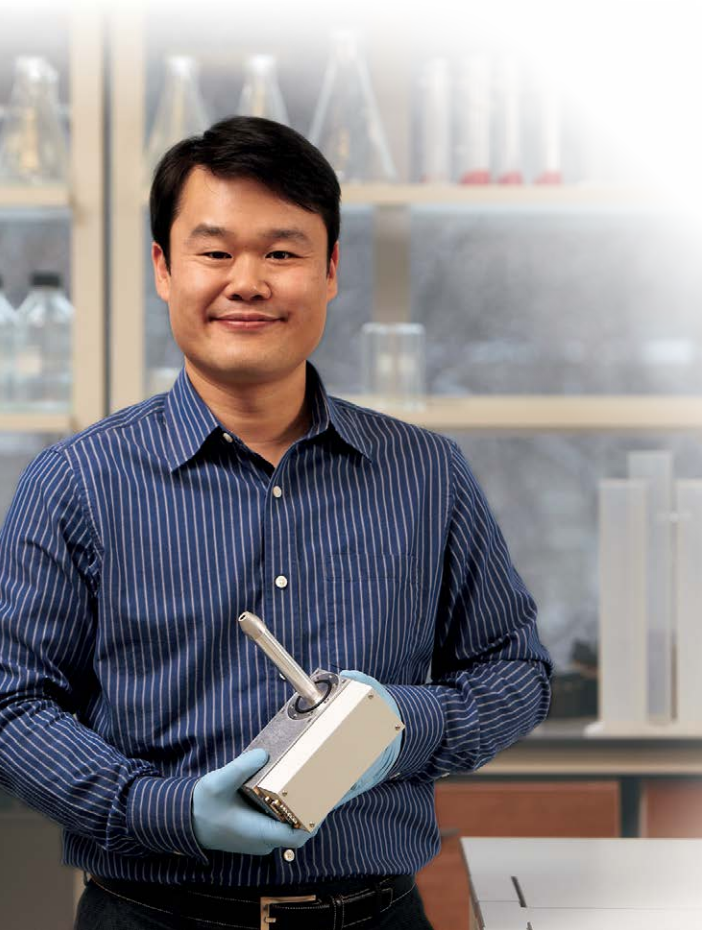
Thermo Scientific UltraDry Compact EDS Detector

Excellent EDS performance with a small footprint

The Thermo Scientific™ UltraDry™ Compact EDS X-ray Detector features advanced silicon drift detection electronics with best-in-class collection rates, low energy performance and detection down to carbon. The detector is part of a highly integrated X-ray microanalysis system that includes project-based data management, template-based acquisition and operation, standardless quantification and Spectral Imaging.



Delivering outstanding spectral performance in a much smaller package, the Thermo Scientific UltraDry Compact EDS X-ray detector mounts on the WDS port of the scanning electron microscope (SEM). The heart of the UltraDry Compact detector design is silicon drift technology with an advanced, on-chip FET and a proprietary pre-amplifier stage. The result is outstanding spectral performance at X-ray collection rates up to 1,000,000 counts per second with absolutely no liquid N_2 required. Innovative window technology enables excellent low energy performance.

Highlights

- Mounts on WDS port
- 133 eV resolution (Mn-Kα)
- Sensitivity down to carbon
- Collection rates up to 1,000,000 cps
- Full Spectral Imaging

The UltraDry Compact is more than just a world class X-ray detector. It is part of a highly engineered, fully integrated X-ray microanalysis system – the Thermo Scientific™ NORAN™ System 7. This system includes template Point & Shoot analysis, standardless quantification and full dead-time corrected Spectral Imaging for element mapping with "take-your-data anywhere" support that frees the microscope for further use. A project-based layout makes the software easy to use with industry standard data formats and one-click reporting to Microsoft® Word. Spectral simulation and spectra check overlay with a chi^2 residual value showing "goodness of fit" to reinforce confidence in your analysis. An upgrade path provides access to options such as drift compensation, stage automation, quantitative element mapping and phase mapping using the exclusively licensed Thermo Scientific™ COMPASS™ software algorithms.

