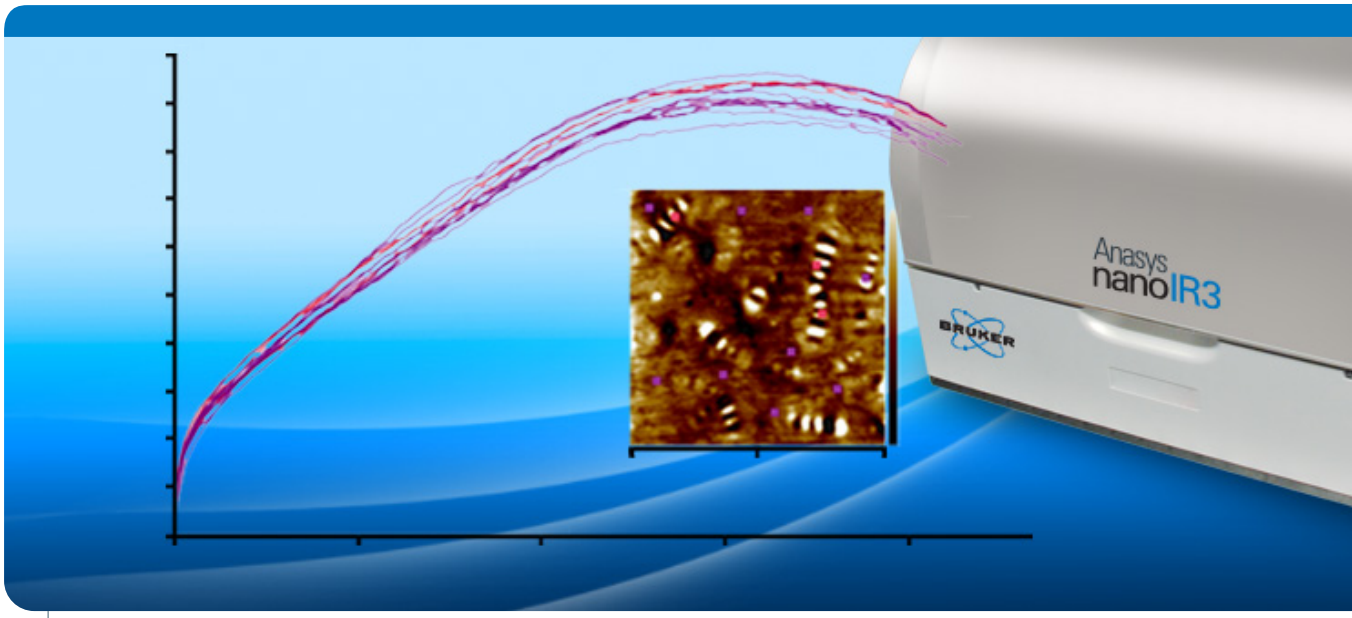

Environmental Control Accessories

- Increase Measurement Capability with Humidity and Temperature Control

The Humidity Controller environmental enclosure provides humidity control for both AFM and AFM-IR measurements with Anasys nanoIR™ systems. The enclosure comes with a compact, benchtop relative humidity generator that controls dew point using a controlled flow of dry nitrogen gas bubbled through water. An integrated sensor is included, and can be controlled through the system operating software. Non-condensing operation requires the heater cooler unit.

Heating and Cooling

The sample heater/cooler system for nanoIR systems provides sample heating and temperature control for both AFM and AFM-IR measurements. A separate control station is included with the heater/cooler, enabling control through the system operating software. This system is compatible with AFM and AFM-IR when used separately or when used with the environmental control.

Humidity Controller

Available humidity control range	15 to 80% non-condensing*
Maximum gas flow	200 ml/min
Maximum X-Y motorized movement	±2x2 mm or 4x4 mm

*Lab conditions may affect performance.

Heating and Cooling

Available temperature range	4 to 80°C*
Available temperature range when paired with environmental enclosure	-20 to 80°C

*Evaporation and condensation on the sample may impact results.

Facilities Requirements

Accessory	Note	Input	Input air requirements	Water requirements
Environmental Chamber	Requires nitrogen supply and separate electrical power supply	100 to 240 VAC (2 lines)	>20 psi nitrogen / compressed air	Distilled water
Sample Heater/Cooler	Requires electrical power supply	100 to 240 VAC (2 lines)	N/A	Distilled water and ice if sub -10°C is required

Upgrades to installed nanoIR systems require modification of the instrument to accept the new accessories (necessary installation time to be quoted).

The environmental enclosure and heater/cooler system are not compatible with the nanoIR first-generation nanoscale IR spectroscopy system.

Figure 2. Environmental Control and Heater for nanoIR2 and nanoIR3 systems.

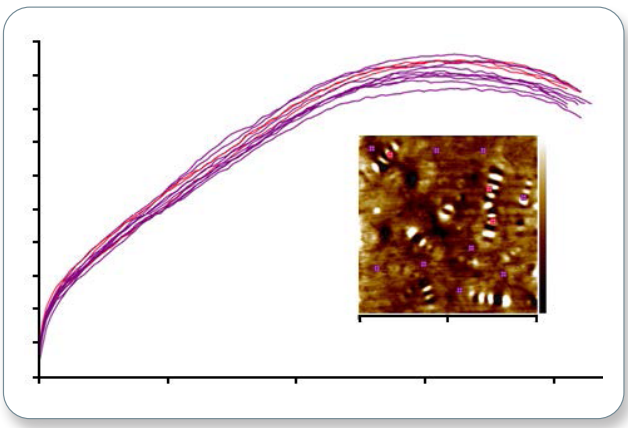

Figure 1. 10x10 µm AFM height image of asphalt and binders. The sample was first cooled to -15°C prior to nanoIR measurements. Glass transition of this asphalt is sub-ambient, therefore cooling via the environmental enclosure is necessary to study the transitions. Sample courtesy of Prof. Lily Poulikakos, Empa, Swiss Federal Laboratories for Materials Science and Technology.

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