

Risk Assessment Form

Title of Risk Assessment

Date of assessment

Department

Date review due

Description of Task/Process

Assessment carried out by

Additional information

This lab is used by members of University of Warwick to prepare and submit samples for analysis by chromatography instruments. Users are external from the Polymer RTP, however, the RTP staff maintain and run the lab and the analytical equipment within it. Researchers external to the RTP are inducted and trained by RTP staff.

This lab contains 5 functioning low temperature SEC instruments (below 50 degrees), one high temperature SEC instrument and one FFF instrument. All are chromatography instruments and require injection of a solubilised sample into the instrument. The solvents involved are THF, DMF, CHCl₃, water and TCB. To prepare a sample, solvent is added to a sample, PPE (lab coat and lab specs) and use of the fumecupboard are required for this. Users must have their own materials risk assessments (often in an appropriate lab book), as detailed in the Chemistry Handbook. Any other users within the vicinity should be made aware of any substances that they could possibly come into contact with. Gloves are to be worn as appropriate for sample preparation. Lab coats and safety specs are mandatory. Gloves must be removed when using computers to minimise transfer of chemicals.

MSDS of the chemicals present in the lab can be found on Quartz inventory system.

No instrumentation is to be used other than that which the individual is trained for, however, they should be aware of the temperature and mechanical risks possible in the lab. All instruments containing moving autosamplers, however, the strength of these is minimal and they will shut down if they come into contact with for instance a hand. Users are not permitted to access any of the inner workings of these instruments. The detectors of these instruments contain lasers (covered in hazard assessment). No one apart from instrument engineers have access to these and they are contained with units that have multiple layers and will shut down if the first layer is opened. RTP staff are permitted to do basic maintenance on the instruments, for example pump repair, where appropriate PPE must be used to prevent contact with any contaminant solvents. Aside from this, no open solvent should be found in the lab. Waste bottles and solvent reservoirs are kept closed as far as possible. Any leaks or suspected leaks are to be report immediately to the manager or appropriate health and safety member of staff. The high temperature instrument is kept at 160 degrees, however, the temperature is contained within the unit which will shut down immediately if access is attempted. The inside may take a while to cool and heat gloves are provided for the RTP staff if access to the oven is required. No users other than RTP staff are permitted to access the inner workings of the instrument.

Occasionally users will need to use a step stool to reach the top of the instruments to top-up solvent from the instrument reservoir. This is only permitted to be performed by researchers trained by RTP staff.

All unused solvents are kept within designated solvent cabinet or in the fumecupboard for very low volumes. One

chemical cabinet is kept in the lab which is chemical segregated as appropriate. Waste solvent is kept in designated containers within the fumecupboard and are to be kept closed when not in use. Each instrument has its waste solvent containers (one above the instrument, one below the instrument). These are filled minimally and emptied periodically to minimise solvent kept outside of storage.

The lab is an instrumentation lab and is not appropriate for any synthetic work.

All users are trained by appropriate RTP staff, including induction to the potential hazards of the lab. They are informed as to what behaviour and instrument contact is allowed, as described above.

Lab access is restricted as it is located on a card-access corridor to prevent non-inducted personnel interfering in the lab without permission.

<u>Hazards and how they may cause harm</u>	<u>Who may be at Risk?</u>	Existing <u>Control Measures</u>	Current <u>Risk Level</u> (VL,L,M,H,VH)	Where current risk is M, H or VH, what additional <u>Control Measures</u> are required?	Action required by whom & by when?	Final <u>Risk Level</u>
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<p>Heat – burning by touching the inner parts of the oven of high temp GPC.</p>	<p>Users of the instrument, cleaners, visitors</p>	<p>Access to heated, internal parts of the furnace is limited and training is given to dissuade users from accessing the internal parts. Heat gloves are provided for use by trained RTP staff if oven access is required. Non-inducted users to be chaperoned by trained member of lab.</p>	<p>VL</p>			
<p>Cuts from broken glass</p>	<p>Anyone using glass</p>	<p>Glass pipettes provided. These are delicate and easily break and can lead to minor cuts. Correct handling of glassware should be applied. First aid kit is provided outside of the lab to the right hand side by the left. First aiders are present throughout the corridor.</p>	<p>L</p>			
<p>Mechanical/moving parts (instrument autosamplers)</p>	<p>Users of the instrument, cleaners, visitors</p>	<p>Mechanical risks are minimised by removing those that where possible. Autosamplers on instruments have mechanical arms, however, they are not mechanically strong and are kept within a case when in use. As part of induction users are taught the associated mechanical risks of the labs and how not to interact with moving parts. Non-inducted users to be chaperoned by trained member of lab.</p>	<p>VL</p>			

