

TABLE OF CONTENTS

Alphabetical List of XPS Spectra by Chemical Formula (AgO to ZrO₂)	7
Introduction	11
Organization and Details of Spectral Sets	11
A. Organization of Spectra	11
B. Contents of Each Set of Spectra.....	11
C. Philosophy of Data Collection Methods	12
D. Peak-Fitting (Curve-Fitting) High Energy Resolution Spectra	13
E. Charge Compensation of Non-conductive Materials	13
F. Abbreviations Used	14
Instrument and Analysis Conditions used to Collect Spectral Data	15
A. Instrument Details.....	15
B. Experimental Details.....	16
C. Data Processing Details	17
D. Sample Details	17
Sources of Commercially Pure Binary Oxides.....	17
Powdered Samples - Pressed into 3 mm Diameter Pellets	18
Benefits of Pressing Powders into Pellets	18
Problems Caused by Pressing Samples into Pellets	19
Solution to Pressure Induced Contamination of Pellets	19
E. Energy Resolution Details	20
F. Energy Scale Reference Energies and Calibration Details	21
Reference Energies of Adventitious Hydrocarbon Contaminants	22
Instrument Stability and Long Term Energy Scale Calibration.....	22
G. Electron Counting and Instrument Response Function Details	23
Instrument Response Function	23
Signal / Background Ratios for Ion Etched Silver (Ag) using a 250 x 1000 μ X-ray Beam.....	23
Lens Voltage Settings Available via Software under Instrument Calibration Routines	23
H. Effects of Poorly Focusing the Distance between the Sample and the Electron Collection Lens	24
I. Quantization Details and Choice of "Sensitivity Exponent"	24
J. Tests of the Reliability of Scofield Based Relative Sensitivity Factors	25
K. Traceability Details	25
Traceability of Reference Binding Energies (Calibration)	25

Transfer of Traceability from Pure Metals to Non-Conductive Binary Oxides.....	26
Traceability of Instrument Response (Throughput) Function.....	26
Traceability of Relative Sensitivity Factors (RSFs) used for Quantization.....	27
Traceability of Sample Purity	27
L. Reference Papers Describing the Capabilities of S-Probe XPS Systems.....	27
M. Title Page of Section Containing Monochromatic XPS Spectra	28
N. Appendices.....	838
Charge Control Physics without Mesh and with Mesh.....	842
Table 1. Categorical List of Materials in XI Library of Monochromatic XPS Spectra.....	845
Table 2. Alphabetical List of Materials in XI Library of Monochromatic XPS Spectra.....	930
Table 3. Contamination Caused by Gloves	950
Table 4. Unknown BE Lookup Table.....	952
O. Alphabetical Index of XPS Spectra by Chemical Formula (AgO to ZrO ₂)	956