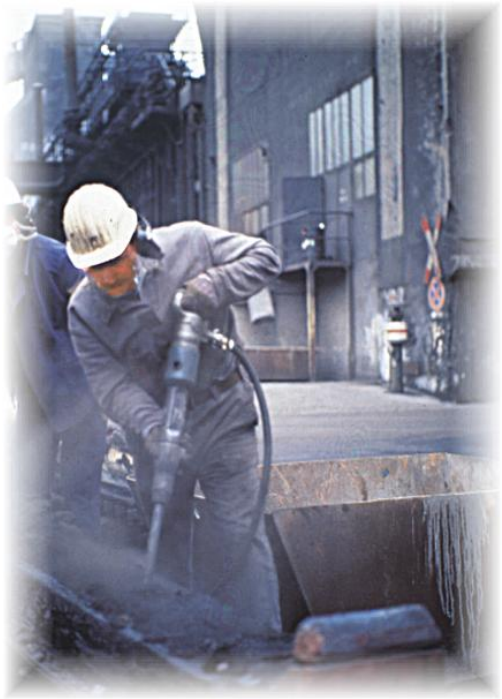
Risk Assessment

Information is presented in good faith and is intended to be representative, however as circumstances may vary, please satisfy yourself that requirements are met.

Contents

Why do I need a risk assessment?



Employer's Duties

- Employers who have identified hazards on site must carry out a Risk assessment
- If a hazard is present, they must:
  - Identify what it is
  - Assess its risk/health effects
  - Try to eliminate/prevent the risk
  - Or reduce the risk
- …As a last resort, if it is not possible or prohibitive to eliminate or reduce the hazard , PPE may be the only viable solution
- The employer is responsible for selection, maintenance & training of PPE

What is a risk?

Risks and Hazards are often confused;

- A hazard is the potential of a substance or process to cause harm to people

e.g. sulphuric acid will cause burns to skin

- A risk is the probability of a hazard actually causing harm

What is a risk?

For Example;

Hazard of Asbestos = causes mesothelioma (lung cancer)

Risk of inhaling Asbestos fibres = minimal if asbestos board is in good condition. However, risk is greater if the asbestos board is in poor condition or is being broken.

What is a Risk Assessment?

A risk assessment is an information gathering exercise about:

Hazards, Risks and Controls

Requires information on:

- Substances.
- Work processes (location & duration).
- Assessments of the levels of exposure.
- Evaluations of control measures.

Hazards

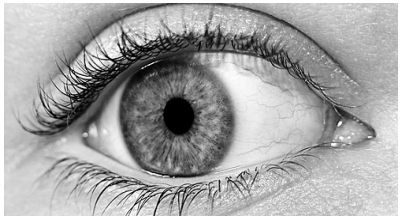
Hazards

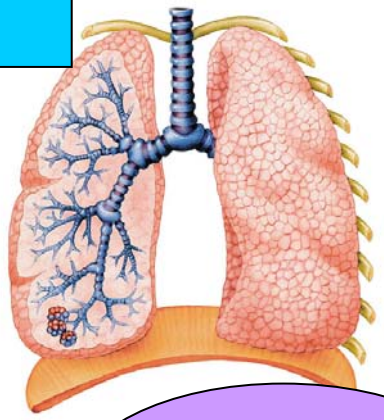
- A Hazard is **any substance or process** which may cause harm.
- In order to conduct a risk assessment it is necessary to consider any hazards that may be present in your workplace.
- For example:
  - Do you use any hazardous substances, e.g.. Paints, solvents, acids?
  - Is it a noisy environment?
  - Do you work at heights?
  - Does your process generate any particles or gases?

Some hazards affecting the body.

Peak noise exceeding 135dB.

