

CENTRIFUGE SAFETY

(For assistance, please contact EHS at (402) 472-4925, or visit our web site at <http://ehs.unl.edu/>)

Rotors on high-speed centrifuge and ultracentrifuge units are subject to mechanical stress that can result in rotor failure. Improper loading and balancing of rotors can also cause failure. For these reasons, centrifuges must be properly used and maintained.

Training, Equipment, & Repair

- Do not operate a centrifuge before reading the owner's manual and receiving instruction from an experienced operator.
- Instruments and rotors are specifically matched and tested as a system. Do not attempt to use rotors interchangeably.
- Tubes, bottles, adaptors and other accessories are also designed for certain centrifuge specifications. Consult the owner's manual for the correct selection. Improper labware use is a leading cause of rotor mishaps.
- Centrifuge and components should be repaired only by the manufacturer or authorized dealer representative. Centrifuges in need of repair should be tagged and locked-out while awaiting service.

Rotor and Tube Care and Use

- Keep rotors and accessories clean.
 - Wash rotor and accessories frequently with a mild detergent. Remove o-rings before washing. Thoroughly rinse with distilled water, and air dry upside down. Re-lubricate o-rings and metal threads.
 - Use soft brushes designed for this use and as recommended by the manufacturer. Improper brushes can scratch and damage the surface.
 - Most rotors can be autoclaved at 121 degrees C for at least 30 minutes; consult the manufacturer's literature for recommendations regarding autoclaving of specific rotors.
- Inspect components prior to use. Do not use damaged rotors or accessories
 - Inspect metallic parts for pitting, rough spots, cracks, or damage. White deposits or other discoloration may indicate stress corrosion.
 - Inspect o-rings for cuts, abrasions, or flattened areas; replace if damaged.
 - Inspect and replace overspeed disk if damaged.
- Observe proper load characteristics.
 - The opposing sample loads must be carefully balanced. Consult the manufacturer's manual for maximum tolerances, which can be as low as 0.2 grams.
 - Do not exceed the manufacturer's specification for maximum sample density.
 - Observe maximum filling levels.

- Ensure compatibility between the matrix of the material being centrifuged and the equipment materials of construction.
- Operation
 - If centrifuging pathogenic substances, ensure the presence of HEPA filtration and use sealable safety cups or rotors.
 - Ensure that the rotor is properly attached to the spindle.
 - Ensure that the buckets are properly attached. Mis-hooked buckets are a leading cause of rotor mishaps.
 - Do not exceed the manufacturer's maximum rated speed for the rotor.
 - Once a run is complete, make sure the rotor has completely stopped before opening the centrifuge lid. Never attempt to open the lid of a centrifuge or slow the rotor by hand while the rotor is in motion.
- Store properly.
 - Keep dry. Metal rotors in contact with moisture for extended periods of time may result in corrosion and equipment damage.
 - Store rotor upside down with the cover and tubes removed to keep condensation from pooling.
 - Store in an area free of corrosive vapors and other contaminants.
- Check that the centrifuge chamber, drive spindle, and tapered mounting surface of the rotor are clean and free of scratches or burrs.