

<b>Risk Assessment Title: Ultrasonic Bath &amp; related</b>	<b>Ref No: 2023-2024</b>
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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)

<p>Description:</p> <p><u>Background:</u>            In the creation and analysis of metallographic samples, it is necessary to clean said samples between activities. The ultrasonic bath is a benchtop device that uses ultrasound energy within liquids to remove residual material from the surface of samples. Acetone is often used due to its superior cleaning properties and its quick evaporation, allowing for faster cleaning, and drying of samples before weighing. Acetone can be found in the Flammable cupboard (further details below on use) if not available at ultrasonic bath station.</p> <p><u>Personal Protective Equipment (PPE)</u>            Wear gloves, safety glasses, and lab coat while using chemicals (eg. Acetone). Enclosed shoes must be worn while using the machine.</p> <p><u>Procedural Controls</u>            Avoid using finger            Consult Material Safety Datasheet (MSDS) before using machine and during training.            Users should operate the bath in accordance with training to avoid damage to the instrument. Avoid accessing the rear of instrument.            Fill bath with clean/distilled water only.            Low stocks of consumable items (gloves, paper towels, etc) should be reported to Supervisor or Lab Manager.</p>
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What are the Hazards?	Who might be harmed?	Uncontrolled Risk Rating	Control measures (What are you already doing?)	Controlled Risk Rating	Responsible Person(s)
<b>Fumes</b>	Equipment User	Low	Use of well-ventilated space.	Low	Lab Manager
Noise	Equipment User Lab User	Low	Avoid using ultrasonic cleaner while using nearby equipment. Use of ear protection.	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 cleaner when not in use. PAT Test equipment yearly.	Low	Lab Manager
Using flammable solvents in ultrasonic cleaner	Equipment User Lab User	Medium	The ultrasonic bath is not to be filled with flammable solvents (eg. IPA, acetone) as flammable solvents pose a serious explosion hazard. Small parts are to be cleaned inside beakers that are partially immersed in water – the waves pass through the beakers wall.	Low	Equipment User Supervisor
Storage of flammable chemicals	Equipment User	High	Ensure that large quantities of acetone are stored in the flammable liquids cupboard in the Chemical lab and that only small quantities are utilized near the station. In the event of a spill, avoid use of nearby equipment without removing spilled liquid.	Low	Equipment User
Cuts from broken glass	Equipment User	Low	Avoid using chipped or broken glassware. Use nitrile gloves while handling acetone. Avoid touching broken glass with bare hands.	Low	Equipment User

Additional Work Practice Information:

Avoid use of beakers on bottom of ultrasonic bath tank; the vibration induced may wear the tank surface leading to leaks and damage.  
 If Equipment Users are sensitive to noise or poor quality air, avoid use of uncovered operation of ultrasonic cleaner and use N95 masks.  
 Facilities Management and Housekeeping usually do not touch equipment. Keep space around ultrasonic equipment clean to avoid interference.  
 Avoid use of ultrasonic cleaner when classes occur in the lab. Although inconvenient, avoiding noise disturbance is a courtesy worth extending to other lab users.

