

Diamond User Induction

Introduction and Policy

Welcome to Diamond Light Source, the UK national synchrotron facility.

Diamond considers safety, health, and environmental matters to be of prime importance. As such, it undertakes to provide a safe, healthy, and environmentally sound facility.

Legal responsibilities

Diamond embraces its legal responsibilities for the safety of all persons at site. And we require all persons to cooperate with us, to meet these objectives.

To do this, you must:


- Take reasonable care of your own safety and the safety of others who may be affected by your actions or omissions
- Follow site rules, signage, and instructions from Diamond persons
- Not misuse anything provided for safety.
- Report all incidents and safety concerns to your Diamond local contact.


Access to Diamond is subject to full compliance with Diamond's safety requirements.

As part of our legal duties, persons who do not adhere to safety requirements may be banned from using Diamond.

Planning your visit

Before you come to Diamond you are required to have submitted an experimental risk assessment on diamond's user administration system.

 **diamond** Central Authentication Service (CAS)

 **Login**

Username:

Password:

LOGIN

Or login with:

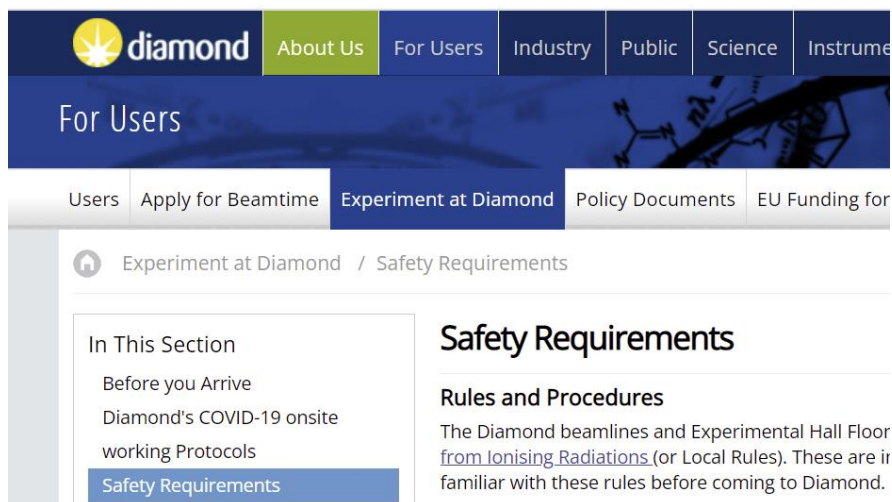
Umbrella ID **University Of Oxford** **The University Of Manchester** **University Of Birmingham**

University Of Leeds

This must be done three weeks in advance of your visit as beamtime cannot progress without a validated risk assessment.

When planning beamtime visits, you must ensure the following:

- There are sufficient members of your user group to safely cover the duration of the beamtime. You should minimise lone working and consider fatigue from travel.
- There is sufficient competency within the user group to safely conduct and supervise the experiment.
- You are familiar with the relevant safety information on the safety requirements section of the Diamond website.



- Only samples, substances and equipment detailed on your risk assessment are brought to site.

Talk to your Diamond local contact if there are any issues.

Personal Adjustments

If you require any adjustments or assistance to accommodate your personal needs during your time at Diamond, please inform Diamond User office and discuss with your local contact prior to coming.

User Equipment

All equipment brought to Diamond must be suitable for the intended purpose, free from damage, and safe to use.

All equipment must be risk assessed and included in the experimental risk assessment.

Users must be competent operators of the equipment and must only operate it at diamond in a tried and familiar manner.

Equipment must have a UK conformity assessment mark or a CE mark.



Electrical equipment must have a valid portable appliance test.

Pressure vessels and gas systems must be tested, and certified, for the conditions of the experiment.

On Arrival

Diamond is located on the Rutherford Appleton Laboratories Site. You will need to visit the main gate security lodge to collect your access pass and, where applicable, your vehicle parking permit.

Please keep to the site speed limit of twenty miles per hour and display your parking permit.

When walking around the campus, keep to footpaths and use crossings.

Security

You must always wear your access pass.

Do not allow others to use your pass to gain access to any area or carry out a beamline search.

Do not tailgate another person into an area or permit anyone access to an area by tailgating you.

Your pass will only permit access to authorised areas.

Please report any suspicious activity or packages you observe to a Diamond person.

To remove any Diamond property, you must have written permission.

You are not permitted to bring visitors onto Diamond, or persons aged 16 or under.

Prohibited Areas

There are some areas where users are not permitted to enter, these include:

- Construction areas,
- Areas where lifting operations are taking place,
- Zone 13 and plant rooms.

