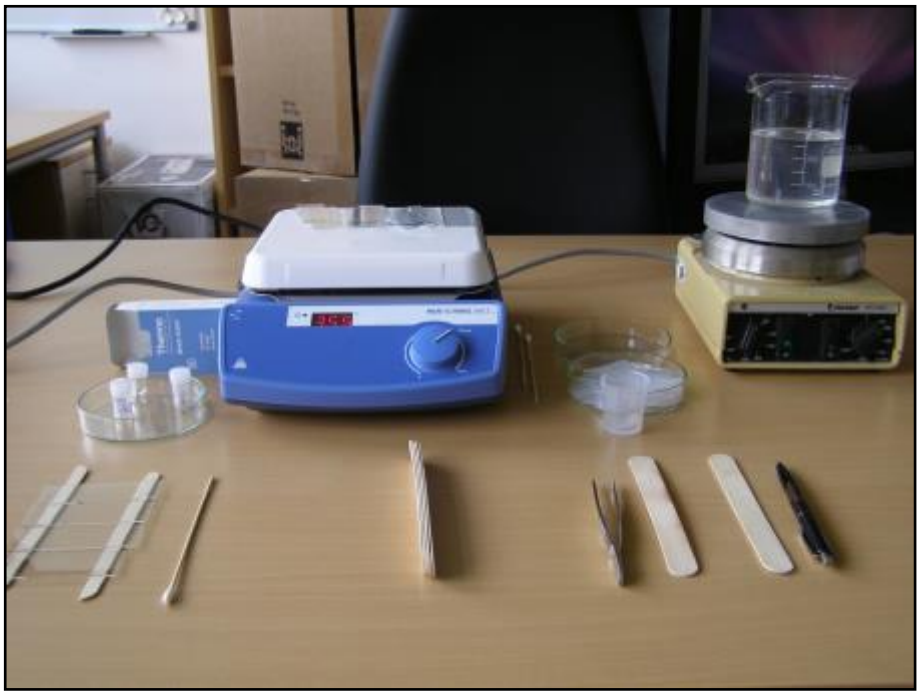
Mounting for zircon fission-track (ZFT) analysis

Before you start, arrange the following things as shown in the image below:



Zircon embedding utensils. Photo: E. Enkelmann.

- Put several glass slides on the upper half of the heating plate (blue) and switch it on, set to 350–355°C.
- Fill a beaker with water and some soap and warm it on the heating plate (old), lukewarm, set to 40°C.
- You need the glass writer and some bigger tweezers, several wooden sticks.
- Cut Teflon in squares of ca. 2x2 cm. Before you use them, wash them in ethanol otherwise they are electrostatic and grains will attach on it before mounting.

Cut Teflon slides and a small beaker with ethanol to wash Teflon before use. Photo: E. Enkelmann.

- Put zircons on a clean slide that sits on two wooden sticks (so it is easy to take it with tweezers), arrange them in a dot of ca. 1 cm diameter (picture below), you can use a self made ‘single hair brush’ to arrange them.

Zircons arranged on four glass slides ready to be embedded in Teflon. Per detrital sample several mounts have to be prepared. For bedrock samples, it is also advisable to prepare more than one mount. Photo: E. Enkelmann.

- Take a slide with the tweezers and put it in the blue heating plate.
- Take a Teflon slide and hold it in a steep angle above the grain slide, the lower edge has to touch the glass slide (image below).
- Wait until it starts to stick on the glass, then put the entire Teflon on top of the grain. Take one of the hot glass slides from the top of the heating plate and put it in 90° angle to the lower slide on top of the Teflon.
- Press very well with a wooden stick evenly for a while.

Teflon slide held over the zircon grains to heat it up before pressing it down. Photo: E. Enkelmann.

Right: A second, hot glass slide is placed on top of the Teflon slide in 90° angle to the first glass slide and then (left) pressed down on the Teflon slide with some wooden spatulas to embed the zircons in the Teflon. Photos: E. Enkelmann.

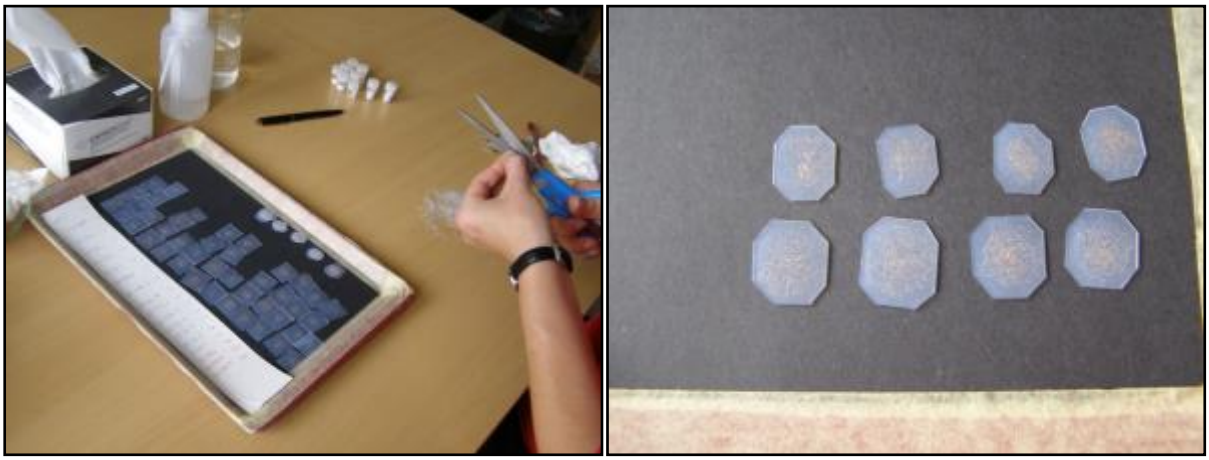
- Mounting was successful when the two glass slides both stick to the Teflon.
- Move the package from the heating plate and put in on wooden sticks to cool for a while.

Left: The glass slides stick to the Teflon slide. Right: The glass slides and Teflon are placed on sticks to cool for a bit. Photos: E. Enkelmann.

- When the glass is cold, take off the slides from the mount. If the Teflon sticks to the glass put it into the warm soapy water for a while, then remove the Teflon.
- Control with your finger if grains have sufficiently been embedded into the Teflon. The surface should be smooth.
- Make at least one mount per bedrock sample, for detrital samples make 3 mounts due to different etching times.
- Prepare new standard mounts if you cannot reuse previous ones.
- Scratch the sample ID into the back of the mount – do this before you start mounting the next sample.

Scratching the sample ID into the back of the mount. Photo: E. Enkelmann.

- Cut the Teflon mounts into rectangles and cut the corners. This way they will fit into the irradiation tube (test tube to check whether the mounts fit is available).



Left: Cutting the Teflon slides into the right shape to fit into an irradiation tube. Right: ZFT mounts. Photos: E. Enkelmann.