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By Tim Govenor, Institutional Chemical Hygiene Officer

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Select Agent update

Stimulated in part by the attacks at the World Trade Center (1993) and in Oklahoma City (1995), Congress passed the *Antiterrorism and Effective Death Penalty Act of 1996*. This legislation directed the Secretary of Health and Human Services to promulgate regulations identifying biological agents that pose a potential threat to human health and safety ("select agents") and governing their intentional or inadvertent transfer. On 26 October 2001 Congress, following the attack on the World Trade Center of 11 September 2001 and in the midst of the anthrax letter scare, sent to the President legislation affecting the possession of and access to biological agents and toxins with bioterrorism potential. This legislation, *Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism (USA PATRIOT ACT) Act of 2001*, extended the 1996 act by limiting the possession of select agents and toxins and individuals who could possess or access them. Ongoing national concerns in regards to the security and possession of select agents prompted the passage of the *Public Health Security and Bioterrorism Preparedness and Response Act of 2002*, signed into law on 12 June 2002. Regulations implementing this act became effective on 7 February 2003. The regulations include many new provisions such as: a revised list of select agents; registration with the Centers for Disease Control and Prevention to possess the select agents; submission of the names of individuals with access to select agents to the Department of Justice for background checks; development of biosecurity and biosafety plans for entities wanting to use select agents for research; significant recordkeeping (including inventories and those accessing select agents) and training. There are significant criminal penalties that apply to individuals who attempt to circumvent the legislation and for failure to comply. If you have any of the select agents (see http://www.cdc.gov/od/sap/docs/salist.pdf), notify the Office of Environmental Health and Safety at 2-1284 (if you have any questions, contact Dr. Cecil Smith at 292-1284 or at smith.143@osu.edu, FAX, 292-6404).

2003 Lab Safety Calendar available online

The very popular Lab Safety Calendar printed last year was a great success and many lab personnel have asked if a 2003 version was printed. The answer is no and yes. It was not printed and distributed in hard copy as it was last year. However, this years version can be printed by month from the websites listed below. Each month contains training schedules and those valuable tips and references on lab safety and regulatory issues.

http://www.chemistry.ohio-state.edu/ehs/pdf/2003SafetyCalendar.pdf

http://www.ehs.ohio-state.edu/

Ultracentrifuge explosion damages laboratory

On December 16, 1998, milk samples were running in a Beckman L2-65B ultracentrifuge using a large aluminum rotor (a rotor is a large metal object that holds the individual sample tubes and is connected to the spin drive of the centrifuge). The rotor had been used for this procedure many times before. Approximately one hour into the operation, the rotor failed due to excessive mechanical stress caused by the "G" forces of the high rotation speed. The subsequent explosion completely destroyed the centrifuge. The safety shielding in the unit did not contain all the metal fragments. The half-inch thick sliding steel door on top of the unit buckled allowing fragments, including the steel rotor top, to escape. Fragments ruined a nearby refrigerator and an ultra-cold freezer in addition to making holes in the walls and ceiling. The unit itself was propelled sideways and damaged cabinets and shelving that contained over a hundred containers of chemicals. Fortunately, sliding cabinet doors prevented the containers from falling to the floor and breaking. A shock wave from the accident shattered all four windows in the room. The shock wave also destroyed the control system for an incubator and shook an interior wall causing shelving on the wall to collapse. Fortunately the room was not occupied at the time and there were no personal injuries.

Remains from centrifuge explosion.

Rotors on high-speed centrifuge and ultracentrifuge units are subject to powerful mechanical stress that can result in rotor failure. In addition, improper loading and balancing of rotors can cause the rotors to break loose while spinning. Everyone using this type of equipment needs to know the proper operating procedures for the specific unit being operated, including how to select, load, balance and clean the rotor. These procedures are explained in the unit's operating manual. It is essential that you have the owner's manual for your unit and that you follow the manufacturer's instructions carefully. Some general considerations are covered in the "Beckman Coulter Rotor Safety Guide" available for download in Adobe Acrobat PDF format. (ftp://ehs.ucdavis.edu/docs/cntrfuge/rotorsafetyguide.pdf)

It is also necessary to "de-rate" some rotors (limiting the maximum speed at which the rotor is used to some level below the maximum speed listed for the rotor when new) based on the amount of use the rotor has received. This requires that operators maintain a comprehensive use log for each rotor. These procedures are explained in the operating manual.

Laboratory supervisors must see to it that operators of this type of equipment are properly trained in the selection, care and use of rotors. In the event a trained and experienced operator is not available to train new operators, you may contact the service representative for the unit and arrange an orientation program. Check the list below for details. You may also contact OEHS.

Beckman Call: 1-800-854-8067 prompt 1 mwgirard@beckmancoulter.com
Sorvall Call: 1-800-522-7746 prompt 3 ext. 3500 or 3908 info@sorvall.com
IEC Call: 1-800-843-1113 ext. 2002

Decal for older units specifying approved rotor models

In the event of operating problems with high-speed centrifuge or ultracentrifuge units, or signs of wear or damage to rotors, the equipment should be taken out of service immediately and clearly marked "**Warning -DO NOT USE**" until checked by an authorized service representative.

Older equipment does not have all the safety features built into new units. They are more likely to experience rotor failures and they are more likely to cause injuries when they fail. It is critical that all safety and maintenance procedures specified by the manufacturer are followed. Based on the investigation of the December 16, 1998 accident, EH&S learned that Beckman L2 and L3 series ultracentrifuges have special operating procedures and restrictions to reduce the risk of damage and injuries. This includes an orange decal on the sliding door that specifies the rotor models that are safe to use in a particular unit.

Source: *content and graphics originally prepared by Cornell University EH&S.*
This account of the incident, that occurred at Cornell University was found at http://www.ehs.ucdavis.edu/hsep/cntrfuge.htm