

Double-sided tape

- at least 1.25 inch width
- we use Kapton tape KPTDE, 1.25 inch diameter



Washer

- outer \varnothing 25.4 mm (1 inch)
- inner \varnothing 16 mm (10 mm pictured)



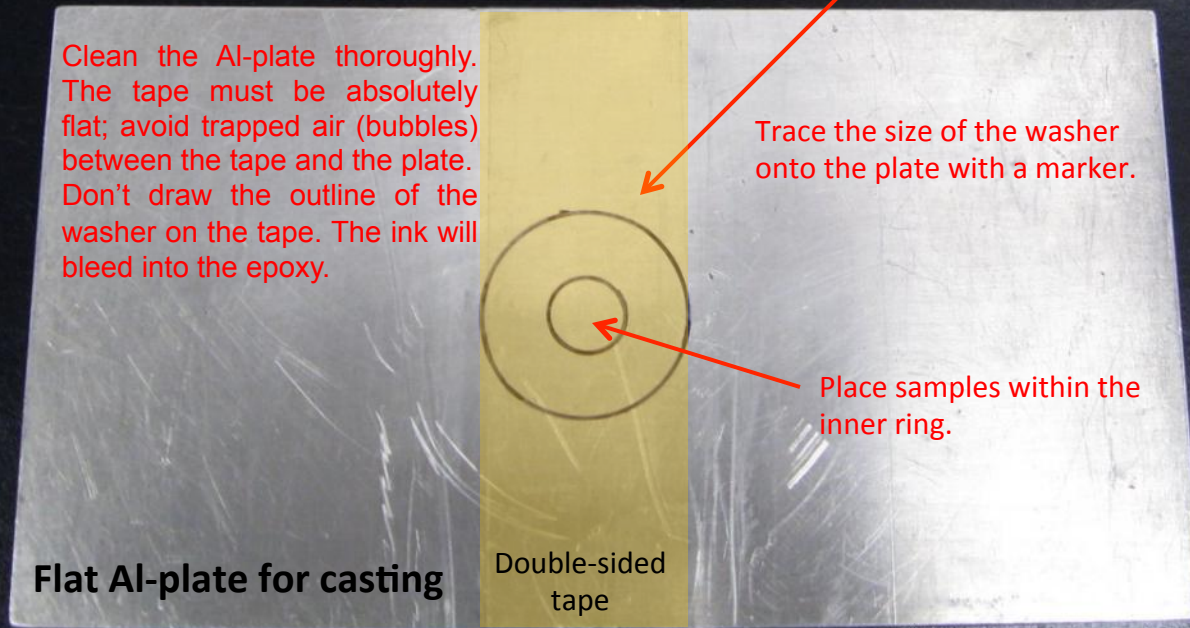
Clean the Al-plate thoroughly. The tape must be absolutely flat; avoid trapped air (bubbles) between the tape and the plate. Don't draw the outline of the washer on the tape. The ink will bleed into the epoxy.

