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| --- | --- | --- | --- | --- | --- |
| Name and nature of activity | SOP: The Thermite Reaction | | | | |
| Location and date of activity |  | | | | |
| Name of teacher/technician |  | | | | |
| 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 | xploding bomb Explosive  lame Flammable  lame over circle Oxidising  as cylinder Gases under pressure  orrosion Corrosive | | kull and cross bones Acute toxicity  xclamation mark  Health hazards  ealth hazard Chronic health hazards  nvironment 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: | | Signature: | | | Date: |
| 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.** | | | | | |