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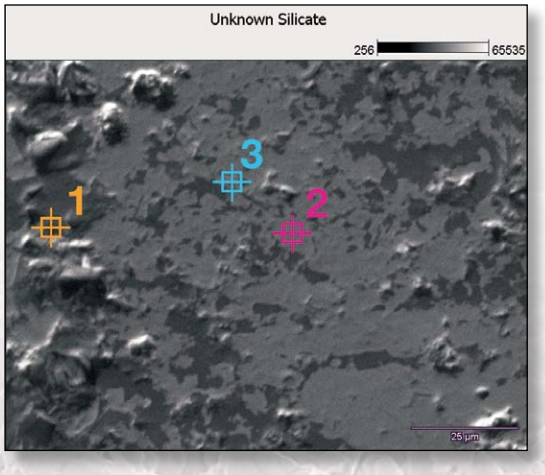
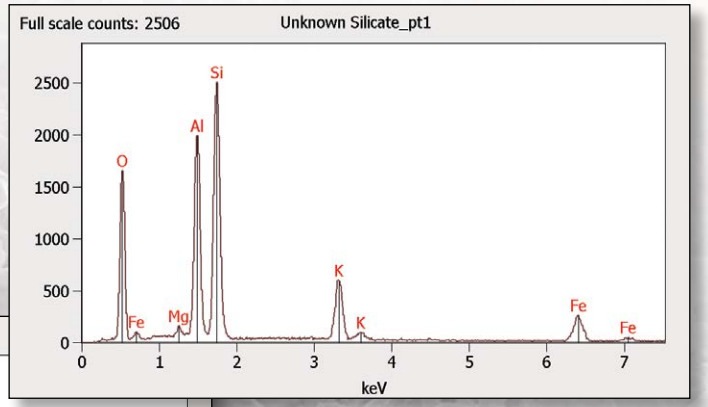
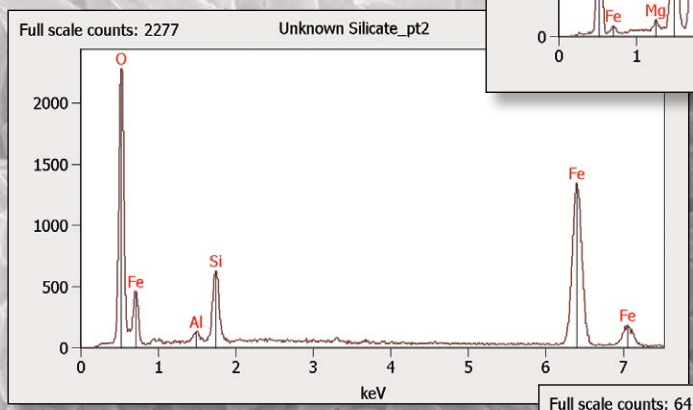
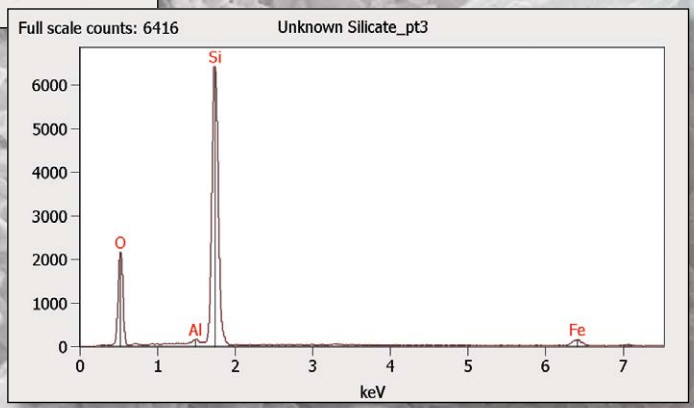
Rapid EDS Analysis

Point and shoot analysis with NORAN System 7 software uses standards-free quantitative analysis to enable rapid identification of the various regions within a material.









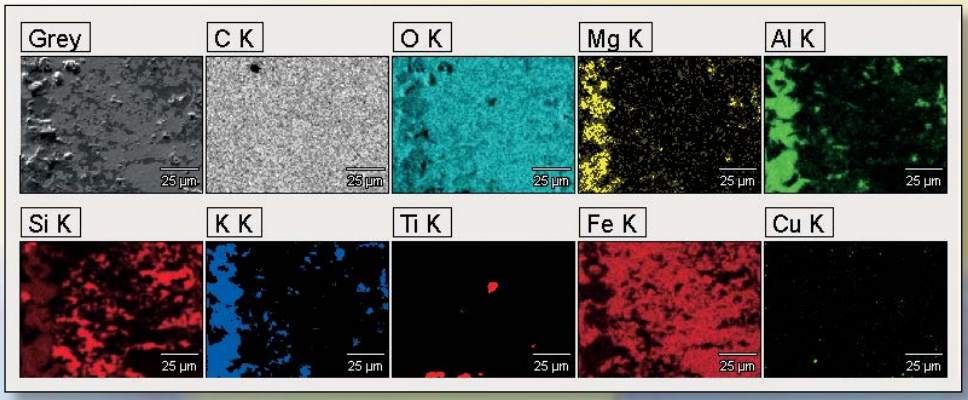
	Point #1	Point #2	Point #3
C-K	2.1	2.2	1.9
O-K	58.3	61.8	61.3
Mg-K	0.7		
Al-K	12.6	1.1	0.5
Si-K	18.3	6.7	33.9
K-K	4.2	0.1	0.1
Co-K		0.1	
Fe-K	3.7	27.0	2.3
Cu-K		0.9	

