

DIN EN ISO 23157:2022-12 (E)

Determination of the silanol group content on the surface of fumed silica - Reaction gas chromatographic method (ISO 23157:2021)

Contents		Page
European foreword		4
Foreword		5
Introduction		6
1	Scope	7
2	Normative references	7
3	Terms and definitions	7
4	Principle	7
5	Reagents	8
	5.1 General	8
	5.2 Toluene	8
	5.3 Grignard reagent	8
	5.4 Reaction solution	8
	5.5 Carrier gas and diluent gas	8
	5.6 Auxiliary gases	8
	5.7 Calibration substance	8
6	Apparatus	9
	6.1 Gas chromatograph	9
	6.2 Headspace system	9
	6.3 Oven	9
	6.4 Capillary column	9
	6.5 Sample vials	10
	6.6 Analytical balance	10
	6.7 Gas collecting bag	10
	6.8 Syringe	10
7	Sample pre-treatment and reaction	10
	7.1 Sample pre-treatment	10
	7.1.1 Determination of matter volatile at 105 °C in fumed silica	10
	7.1.2 Preparation of the test sample	10
	7.2 Blank test	10
	7.3 Reaction	11
	7.4 Analysis	11
	7.4.1 Headspace system conditions	11
	7.4.2 Gas chromatographic conditions	11
	7.4.3 Identification	11
	7.4.4 Calibration	11
	7.4.5 Measurement	12
8	Calculation	12
	8.1 Calculation of the methane quantity produced in the vials	12
	8.2 Calculation of the silanol group content	13
	8.2.1 Calculation of fumed silica volatile at 105 °C	13
	8.2.2 Calculation of the silanol group content on the surface of fumed silica	13

9	Expression of results	13
10	Precision	13
	10.1 General.....	13
	10.2 Repeatability limit, <i>r</i>	13
	10.3 Reproducibility limit, <i>R</i>	14
11	Test report	14
	Annex A (informative) Representative chromatogram of methane	15
	Annex B (informative) Information about precision	16
	Bibliography	17