Risk Assessment Summary Report/Print (landscape)

Reference	3302	**Description of Space or Activity/Task or Equipment**	Piston-cylinder and diamond-anvil pressure cells located in P1.27 and P1.30 and used in XRD RTP
Assessment Date	09/08/2023	**Publish To Portal**	Yes
Assessor Name	Paul Goddard	**Risk Assessment Title**	Use of piston-cylinder and diamond-anvil pressure cells for condensed matter physics measurements
Assessment Team Members	Martin Lees	**Review Date**	25/06/2025
Role / Space / Project Reference		**Current Risk Level (1=Very Low, 2=Low, 3=Moderate, 4=High, 5=Very High)**	3
Department	Use the search function above or double click here for org chart -> Academic Faculties -> Faculty of Science, Engineering and Medicine -> Physics	**Final Risk Level (1=Very Low, 2=Low, 3=Moderate, 4=High, 5=Very High)**	2
Location Details	Physics, P1.27 and P1.30	**Not in use**	0

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Risk Assessment Category	Equipment	**Additional Information**	The space risk assessment P127 and P130 must also be read in conjunction with this document. Users must be trained to use this equipment in addition to the training is required to enter and work in P127 and P130. Users must read and follow the instructions in the user manuals. Users must be trained by Paul Goddard or Martin Lees. Users must be authorised to use the cells by Paul Goddard or Martin Lees.. This RA is concerned with the following commercially available pressure cells for use in P127, P130 and XRD RTP: EasyLab MCell 10, EasyLab TozerDAQ, EasyLab CryoDAC-PPMS, Quantum Design Electrolab HPC-33, Quantum Design MPMS-HMD, C&T Factory piston cells, Cambridge SQUID diamond and moissanite cells Standard Operating Procedures are highlighted in the relevant user manuals which are stored with the cells.
Date Record Created	24/06/2024		

Hazard Type & Hazard Description	Who may be at Risk? & How May Person(s) Be Harmed	Existing Control Measures	L	S	R	Where current risk is M, H or VH, what additional Control Measures are required?	L	S	R
People & Wellbeing Diamond Anvil Pressure cells – mechanical failures under load	User, and (reduced risk) personnel in lab during operation Mechanical failures under load	Safety goggles worn when loading (loading refers to increasing the stored pressure via an external hydraulic press). Specifically trained and authorised users only. The stored energy in a diamond anvil type cell is extremely low due to the small pressure fluid volume. Only trained users to be present in the lab during loading operations.	Minor	Possible	Low		Minor	Possible	Low

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People & Wellbeing Piston Cylinder Pressure cells – mechanical failures under load	Users Mechanical failures under load	Safety goggles worn when handling. Face guard worn during loading. Cells under load kept in strong, secure, well-labelled boxes when not in use. Do not point cylindrical axis of the cell towards the face when under load. Specifically trained and authorised users only. Only trained users to be present in the lab during loading operations. Two users must be present for loading operations	Serious	Possible	Low		Serious	Possible	Low
People & Wellbeing Hydraulic manual ram – catching body parts between surfaces under load	Users Catching body parts between surfaces under load	Ram fitted with surrounding guard plates - must be in place when ram under load. Hands etc to be kept out of enclosure while loading. Specifically trained and authorised users only. Only trained users to be present in the lab during operations where the press is under load.	Serious	Unlikely	Low		Serious	Unlikely	Low
People & Wellbeing Machining and polishing of BeCu alloys	All personnel in lab environment Ingestion of toxic Beryllium-containing dust.	Minimal quantities involved (typically 8 mm disk, 0.08 mm thick, 0.5 mm diameter holes). Select machining parameters to minimise production of particulate matter.	Major	Possible	Moderate	PPE (dust mask, gloves, goggles) must be worn. Ensure work area is free of draughts. Clean work areas thoroughly after use. Dispose of any contaminated gloves and cleaning tissues as hazardous waste in dedicated container within the lab. Conform to lab rules on washing hands and not eating and drinking in the lab environment. All lab users to familiarise themselves with BeCu MSDS documentation. Only trained users to work machining BeCu.	Minor	Possible	Low
Assessment Conclusion	Risks are acceptable and controls are suitable and sufficient.								