

ISO 20263:2017-11 (E)

Microbeam analysis - Analytical electron microscopy - Method for the determination of interface position in the cross-sectional image of the layered materials

Contents		Page
Foreword		iv
Introduction		v
1	Scope	1
2	Normative references	1
3	Terms, definitions and abbreviated terms	1
3.1	Terms and definitions	1
3.2	Abbreviated terms	4
4	Specimen preparation for cross-sectional imaging	4
4.1	General	4
4.2	Requirements for the cross-sectional specimen	5
5	Determination of an interface position	6
5.1	General	6
5.2	Preliminary considerations	6
5.2.1	Ideal model of an interface	6
5.2.2	More realistic model of an interface	6
5.2.3	Dealing with intensity fluctuations in the image	8
6	Detailed procedure for determining the position of the interface	8
6.1	General	8
6.2	Preparing cross-sectional TEM/STEM image	10
6.2.1	Preparing digitized image	10
6.2.2	Displaying the digitized image	11
6.3	Setting the ROI	11
6.3.1	General	11
6.3.2	Classification of image	11
6.3.3	Procedure of setting the ROI	12
6.4	Acquisition of the averaged intensity profile	17
6.5	Moving-averaged processing	19
6.6	Differential processing	20
6.7	Final location of the interface	21
7	Uncertainty	22
7.1	Uncertainty accumulating from each step of the procedure	22
7.2	Uncertainty of measurement result on image analysis	22
Annex A (informative) Examples of processing the real TEM/STEM images for three image types		24
Annex B (informative) Two main applications for this method		36
Annex C (informative) Calibration of scale unit: Pixel size calibration		43
Bibliography		45