

Risk Assessment Title: Cavitation Equipment	Ref No: 2023-2024
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School/Institute/Directorate:	Location:	Supervisor	Date:	Review Date:
EPS	Energy Lab, Dubai	Dr Rehan Ahmed	2023-09-11	Whenever there is a change in SOP and risk involved. Last update: 2023-09-11

Risk Rating Matrix (RR)	Likelihood(L)		
	Certain or near certain to occur (High)	Reasonably likely to occur (Medium)	Unlikely to Occur (Low)
Fatality, major injury or illness causing long term disability (High)	HIGH(H)	HIGH(H)	MEDIUM(M)
Injury or illness causing short term disability (Medium)	HIGH(H)	MEDIUM(M)	LOW(L)
Other Injury or illness (Low)	MEDIUM(M)	LOW(L)	LOW(L)

Description:
<p><u>Background:</u> An ultrasonic probe is used to simulate the effect of cavitation on metallographic samples. In this procedure, the ultrasonic probe is supplied with electrical and compressed air supply. Electrical power is used to power piezoelectric transducers while compressed air is used to keep the ultrasonic probe cool during extended periods of operation. Either seawater or water is used in the equipment tank to analyse the synergy between the cavitation and corrosion. Use of this equipment often requires use of the ultrasonic bath and analytical scale.</p> <p><u>Personal Protective Equipment (PPE)</u> Wear gloves and lab coat while using cavitation equipment. Enclosed shoes must be worn while using the machine.</p> <p><u>Procedural Controls</u> Care should be taken to avoid acoustic coupling with human body; avoid immersing hands during operation and use guards to prevent hand access. Users should operate the bath in accordance with training to avoid damage to the instrument. Avoid accessing the rear of instrument. Low stocks of consumable items (gloves, paper towels, etc) should be reported to Supervisor or Lab Manager.</p>

What are the Hazards?	Who might be harmed?	Uncontrolled Risk Rating	Control measures (What are you already doing?)	Controlled Risk Rating	Responsible Person(s)
Noise	Equipment User Lab User	Medium	Avoid using cavitation equipment while using nearby equipment. Always wear hearing protection when the ultrasonic probe is in use – applies to all lab users.	Low	Equipment User Supervisor
Electric Shock	Equipment User Lab User	High	Use of waterproof electrical socket for electrical connection. Avoid touch of electrical source and connections using wet hands. Keep hands dry whenever touch the electrical source. Switch off the ultrasonic probe when not in use.	Low	Equipment User
Misuse of ultrasonic probe	Equipment User Lab User	Medium	Ultrasonic probe can be damaged if misused.	Low	Equipment User Supervisor

Additional Work Practice Information:

If Equipment Users are sensitive to noise or poor quality air, avoid use of equipment.

Facilities Management and Housekeeping usually do not touch equipment. Keep space around cavitation equipment clean to avoid interference.

Avoid use of cavitation equipment when classes occur in the lab. Avoiding noise disturbance is a courtesy worth extending to other lab users.

Name	Position	Email	Signature
Author Vishakh Pradeep Kumar	MSc Student; Research Assistant	v.kumar@hw.ac.uk	Vishakh Pradeep Kumar
Authoriser Dr Rehan Ahmed	Supervisor	r.ahmed@hw.ac.uk	
Verifier			

