# SSERC logo

**SSERC Risk Assessment** (revised version March 2018)

(based on HSE’s INDG 163 ‘Risk assessment - A brief guide to controlling risks in the workplace’)

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| Activity assessed | Thermit |
| *Date of assessment* | 30th June 2020 |
| *Date of review (****Step 5****)* |  |
| *School* |  |
| *Department* |  |

| Step 1 | Step 2 | Step 3 | Step 4 | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| *List Significant hazards here:* | *Who might be harmed and how?* | *What are you already doing?*  *What further action is needed?* | *Actions* | | | | |
| *by whom?* | | *Due date* | | *Done* |
| **Preparing the Reagents** |  |  |  |  | |  | |
| Aluminium powder is flammable | Demonstrator when weighing out and drying. | Keep away from sources of ignition. |  |  | |  | |
| Aluminium and iron oxide powders should not be inhaled | Demonstrator when weighing out and drying and when preparing the demonstration. | Avoid raising dust. |  |  | |  | |
| **Carrying out the Demonstration** |  |  |  |  | |  | |
| Sparks and blobs of extremely how iron can be ejected. | Demonstrator or audience | Wear eye protection and use safety screens.  Keep audience well back. |  |  | |  | |
| Mixture gets extremely hot during reaction | Demonstrator or audience by handling too soon. | Do not pick up until it has been left long enough to cool |  |  | |  | |
|  |  |  |  |  | |  | |

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| **Description of activity:**  A stoichiometric mixture of iron(III) oxide and aluminium powder is placed in a test-tube standing in a tray of sand. It is ignited using a fuse of magnesium ribbon and a spectacular exothermic reaction follows producing molten iron. |
| **Additional comments:**  Use heatproof mats to protect the bench surface.  In a test tube, it needs to be filled absolutely to the brim – ideally proud of it) or the ‘wick’ will go out. If the mixture fails to ignite, take great care when approaching it and do not touch it unless you are absolutely certain that it has gone out completely. The mixture has been known to ignite some minutes after apparently failing. If in doubt, pour sand over the whole test-tube and leave it for several minutes.  If using an ignition mixture, use of over 0.5g will be a breach of the Explosives Regulations – Best to use either a piece of Magnesium ribbon or a small indoor sparkler. |