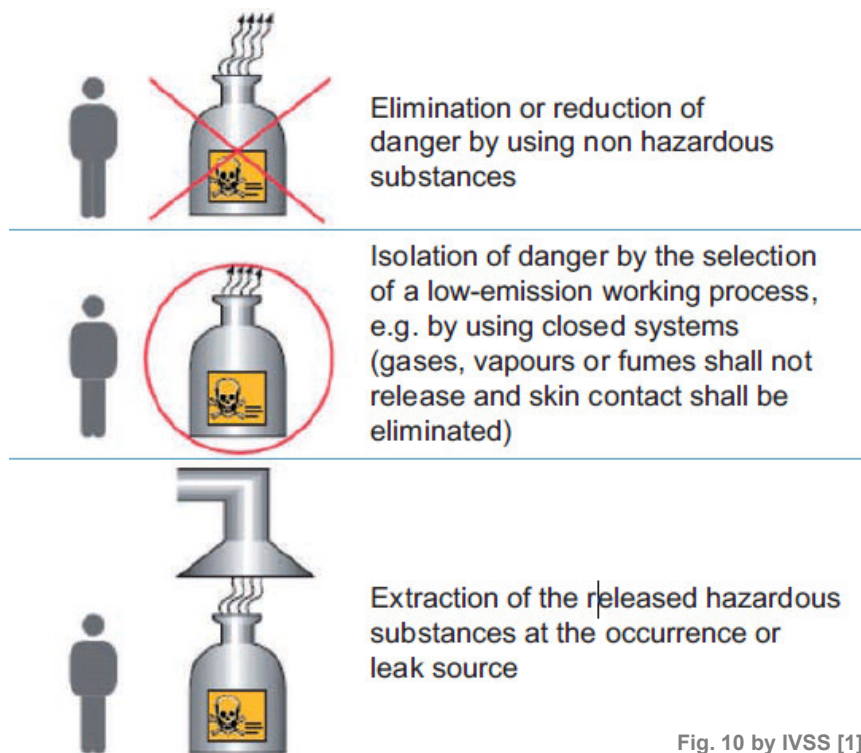


Fig. 10 by IVSS [1]

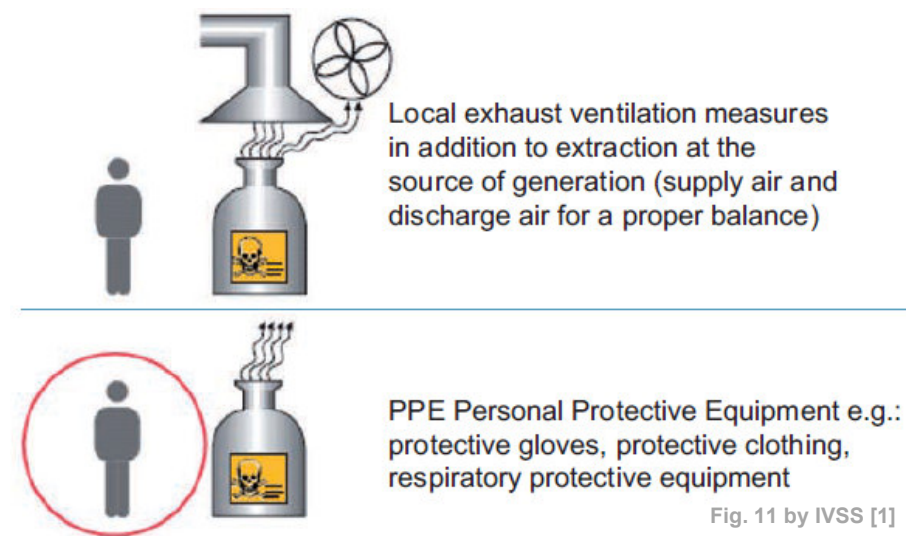


Fig. 11 by IVSS [1]

Principles

Operating instructions

- Designation of the hazardous substance
- Hazards to human beings and to the
- Environment
- Information on protective measures and rules of behaviour
- Behaviour in case of danger
- First aid
- Correct disposal



Fig. 12 by BG ETEM

Examples for “unacceptable” and “acceptable” conditions



Examples for “unacceptable” and “acceptable” conditions



Fig. 15 by F. Kraugmann



Fig. 16 by F. Kraugmann

Examples for “unacceptable” and “acceptable” conditions



Fig. 17 by F. Kraugmann



Fig. 18 by BG ETEM

Examples for “unacceptable” and “acceptable” conditions



Examples for “unacceptable” and “acceptable” conditions



Isolation of danger by the selection of a low-emission working process, e.g. by using closed systems (gases, vapours or fumes shall not release and skin contact shall be eliminated)



PPE Personal Protective Equipment e.g.: protective gloves, protective clothing, respiratory protective equipment



Examples for “unacceptable” and “acceptable” conditions



Examples for “unacceptable” and “acceptable” conditions



Summary

Basic principles for safe use of dangerous substances:

1. Elimination or reduction of danger by using non hazardous substances
2. Isolation of danger by the selection of a low emission working process
3. Extraction of the released hazardous substances at the occurrence or leak source
4. Local exhaust ventilation measures in addition to extraction at the source of generation
5. Personal Protective equipment.

Further information

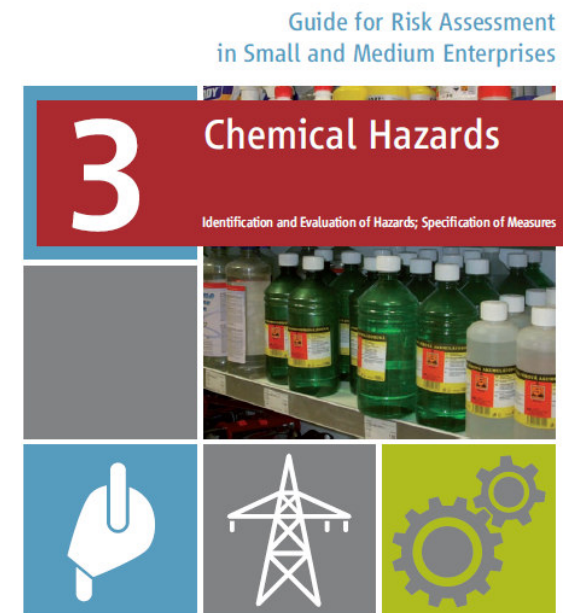
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List of references

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- [1] 3 Chemical hazards - Guide of Risk Assessment in Small and Medium Enterprises (issa), Austria 2012
- [2] Training data and information (BG ETEM)
- [3] Pictures, Napo is co-produced by a European Consortium:

