

EDS

XFlash® 7100oval

The high collection angle EDS detector for SEM, FIB-SEM and STEM-in-SEM

As part of the the XFlash® 7 detector family, Bruker offers the windowless XFlash®7100oval EDS detector. The oval-shaped 100 mm² detector is designed for challenging applications. This includes electron transparent specimens as well as samples that require measurements at low kV and low beam currents.

The large area XFlash®7100oval silicon drift detector (SDD) is carefully customized for the specific geometry in SEM. The unique oval detector shape and state-of-the-art slim-line design allow optimization of the acquisition position to achieve a solid angle for X-ray collection of up to 0.4 sr without compromising the SEM performance.

In combination with the specially adapted SVE 7 hybrid signal processing unit, this detector can provide an energy resolution ≤ 129 eV and output count rate of 600,000 cps.

Your Benefits

- Operate your SEM at it's best – analysis at up to 30 keV maximum accelerating voltage on all SEM types possible
- Superior light element detection and low energy performance with windowless detector design
- A high take-off angle of typically 35° guarantees a meaningful analysis of topographical specimens

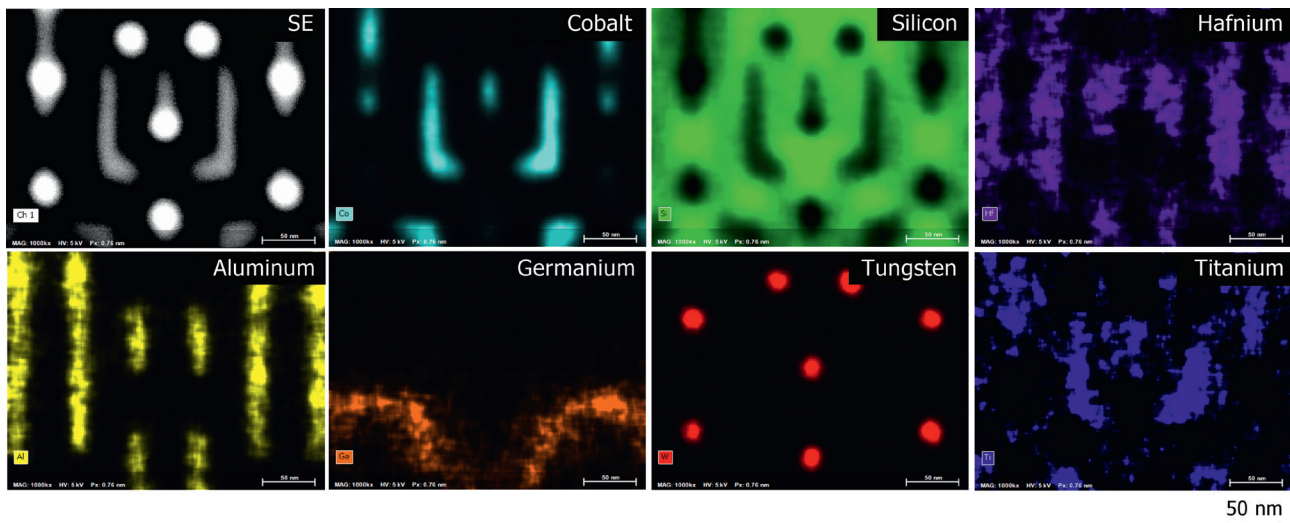
- Short analysis time due to large detector area and large collection angle
- Detector protection and compatibility to high vacuum conditions thanks to welded bellows and X-ray-tight shutter (optional)
- Unimpacted SEM performance with non-interfering cooling system, automatic detector retraction system and interlocks for safe operation
- Make use of all advantages of Bruker's versatile ESPRIT analysis software - perfect correlation with simultaneously acquired EBSD, micro-XRF on SEM and WDS data

Fields of application

High-end element analysis by EDS in SEM, FIB-SEM and STEM-in-SEM aiming at:

- Low kV and beam sensitive samples
- Light element analysis
- High spatial resolution
- Fast data acquisition

Analysis of a 7 nm node FinFET bulk sample



High spatial resolution EDS map of metal layer (M0) over a FinFET structure acquired on a bulk sample in SEM. The M0 layer is used as a contacting layer for the FinFET device. The finest Cobalt (Co) structures measured are ~ 6 nm in size. Overlapping elements like Si K α (1.74 keV), W M $\alpha\beta$ (1.77 keV) and Hf M $\alpha\beta$ (1.65 keV) are deconvoluted automatically in the map. The data is acquired with a 300 nm horizontal field-of-view at 5 kV SEM HV for approx. 5 min with an output count rate of > 30000 cps.

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