Metal/plastic shards



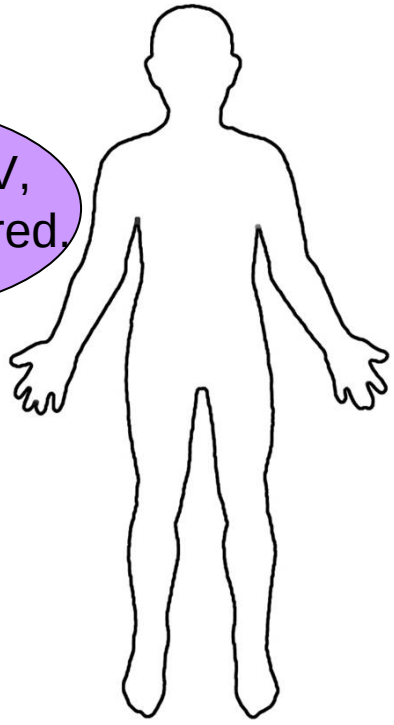


Chemical splashes

Dusts
Mists
Metal fumes
— Particulate

Chemical Gases & Vapours

Radiation; UV, visible, infra red.



Continuous noise exceeding 80dB.

Where can I find information on hazards?

Where to look for information on substances:

- Material Safety Data Sheets (MSDS)
- Container labels
- Trade journals
- Risk phrases
- HSE

Where can I find information on hazards?

Materials Safety Data Sheets

Includes details on:

- Name & Address of supplier
- Chemical Composition/Ingredients
- Physical Data
- Exposure Controls & PPE
- Fire Fighting Information
- First Aid Advice

Where can I find information on hazards?

Container labels & trade journals

- Container labels will often list the “ingredients” in a product.
- Industry trade journals may provide useful information on various common hazards.

Where can I find information on hazards?

Risk Phrases

These are definitions of chemicals – as detailed in CHIP 2 Regulations

Examples:

- R1 - explosive when dry
- R26 - very toxic by inhalation
- R35 - causes severe burns
- R42 - may cause sensitisation by inhalation
- R43 - may cause sensitisation by skin contact
- R49 - may cause cancer by inhalation

Work Processes

Remember : Substances are not the only hazard!

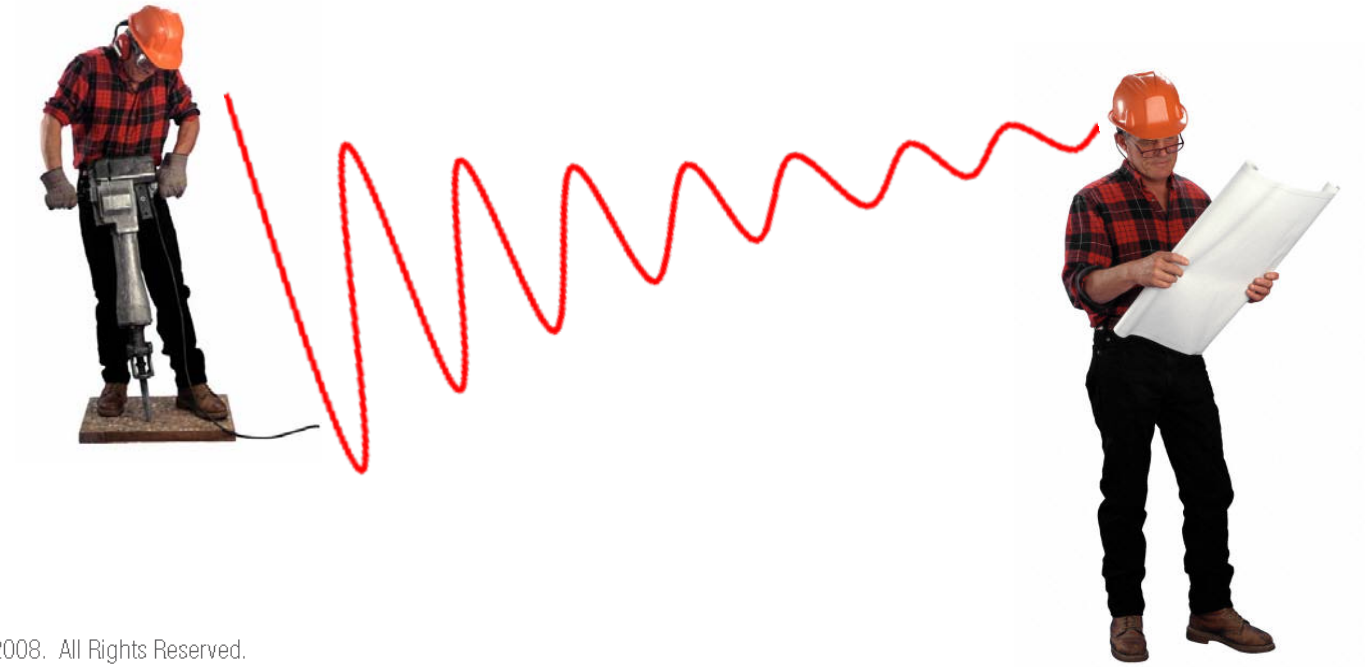
- When conducting a risk assessment, it is important to consider not just what you are using but how you are using it.

