Risk Assessment for School Science Activities

Name and nature of activity	The reaction of alkali metals lithium and sodium with water
Location and date of activity	
Name of teacher/technician	Science ASSIST example risk assessment
Activity type	☐Technician procedure ☒Teacher demonstration ☐Student activity – Student year group

Physics and general equipment	**Type of hazard**	**Controls and other measures**
Spatula Tweezers or forceps Petri dish or ceramic tile Scalpel or sharp knife Wide glass trough or large beaker	☐ Radiation ☐ ionising ☐ laser ☐ Electrical ☐ Thermal ☐ Projectiles ☒ Sharps ☐ Other –	☐ Relevant signage ☐ Perspex safety shield ☐ Sharps container ☒ Glassware free from cracks or chips ☒ Safety glasses ☐ Thermally insulated gloves ☐ Other –

Chemicals used and produced	**Type of hazard**		**Controls and other measures**
Sodium and/or lithium (flammable and corrosive) 0.1% w/v Phenolphthalein solution (flammable) Hydrogen gas (flammable) Sodium Hydroxide solution (corrosive) Lithium Hydroxide solution (corrosive) (Note: the reaction has the potential to be explosive if large pieces of the alkali metals are used, so this risk is mitigated by limiting the size of the piece used)	☒ Explosive ☒ Flammable ☐ Oxidising ☐ Gases under pressure ☒ Corrosive	☐ Acute toxicity ☐ Health hazards ☐ Chronic health hazards ☐ Environmental ☐ Other –	☒ Limit quantity/concentration ☒ Perspex safety shield ☒ Ventilation: natural/exhaust ☐ Fume cupboard ☒ Safety glasses ☒ Laboratory coat/apron ☒ Gloves: latex/nitrile/neoprene/PVC ☐ Safety shower ☒ Other – Fire extinguisher

Biological/geological materials used	**Type of hazard**	**Controls and other measures**
NA	☐ Biohazard ☐ Dust/aerosols ☐ Sharps ☐ Manual handling ☐ Other –	☐ Steriliser ☐ Disinfectant ☐ Sharps container ☐ Dust mask ☐ Safety glasses ☐ Gloves ☐ Other –

Waste produced	**Waste disposal procedure**
Dilute solutions of metal hydroxides	☐ Pre-treatment of waste – ☒ Sink with water – ☐ Regular waste – ☐ Licenced hazardous waste company – ☐ Other –

Standard Operating Procedures

☒ I have read the relevant Standard Operating Procedure.
☒ I am experienced/trained in using all the equipment listed.
☒ All chemicals used and produced are approved for use.
☒ I have read the current SDSs for all hazardous chemicals used and produced.
☒ I am aware of safety guidelines for using all chemicals, materials and equipment.
☒ I will follow local guidelines for waste disposal (water authority, local council, EPA).
☒ I am aware of first aid procedures if required.

Other comments: The use of lithium and sodium in their reaction with water is for small-scale demonstration purposes only.

Conclusion:

☐ Risks not significant now and not likely to increase.
☒ Risks significant but effectively controlled at the moment.
☐ Risks significant and not adequately controlled at the moment.
☐ Uncertain about risks; more detailed assessment required.

Assessment carried out by: Science ASSIST	Signature:	Date: **March 2016**
Assessment approved by:	Signature:	Date:

Next assessment due:

This Risk Assessment assumes that the activity will be conducted in a science teaching area with the following facilities: electricity, running water, emergency shut-offs for electricity, gas if applicable, and water, regular testing and tagging of portable appliances; emergency contingencies such as evacuation/emergency plans, appropriate fire extinguishers, spill kits, hand washing facilities, eyewash/safety shower and first aid supplies. It is also assumed that all the necessary licencing requirements and approvals are obtained prior to the activity.