



Technical Bulletin

Microdiffraction for capillaries

What is it?

Microdiffraction is used to analyze small samples or small areas of large samples. The sample is carefully placed into a glass capillary. The diffractometer spins the capillary by a motor at a rate of 5 revolutions per second in order to increase particle statistics.

When would you use this?

Capillaries offer the advantage of allowing very small amounts of air-sensitive samples to be placed in a glass capillary and analyzed through the capillary. They also offer the advantage of decreasing the effect of preferred orientation on your sample. The exception to this may be related to the case of needle-like crystals. Despite this, capillaries also have their downfalls. To begin with, the process of loading your samples is much more complex and time consuming. The glass capillary also adds to the background count. Lastly, aligning the diffractometer with respect to the x-ray beam can also be a time consuming process.

How to mount our Micro-diffractometer

Keep this process in mind before choosing to use this tool. It may take a bit of time to load and position the micro-diffractometer. Goniometer is usually used with a mono-capillary as incident beam PreFIX module in order to irradiate a small area on the sample. See chapter 4.7 in the PANalytical manual for instructions on how to do this. On the diffracted beam side is an anti-scatter device. You can load the samples to the goniometer stage using plasticine or double sided tape. You may want to mount the ZBH in order to prevent peaks from the sample table. Exchange the sample stage by following instructions on page 12.6 in the PANalytical manual to the Micro-diffractometer stage. The alignment of the sample with respect to the X-ray beam may be determined by the alignment microscope. Attach the alignment microscope which is mounted on the diffracted beam PreFIX position. To do this, see chapter 12.2.2.1 in the PANalytical manual. Complete the alignment, then make sure to replace the module for the X-ray experiment.

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