Weight percentages

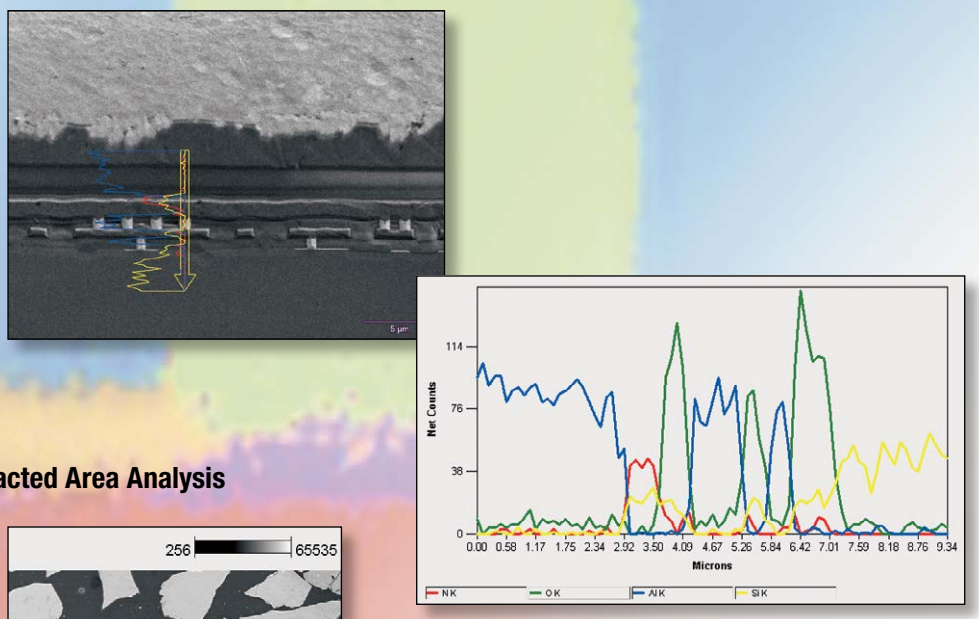
EDS Analysis with NORAN System 7 Spectral Imaging

The UltraDry Compact EDS detector gives you outstanding element mapping in minutes. With Spectral Imaging, where a full EDS spectrum is stored at every pixel, you can continue to analyze the sample after it has been removed from the microscope. NORAN System 7 tools provide several analytical methods for the best results.

