

## Sample Preparation for Bruker S2 PUMA XRF

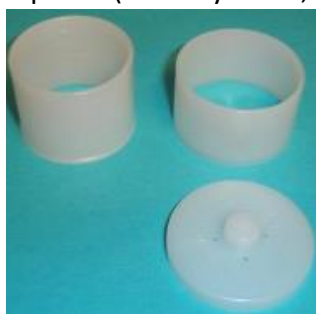
*Proper sample preparation is key to the success of obtaining meaningful XRF data. If loose powder or liquid is going to be used, follow the instructions below.*

### Materials for Cup Preparation:

- 3 parts of the container/cup
- Sharp blade
- Foil of choice (commonly used are 3.6  $\mu\text{m}$  Mylar or 4.0  $\mu\text{m}$  Prolene)
- Powder free gloves
- Clean, lint free surface

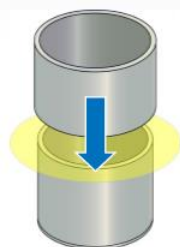
#### 1. Procedure for Mounting and Replacing Foil on Cups

- a. Put on a new pair of powder free gloves.
- b. Prepare a clean and flat working area.
- c. Locate the 3 parts of the cup required (inner cylinder, outer cylinder and cap).



**Figure 1.** 3 parts of the liquid cell.

- d. Place the outer cylinder on a clean and lint free area (please note the outer cylinder is shorter than the inner cylinder).
- e. Place the film of choice over the outer cylinder.
- f. Place the inner cylinder over the outer cylinder (on top of the foil).
- g. Gently push down the inner cylinder, with steady even pressure, until the edge of the inner cylinder becomes flush with the outer cylinder. If there is any access foil, remove it with a sharp blade.



**Figure 2.** Setup for sealing the window.

- h. Ensure that the film is smooth and tight (not bulging). **DO NOT touch the film after you have made it to avoid creasing and/or contamination.**
- i. If using liquid, place the liquid in the cup, and verify there is no leakage (wait at least 60 seconds) – **THIS IS VERY IMPORTANT AND MUST BE DONE BEFORE LIQUID IS PUT INTO THE SYSTEM.** If using powder, wait at least 30 seconds to also ensure no powder can escape.

## 2. **Guidelines for Preparing Loose Powders**

- Grind sample in fine grain size (use clean mortar and pestle, coffee grinder, blender, etc)
- Run your ground sample through a mesh (the smaller the better to improve measurements) – the key is that you want all particles to be as close to the same size as possible for best results
- Get as accurate as possible mass and diameter of the sample for best results