# 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 | Nitrogen Dioxide - Microscale |
| *Date of assessment* | 30th June 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* |
| Potassium manganate VII is harmful if swallowed and oxidising.  The solution is of no significant hazard | Technician/teacher while preparing solution | Observe normal laboratory hygiene and keep KMnO4 away from potentially flammable substances |  |  | |  | |
| Potassium bromide and iodide are eye irritants.  The solutions are of no significant hazard. | Technician/teacher while preparing solution | Observe normal laboratory hygiene. Wear eye protection. |  |  | |  | |
| Iron II sulphate.7-water is harmful if swallowed and is a skin/eye irritant.  The solution is of no significant hazard | Technician/teacher while preparing solution | Observe normal laboratory hygiene. Wear eye protection. |  |  | |  | |
| Barium chloride is toxic if swallowed and harmful if inhaled.  The solution is of no significant hazard. | Technician/teacher while preparing solution | Observe normal laboratory hygiene. Wear eye protection. |  |  | |  | |
| Sodium and potassium nitrate III (nitrite) is toxic if swallowed and an oxidiser. | Technician/teacher while preparing solution | Observe normal laboratory hygiene and keep KMnO4 away from potentially flammable substances |  |  | |  | |
| Sulphur dioxide is toxic if inhaled. | Technician/teacher while preparing solution  Pupil/teacher while carrying out the experiment | Prepare the sulphur dioxide solution in a fume cupboard.  Work in a well-ventilated lab and remove the cap/bung from the SO2 solution for as short a time as possible. |  |  | |  | |
| Sulphuric acid is very corrosive and an oxidiser.  0.5 mol l-1 sulphuric acid is of no significant hazard. | Technician/teacher while preparing solution  Pupil/teacher while carrying out the experiment | Wear a face shield or goggles (BS EN166 3) and gloves. |  |  | |  | |
| Nitrogen dioxide is toxic if inhaled – possibly with delayed effects. | Pupil/teacher while carrying out the experiment | The very small scale reduces the risk dramatically. However, do not exceed the quantities of nitrite and acid given. And do not remove the lid. |  |  | |  | |

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| **Description of activity:**  Various solutions are placed in drops round the perimeter of a Petri dish.  Nitrogen dioxide is generated by adding drops of acid to some sodium or potassium nitrate III (nitrite).  The lid is replaced immediately, and the changes are observed. |
| **Additional comments:**  When the reaction is over, only open the Petri dish in a fume cupboard or in a well-ventilated area. |