- Work processes may also have an associated hazard, for example, what does the process generate?

Risks

Risks

- A risk is the probability of a hazard actually causing harm.
- The level of risk can be different for different workers, for example, expectant mothers, people with disabilities or new workers.
- For respiratory and hearing hazards, the risk associated is usually assessed by the level of exposure experienced by an individual compared with occupational limits.

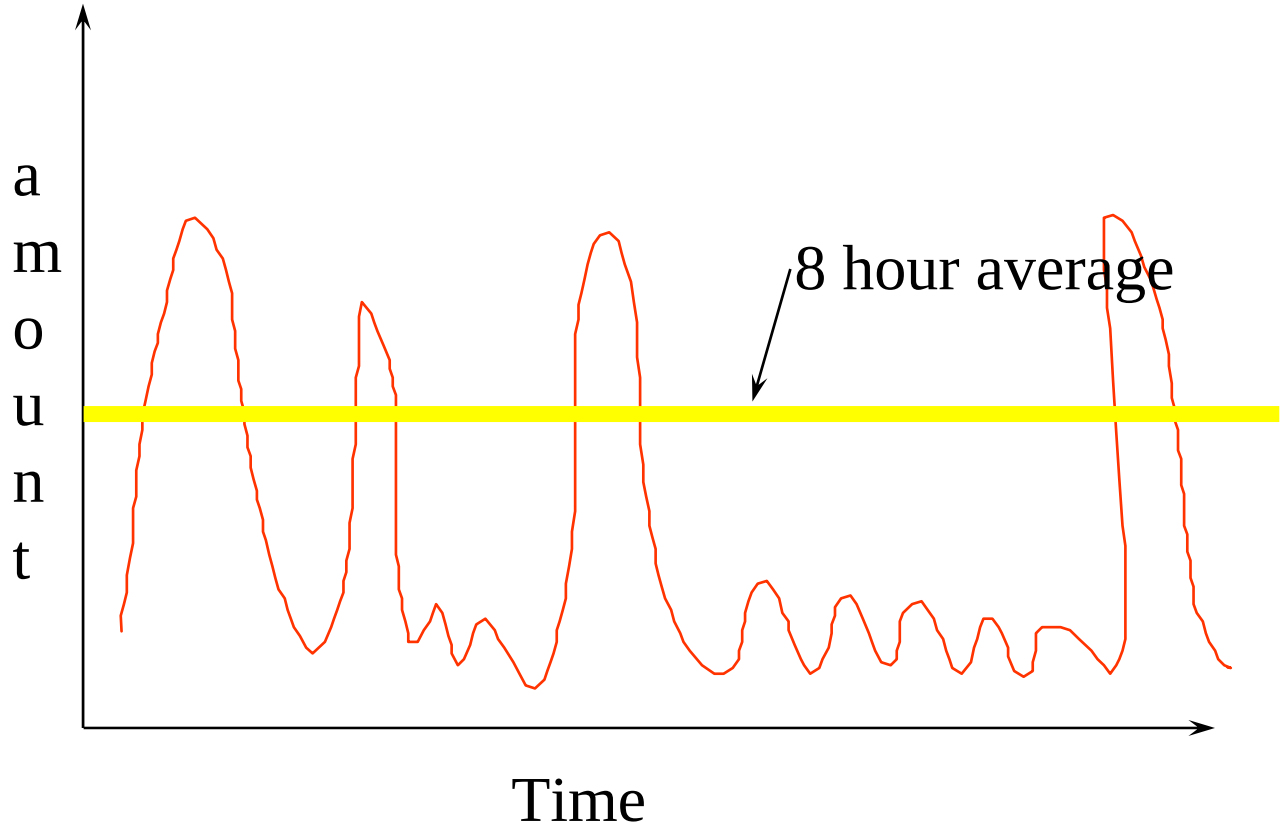


Assessment of level of exposure.

- The level of exposure to a hazard is critical when conducting a risk assessment.
- This will determine whether the hazard is a threat.
- Monitoring methods include; passive badge samplers, noise meters and personal pump monitoring.
- This can indicate a personal dose, which is the best assessment of the potential risk to an individual.
- Other assessment methods also exist. E.g. HSG53, HSE Guide to Selecting RPE.

Assessment of level of exposure.

An example of some results collected during monitoring:



Assessment of level of exposure

