# **Standard Operating Procedure (SOP) Title: Use of Drying Oven**

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

## **Justifying the hazards:**

This SOP covers isotemp ovens, used for simple routine heating tasks such as drying glassware or samples which contain water or other solvents for further analysis or testing purposes.

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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:**

* **DON’T** leave oven dirty or cluttered with samples/glassware.
* **DON’T** place items on the heat cover.
* **DON’T** use faulty or damaged equipment until it is repaired.
* **DON’T** touch control panel and cords with wet hands.
* **DON’T** use mercury thermometers to monitor the temperature of an oven.
* **DON’T** use ovens to dry plastic, or glassware that has been rinsed with organic solvents.
* **DO** ensure combustible materials are removed from around the oven before each use.

## **Procedure:**

# **Before use:**

1. Remove any old samples, dust or other foreign objects from inside the oven. Use soft towel or cloth for wiping.
2. Switch the power on.
3. Set the desired temperature in Celsius.
4. When the desired temperature is reached place samples or glassware appropriately inside the oven.

# **While using:**

1. If leaving oven running overnight or long periods of time/leave, notify the lab manager and specify the following for the other lab users: Name/ Sample/ Time/ Temperature/ What to do with sample when removed/ Emergency procedures.

# **After the measurement**

1. When samples are ready or glassware is dry remove them from inside the oven using heat-resistant gloves.
2. Make sure you **leave the pan and inside of the oven clean**.
3. Allow oven to cool down below 100 °C before turning off and unplugging.

## **Disposal:**

## Older ovens may contain asbestos as the insulating material. If this is suspected, please refer to the Tech team and organise a check <http://www.imperial.ac.uk/estates-facilities/buildings/services/waste-disposal/waste-directory/asbestos/>.

## Decontamination Procedures: Any foreign objects can be removed from inside the cooled oven while wearing gloves. The shelves and other inside parts can be wiped with a cloth and a non-abrasive conventional household cleaner. Never use caustic cleaning agents such as soap suds, phosphoric acid, bleaching solutions or scrubbing power.

If any chemical waste is produced, ensure it is disposed of via the appropriate chemical waste stream. If the equipment is to be disposed of, ensure it is decontaminated, and then dispose via the ‘Waste Electrical and Electronic Equipment route ([WEEE](http://www.imperial.ac.uk/estates-facilities/buildings/services/waste-disposal/waste-disposal-forms/weee-forms/))’.

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

Lab coat, appropriate gloves, safety glasses

## **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) |
| Hot surfaces, hot samples | Burns, fire | Use slip-resistant insulated thermal gloves for handling hot samples, oil baths and heating blocks.  Remove all flammable substances from the area when using hot equipment. | Med |
| Electrical equipment and cables | Electrocution and electrical fire | Commercial equipment, do not modify.  Ensure regular portable appliance testing (PAT).  Visual inspection of equipment and cables prior to each use.  Immediate clean of any spills.  Ensure plugs, sockets, cables and equipment positioned so as not to be at risk of ingress from liquids.  Ensure a CO2 extinguisher is available.  Ensure easy access to the power supply. | Low |
| Heavy item | Crushing injury | Equipment securely located on suitable work surface.  No lifting or moving of equipment. | Low |
| Glassware and glass parts | Cuts and splinters from broken glass | Visually inspect glassware for cracks and other defects before and after use. If glassware damaged arrange for repair or dispose of. | Low |
| Hazardous materials | Exposure via inhalation of hazardous reagents | No heating of volatile reagents in the oven.  Ensure the equipment is cleaned before and after each use.  (Include hazards and controls of associated reagents in this or separate risk assessment) | Low |

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| **Additional control measures to minimise residual risks** | **Implementation date** |
| Use tools rather than directly touching the hot equipment, even with heat-resistant gloves. |  |

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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 |
| In the event of an incident involving the **equipment itself,** turn off the power supply, unplug and place a sign on the equipment stating it is not to be used. Arrange for repair.  **Electrical shock** - switch off power. Do not touch the affected individual until the power is definitely off. Seek immediate medical attention by calling 4444 (+44 20 7589 1000) and contacting a nearby First Aider. Use a non-conductive lever to remove them from electrical source (e.g. a dry wooden broom handle).  **Electrical 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 of where the fire is and what it involves when they arrive at the building.  **Burns** - run site of injury under tepid water for 15 minutes if able (burn dressing available in first aid kits if location of the injury is awkward to rinse e.g. leg), and contact a first aider. In the case of a serious burn, seek medical attention immediately.  Clear up **broken glass** using dustpan and brush, tweezers or other suitable equipment to prevent exposure to the glass then place into the appropriate waste bin (clean or contaminated glassware).  If anyone is injured while using the equipment contact first aider.  If any **cuts or exposures** to hazardous substances, ensure affected area is held under running water for at least 15 mins and the wound is encouraged to bleed, ask for first aid assistance. If water is not available use alcohol free wipe from the First Aid Kit and dress the wound. Seek further medical attention if required.  If **crushing injury** - contact first aider immediately – use ice/cool pack (if on hand only) to reduce immediate swelling – seek medical attention if required.  (Include emergency procedures associated with the use of hazardous substances if relevant) |

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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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