RiskAssess

Risk Assessment Tool for Science Laboratories

including lab scheduling, prac ordering and GHS labelling

Schools are legally required to conduct risk assessments prior to experiments[1].
More than 2700 schools in Australia, New Zealand and Canada subscribe to RiskAssess and have conducted over 6,500,000 risk assessments!

RiskAssess is a web-based system that makes performing risk assessments quick and easy. Using RiskAssess, schools can meet their legal obligations and make their science laboratories safer.

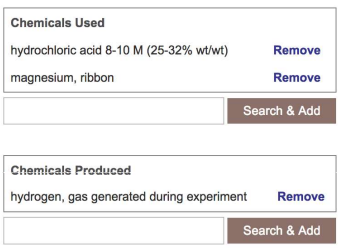
RiskAssess is customised for use by teachers and laboratory technicians and includes:

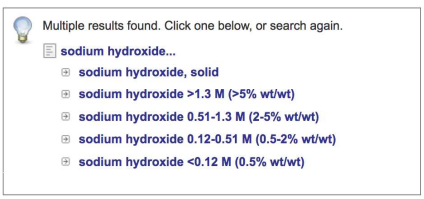
- an electronic template for risk assessments, following the ISO Standard on Risk Management
- GHS chemical safety information for more than 3,000 chemicals and solutions
- disposal advice for all chemicals and solutions
- safety information for equipment and biologicals
- laboratory scheduling system, including lab ordering
- GHS labelling system for pure chemicals and solutions
- hot-links to SDSs, documents, diagrams, websites . . .
- recording of inherent risk level and control measures
- easy sharing of experiment templates for customisation
- full text of eBook "Safety in Schools" (30 chapters; 250 p)
- use on computers, iPads, tablets and smart phones
- storage of risk assessments for legal purposes
- online help and learning resources
- complies with all State, Territory and National requirements
- training videos.

2 WEEK FREE TRIAL
send your school name to info@riskassess.com.au

The cost of a year's subscription to RiskAssess is $350.00 + GST per school campus. A subscription lasts 365 days from the date that payment is received and includes all upgrades during that period. Subscription to Student RiskAssess is also available for an additional $350.00 + GST per school campus.

You can subscribe online at **www.riskassess.com.au** or contact Phillip Crisp on 02 9415 8677 or **info@riskassess.com.au** if you wish to discuss RiskAssess further.





[1]Please see http://www.riskassess.com.au/info/legally_required for a summary of the legislation.

EcoSolve Australia Pty Ltd ABN 48 145 464 204 3 Valley View Close, Roseville NSW 2069
Ph: 02 9415 8677 Email: info@riskassess.com.au Website: www.riskassess.com.au

RiskAssess

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RiskAssess is an integrated web-based tool designed to assist school staff to create risk assessments in a standard printable format, specially customised for school laboratories.

Safety data about chemicals, equipment and living organisms are stored in RiskAssess. When you choose a chemical or other item, RiskAssess automatically incorporates safety information into the risk assessment. A series of simple prompts leads users through the system, making it easy to create risk assessments for each experiment.

Each risk assessment contains sections in which the teacher and laboratory technician separately certify that risks have been assessed for their particular area of responsibility. If the inherent level of risk is "medium" or above, control measures need to be entered; experiments with "high" or "extreme" level of inherent risk require approval by an authorised person. RiskAssess includes provisions for monitoring and for review in each risk assessment, as required by law. RiskAssess easily satisfies all State, Territory and National requirements.

RiskAssesss can also assist communication between teachers and laboratory technicians for planning and preparing experiments, and for laboratory scheduling. RiskAssess includes fields relating to the timetabling of the experiment and the items to be used. Both teachers and lab techs can access risk assessments through the lab scheduling system or, alternatively, risk assessments can be emailed.

Risk assessments can be printed, stored online, searched online, shared between staff, copied and archived for legal purposes. A paper-based or paperless work flow can be followed, depending on school policy.

