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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 | Autocatalysis |
| *Date of assessment* | 16th July 2014 |
| *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* |
| Concentrated sulphuric acid is very corrosive Cat 1A | Technician/demonstrator by splashing while preparing solutions. | Wear goggles (BS EN166 3) or a face shield and PVC gloves.  Be careful of the heating effect of diluting concentrated sulphuric acid. |  |  |  |
| 3M sulphuric acid is corrosive | Technician/demonstrator by splashing while carrying out demonstration. | Wear goggles (BS EN166 3) and gloves. |  |  |  |
| Potassium chlorate(V) is a powerful oxidising agent and harmful if inhaled or ingested | Demonstrator/technicians during preparation of solutions if it comes into contact with flammable materials. | Keep away from flammable materials and other reducing agents. Avoid raising dust. |  |  |  |
| Sodium sulphite is corrosive | Technician/demonstrator by splashing while preparing solutions and carrying out demonstration. | Wear goggles (BS EN166 3) and gloves. |  |  |  |
| Bromophenol blue is a skin/eye irritant and is harmful by ingestion or inhalation.  The solution is of no significant hazard. | Technician/demonstrator while preparing solution. | Avoid raising dust. Wear eye protection and possibly gloves. |  |  |  |
| The reaction mixture is corrosive. It also gets quite hot (60 – 70C) | Technician/demonstrator by splashing while preparing solutions and carrying out demonstration. | Wear goggles (BS EN166 3) and gloves. |  |  |  |
| The reaction produces sulphur dioxide which is corrosive and toxic by inhalation. (It is particularly irritating to asthmatics)  If left undisturbed, not very much SO2 is released but a significant amount is released on disposal. | Technician/demonstrator/audience by inhalation during demonstration.  Technician while disposing of reagents. | Carry out in a well-ventilated room or a fume cupboard.  Be careful when disposing of mixture – ideally use a fume cupboard. |  |  |  |

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| **Description of activity:**  An acidic solution of sodium sulphite and potassium chlorate(V) containing bromophenol blue is prepared and placed in a measuring cylinder.  A fey cm3 of more concentrated acid is added carefully to the top. This initiates the reaction which is catalyzed by the presence of acid. The acid solution changes the colour of the indicator from purple to yellow. The reaction also produced more H+ ions so as it proceeds, it becomes self perpetuating.  The reaction works its way slowly (over a period of a few minutes) down the measuring cylinder until all the solution is yellow. |

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| **Additional comments:**  The solution can be disposed of by neutralising and pouring down the sink – this releases much more of the SO2 so it should be done with caution, ideally in a fume cupboard. |