# **Standard Operating Procedure (SOP) Title: Use of Solvent Towers**

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| Assessor: | Joshua Linfoot | | | Location of work: | MSRH 502A |
| Principal Investigator: | | | Prof Alan Spivey | | |
| Date of approval: | | 13/09/2021 | | Date for review: | 13/09/2022 |

## **Justifying the hazards:**

Solvent Towers consist of a column with alumina and pressurised system used to dispense dried solvents.

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| Identify hazards with specific risk assessments and a College or a departmental approval process | | | |
| [Ionising radiation sources](https://www.imperial.ac.uk/safety/safety-by-topic/laboratory-safety/) |  | [Biological sources](https://www.imperial.ac.uk/safety/safety-by-topic/laboratory-safety/) (microorganisms, human/animal tissues, plants) |  |
| [Class 3R, 3B or 4 Lasers](https://imperiallondon.sharepoint.com/sites/fons/faculty/safety/lasers/SitePages/laserhome.aspx) |  | [Offsite work](http://www.imperial.ac.uk/safety/safety-by-topic/off-site-working/) |  |
| Confirm if [Lone working](https://www.imperial.ac.uk/safety/safety-by-topic/lone-working/) is permitted with this SOP?  If it is permitted, describe the control measures for lone workers: | | | |

## **Preparing for the SOP:**

* **DO** get trained by the responsible technician or Super-User before attempting to use solvent towers.
* **DO** prepare the collecting glassware (round bottom flask with neck 24mm and stopper) and carrier container with absorbent/blue roll in it.
* **DON’T** collect more than 2/3 of the volume of the flask.

## **Procedure:**

Start-up checks:

* All valves are closed.
* N2 ON at 45-50 psi.
* Check the glassware is free of cracks.

Dispensing of the solvent:

1. Turn Valve to N2 GAS. Attach flask with clip, support the flask and the connection.

2. Turn Valve to VACUUM and cycle N2 GAS/ VACUUM 3 times.

3. Turn Valve to Solvent. Slowly open Green (Flow) Tap to dispense solvent. Do not fill more than 2/3 full.

4. Close Green Tap and turn Valve to N2 GAS through CLOSED. Disconnect flask.

5. Turn Valve to CLOSED.

End checks:

* Hoses are capped.
* Valves are closed.

## **Disposal:**

Dispose of waste via the appropriate hazardous waste route.

## **Personal Protective Equipment (PPE):**

## Lab coat, safety specs, nitrile gloves.

## **Risk Analysis of SOP and emergency procedures:**

### (In addition to [Safe Lab Practice](https://imperiallondon.sharepoint.com/sites/fons/faculty/safety/SitePages/Basic%20Laboratory%20Rules%20for%20All%20Laboratories%20in%20FoNS.aspx))

### **Always remember to include fire associated risks and control measures where appropriate**

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| Hazard | Raw risks | Current control measures | Residual risk  (Low/Med/High) |
| Hazardous solvents | Exposure to chemicals via inhalation, skin or eye contact: intoxication, irritation. | Warning signs are attached informing on the hazards.  PPE is required for work in the area. Additional gloves are available next to the towers. | Low |
| Spillages | Instruction, training and supervision is provided.  Spill kit is available. |  |
| Nitrogen Gas | Leak | Regular leak test performed by the responsible technician. | Low |

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| **Additional control measures to minimise residual risks** | **Implementation date** |
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| **Who may be harmed** | |
| Staff / students | Cleaners / Engineers |
| Supporting staff | Others (specify): |

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| **Emergency procedures** – describe the response(s) required by the user and lab members |
| **Spillages** – Use spill kit to absorb small spillages and dispose of the waste via hazardous route. In case of large spillage – evacuate, escalate (to the responsible technician) and report (SALUS).  **Leak or Continuous flow** – Use N2 shut off valve and solvent shut off valve on the canister.  **Fire** – If ignition occurs but extinction is managed in a controlled manner, ensure a SALUS report is completed at the earliest opportunity. If the fire is not controllable you must activate a fire alarm call point and evacuate. Inform Fire Safety Officers or Security where the fire is located and what it involves when they arrive at the building.  **Gas leak** – report to the responsible technician. |

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| Recommended trainings and records: |
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| List of individuals competent to demonstrate safe work practice and train others (level 1 trainers): | Names of those that have been trained and can work unsupervised (level 2) and date training completed: |
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