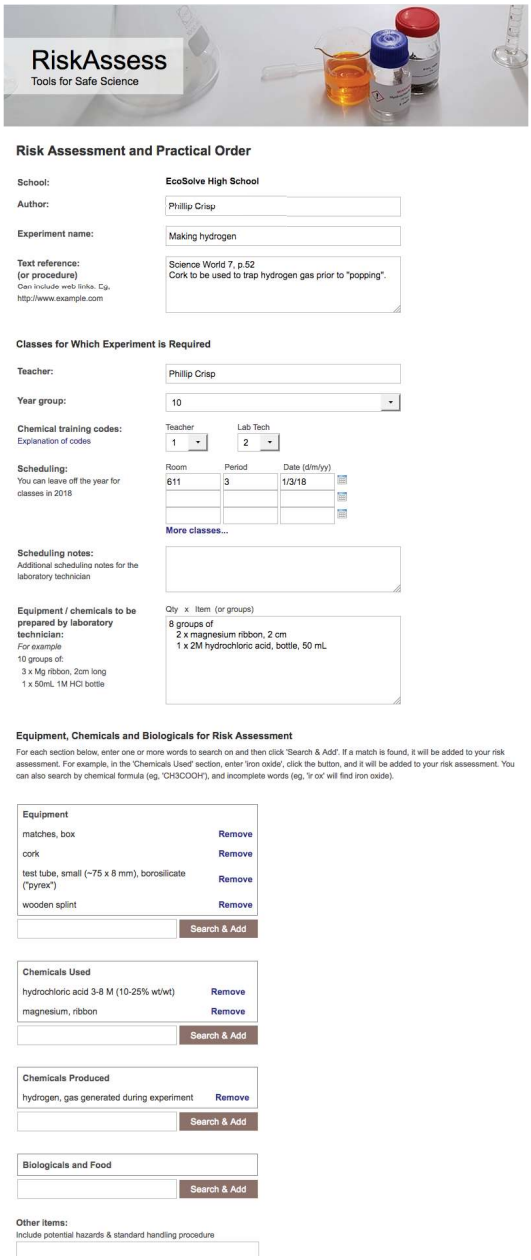
All databases for chemicals, equipment and living organisms are regularly updated and extended. There have been many upgrades of RiskAssess including a laboratory scheduling system and the addition of GHS chemical information and solution data.

RiskAssess includes an easy-to-use chemical labelling system (GHS compliant) for >1600 pure chemicals and their common solutions, plus a custom labelling system for mixtures and commercial products.

User feedback assists the RiskAssess team in deciding which features to include in upgrades.

Our team invites feedback and contributions from users, so that the system can be improved. The RiskAssess team provides prompt and personal service, should you have any problems.

>> EXAMPLES
See below for a screenshot of the RiskAssess software in use.
See right for a sample risk assessment.



LEGAL NOTE

Teachers and lab techs carry out risk assessments on different activities. A teacher assesses activities in the classroom and a lab tech assesses activities before class and after class. Only the person carrying out an activity can take into account all the factors, including facilities available, student behaviour, students with allergies and students with special needs.

RISK ASSESSMENT **EcoSolve High School**

Making hydrogen

Written by: Phillip Crisp **Commenced on:** 10 Jun 2018 **Expires:** 10 Sep 2019

Classes for which experiment is required

Teacher: Phillip Crisp (training code 2) **Year Group:** 10

Room	Period	Date
611	2	Wed 4/7/18

Items to be prepared by laboratory technician (training code 2)

8 groups of
2 x magnesium ribbon, 2 cm
1 x 2M hydrochloric acid, bottle, 50 mL

Data entered by user are shown shaded. All other text is generated automatically by the RiskAssess system.

Procedure or reference, including variations

Science World 7, p.52
Cork to be used to trap hydrogen gas prior to "popping".

Equipment to be used

box of matches

Potential hazards
Box burns violently if ignited.

Standard handling procedures
Keep dry. Used matches should never be returned to the box. Count boxes out and in.

cork

test tube, small (~75 x 8 mm), borosilicate ("pyrex")

Potential hazards
Breakage of test tubes. Cuts from chipped test-tube rims. Small test tubes more likely to eject material during exothermic reactions.

Standard handling procedures
Inspect and discard any damaged test tubes. Sweep up broken glass with brush and dustpan; do not use fingers.

wooden splint

Potential hazards
When lit, it acts as an ignition source; may cause burns. Possibility of splinters, especially if damaged.

Standard handling procedures
Extinguish all tapers with water before disposal.

Chemicals to be used

hydrochloric acid 3-8 M (10-25% wt/wt) **$HCl_{(aq)}$**

Class: nc PG: none Users: 7-12 Training: 1-5 CAS: 7647-01-0

GHS data:

WARNING

Causes serious eye irritation
Causes skin irritation

Potential hazards
Irritates eyes, lungs and skin.

