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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 | Iron Clock Reaction |
| *Date of assessment* | September 2022 |
| *Date of review (****Step 5****)* |  |
| *School* |  |
| *Department* |  |

| Step 1 | Step 2 | Step 3 | Step 4 | | |
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| *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* |
| Sodium thiosulphate and starch are of no significant hazard |  |  |  |  |  |
| Potassium iodide is a skin/eye irritant.  Solution is of no hazard. | Technician while preparing solutions by contact with skin and eyes | Wear eye protection and consider gloves |  |  |  |
| Nitric acid is corrosive and oxidising and also produces toxic fumes with a delayed effect. | Technician preparing dilute solution by splashes or inhalation of fumes. | Work in a fume cupboard or, if quantities are small and exposure is of short duration, a well-ventilated lab.  Wear goggles (BS EN166 3) and gloves. |  |  |  |
| 0.3 mol l-1 nitric acid is a skin/eye irritant. | Teacher/pupil by splashes. | Wear eye protection and consider gloves |  |  |  |
| Iron nitrate is an oxidiser and a skin/eye irritant.  The solution is of no hazard. | Technician while preparing solutions by contact with skin and eyes or potential fire. | Keep solid away from combustible materials.  Wear eye protection and consider gloves. |  |  |  |
| The reaction mixture is just an irritant. | Teacher/pupil by splashes. | Wear eye protection and consider gloves for those with sensitive skin. |  |  |  |

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| **Description of activity:**  Two solutions are prepared:  Solution A - Dissolve 1.01g of iron III nitrate-9-water in 100 cm3 of 0.3 mol l-1 nitric acid  Solution B - Dissolve 0.71g of potassium iodide and 0.079g of sodium thiosulphate in 100 cm3 of 0.4% starch solution  Equal quantities of the two solutions are mixed and the timer started. After a delay, the solution suddenly goes blue-black. |

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| **Additional comments:**  The solution is not especially hazardous so disposal is not problematic. If the solutions are accurately made up and measured, the concentration of acid is just on the cusp of ceasing to be even an irritant.  To dispose, add a splash of 0.1 mol l-1 NaOH to neutralise enough to take it below this level then it can be washed to waste with plenty of cold water. (There is no point in adding indicator to check neutrality and the blue/black starch iodine is too dark to se the colour change). |