

CLEAVING INSTRUCTIONS FOR NaCl AND OTHER CRYSTALS



SPI Supplies
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Cleaving Sodium Chloride Single Crystal Substrates

Procedure for Cleaving Single Crystals

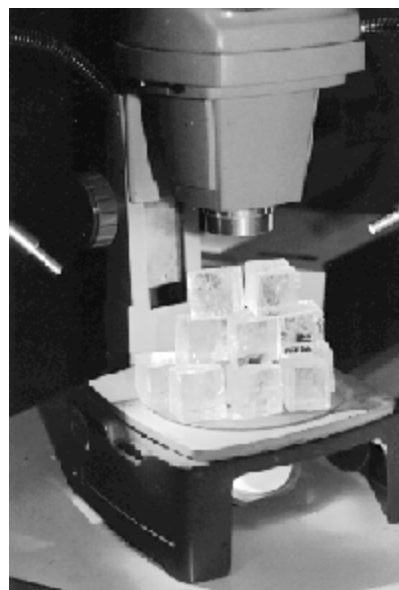
All that is needed is a new single edged razor blade (SPI Supplies #05025-AB) and small "hammer" and of course, a clean, lint free work surface and a relatively dry environment.

The procedure is to place the blade parallel to one of the existing edges, and then tap lightly with the small hammer. Cleaving occurs instantly and the only time there is a problem is when the razor blade being used gets dull (it should be changed after every several cleavings). In practical terms, a 2 mm thick slab is probably the lower limit in thickness that can be obtained this way.

One note of caution: It just would not make sense to "pre-cleave" into desired thicknesses since you would then lose the benefit of a surface that was "freshly cleaved". That is also the reason why our firm does not offer smaller cleaved pieces, we believe it would result in inferior results.

The cleaving produces a very flat, relatively clean surface. However, it must be prepared immediately and then placed in the vacuum chamber of the system being used for the deposition, followed by an immediate pump down, which is then followed by the deposition of one or more thin film coatings. If all of this is not done quickly and as described some of the benefit of the freshly cleaved surface could be lost.

While freshly cleaved surfaces provide a smooth substrate for crystal growth, it is likely that there will be there cleavage steps present on the surface.



Optional preparation:

Some researcher suggest an additional step. After cleaving, take a piece of SPI Lens Cleaning Tissue (SPI Supplies #05180-AB), place it on a smooth surface, wet the lens tissue with a small amount of water, and then rub in a circular motion in the middle of the water wet area.

We present this second suggestion only as another reference, but is not something we ourselves recommend; for good quality single crystal NaCl, the flattest surface is produced by cleaving the sample. It is our opinion and experience that polishing it will only make the surface worse!

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