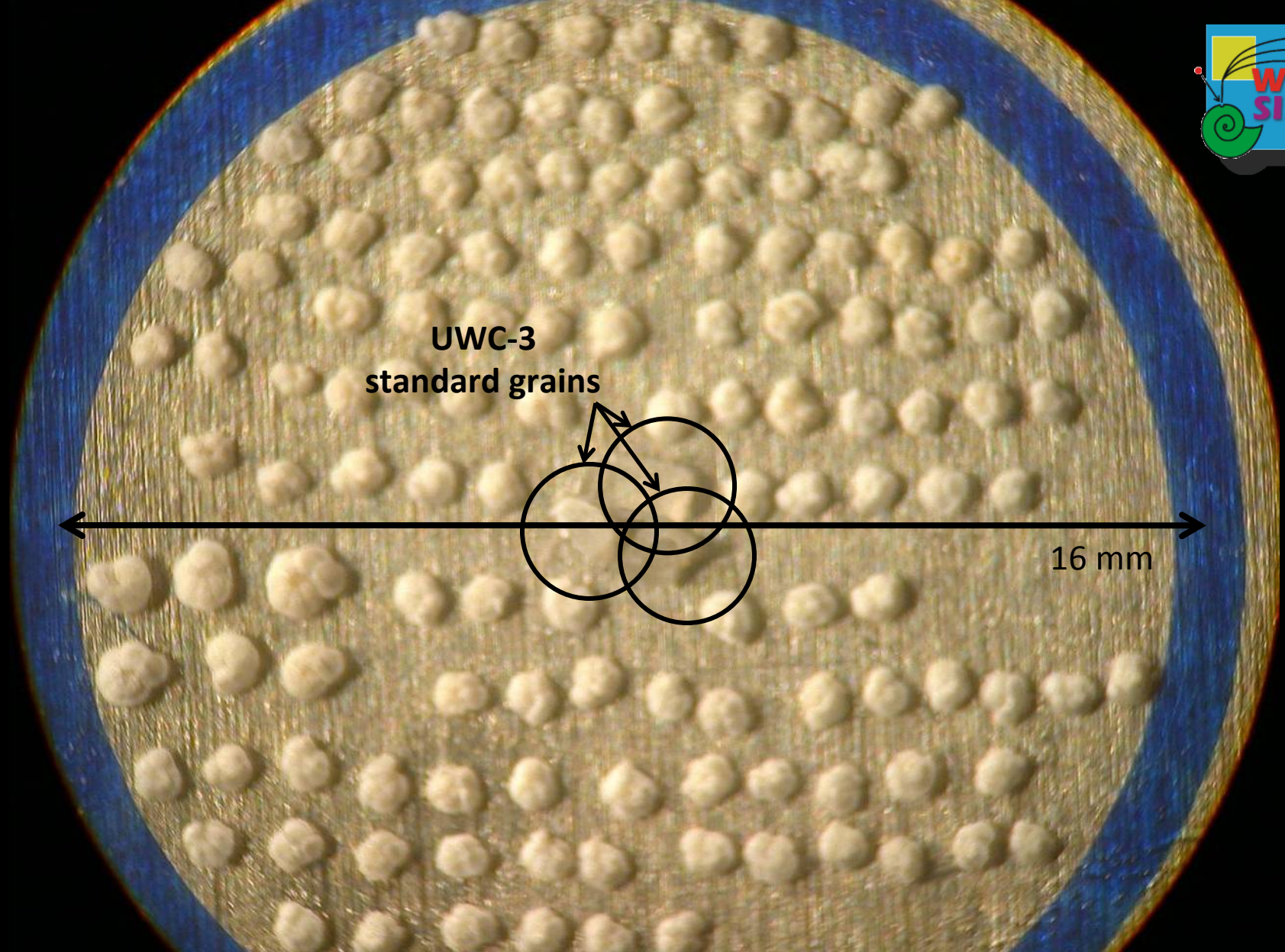
Trace the size of the washer onto the plate with a marker.

Place samples within the inner ring.

