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Wafter analysis

Thermo Scientific Nicolet OMNIC Wafer Analysis Package

Expanding your research capabilities in semiconductor applications

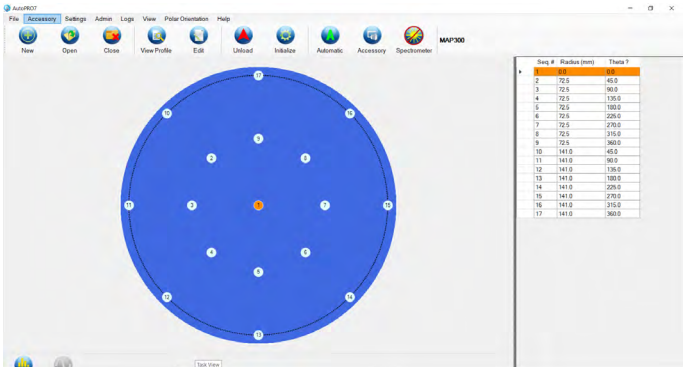
A: Variable Angle Wafer Holder provides a low cost, effective solution for silicon analysis.
B: Nicolet iS50 FTIR Spectrometer with wafer mapping accessory.

The Thermo Scientific™ Nicolet™ OMNIC Wafer Analysis Package is a research FTIR system dedicated to semiconductor wafer analysis. Used with any Nicolet FTIR series spectrometer, the Nicolet OMNIC Wafer Analysis Package is ideally suited to meet the needs of semiconductor researchers and production method development groups.

The Nicolet OMNIC Wafer Analysis Package comes in three configurations—300 mm or 200 mm automated or using a manual holder. The automated stages include a completely integrated wafer profiling stage and the well-known Nicolet ECO FTIR Metrology Software toolkit, so wafer analysis can progress quickly and smoothly. The manual system includes a Variable Angle Wafer Holder (VAWH) and, optionally, the ECO™ Analysis Software. The software includes analysis methods for the most common semiconductor measurements, and more powerful software can be added for quick, easy development of methods for new or unique applications.

The automated stages permit multiple data collection profiles and analyses, including carbon, oxygen, and epitaxial films. The VAWH manual system provides a low-cost tool for labs seeking simple single-point analyses. All three solutions can mount in any Nicolet series FTIR, including the Nicolet iS50, Nicolet iG50 and the Nicolet iS20 FTIR Spectrometers. Top performance comes from a Nicolet iS50 coupled with the 300 mm stage; the low-cost option would include the Nicolet iS20 and the VAWH.

The units may also be installed in auxiliary modules, either the AEM for the Nicolet iS50 or the Nicolet iZ10 for the Nicolet iS20. This provides a second sample compartment for other experiments, such as ATR using the Smart iTR or transmission.



Data presentation options include wafer maps and SPC charts.

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Standard applications supported by the Nicolet OMNIC Wafer Analysis Package

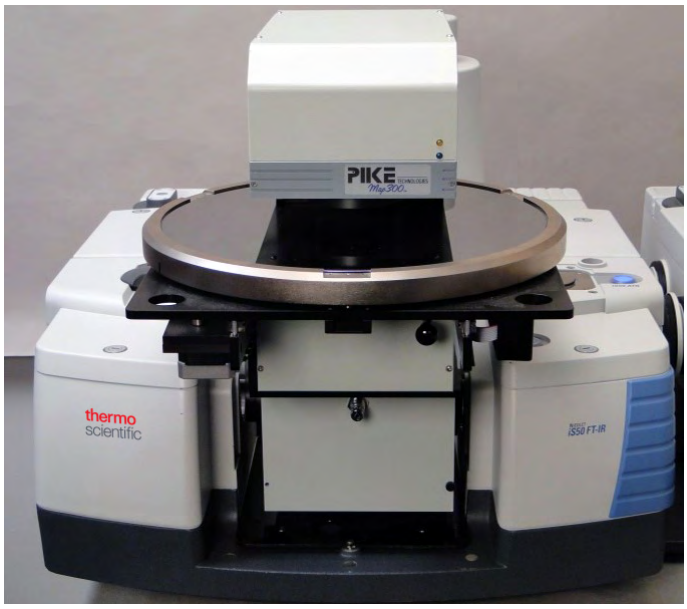
- Thickness measurements
  - Epitaxial films, MEMS devices, SOI, polysilicon, and III-V films
  - Interferogram subtract method for thick films
  - Cepstrum method for thin films
- Interstitial oxygen and substitutional carbon levels in silicon
  - Support for ASTM, JEIDA, and DIN methods
- Dielectric film characterization
  - Dopant concentrations in BPSG, PSG, and FSG films
  - Hydrogen concentrations in SiN and SiON films

Nicolet OMNIC Wafer Analysis Package automated hardware features

- Transmission and reflection measurement modes
- Manual wafer loading
- Unattended wafer profiling
- Optics optimized for wafer analysis

Nicolet OMNIC Wafer Analysis Package manual hardware features

- Transmission measurement
- Manual wafer loading
- Single-point wafer analysis
- Variable angle to minimize fringing



System configurations

You can choose from three configurations of the Nicolet OMNIC Wafer Analysis Package that offer all capabilities described above.

300 mm Silicon Analysis Package – This configuration is capable of running wafer sizes up to 300 mm in diameter.

200 mm Silicon Analysis Package – A slightly smaller version with similar capability

Variable Angel Wafer Holder – A simple rotary mount for wafers from 50 to 300 mm in diameter, including “semi-square.”

Support

Thermo Fisher Scientific backs the Nicolet OMNIC Wafer Analysis Package tools with a global support organization of over 100 professionals trained to provide the widest range of solutions available. Unprecedented product warranties, educational courses, and products allow us to completely support your needs.

Learn more at
thermofisher.com/semiconductor-manufacturing