



UMBC

UMBC Environmental Safety and Health

Sonicators and Sonic Water Baths

To ensure that users are getting the most out of their ultrasonic cleaners, probes and sonicators safety needs to be considered during operation. Safe use of these devices starts with all users reading the manufacturer user manual before use and abiding by all laboratory safety practices and guidelines while operating. Users should be trained by the responsible individual on proper operation before use.

Hazards:

Noise:

Sonicators and sonic baths can generate high frequency sound outside the normal range of hearing. To reduce the hazard associated with these frequencies the users can deploy different strategies and controls, including:

- Wear hearing protection, such as ear muffs.
- Use the sonicator in a sound proof cabinet while sonicating.
- Do not use a sonicator in a room where there are other people who do not have hearing protection.
- Close the door to the room that the sonicator is in while in use.
- Do not leave a sonicator unattended while in use without alerting others to its operation.
- Do not leave the sonicator on for longer than needed and do not forget to turn the sonicator off if not equipped with a timer.

Improper Use:

- Ensure that materials suited for sonication are only used. Including liquids and containers. Never use flammable material as heat can be generated during sonification that can lead to a fire. Ensure containers used in the process can handle the forces generated and avoid glass containers unless coated and protected from breaking. Refer to manufacturer recommendations for acceptable materials, solutions and containers.
- Never place your hand into the sonicator while in operation.
- Always follow manufacturer guidelines for proper use.

Aerosols:

Depending on the material to be used in the sonication process, generation of potentially hazardous aerosols needs to be addressed. For chemical hazards the use of the sonicator in a fume hood may be necessary. If biological material is being utilized, a BSC (biosafety cabinet) may be required. Ensure that a lid for the container is used to minimize exposure and do not omit a lid if it is part of the manufacturers apparatus and intended to be used during operation.

Personal Protective Equipment (PPE):

Personal protective equipment needs for the specific laboratory use of the sonicator should always be detailed and reviewed with all users before use. Any identified PPE shall be readily available to all users during operation or others in the area as needed. Ear protection, eye protection, gloves and proper attire should all be considered.

Maintenance:

To ensure that the sonicators function properly follow all manufacturer recommendations for maintenance schedules and requirements.