

ISO 25498:2010-06 (E)

Microbeam analysis - Analytical electron microscopy - Selected-area electron diffraction analysis using a transmission electron microscope

| Contents | | Page |
|--|--|-------------|
| Foreword | | iv |
| Introduction | | v |
| 1 | Scope | 1 |
| 2 | Normative references | 1 |
| 3 | Terms, definitions and symbols | 1 |
| 4 | Principle | 2 |
| 4.1 | Spot diffraction pattern | 2 |
| 4.2 | Kikuchi pattern | 5 |
| 4.3 | Polycrystalline specimen | 6 |
| 5 | Equipment | 7 |
| 6 | Specimens | 7 |
| 7 | Reference materials | 7 |
| 8 | Experimental procedure | 8 |
| 8.1 | Instrument preparation | 8 |
| 8.2 | Procedure for acquirement of selected-area electron diffraction patterns | 8 |
| 8.3 | Determination of diffraction constant L | 10 |
| 9 | Measurement and solution of the SAED patterns | 11 |
| 9.1 | Selection of the basic parallelogram | 11 |
| 9.2 | Indexing diffraction spots | 12 |
| 10 | The 180° ambiguity | 13 |
| 11 | Uncertainty estimation | 13 |
| 11.1 | Factors affecting accuracy | 13 |
| 11.2 | Calibration with a reference material | 14 |
| Annex A (informative) Interplanar spacing of pure Au and Al | | 15 |
| Annex B (informative) Spot diffraction patterns of single crystals with body-centred cubic (BCC, face-centred cubic (FCC) and hexagonal close packed (HCP) structure | | 16 |
| Bibliography | | 28 |