

ISO 21222:2020-01 (E)

Surface chemical analysis - Scanning probe microscopy - Procedure for the determination of elastic moduli for compliant materials using atomic force microscope and the two-point JKR method

Contents		Page
Foreword	.....	iv
Introduction	.....	v
1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	Symbols (and abbreviated terms)	4
5	Review of contact mechanics	4
5.1	Introduction	4
5.2	Hertzian model	5
5.3	Derjaguin-Muller-Toporov (DMT) Model	5
5.4	Johnson-Kendall-Roberts (JKR) model	6
5.5	JKR-DMT transition	6
6	Procedure of determination of elastic modulus	6
6.1	Introduction and limitations	6
6.2	Measurement of deflection sensitivity and spring constant	7
6.3	Measurement of tip radius	7
6.4	Measurement of force-distance curve	7
6.5	Force-distance curve conversion	8
6.6	JKR two-point method	9
6.7	Uncertainties	9
6.8	Reporting results	9
Annex A (informative) Example measurements	.....	11
Annex B (informative) Result of Inter-laboratory Comparison	.....	15
Bibliography	.....	17