

Sample Preparation for Powders for Kratos AXIS Supra

When using powders, proper sample preparation is key to keeping the instrument clean and free from contamination.

The ideal situation for examining loose powders is to press the powder into high purity indium foil. The indium foil needs to be high purity (thus expensive) and the powder needs to be compatible with indium. If this is not possible then dissolving the powder and making a thin film and coating an appropriate substrate would be the next best thing. If this also doesn't apply then using loose powder can be done as long as the proper precautions are taken and the procedure below is followed.

Materials for Loose Powder Preparation:

- Scoopula of appropriate size for powder container
- Flat sided scoopula for pressing powder
- Double sided tape or Carbon tape
- Clean scissors
- Isopropyl alcohol
- Kim wipes
- Powder free gloves
- Aluminium foil
- Pipette bulb

1. Procedure for Mounting Loose Powders

- a. Put on a new pair of powder free gloves.
- b. Prepare a clean and flat working area – cover with aluminum foil.
- c. Place clean sample holder onto aluminum foil.
- d. Cut small pieces of tape (1 small piece for each sample).
- e. If using carbon tape (recommended as it comes off the holder better), you can place them all before covering with powder, just leave the paper on the top side until you are ready for the powder. If using double-sided tape, place a piece down, then cover it with powder, before putting the next piece of tape. **Note** – space the tape out quite well to avoid cross contamination between the samples. If using the “stub entry holder” not more than 7- 8 samples should be used, whereas the dual height holder can hold 10-12 samples.
- f. Once the tape has been stuck down onto the holder, use your spatula and place a small amount of powder onto the tape (you do not want a thick layer).
- g. Spread the powder so it covers as much of the tape as possible – you want to ensure that you have an area that “appears” completely covered to the eye without tape showing through.
- h. Use the flat side of a scoopula to push your powder sample down into the tape.
- i. Use the pipette bulb to blow at the surface of the powder to remove any unbound powder.
NOTE – carefully blow away from other samples that have already been placed on the

holder. The best option is to direct the blowing from the bulb off the holder and away from the rest of samples.

- j. Repeat steps e-i for as many samples as you have. Ensure all loose powder is free from the surface of the holder before placing the sample into the XPS.