Standard handling procedures
Avoid inhalation of vapour or skin contact.

magnesium, ribbon **Mg**

Class: 4.1 PG: III Users: 7-12* Training: 1-5 UN: 1869 CAS: 7439-95-4

GHS data:

DANGER

In contact with water releases flammable gases which may ignite spontaneously

Potential hazards
Burns with white-hot flame; UV radiation emitted from flame may cause eye damage; do not allow students to view flame from close distance. Reaction with ethanol may be violent after a long induction period. Reactions of magnesium with dichromate salts, nitrate salts, sulfur,

Standard handling procedures
Keep containers tightly sealed to prevent corrosion.

phosphorus or halogenated solvents can be dangerously violent. Reaction of magnesium with silica (sand) to form silicon may be dangerously exothermic if the silica is not completely dry. Do not use magnesium as an alternative to aluminium in the thermite reaction; the reaction is dangerously explosive. Magnesium ribbon can, however, be used as a fuse for the thermite reaction.

Chemicals to be produced

hydrogen, gas generated during experiment **H_2**

CAS: 1333-74-0

Class: 2.1 PG: none Users: 7-12* Training: 1,2,5*

GHS data:

DANGER

Extremely flammable gas

Potential hazards

EXTREMELY FLAMMABLE GAS. Forms dangerously explosive mixtures with air. Not toxic, but can act as asphyxiant; hydrogen/air mixture in lungs can explode if ignited. Detonation ("popping") of small volume of hydrogen/air mixture in sturdy test tube by ignition with match or wooden taper is generally safe; breakage of test tube is possible.

Standard handling procedures

DO NOT GENERATE HYDROGEN IN A CLOSED CONTAINER SINCE THE CONTAINER MAY EXPLODE. Generate hydrogen only in small volumes (<1 mL). Detonate hydrogen/air mixtures only in small undamaged test tubes (<8 cm; <5 mL). Use borosilicate ("pyrex") test tubes; do not use thin-walled soda glass test tubes. Protect against flying broken glass from breakage of test tubes.

Knowledge

I have read and understood the potential hazards and standard handling procedures of all the equipment, chemicals and biological items, including living organisms.
I have read and understood the (Material) Safety Data Sheets for all chemicals used and produced.
I have copies of the (Material) Safety Data Sheets of all the chemicals available in or near the laboratory.

Risk assessment

I have considered the risks of:

fire	breakage of equipment	electrical shock	radiation
explosion	cuts from equipment	escape of pathogens	waste disposal
chemicals in eyes	sharp objects	heavy lifting	inappropriate behaviour
inhalation of gas/dust	rotating equipment	slipping, tripping, falling	allergies
chemicals on skin	vibration and noise	falling objects	special needs
runaway reaction	pressure	heat and cold	other risks

Certification by Teacher

I have assessed the risks associated with performing this experiment in the classroom on the basis of likelihood and consequences using the School's risk matrix, according to International Organization for Standardization Standard ISO 31000:2018.

I consider the inherent level of risk (risk level without control measures) to be:

Low risk **Medium risk** High risk Extreme risk

Control measures:

Hold test tube away from body when popping.
Explain possibility of test tube breakage and importance of safety glasses.
Ensure students check test tubes for signs of damage before popping.
Additional measures: safety glasses

With the specified control measures in place, I have found that all the risks are "low risk". Risks will therefore be managed by routine procedures in the classroom, in combination with the specified control measures.

Name: ..... **Signature:** ..... **Date:** .....

Certification by Laboratory Technician

I have assessed the risks associated with preparing the equipment, chemicals and and biological items, including living organisms, for this experiment and subsequently cleaning up after the experiment and disposing of wastes, on the basis of likelihood and consequences using the School's risk matrix, according to International Organization for Standardization Standard ISO 31000:2018.

Low risk Medium risk High risk Extreme risk

Risks will therefore be managed by routine procedures in the laboratory.

Name: ..... **Signature:** ..... **Date:** .....

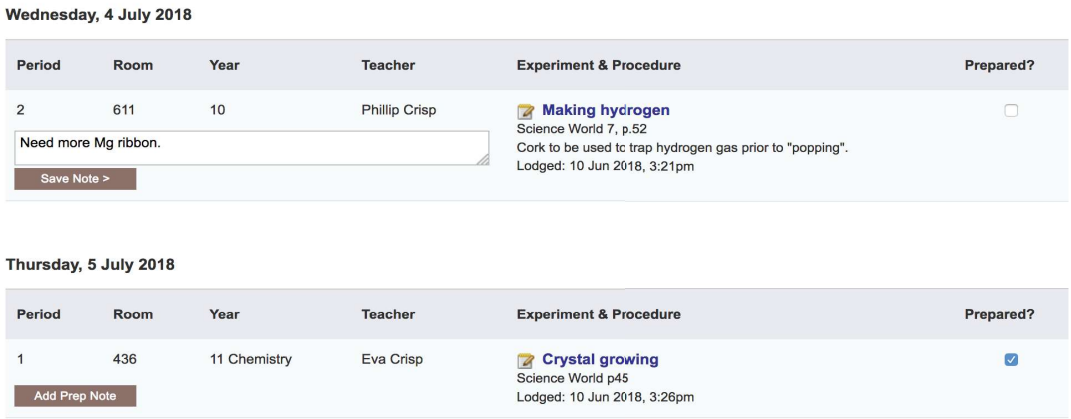
Monitoring and review

This risk assessment will be monitored using comments below and will be reviewed within 15 months from the date of certification.

