

## Sample requirement for surface analysis

Samples must be solid and ultra-high vacuum compatible ( $< 10^{-8}$  torr).

### XPS/UPS:

Powder sample, thin film, bulk samples

#### Powder sample:

100% dry

The finer the powder is, the better signal will be.

A minimum quantity of 5mg is required.

#### Thin film, bulk samples:

Flat surface is a must.

size:  $>2\text{mm} \times 2\text{mm}$  &  $<10\text{mm} \times 10\text{mm}$  (UPS:  $>5\text{mm} \times 5\text{mm}$ )

thickness:  $<5\text{mm}$

#### Metal foam:

Press flat for best signal intensity.

#### Carbon paper:

Avoid fluorine-containing substrate if Ni or Fe is to be analysed.

### Samples for depth profiling

Thin film or solid bulk only with well-defined surface layer or multi-layer structure

Powder samples are not acceptable

Non-flattened surfaces are not acceptable

## **ToF-SIMS**

100% dry

Thin film, bulk samples only

smooth surface is a must. Mirror polished surface is preferred for better signal and reduced topographic effect.

size: ~ 12mm\*12mm is perfect.

Smaller or larger sized may also acceptable but please discuss with us.

thickness: <5mm

## **Non acceptable samples:**

Alkali metals (Li, Na, K, Ru, Cs in metallic states)

- Cause corrosion to the internal parts of instruments.

Pure phosphorus, sulfur, bromine

Evaporate in ultrahigh vacuum.

Radioactive elements

Cause radioactive contamination to the instrument.

Liquid samples

Pumped away in vacuum

Wet samples

Take extended long time for vacuuming