

## Sample Handling Procedures for Bruker-AVHD 500 & 600 MHz NMR

- Clean the outside of **Each-And-Every** NMR tube by wiping with **ethanol** or other solvent **BEFORE** bringing to the NMR lab. *This is critical to prevent contamination of the NMR probe.*

Tubes that have been handled in glove boxes often are contaminated with an oily residue. Never place NMR tubes in an oil bath.

- Maximum overall tube length is **8 inches**.

**J-Young** tubes in common use in the Department are **TOO LONG!!**  
See Mike Strain for specifications.

Beware of the 9" long tubes stocked by ScienceStores: the extra length is meant for flame-sealing. Do not use these for routine NMR. They will not fit the Bruker Sample Changer.

- Use only high grade NMR tubes made of **Pyrex** (ASTM Type 1 Class A), e.g.:

Wilmad "Precision" series: 507-PP-7, 528-PP-7, 535-PP-7  
Norell "Select" series: S-5-200-7 or S-5-600-7.

Defective tubes (cracks, chips, scoring, scratches, etching, warped, etc.) are **prohibited**.

- Recommended sample volumes:

Bruker 500 & 600 MHz	0.5 ml	40 mm liquid height
Inova 500 MHz	0.6 ml	45 mm liquid height
Varian 300 MHz	0.7 ml	50 mm liquid height

- Excessive volume dilutes the sample, reducing sensitivity and is a waste of expensive solvent.

**Dilution by 1.4x doubles the number of scans required when signal averaging.**

- Please, no NMR samples or chemicals on the console workstation desk!
- Lab gloves are NOT permitted in the NMR lab or when touching instruments & public surfaces.
- Please take your samples with you when you leave the NMR lab.
- Don't use tippy scintillation vials or small flasks to hold NMR tubes.
- Use secondary containment for carrying tubes containing hazardous or toxic materials.
- Use prudent safety procedures and safety gear when handling samples and cryogenes.
- **Slow down** and work carefully to avoid sample accidents. Don't drop samples on the floor... they break! *NMR sample holders ("spinners") are EXPENSIVE and are damaged if dropped.*
- Use **sample changer** in manual, push-button mode at magnet base.

*We will develop procedures for automated multiple samples later on.*

- Leave the magnet **empty** at the end of your session, i.e. don't re-insert the standard (*applies only to Bruker 500 & 600 with sample changer*)
- **Do NOT spin** samples on any of the spectrometers in the NMR Facility.