Measurement of: Mass Spectra, Depth Profile and Chemical Imaging

Equipment: ION TOF's TOF-SIMS5

Property Measured: Compositional analysis at the surface and interfaces of the materials.

Photograph (small size)

Basic Principle:

TOF-SIMS available at NPL is a surface analytical technique which uses a pulsed beam of primary ions focus onto a sample surface, producing secondary ions in a sputtering process. These secondary ions are then accelerated into a "flight tube" and their mass is determined by measuring the exact time at which they reach the detector (i.e. time-of-flight).

Capabilities:

High mass resolution, excellent detection limit (in ppm/ppb), high lateral resolution (~100 nm) and depth resolution (~ 1 nm) makes it an important technique for various organic as well as inorganic applications. Detection of all elemental and molecular ions along with their isotopes is the unique property of TOF-SIMS. Interface analysis in the order of few nanometers is possible using this technique. Quantification of the sample can also be done with the help of a standard reference material.

Sample Requirement:

UHV compatible samples, Sizes: 5 – 10 mm.