

How to Carry Out a Laboratory Risk Assessment

A risk assessment basically involves trying to predict what might go wrong, how likely it is to go wrong and how severe the consequences would be. You should then attend to the most serious hazards first.

This risk assessment is for you. It can be an aid to help you think about the hazards associated with your work. It is also a formal way of recording what you consider to be hazardous and a copy will need to be kept.

You will need to carry out a risk assessment for each separate procedure and experiment that you carry out in your laboratory. You may use the attached form or devise one more suitable for yourself. A copy of the form is available at www.phys.unsw.edu.au/safety/

Identify the hazards

You should look at the suitability and location of the things you use, how tools and equipment are used, and how your activity might affect yourself and others. Consider for example noise, or long term effects, and how people may be hurt.

Physical hazards are things that may cause a slip, trip, cut, electrocution, blindness, etc. Look out for things like power cables across a walkway, sharp edges on equipment, exposed high voltage, hot surfaces, cryogenic temperatures.

With chemicals you should consider how easily they could escape from their container and contaminate the environment, how readily they could enter the human body and what the consequences of this are.

Biological hazards may be air borne or absorbed through the skin and include not only infectious and pathogenic agents but also many organisms that should not be released to the environment.

Assess

Consider the severity of a worst-case scenario

- Kill or cause permanent disability
- Long-term illness or serious injury
- Medical attention and several days off work
- First aid needed

Judge the likelihood of it happening

- High
- Medium
- Low
- Very low

You should devise control measures to ensure that there is a very low likelihood of a serious worst-case hazard.

Control

Can you eliminate it?

Excuse me M. Chirac, do we really have to test another bomb?

Can you substitute a less hazardous alternative?

Mr Stephenson, couldn't you just boil water rather than nitric acid in that engine of yours?

Can you change the way the task is done?

Now Neil, wouldn't it be a better idea to put your spacesuit on before you stepped outside.

Mr Galileo, perhaps if you threw those balls off the tower after the crowd has dispersed.

Will you have to use personal protective equipment?

Don't worry Mr Roentgen, those x-rays of yours don't hurt a bit.

If things go wrong

You may not always be there. In an emergency make sure others will know what to do.

Disposal and Clean up

This is an important and often overlooked part of many processes. Determine the best means of re-using and disposing of waste and finished materials.

Over-all assessment

If the risks are significant, is there another way to do this procedure?

Comments

Discuss your assessment with your colleagues, supervisor, and person in charge of the laboratory. Be vigilant and anticipate potential problems.

Records

Make three copies of your assessment. If you prefer, the first two can be in electronic form.

1. Keep one in the laboratory.
2. Give one to your supervisor.
3. Give one to the Head of School's assistant for filing. This should be on a piece of paper. The school will have to keep it for 30 years.

References

1. Phillip Crisp, *Safety in the School of Chemical and Industrial Chemistry*, UNSW, 2000.
2. Workcover New South Wales, *Hazpak*
3. Richard Szczepanski, *UNSW School of Chemistry Risk Assessment Form*

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