

ISO 9220:2022-02 (E)

Metallic coatings - Measurement of coating thickness - Scanning electron microscope method

Contents	Page
Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Principle	1
5 Instrumentation	1
5.1 Scanning electron microscope.....	1
5.2 Tools to calibrate the length measurement function of the SEM software.....	1
6 Factors influencing the measurement results	2
6.1 Surface roughness.....	2
6.2 Taper of cross-section.....	2
6.3 Specimen tilt.....	2
6.4 Coating deformation.....	2
6.5 Rounding of edges of the coating.....	2
6.6 Plating a protection layer.....	2
6.7 Etching.....	2
6.8 Smearing.....	3
6.9 Poor contrast.....	3
6.10 Magnification.....	3
6.11 SEM imaging parameters.....	3
7 Preparation of cross-sections	3
8 Calibration of instruments	3
8.1 General.....	3
8.2 Photography.....	4
8.3 Measurement.....	4
9 Procedure	4
10 Precision	4
10.1 General.....	4
10.2 Repeatability, r	4
10.3 Reproducibility limit, R	5
11 Expression of results	5
12 Test report	5
Annex A (informative) General guidance on the preparation and measurement of cross-sections	7
Annex B (informative) Details on precision	10
Bibliography	12