

University of Waterloo Mass Spectrometry Facility (UWMSF)

Centrifuge Standard Operating Procedure (SOP)

NOTE: As a user of the UWMSF, if you notice that any of the centrifuges in either C2-267 or C2-268 are damaged or non-operational, please email or find Dr. Yiming Xiao (YX) and Dr. Joshua Featherstone (JF) who will investigate the problem – do not attempt to repair yourself but please unplug the centrifuge.

Guidelines:

This standard operating procedure (SOP) is intended to provide general guidance on how to safely work with any of the centrifuges located in the UWMSF. This general use SOP only addresses safety issues specific to centrifuges. If you have questions concerning the applicability of any item listed in this SOP contact YX, JF or the Safety Office (x33587).

General Centrifuge Safety:

If you are unsure of how to operate any of the centrifuges safely, please contact either YX or JF for guidance. **NEVER** use any of the centrifuges without being sure how to properly use the centrifuge.

It is the responsibility of the user to:

- Be familiar with centrifuge safety and proper use before operating.
- Operate all centrifuges in accordance with UW policy and safe laboratory procedures.
- Read and follow all instructions for safe usage of the centrifuge.
- Should users at any time be unsure of the safe operation of the centrifuge they must contact RWS or VG for assistance.
- Report damage to centrifuge or rotor to RWS or VG so repair or removal from service may be performed. If damage is observed, unplug from electrical supply and **DO NOT USE**.

Personal Protective Equipment (PPE):

Users should be wearing appropriate laboratory PPE including safety glasses and lab coats and other PPE required by your particular use. **REMEMBER, the UWMSF is not allowed to handle radioactive or biologically hazardous materials.**

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General Safety Measures:

Centrifuges are instruments with potential to harm users due to the high speed at which they operate: mechanical failure of the rotor can result in injury, even death; and sample container breakage can generate aerosols that are harmful to inhale. Thus, it is very important to act safely when using these instruments.

- Do not locate the instrument near areas containing flammable reagents or combustible fluids, or where vibration could cause items to fall off nearby shelves.
- Proper selection and use of rotors is critical to safe operation. Lack of care can lead to severe injury - use rotors designed for use in that particular centrifuge.
- Inspect the rotor for signs of corrosion or cracking before using. If found, do not use the centrifuge and inform RWS or VG.
- Inspect the inter-lock system to ensure the cover cannot be opened while the rotor is spinning.
- **Never** operate the rotor unless it is symmetrically loaded and balanced. Care is required to achieve this.
- **Never** operate the rotor without the lid or cover closed and locked in place.
- **Never** exceed the maximum recommended speed of the rotor.
- Clean and disinfect rotors and sample cavities or cups after each use with non-corrosive solutions.
- Sample management is also very important to safety. Lack of care can result in exposure of the user to harmful materials.
- Always use sample tubes or bottles designed for the particular rotor being used.
- In general, samples should be capped to avoid generation of aerosols.
- When using hazardous materials, be aware of potential hazards associated with them in case of leakage during centrifugation. If leakage does occur you may be exposed to particles dispersed in the air (aerosol). It is recommended that additional precautions be taken to prevent exposure to these materials such as the use of controlled ventilation or isolation areas such as a fume hood.

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- If exposure occurs to hazardous materials, all necessary precautions and appropriate decontamination procedures should be used.
- Dispose of all waste solutions according to appropriate health and safety guidelines.

All solid and liquid waste generated while in the UWMSF must be removed to your own lab.

- Do not circumvent any of the safety features (such as lid closure override switches).
- Do not lean or place items on the centrifuge while it is operating.
- Do not leave the centrifuge until full operating speed is attained and appears to be running normally without vibration.
- If vibration occurs, stop immediately; wait until the rotor stops, and check the load balances.
- In event of a power failure, do not try to open the lid to retrieve samples for at least one hour. After the rotor has stopped, remove your samples.

Emergency Procedure

In the event that an incident or accident related to centrifugation occurs:

- Turn off centrifuge and disconnect it from the power source.
- Notify either YX or JF.