- Once the level of exposure has been determined the next step is to compare this value to the limit value.
- For example:
  - For respiratory hazards this is the workplace exposure limits (WELs) detailed in EH40*.
  - For Noise this is the action levels detailed in European Union Physical Agents (Noise) Directive, 2003/10/EC.
- This will help you to evaluate whether any control measures are necessary.
- *EH40 is a document written by the HSE that is updated regularly, use of an up-to-date version is essential.

Workplace Exposure Limits

- WELs are occupational exposure limits set under CoSHH (Control of Substances Hazardous to Health).
- They are concentrations of hazardous substances in the air, averaged over a specified period of time.
- Two time periods are used, short term (15 minutes) and long term (8 hours).
- Employers have a legal duty under CoSHH to control exposure to chemicals hazardous to health.

Noise Legislation

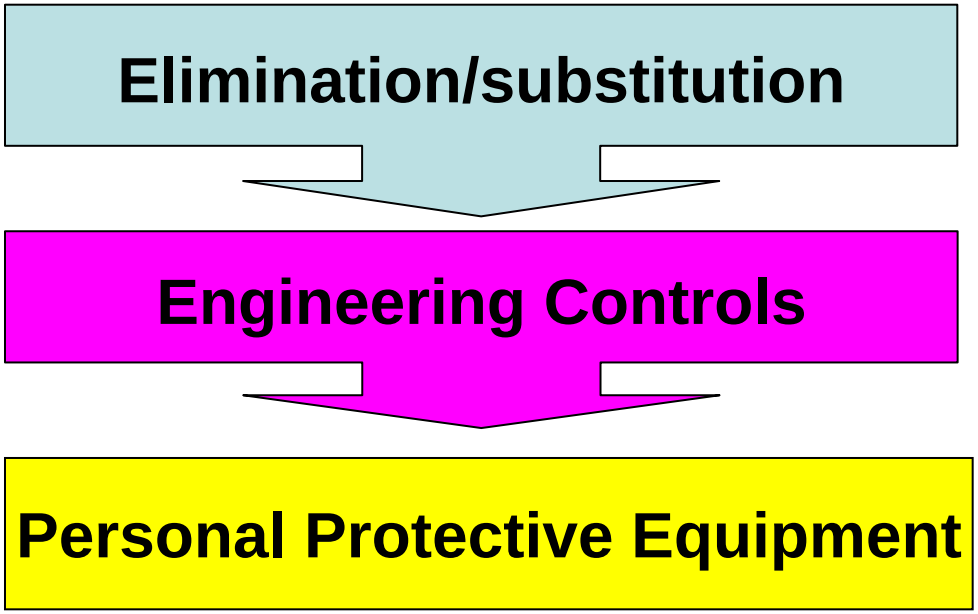
The European Union Physical Agents (Noise) Directive, 2003/10/EC details the thresholds that exposure to occupational noise must not exceed.