Welfare

Welfare facilities are available throughout Diamond. Kitchens, vending machines, toilets and rest areas are located on the first floor of the synchrotron building.

Smoking or vaping is only permitted outside, when more than five meters away from buildings.

You must not come onto Diamond site under the influence of alcohol or drugs which may make you unfit to work or adversely affect safety performance. And you must not bring or consume any alcohol or such drugs on the Diamond site.

Diamond Contact

A Diamond contact, referred to as a Local Contact, will be assigned to your beamtime.

Your local contact will ensure you have completed the necessary trainings, received the required safety instructions before you start work.

You must follow all instructions from your local contact.

If your local contact is not available, contact the experimental hall coordinators on extension 8787.

Fire Safety

The fire alarm at Diamond sounds like this.

On hearing the alarm in the synchrotron building take the following action:

- Immediately leave the building via the nearest exit, do not use lifts, follow green directional signage.



- Go to the muster point under the link bridge and swipe your access card at the muster point.
- Remain at the muster point. You must not re-enter the building until instructed, even if the alarm stops sounding.
- For other buildings at Diamond muster points are signposted at the main entrance to the building.

On discovering a fire at Diamond, take the following action:

- Do not try to fight the fire
- Immediately leave the building via the nearest exit (do not use lifts) – follow green directional signage.



- Activate the call point on your way out of the building. Call points are located along fire escape routes and at final exit doors.



- Go to the muster point and await instruction.

First Aid

If you require first aid, call the EHCs on 8787.

All first aid incidents must be reported to your local contact.

Incident Reporting

As well as personal injury accidents, all of the following must be reported to your local contact:

- Safety concerns,
- Near-miss incidents,
- Spillages and leaks of substances,
- Breakages or malfunction of equipment.

Safety Signage

You must follow all instructions given by safety signage.

Yellow signs give a hazard warning.



Red signs give a prohibition message or are for fire safety information.



Blue signs give instructions to take mandatory behaviours.



Green signs give information on the locations of safe areas, first aid equipment and emergency exits.



Good Lab Practice

When working in laboratories or in beamline preparation areas, you must observe good laboratory practice.

Do not eat or drink in these areas; wear the required personal protective equipment. Keep your work area clean and tidy.

Keep control of sharp items, and ensure all reagents are labelled and kept closed.

Your local contact will arrange a mandatory lab induction.

Do not use laboratory sinks for disposal of chemicals, dry ice or liquid nitrogen. Discuss waste disposal with your local contact.

You will be issued with the lab safety handbook to follow.

House keeping

Please keep your work areas clean, tidy, and free from hazards.

All spillages must be cleaned up immediately and reported to your local contact to ensure equipment and surfaces are decontaminated.

All samples and materials you bring to Diamond must be taken away with you. If you want to dispose of your material at Diamond, please speak to your local contact for authorisation.

Manual Handling

Where your work involves significant manual handling, this must be considered in your experimental risk assessment. All persons involved in manual handling operations must be suitably trained prior to coming to Diamond.

Please arrange materials handling with your local contact in advance of your beamtime. Diamond can provide mechanical lifting and moving equipment, as well as site transport if needed.

Gas and Cryogenics

You are not permitted to fit gas regulators or make changes to pressure systems at Diamond.

Your local contact will arrange for gas cylinders to be delivered, regulators to be fitted, and pressure systems to be leak checked and modified, where required.

Oxygen Depletion

Low oxygen alarms are installed in all areas where cryogenics and gases are used. The low oxygen alarm sounds like this.



On hearing the low oxygen alarm, take the following action:

- Leave the area immediately.
- Call the experimental hall coordinators on 8787.
- Do not re-enter the area until instructed.
- Prevent others from entering the area.
- Do not attempt to rescue someone from a low oxygen atmosphere.

Liquid nitrogen

Liquid nitrogen is widely used at Diamond for cooling equipment and for sample preservation. The hazards related to liquid nitrogen use are asphyxiation, lack of oxygen, and cold burns to the skin or eyes.

You must do the following when working with liquid nitrogen:

- Never pour liquid nitrogen into a container that is not designed to hold cryogenics. And never use a container that can be sealed shut.
- Only dispose of liquid nitrogen in well ventilated open areas, or outside where possible
- If you spill liquid nitrogen, get everyone out of the area, ventilate the area and allow the liquid to evaporate before allowing anyone to re-enter.

If the oxygen depletion alarm sounds you must take the required evacuation action, even if it is only a small spill of liquid nitrogen that has caused the alarm.

You must not handle liquid nitrogen at Diamond unless you are competent in to do so. Ask for assistance from your Diamond local contact if you are not competent.

