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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 | Catalyst at Work |
| *Date of assessment* | October 2016 |
| *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* |
| 100 vol Hydrogen peroxide is corrosive | Demonstrator / technician preparing 20 vol solution | Wear nitrile gloves and goggles (BS EN166 3). |  |  |  |
| 20 vol Hydrogen peroxide is irritant | Demonstrator / bystanders carrying out demonstration. | Wear eye protection. |  |  |  |
| Cobalt chloride is harmful if ingested, a respiratory and skin sensitiser, a mutagen, reproductive toxin and carcinogen by inhalation. | Demonstrator / technician preparing solution. | Avoid raising dust. Wear eye protection and consider gloves. The effervescence produces an aerosol so work in a well-ventilated room and stand well back. |  |  |  |
| Reaction mixture is carcinogenic | Demonstrator / technician / audience by inhalation of droplets. | Carry out demonstration in a well-ventilated space or a fume cupboard.  Do not over-heat the solution before adding the cobalt chloride as the reaction will be too vigorous. |  |  |  |

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| **Description of activity:**  A solution of potassium sodium tartrate (Rochelle salt) mixed with 20 vol hydrogen peroxide is heated to about 80°C.  A few cm3 of cobalt chloride solution is added. This catalyses the reaction producing effervescence. During this process, the mixture goes green due to the temporary formation of an activated complex with the cobalt. As the reaction dies down, the pink colour of the cobalt II ion is regenerated. |

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| **Additional comments:**  If the mixture is too cold before the cobalt is added, it will be disappointingly slow, if too hot it will be excessively vigorous.  **Disposal**: Solutions can be treated with sodium carbonate to precipitate insoluble cobalt carbonate and the precipitate stored for disposal by contractor. |