# 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 | Diffusion of Gases- Microscale |
| *Date of assessment* | 30th June 2022 |
| *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* |
| Ammonia gas is toxic by inhalation.  | Teacher/pupil while carrying out diffusion experiment | Ammonia gas is only released in significant amounts once the calcium chloride is added. The lid of the petri dish is placed on top immediately so any release will be negligible.The Petri dish should only be opened in a well-ventilated space or a fume cupboard. |  |  |  |
| Ammonia solution (.880) is corrosive | Technician by splashes while preparing the dilute solution. | Wear goggles (BN ES166 3) and nitrile gloves. |  |  |  |
| Hydrochloric acid is corrosive and releases irritating fumes | Technician by splashes while preparing the dilute solution. | Wear goggles (BN ES166 3) and nitrile gloves. |  |  |  |
| 1 – 2 mol l-1 hydrochloric acid is of no significant hazard |  |  |  |  |  |
| Sodium sulphite is corrosive to skin and eyes and releases toxic SO2 in contact with acid. | Teacher/pupil while carrying out diffusion experiment | The quantities of sulphite are very small so the risk is extremely slight. Wear eye protection in case. |  |  |  |
| Sulphur dioxide is toxic by inhalation. | Teacher/pupil by inhalation while carrying out diffusion experiment | Sulphur dioxide is only released in significant amounts once the acid is added. The lid of the petri dish is placed on top immediately so any release will be negligible.The Petri dish should only be opened in a well-ventilated space or a fume cupboard. |  |  |  |
| Universal indicator is flammable | Teacher/pupil by burning while carrying out diffusion experiment | Keep away from sources of ignition. |  |  |  |
| Domestic this bleach is (just) an irritant and released toxic chlorine gas | Technician by spillage while preparing the 50% solution | Wear eye protection and work in a well-ventilated area or in a fume cupboard. |  |  |  |
| 50% bleach released toxic chlorine gas in contact with acid. | Teacher/pupil by inhalation while carrying out diffusion experiment | Chlorine is only released in significant amounts once the acid is added. The lid of the petri dish is placed on top immediately so any release will be negligible.The Petri dish should only be opened in a well-ventilated space or a fume cupboard. |  |  |  |
| Potassium iodide and starch are of no significant hazard |  |  |  |  |  |

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| **Description of activity:**Drops of dilute universal indicator (or starch/potassium iodide) are placed in a grid pattern inside a petri dish.Combinations of the following are added in one corner.* Ammonia and calcium chloride to release ammonia gas
* Sodium sulphite and Hydrochloric acid to release sulphur dioxide gas
* 50% thin bleach and Hydrochloric acid to chlorine gas

The lid of the petri dish is rapidly replaced and the diffusion of the gases followed by observing the colour changes in the drops. |
| **Additional comments:**The Petri dishes should be opened in a well-ventilated area or in a fume cupboard and can then simply be wiped clean. |