Flat Al-plate for casting

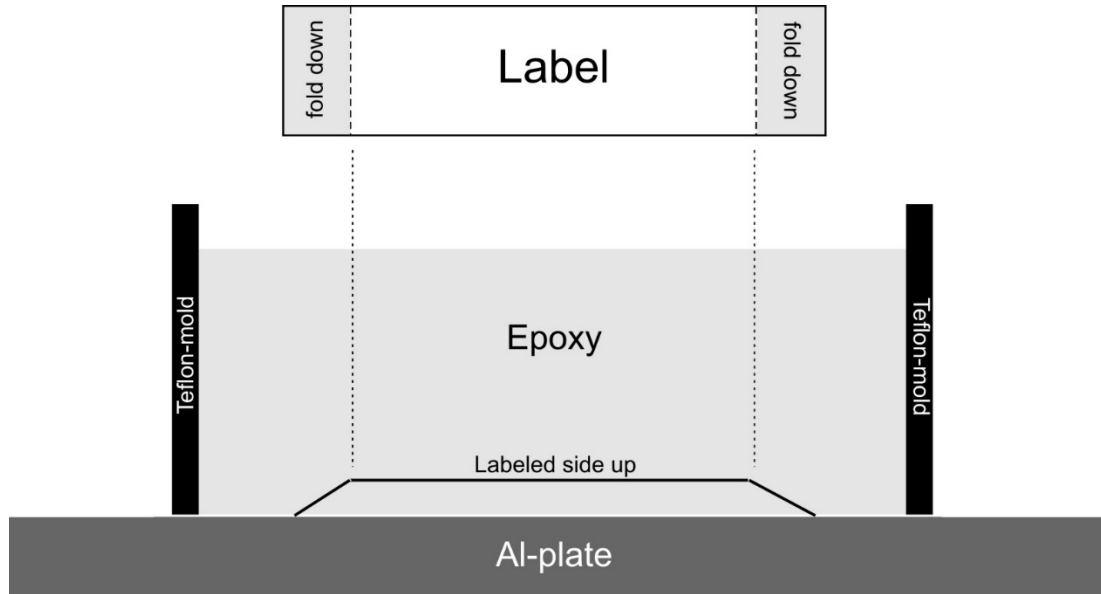
Double-sided tape





- Samples are placed and adhered on the double-sided tape within the inner 16 mm ring.
- Leave space for three ~ 0.5 mm grains of UWC-3 calcite standard in the center of the mount.
- ***If you will be top-mounting your standards***, leave a 1 mm circle of space for each standard grain with no overlap.

Prepare label (normal printer paper)



- Create a sample label (laser printer). Arial font, size 4, 5, or 6 work well depending on label contents and available space. Consider including sample, standard, and user information.
- Cut out the printed label and fold the edges down so the label sits ~2 mm tall.
- Place the label on the double stick tape prior to casting, with clearance between samples and label (to avoid air bubbles).
- Labeled side up, so you can identify a coated mount.

- Backside of an Au-coted sample mount with label

Prepare mount for shipping (if required)

- Once the samples, standards, and labels are adhered to the tape, take a picture of the mount and make sure you have detailed notes of the location and orientation of each sample.
- Next, place a rigid ring (e.g. 1-inch round mold) on the outer marker circle. This will also test whether your labels fit.
- DO NOT place anything else inside the rigid ring (e.g. cotton balls, wadded KimWipe). This could ruin the mount.
- Using single-sided tape, secure the rigid ring to the plate by wrapping tape around the plate and over the ring. Pull the tape tight across the top of the ring so there are tape ramps from the edges of the plate up to the top of the ring. We haven't had issues with samples coming loose from double-sided tape during shipping, but for peace of mind you could use enough overlapping tape strips to cover the top of the ring so any loose samples would be contained.
- Pack the plates+mounts for shipping in a rigid box. Arrange the plates in a single layer –with space between plates – on a sheet of rigid styrofoam. Cut rectangles in a second rigid sheet of styrofoam that fit around each plate so you avoid subducting plate boundaries... Place a third rigid sheet of styrofoam on top of the secured plates, and slide the whole sandwich into your shipping box. Ideally this styrofoam sandwich fits snugly into the box so there can be no vertical separation between styrofoam layers during shipping. You could wrap tape around the whole styro-wich for extra stability.