Lower Exposure Action Value	80dB(A) Continuous	135dB Peak	• HPE available upon request • Not enforced
Upper Exposure Action Value	85dB(A) Continuous	137dB Peak	• HPE must be provided • Strictly enforced
Exposure Limit Value	87dB(A) Continuous	140dB Peak	• Must never exceed this noise level at the ear whilst wearing hearing protection

Control Measures

Control Measures

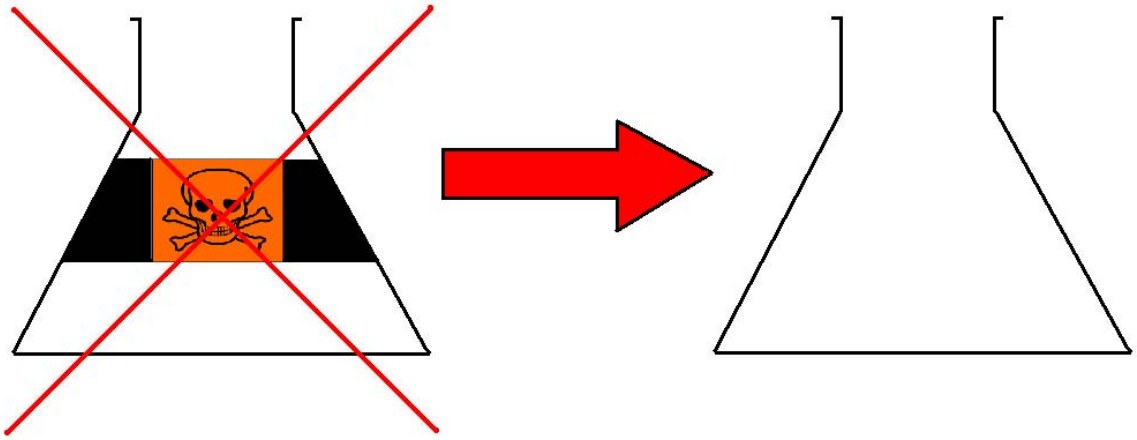
There is a hierarchy of control that should be followed:



Best use of PPE is in combination with other control measures, during inspection or whilst other control measures are being put in place.

Elimination/Substitution

- Is it possible to alter your work process in order to eliminate or reduce the risk of a hazard?
- Could you substitute a hazardous substance for a less hazardous chemical?
- Elimination/substitution should be your first consideration when aiming to reduce risk, but this may not always be a viable option.



Engineering Controls

- If you are not able to eliminate the hazard, you should next consider whether engineering controls could be put in place to reduce the risk of the hazard.
- For instance could better ventilation reduce exposure to a hazardous particle? Or could non-slip matting be fitted to reduce the risk of falls?
- In some cases however, the hazard may still present a significant risk after engineering controls have been put in place. In this case PPE can be considered…

Personal Protective Equipment

- The best use of PPE* is in combination with other control measures, during inspection or whilst other control measures are being put in place.

* It should, however, be noted that over attenuation when using HPE can be dangerous and is not advisable.

Personal Protective Equipment

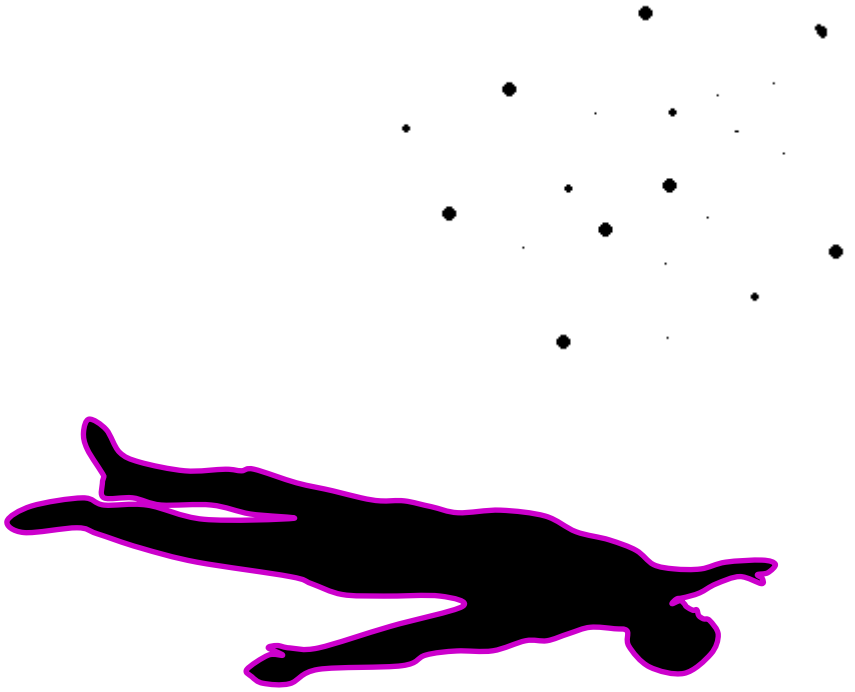
If your risk assessment considers PPE to be necessary, 3M can offer a wide range of solutions.

