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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’)

2 Pitreavie Court, South Pitreavie Business Park, Dunfermline KY11 8UU

tel : 01383 626070 e-mail : enquiries@sserc.org.uk web : [www.sserc.org.uk](http://www.sserc.org.uk)

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| Activity assessed | Small scale azo-dye preparation |
| *Date of assessment* | October 2013 |
| *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* |
| Phenol is toxic (by all routes), corrosive, a mutagen and a specific target organ toxin.The solution is flammable but has no other significant hazard. | Teacher/technician while preparing dilute solution. | Carry out preparation of solution in fume cupboard. Wear gloves and eye protection, Use goggles to BS EN 166 3.Keep solutions well away from possible sources of ignition |  |  |  |
| Ethanol is flammable | Pupils, risk of fire while using ethanolic solutions | Keep solutions well away from possible sources of ignition |  |  |  |
| Naphthalene-1-ol and Naphthalene-2-ol are irritant and harmful.The solutions are flammable but have no other significant hazard. | Teacher/technician while preparing dilute solution. | Wear gloves and eye protection, Use goggles to BS EN 166 3.Keep solutions well away from possible sources of ignition |  |  |  |
| Sodium (III) nitrate (nitrite) is toxic and oxidizingSolution is of no significant hazard | Technicians preparing solutions. | Wear gloves and eye protection, Use goggles to BS EN 166 3. |  |  |  |
| Sulphanilic acid is an irritant and a skin sensitizerSolution is of no significant hazard | Technicians preparing solutions. | Wear gloves and eye protection, Use goggles to BS EN 166 3. |  |  |  |
| Glacial ethanoic acid is corrosive.Solution is of no significant hazard | Technician/teacher while preparing 2M solution. | Carry out in fume cupboard. Wear gloves and eye protection, Use goggles to BS EN 166 3 |  |  |  |
| Sodium hydroxide (solid and 1 M solution) is corrosive | Technician while preparing solution. Pupils while using by splashes. | Use goggles to BS EN 166 3. |  |  |  |
| Combined diazo reagent and azo-dye solutions are of no significant hazard |  |  |  |  |  |

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| **Description of activity:**Making Azo-Dyes. Pupils are given tubes with dilute solutions of phenol, naphthalene-1-ol and naphthalene-2-ol in ethanol. They add 2 drops of azo reagent (sulphanilic acid and sodium (III) nitrate (nitrite) in ethanoic acid) and then 3 drops of 1M sodium hydroxide. If desired, larger amounts of dye can be made and used to dye small samples of cotton |

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| **Additional comments:**The dyes produced can be washed to waste with curious quantities of water |