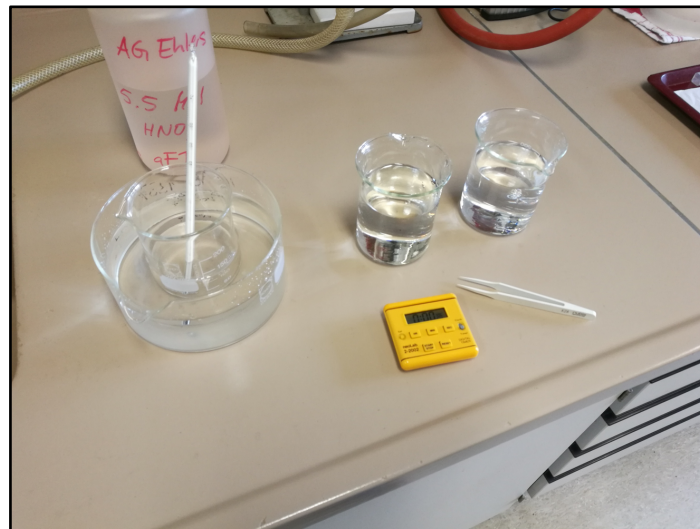


## Etching of apatites for fission-track analysis

Apatite mounts are etched in **5.5 Mol HNO<sub>3</sub> for 20 seconds at 21°C** (Donelick et al., 2005).

- Fill one glass beaker with the etchant, and two with VE water. If the etchant is not at 21°C use a larger beaker with water to cool or heat the beaker with the etchant (see photo). Put the beakers with the water beside the beaker with the etchant.
- Use plastic tweezers to hold the mounts completely submerged into the etchant for 20 seconds. You can hold and etch two mounts at once, but make sure the grain holding side of both mounts is facing out. Use a timer to measure exactly 20 seconds. Make a pre-run without mount to know when you should remove the mount from the etchant.
- Take out the mount after 20 seconds and rinse it in the first beaker with water for a few seconds, then drop it into the second beaker with water.
- Repeat this until all mounts are etched.
- When finished clean all utensils with water. Clean the samples in an ultrasound bath to make sure all remaining etchant is removed from the fission tracks. Then clean the samples with ethanol. Do not touch the mount surface after etching; they are now as clean as they get. Use gloves and tweezers.
- After cleaning the samples, check the result of the etching under the microscope.



*Apatite etching with 5.5 Mol HNO<sub>3</sub> at 21°C (left beaker with thermometer standing in water bath to regulate the temperature). The right two beakers contain water. Photo: S. Falkowski.*

## References

Donelick, R.A., P.B. O'Sullivan, and R.A. Ketcham, 2005, Apatite fission-track analysis: *Reviews in Mineralogy and Geochemistry*, 58, 49–94, doi: 10.2138/rmg.2005.58.3.