Case Study

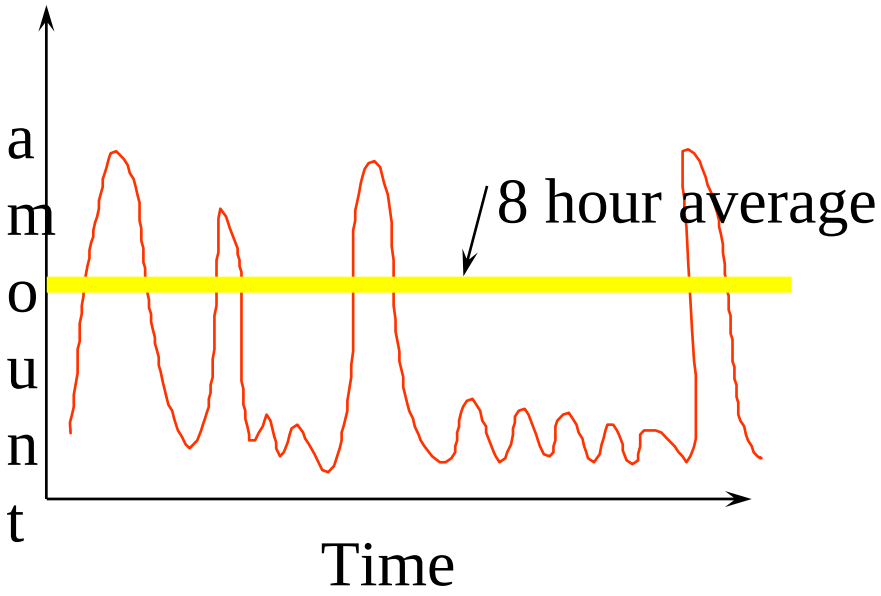
Case Study

Hazard

- An employer identifies a hazard: Substance x, a residual dust is generated by the manufacturing process.
- The risk phrase for substance x is R23, toxic by inhalation.



Case Study



Risk

- The WEL value is 10mgm^{-3} over an 8 hour TWA.
- The 8 hr TWA exposure of his employee to substance x is 120mgm^{-3}.
- The exposure to substance x needs to be reduced by at least 12 times.

Case Study

Control Measures

- He cannot eliminate or substitute substance x for another material as it is a critical ingredient to his process.
- He has incorporated on-line extraction and ventilation.
- The employer decides to evaluate PPE as an additional control measure.
- He decides to use an FFP3 respirator as this has a APF of 20 when fitted correctly i.e would reduce exposure by a factor of 20.

Summary

- Employers who have identified hazards on site must carry out a Risk assessment.
- A risk is the probability of a hazard actually causing harm.
- A risk assessment should;
  - identify hazards
  - consider the risks
  - control the risks
- PPE is the last resort.
- The best use of PPE is in combination with other control measures, during inspection or whilst other control measures are being put in place.

More Information

- For more information on this presentation, other support tools or our products, please see www.3m.co.uk/ohes.

- Alternatively please ring the 3M Health & Safety Helpline;

0870 60 800 60 (United Kingdom)

1 800 320 500 (Ireland)