Risk Assessment for School Science Activities

Name and nature of activity	SOP: The Thermite Reaction
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**
Retort stand and metal clamp (ring clamp or four-pronged clamp) Metal bucket and sand Gas lighter (ignition Method A or B) Flower pots (as per glassware control) Tongs	☐ 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 – see comments below

Chemicals used and produced	**Type of hazard**		**Controls and other measures**
Aluminium powder Iron (III) oxide (A) Magnesium ribbon (flammable) Magnesium oxide (irritant) (B) Sparkler (flammable) (C) Potassium permanganate (oxidising) Glycerol Manganese oxides (toxic) Iron pieces, irregularly shaped	 ☐ Explosive  ☒ Flammable  ☒ Oxidising  ☐ Gases under pressure  ☐ Corrosive	 ☐ Acute toxicity  ☒ Health hazards  ☐ Chronic health hazards  ☐ Environmental ☒ Other – Potential for fire	☒ Limit quantity/concentration ☒ Perspex safety shield ☒ Ventilation: natural/exhaust ☐ Fume cupboard ☒ Safety glasses ☒ Laboratory coat/apron ☒ Gloves: latex/nitrile/neoprene/PVC ☐ Safety shower ☒ Other – A fire extinguisher should be on hand for spot fires.

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**
Iron pieces, irregularly shaped Manganese oxides (method C)	☐ Pre-treatment of waste – ☐ Sink with water – ☒ Regular waste – If using ignition method A or B ☒ Licenced hazardous waste company – If using ignition method C ☐ 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: This should be performed outside on a fire resistant solid surface such as concrete in a windless area well away from any combustible or flammable materials. A fire extinguisher should be on hand for spot fires. New flowerpots should be used

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.