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<p>Exposure to chemicals from samples (inhalation, skin contact, ingestion)</p>	<p>Users of the instrument, cleaners, visitors</p>	<p>Risk assessments for an individual's materials must be known to the individual, for example those in laboratory books. PPE must be worn, gloves if appropriate. Spare PPE provided. Users must take care not to allow their materials to come into contact with others, and others should not interfere with materials of others. User chemicals to be contained and used within fumecupboard (engineering control) when possible. Any of these chemicals should be present in low quantities (under 100 mg). Eating and drinking prohibited to prevent accidental consumption.</p>	<p>Dependent on material. M</p>			
<p>Exposure to chemicals stored in the labs (inhalation, skin contact, ingestion)</p>	<p>Users of the instrument, cleaners, visitors</p>	<p>The specific risks are covered in the hazard assessment for this lab. Cabinets are provided for solvent and chemical storage. Chemicals stored are kept as low as possible. A fumecupboard is available for chemical manipulation as are gloves and correct disposal. Access to chemicals is limited to laboratory staff. Eye wash provided in adjacent lab. Eating and drinking prohibited to prevent accidental</p>	<p>H</p>			

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		consumption. Chemical inventory kept on Quartz.				
Exposure to instrument solvent reservoirs	Users of the instrument, cleaners, visitors	Sometimes access is required to solvent reservoirs of the instruments. These are kept atop the instrument in solvent trays with lips. In order to reach these a step stool is provided. Use of this is limited to RTP staff and select trained users. Volumes of solvent are limited as far as possible.	L			
Slips, trips and falls.	Users of the instrument, cleaners, visitors	Walkways are kept clear and floors kept clean and dry. Housekeeping enforced. RTP staff provide spot checks to keep up standard of lab housekeeping.	VL			
Fire hazard	Users of the instrument, cleaners, visitors	Fire risk always a possibility. Flammable materials kept to a minimum. Flammable chemicals kept in fire retardant cabinet where possible. Much electrical equipment present which could lead to electrical fires however, electrical equipment is regulated and no electrical items are overloaded. Instruments have PAT stickers. Fire extinguisher provided for emergencies for use by trained individuals.	L			

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Lasers (class 1B)	Users of the instrument, cleaners, visitors	Access to internal parts of the instruments is limited and training is given to dissuade users from accessing the internal parts. Safety features built into instruments lead to automatic shut-down if laser access is attempted. Non-inducted users to be chaperoned by trained member of lab.	VL			
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Work should not be carried out until the assessment is completed and all required control measures are in place.

Overall Final Risk Rating (Highest level in final column above)	M
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Additional Comments from Risk Assessor (e.g. funding or practical implications)	
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Approved By	
Date	

Position	Polymer RTP Director
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Please print a copy, sign it and keep for your records

	Severity
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Risk Level

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Likelihood	Superficial	Minor	Serious	Major	Extreme
Unlikely	Very low	Very low	Low	Low	Moderate
Possible	Very low	Low	Low	Moderate	High
Likely	Low	Low	Moderate	High	Very high
Very likely	Low	Moderate	High	Very high	Very high
Extremely likely	Moderate	High	Very high	Very high	Very high

See ['Matrix for risk evaluation'](#) for further guidance.

Very low	Acceptable risk - no action required
Low	Tolerable risk - further control measures not required, but status must be monitored
Moderate	Further control measures required to reduce risk as far as is reasonably practical
High	Urgent action required to allow activity to continue
Very high	Risk intolerable - activity must cease until the risk has been reduced