Wear the protective gloves and safety glasses provided when pouring liquid nitrogen. Do not wear gloves with loose fitting cuffs or boots with loose fitting collars, where nitrogen could enter.

If you get liquid nitrogen on your skin, call a first aider to assist you and run tepid water over the affected area for 15 minutes.

Electrical safety

Users are not permitted to work with hazardous electrical voltages at Diamond.

If you need electrical work to be completed, contact your Diamond local contact.

Radiation Safety

Many beamlines at Diamond produce ionising radiation when in operation. Synchrotron radiation levels can be extremely hazardous; therefore, Diamond has a comprehensive radiation shielding and monitoring programme. You must be familiar with the Radiation Local Rules, found on our website, before coming to Diamond

Radiation controlled beamlines are shielded with an access control system to prevent entry during operation.

Beamline annunciator panels show the condition of the beamline with a red, amber, green signal system.

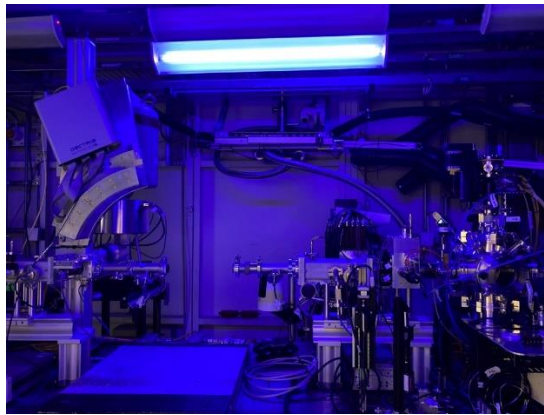


You may only enter the beamline when the annunciator is showing a green light and displays as open.



All other conditions indicate that access is restricted, and you must not enter.

If you are inside a beamline hutch and you hear the beamline search siren or see the blue lights activate take the following action:



- Immediately press the beam off button or exit the beamline. Opening the beamline hutch door will shut off the beam.



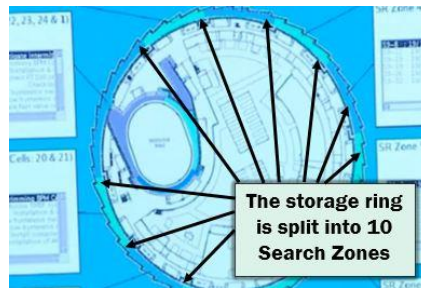
- Call the control room on extension 8899 to report the incident.

Personnel Safety System

Where applicable to the beamline, you will be trained in the use of the personnel safety system.



You will be trained to perform a search of the beamline as part of the beam activation process.



The search process is a vitally important step in ensuring that there are no persons in a hutch before the beam is turned on and the hutch receives harmful radiation.

Once the systematic search is complete, the hutch is closed, and the personnel safety system is fully activated.

This system shuts off the beam if a person tries to enter the hutch whilst it is receiving beam.

Once trained in carrying out a search, you must work precisely to your training and not let another person use your access card to perform a search.

You may not use the personnel safety system unless you are trained and authorised to do so.

Radiation Monitors

When entering beamline hutches after receiving beam, you must use a radiation monitor to check that there is not any radiation present. [show pic of radiation monitor]



Your local contact will train you in this process.

Environment

Diamond works to high environmental standards.

Please use the recycling facilities and designated waste routes provided throughout the facility.

Waste chemical, biological and radiological wastes are not to be discharged to drains.

If you have any waste to dispose of, please discuss this with your local contact.

Please turn off all lights and equipment when they are not in use.

User Safety Codes

Diamond has a range of Experimental Work Instructions which provide guidance on the requirements for working with different hazards.

Pause

You must ensure that you are familiar with the requirements of the instructions relevant to your experiment type.

Experimental Work Instructions

Instructions for Users

Read and adhere to the work instructions relevant to the work you are conducting at Diamond.

High Temperatures	Hazardous Substances	Magnets, RF, EMF
High Pressure	Hazardous Voltages	Gas & Gas Flow Cells
Explosives	Liquid Flow Cells	Lasers, AOR, UV

These can be found on the Safety, Health and Environment section of Diamond's internet pages.

Before you leave

Before you leave Diamond, please ensure the following:

- You leave your work area in a tidy and clean condition. And any potential contamination has been thoroughly cleaned.
- Any incidents, safety concerns and breakages have been reported to your local contact.
- You have collected all your belongings, as well as samples, and equipment.
- All samples requiring on-site tracking have been signed out.

- Deposit your access card in the post box [show picture of box] outside the User office in Diamond House, or at the security lodge on the way out of the RAL site.
- If you are driving, you must ensure that you have had enough rest to travel safely.

Thank you for watching. And thank you for helping us maintain high safety standards.