Attach further pages as required

Laboratory scheduling

Laboratory technicians can use the scheduling screen to see future and past experiments, and keep track of those they have prepared. Experiments occurring today, tomorrow, this week, next four weeks, last week or any dates can be viewed. Other features include a check box to show that an experiment has been prepared, a prep note box, summary details, and a hotlink to provide easy access to the original risk assessment. Teachers can use the scheduling screen to access risk assessments, view any equipment conflicts and to check that an experiment has been prepared. Rescheduling of an experiment is arranged with a click of a button. Experiments for any date range can be downloaded in CSV format for further processing in Excel.



Wednesday, 4 July 2018

Period	Room	Year	Teacher	Experiment & Procedure	Prepared?
2	611	10	Phillip Crisp	Making hydrogen Science World 7, p.52 Cork to be used tc trap hydrogen gas prior to "popping". Lodged: 10 Jun 2018, 3:21pm	☐

Need more Mg ribbon.

Save Note >

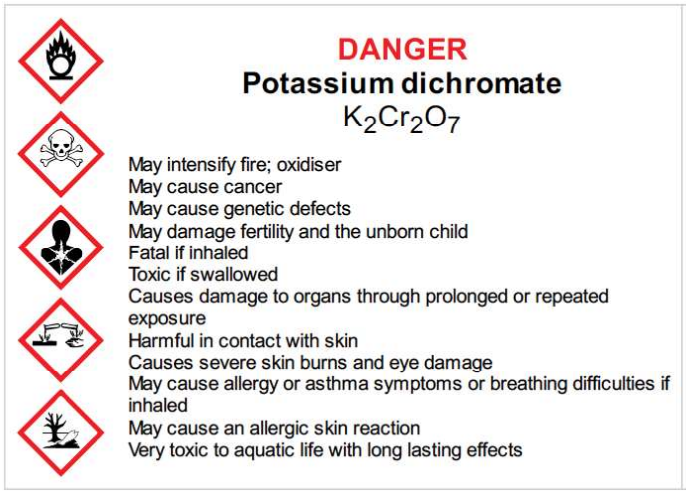
Thursday, 5 July 2018

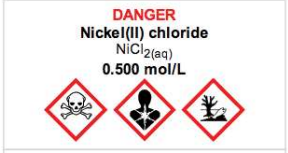
Period	Room	Year	Teacher	Experiment & Procedure	Prepared?
1	436	11 Chemistry	Eva Crisp	Crystal growing Science World p45 Lodged: 10 Jun 2018, 3:26pm	☑

Add Prep Note

GHS labelling

A simple labelling system allows laboratory technicians to produce GHS-compliant labels in four sizes for 1400 pure chemicals and their common solutions. Just enter the name of the chemical and the concentration (if it is a solution), then click “Download labels” for a perfect A4 sheet of labels that you can print on sticky label sheets in Avery sizes or print on paper and cut out! Options are available for custom labels for commercial products, colour spots, and “SDS available”.





Learning resources

www.riskassess.com.au/info/learning_resources

• THE BOOK: “Safety in Schools” by Phillip Crisp
- full text of 30 chapters of training book (250 pages), covering many important topics in schools. Now available for download as an eBook for use by staff and students at schools subscribing to RiskAssess.

FREE RESOURCES

• Routine safety procedures
- recommendations for routine laboratory requirements

• Safe culturing of microorganisms
- general advice

• Proforma for creating a chemical register
- a starting point for you to create your own in Excel

• Legal requirements for schools to perform risk assessments
- current legal requirements throughout Australia

• Risk assessment and control of risks
- explanation of the logic and the process
- free chapter from “Safety in Schools” book

• Inherent level of risk
- definition and explanation

• School’s risk matrix: assessing the severity of risk
- see various risk matrices currently in use

• Australian Curriculum requirements for students to perform risk assessments
- safety requirements for each year

• Globally Harmonised System of Chemical Classification and Labelling
- explanation of GHS and the GHS solution data

• Presentations on risk assessment
- Powerpoint files for you to use