

ISO 21360-5:2023-11 (E)

Vacuum technology - Standard methods for measuring vacuum-pump performance - Part 5: Non-evaporable getter (NEG) vacuum pumps

Contents		Page
Foreword.....		iv
Introduction.....		v
1 Scope		1
2 Normative references		1
3 Terms and definitions		1
4 Symbols and abbreviated terms		3
5 Test methods		4
5.1 General.....		4
5.1.1 Test gases.....		4
5.1.2 Vacuum chamber.....		4
5.1.3 Orifice.....		4
5.1.4 Vacuum pumping system for rough pumping.....		4
5.1.5 Vacuum gauges.....		5
5.1.6 Temperature.....		5
5.1.7 Activation method of NEG.....		5
5.1.8 Procedure of sample installation and activation.....		5
5.2 Throughput method for small NEG samples.....		6
5.2.1 Experimental setup.....		6
5.2.2 Sample.....		7
5.2.3 Determination of getter pumping speed, S , and sorption quantity, C_q		7
5.2.4 Determination of sticking probability, α		10
5.2.5 Measurement procedure.....		10
5.2.6 Measurement uncertainty.....		11
5.3 Throughput method with test dome.....		11
5.3.1 Experimental setup.....		11
5.3.2 Sample.....		13
5.3.3 Determination of getter pumping speed S and sorption quantity, C_q		13
5.3.4 Determination of sticking probability, α		13
5.3.5 Measurement procedure.....		13
5.3.6 Measurement uncertainty.....		14
5.4 Transmission method for NEG coatings.....		14
5.4.1 Experimental setup.....		14
5.4.2 Sample.....		15
5.4.3 Determination of average getter pumping speed per unit area, S_A , and sorption quantity C_q		15
5.4.4 Determination of sticking probability, α		16
5.4.5 Measurement procedure.....		16
5.4.6 Measurement uncertainty.....		17
5.5 Combination of transmission method and throughput method with test dome.....		17
6 Reporting		18
6.1 General.....		18
6.2 Small size of NEG with the structure of pill, disk, ring, strip, module and cartridge.....		18
6.3 NEG pumps.....		19
6.4 NEG coatings.....		19
Annex A (informative) Calculation method of the molecular conductance of the orifice		21
Annex B (informative) Example of diagrams for pumping characteristics of NEG		22
Annex C (informative) Typical value of initial sticking probability α_0 of NEG at room temperature		23
Bibliography		25