

Smart OMNI-Sampler™

For Single-Reflection ATR Analysis

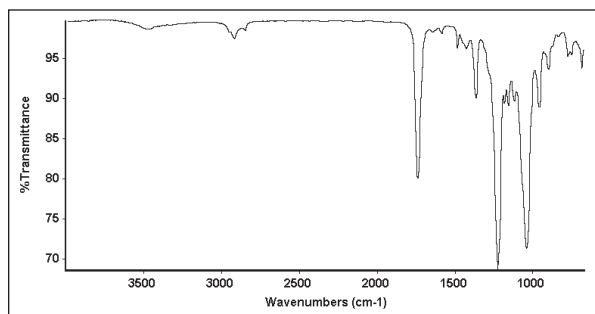
The Thermo Scientific Smart OMNI-Sampler is a good choice when you need to make fast and simple measurements but face a wide range of different sample types – solids or liquids. It is a universal single reflection HATR sampling accessory that fulfills almost all application needs. In addition to routine solids and liquids, the Smart OMNI-Sampler will facilitate the analysis of difficult samples, such as dark carbon-filled samples, single polymer beads, hard rigid polymers, and coatings on glass substrates. For tough to analyze samples, the Smart OMNI-Sampler is a cost effective alternative to diamond sampling accessories. It is as easy to use as “position, click, and scan”.

The Smart OMNI-Sampler utilizes a spherical ATR crystal as the sampling surface. This crystal design in combination with the tilt back pressure tower provides “point-to-point” contact between the sample and crystal when analyzing solid samples. This point-to-point contact is useful for analyzing hard, rigid, unyielding, and difficult-to-analyze samples. It is ideal for making quantitative measurements because the tilt back pressure tower operates with a slip-clutch mechanism to ensure that the correct pressure is applied every time, independent of the sample’s size or shape. Operation could not be any easier – simply position the sample on the crystal and turn the knob. When the correct pressure is applied, an audible click lets you know that you are ready to make your measurements. The tilt back pressure tower also tilts back at a 45° angle for easy access to crystal for cleaning and sample positioning.

The optional Lightning Viewer allows precise positioning of very small samples on the germanium surface. The Lightning Viewer features a sapphire surface and allows application of the same “turn and click” slip clutch pressure as the standard pressure device.

Example Applications

- Single polymer beads
- Single filaments
- Formed, rigid polymers
- Paint chips
- Printed circuit board
- Paper/contaminants
- Carbon-filled materials (o-rings)
- Liquid, including aqueous solutions, corrosive, and caustics



Rigid polymers may be measured without sample preparation using the Smart OMNI-Sampler

Unique Features

The Smart OMNI-Sampler integrates several unique features to make sample measurements simple and error-free. The spherical crystal design produces a nominal 2x reduction in the beam diameter. This provides enhanced sensitivity, the ability to run smaller samples, and the ability to exert more pressure on the sample, ensuring optimal contact. The pressure device tip is 2 mm, essentially defining the practical sample size.

The Smart OMNI-Sampler utilizes an extremely rugged germanium ATR crystal that has a spectral range of 4000 – 675 cm⁻¹. The germanium crystal gives a shallow depth of penetration that is ideal for highly absorbing carbon filled samples, and thin surface analyses.

Compared to other ATR accessories with flat sampling surfaces, the spectral quality is greatly enhanced due to the point-to-point contact between the crystal and the tilt back pressure tower pressure device. The crystal material and shape makes the Smart OMNI-Sampler a good general purpose IR accessory.

The liquid holder extends the usefulness of the Smart OMNI-Sampler. It can be attached easily, requiring no modifications to the accessory. The “swimming pool” design is optimized for small volumes and ease of cleaning.



Specifications

Crystal Material: Germanium; spectral data down to 675 cm⁻¹

Sampling Area: 2 millimeters diameter

Crystal Angle: 45° (single reflection)

Depth of Penetration: Approximately 0.67 micrometers at 2000 cm⁻¹

Useful pH Range: 1 – 14

Sample Volume: 1.86 milliliters

Pressure Device: Tilt back pressure tower or Lightning Viewer, both with fail-safe mechanism to prevent crystal damage

Ordering Information

Accessory	Part Number
Smart OMNI-Sampler	0028-8XX
Smart OMNI-Sampler with Lightning Viewer	0029-8XX

XX = 99 for Nicolet™ iS™ 10 and Nicolet x700 XX = 99 for Nicolet Nexus™
XX = 97 for Nicolet 380 and Avatar™