

Using the NMR Labs

I. Safety

- A. The defining feature of NMR labs is the presence of high magnetic fields. The two issues that are important are:
1. Protection of users from the equipment – For your own safety, consider whether the following issues apply to you.
 - a. If you have a heart pacemaker, do not enter the NMR labs. Arrangements can be made with the staff to run samples for you.
 - b. If you have a surgical implant that could possibly be adversely affected by magnetic fields, please discuss the specifics with an appropriate medical professional prior to entering the NMR labs. If you are not certain about your implant, get the facts first.
 2. Protection of the equipment from the users – Users must NEVER bring magnetic items close enough to the magnets to experience a force. Before entering the lab, THINK about everything you are about to bring in!
 - a. Large items, e.g. gas cylinders or steel chairs, would be pulled with a large force, which would significantly damage the magnet and probably injure anyone who attempted to stop the motion once it had started.
 - b. Small items, e.g. staples, paper clips, hair pins, spatulas, etc., can lead to significant problems with performance. If such items were allowed to enter the bore of the magnet, the magnet would most likely need to be de-energized to remove them. This would be very costly and result in extended down time for the instrument.
- B. Principles of chemical safety apply in instrument rooms.
1. Research samples, glassware (NMR tubes, pipettes, etc.), chemical storage, spills, and waste disposal must be properly handled.
 2. A chemical spill is a safety concern. Should you break a sample, use the items provided in the lab to thoroughly clean up the area of the spill. If you don't know where these items are, find out, and use them. Clean up the chemical spill. Clean up all of the broken glass.
 3. If you have any reason to believe that any of the sample may have been spilled in the probe, please notify the staff immediately. Place a written notice on the spectrometer to inform the next user. The probe will need to be cleaned and checked for background contamination.
 4. If your NMR tube does not fit into the sample spinner, do NOT force it. NMR tubes are easy to break. Breakage can result in personal injury as well as a chemical spill.

II. Cleanliness

- A. Keeping a shared lab clean requires the cooperation of everyone. Please do not leave Kimwipes, paper towels, unwanted spectra, sample tubes, etc., lying around. There are many garbage cans and a glass trash container in the NMR labs.
- B. All sample preparation should be done in your lab or in the hood. Under no circumstances are samples to be prepared on the spectrometers or on the computer desks. Never place your NMR tubes horizontally on any surface, especially computer keyboards.
- C. Sample changer users must return to the lab to pick up samples that have already run. We cannot dispose of samples of unknown contents. Any sample left in the lab for more than one week will be moved to the section of the rack labeled "Free NMR Tubes" located on the ARX400 console. Feel free to take any tube from this section.

III. Awareness

- A. At the time you are trained to use the NMR spectrometers you will be given copies of write-ups with information about using the reservation and logon system, using the NMR spectrometers, archiving data, and/or other topics.
1. Copies of these write-ups and many additional ones are available at the front of Room 1421 Mol. Sci. Bldg., below the reservation and logon computer.
 2. All of the NMR write-ups are posted on the NMR lab web site (www.mic.ucla.edu; select Magnetic Resonance). These write-ups contain a lot of useful information and will help you quickly correct many minor problems and errors you may encounter. It is your responsibility to know what is in the write-ups.
 3. All of the write-ups are dated. If you have an older version, throw it away and get a new one. Things change.
- B. Sample spinners are expensive precision-machined items.
1. There is never a good reason to remove them from the NMR labs.
 2. Do NOT drop them on the floor or place them on their sides such that they may roll off the spectrometers and onto the floor.
 3. If your tube does not fit the spinner, it is either your tube or the spinner O-ring needs to be replaced. If you think it may be the O-ring, please notify the staff who will replace it with an appropriate O-ring. Use of inappropriate O-rings will cause problems. Please do not attempt to fix this yourself.
 4. In any case, it is your responsibility to make sure that your sample is snug in the spinner you choose to use and will not slide out.
- C. Please let an NMR staff member know of problems as soon as you encounter something that seems not quite right. If you can't find a staff member at the time, please send an email to at least one of the following:

| | |
|--------------|---|
| Jane Strouse | strousej@chem.ucla.edu |
| Bob Taylor | taylor@chem.ucla.edu |
| David Ang | ang@chem.ucla.edu - NMR T.A. |
| Tioga Martin | tioga@chem.ucla.edu - NMR T.A. |