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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 | Factors Affecting Enzyme Activity |
| *Date of assessment* | 7th December 2021 |
| *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* |
| Hydrogen peroxide, concentrated, is corrosive to skin and eyes, as is (just) the 30 vol solution | Technician by splashes while preparing 30 vol solution.  Pupil/teacher by splashes while carrying out experiment | Wear goggles (EN166 3) and gloves – small amounts of 100 vol will sting a lot even if no permanent damage is caused.  Wear goggles (EN166 3) and consider gloves. Depending on quantities involved and likelihood of spillage. |  |  |  |
| Hydrochloric acid is corrosive and gives off irritating fumes. | Technician by splashes or inhaling fumes while preparing dilute solution | Wear goggles (EN166 3) and gloves and work in a well-ventilated room or use a fume cupboard. |  |  |  |
| Sodium hydroxide is corrosive to skin and eyes | Technician by splashes while preparing dilute solution | Wear goggles (EN166 3) and gloves. |  |  |  |
| 0.1 mol l-1 hydrochloric acid and sodium hydroxide are of no significant hazard. |  |  |  |  |  |
| Buffer solutions bought in as concentrate **may** be hazardous – check the label or msds and behave accordingly.  If buffer solutions are home-made, follow the guidance with the recipe. The SSERC website contains buffer recipes with classification information. | | |  |  |  |
| Buffer solutions at concentration when used are almost certainly of no significant hazard – but check msds for commercial products. | | |  |  |  |

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| **Description of activity:**  Discs of potato are cut and used as sources of catalase to decompose hydrogen peroxide solution.  The reaction is followed by counting the bubbles of oxygen from the delivery tube.  Solutions are either adjusted for pH using buffer solution or for temperature using a hot water bath. |

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| **Additional comments:**  If a Bunsen burner is being used to heat the water then the appropriate procedures for using it safely should be followed.  Alternatively, a kettle could be used to provide the hot water. Care should be taken with the boiling water and the electrical safety of the kettle should be ensured.  Disposal – solutions can be washed to waste with plenty of cold running water. |