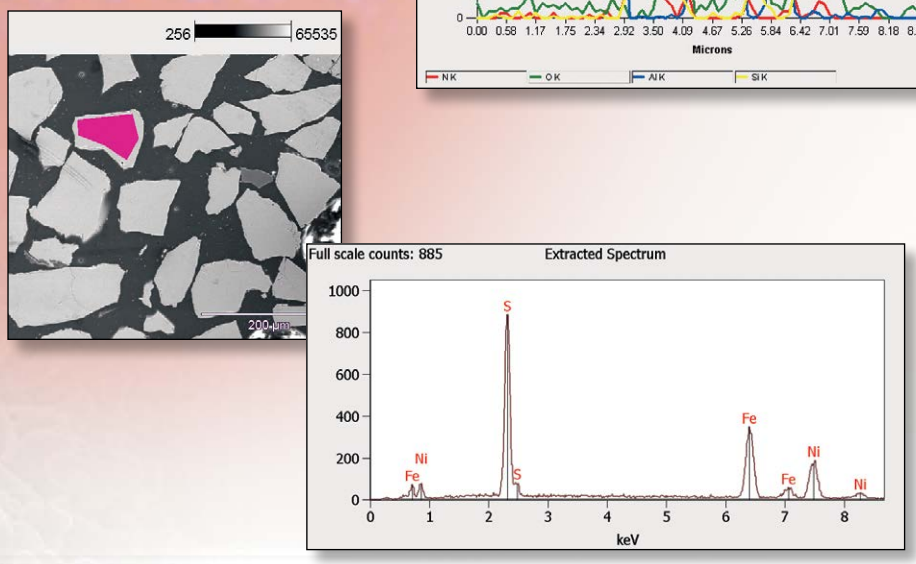
Elemental Mapping



Extracted Linescans

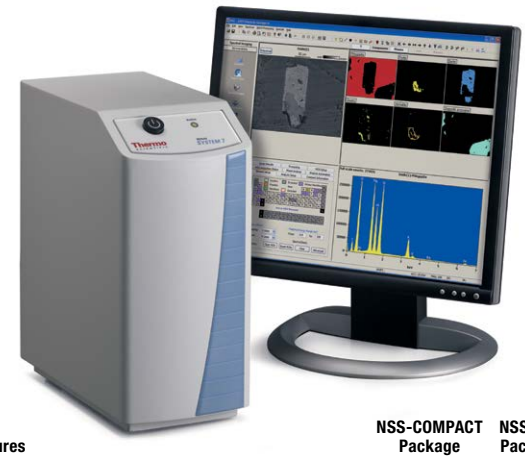


Extracted Area Analysis



UltraDry Compact EDS Specifications

- FWHM measured at 5.89 keV (Mn-Kα) with 10,000 counts per second stored in the spectra, measured on the electron microscope at 133 eV
- Light element sensitivity down to carbon
- Input count rates >1,000,000 counts per second
- Operating environment to 30 °C
- ±5 eV resolution change (±3 eV typical between 1% and 60% deadtime) from minimum to maximum count rate at a given analyzer time constant
- ±5 eV peak shift (±3 eV typical between 1% and 60% deadtime) from minimum to maximum count rate at a given analyzer time constant



Three Analytical Packages with the NORAN System 7 X-ray Microanalysis System

Features	NSS-COMPACT Package	NSS212E Package	NSS312E Package
Spectral Imaging (SI) acquisitions of full deadtime corrected spectra at every point	✓	✓	✓
Dynamic display of elemental maps	✓	✓	✓
Elemental maps with unlimited image overlay	✓	✓	✓
One click reports to printer, Microsoft Word	✓	✓	✓
Project based data storage	✓	✓	✓
Standardless quantitative analysis using filtered least squares fit	✓	✓	✓
Peak reference subtract	✓	✓	✓
Industry-standard data formats	✓	✓	✓
Digital image acquisitions from 64 to 4096 pixel	✓	✓	✓
Templated acquisitions in point and shoot.	✓	✓	✓
Spectral terminations based on time or statistics	✓	✓	✓
Point-and-shoot spectral acquisitions with shapes	✓	✓	✓
Automatic peak identification	✓	✓	✓
Spectra Check for peak identification confidence	✓	✓	✓
Peak reference subtract	✓	✓	✓
Cliff-Lorimer correction	✓	✓	✓
ZAF correction	✓	✓	✓
User-defined elemental references	✓	✓	✓
X-ray line energy adjust	✓	✓	✓
Acquisition electronics: greater than 1,000,000 input counts per second	✓	✓	✓
SI extracted linescan overlays with flexible line direction, width and point selection	✓	✓	✓
"Get-and-Set" microscope parameters such as accelerating voltage, magnification and working distance (where available)	✓	✓	✓

Features	NSS-COMPACT Package	NSS212E Package	NSS312E Package
Compatible with up to 2 EDS detectors		✓	✓
WDS quantitative, qualitative spectral analyses (optional)		✓	✓
WDS input for linescan and mapping (optional)		✓	✓
Mosaics/Montages with stage automation option		✓	✓
Full-standards quantitative analysis		✓	✓
Quantitative map extraction		✓	✓
Spectral Extractions using summed or maximal display selection		✓	✓
Quantitative mapping with unlimited image overlap		✓	✓
Quantitative linescan extractions with elemental image		✓	✓
Linescan plot overlays on electron image		✓	✓
Linescan acquisitions up to 4096 points, either qualitative or quantitative		✓	✓
Global application of element map displays brightness, contrast, gamma, transparency overlay		✓	✓
Selected area SI map extraction using point, rectangle, circle, magic wand, and polygonal shapes during EDS			✓
Selected area mapping acquisition using point, rectangle, circle, magic wand, and polygonal shapes during EDS			✓
25 built-in imaging filters for element and quantitative mapping. Includes low and high pass filters, erosion and dilation, gaussian, laplace, sobel and derivative filters.			✓
Supports user defined filters			✓
Compatibility with EBSD (optional)			✓

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PS52557_E 02/14M