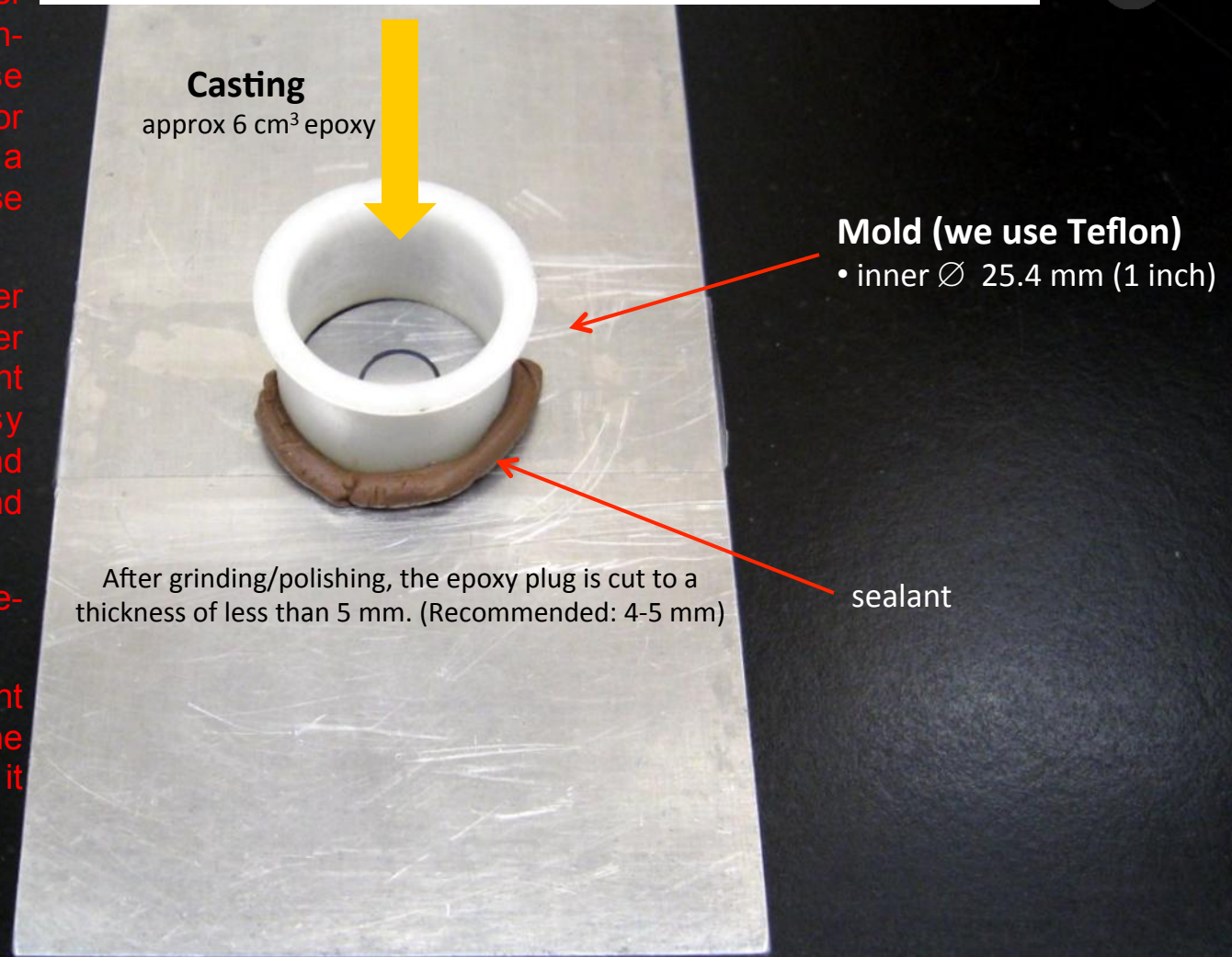
Place the Al-plate on a hot plate (60°C). Prepare the Teflon mold: Coat the inner side of the cleaned Teflon-mold with Buehler release agent and place the mold for ~5 min upside down on a kitchen towel to let the release agent dry.

Prepare 6 cm³ of epoxy per mount (don't use a smaller volume, as the sample mount needs some height easy handling during grinding and polishing): 5 cm³ of epoxy and 1 cm³ of hardener.

Mix thoroughly and bubble-free.

Place the mount with sealant on the Al-plate and pour the epoxy into the mold. Let it cure overnight.

Wisc-SIMS routinely uses Buehler EpoxiCure® 2 epoxy resin (product number: 203430064), hardener (208185016) and release agent (208185016). Also recommended: Struers EpoFix resin (40200030) and hardener (40200031).



Epoxy mount, prepared for SIMS analysis. Cut to 4-5 mm thickness, cleaned, and gold coated

UWC-3 calcite standards centered

