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**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 | Aluminium iodine reaction |
| *Date of assessment* | 24th March 2014 |
| *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* |
| Iodine is harmful in contact with the skin. | Demonstrator / technician while weighing and grinding the iodine. | Wear eye protection and gloves. |  |  |  |
| Iodine vapour is harmful by inhalation. | Demonstrator / audience by inhalation of fumes from the reaction | Ensure there is a fermentation lock in the flask or some other method for preventing the escape of fumes. |  |  |  |
| Hydrogen iodide fumes (produced in the reaction) are corrosive. | Demonstrator / audience by inhalation of or eye contact with fumes from the reaction. | Ensure there is a fermentation lock in the flask or some other method for preventing the escape of fumes. |  |  |  |
| Aluminium iodide (produced in the reaction) reacts vigorously with water to release fumes of hydrogen iodide | Demonstrator / technician while clearing up after the reaction. | Carry out initial rinsing in a fume cupboard. This is very small scale so very little hydrogen iodide is released. |  |  |  |

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| **Description of activity:**  Solid iodine is finely ground and mixed with finely powdered aluminium. The mixture is placed in a crown cork (bottle top) which is placed in a large (2 litre or so) flask. The reaction is initiated with a few drops of hot water. Immediately the water is added, a bung containing a fermentation lock that has sodium thiosulphate solution in is inserted. (There is sufficient delay before the reaction starts for there to be plenty of time for this).  Clouds of purple iodine vapour are released, along with some hydrogen iodide, in a highly exothermic reaction. |

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| **Additional comments:**  There can be quite an incubation period for this reaction. If nothing happens leave to one side with the fermentation lock still in and dispose of it later in a fume cupboard.  Disposal  Add the aluminium iodide a bit at a time to 1M sodium carbonate solution, allowing time for the reaction to subside each time before adding more. The resulting mixture can be washed to waste with large quantities if water. |