ISO 5861:2024-06 (E)

Surface chemical analysis - X-ray photoelectron spectroscopy - Method of intensity calibration for quartz-crystal monochromated Al Kα XPS instruments

Contents

Page

Foreword ... **iv**

Introduction ... **v**

1 Scope ... **1**

2 Normative references ... **1**

3 Terms and definitions ... **1**

4 Symbols and abbreviated terms ... **1**

5 Requirements ... **3**
5.1 General ... 3
5.2 X-ray photoelectron spectrometer ... 3
5.2.1 Operating requirements ... 3
5.2.2 Instrument geometry ... 3
5.3 Reference material ... 4
5.4 Frequency of intensity scale calibration ... 5

6 Data acquisition ... **5**
6.1 General ... 5
6.2 Preparation ... 5
6.2.1 XPS Instrument ... 5
6.2.2 LDPE reference sample ... 5
6.2.3 X-ray source and electron flood source ... 5
6.2.4 Noise spectrum ... 6
6.3 LDPE intensity measurement ... 6
6.3.1 Spectra ... 6
6.3.2 Data preparation ... 7

7 Relative response ... **9**
7.1 General ... 9
7.2 Calculation of relative response, *T* ... 9
7.2.1 Relative throughput inspection ... 9
7.2.2 Extension of throughput data ... 9
7.2.3 Relative response determination ... 11
7.2.4 Error in relative response ... 12
7.3 Use of relative response, *T* ... 13
7.3.1 Correction of survey spectra ... 13
7.3.2 Use in quantification ... 13

Annex A (informative) **Flow charts** ... **14**

Annex B (normative) **Table of reference kinetic energies and intensities for LDPE** ... **17**

Annex C (informative) **A fitting curve for relative response** ... **19**

Annex D (informative) **Examples** ... **20**

Bibliography ... **27**