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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 | Synthesis of Ethyl Ethanoate |
| *Date of assessment* | September 2024 |
| *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* |
| Concentrated sulphuric acid is highly corrosive. | Learner (teacher) by splash or spillage | Wear goggles (BS EN166 3) and gloves. |  |  |  |
| Ethanoic acid is corrosive and releases irritating fumes | Learner or teacher by splashes or spillage or inhalation. | Wear goggles (BS EN166 3) and gloves.  Work in a well ventilated laboratory or use a fume cupboard. |  |  |  |
| Ethanol (IMS) is highly flammable, harmful if swallowed and can cause damage to organs. | Learner or teacher by fire, ingestion or exposure to fumes | Keep well away from sources of ignition.  Work in a well-ventilated laboratory (or use a fume cupboard\_ |  |  |  |
| Calcium chloride solid and saturated solution is an eye irritant. | Learner or teacher by splashes or spillage. | Wear goggles (BS EN166) |  |  |  |
| **Ethyl** Ethanoate is highly flammable an eye irritant and fumes can cause drowsiness. | Learner or teacher by fire, splashes or exposure to fumes | Keep well away from sources of ignition.  Wear eye protection.  Work in a well-ventilated laboratory (or use a fume cupboard\_ |  |  |  |
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| **Description of activity:**  Ethanol and ethanoic acid are refluxed with sulphuric acid (the catalyst) and then distilled to give the crude product  It is then neutralised to remove remaining acid and any remaining alcohol is complexed with calcium. The product is then dried with sodium sulphate.  There is then a second distillation to purify it. |

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| **Additional comments:** |