

ISO 9286:2021-10 (E)

Abrasive grains and crude - Chemical analysis of silicon carbide

Contents		Page
Foreword		iv
1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	Analysis of surface impurities	1
4.1	General	1
4.2	Sampling	1
4.3	Preparation of sample	1
4.3.1	Fine grains	1
4.3.2	Coarse Grains	2
4.3.3	Crude	2
4.4	Determination of surface carbon (C _{surf/free})	3
4.4.1	Principle	3
4.4.2	Detection by gravimetric method	3
4.4.3	Detection by infrared absorption (IR)	5
4.5	Determination of surface silicon dioxide (SiO _{2surf})	6
4.5.1	General	6
4.5.2	Detection by HF/KF dissolving reactions	6
4.5.3	Hydrofluoric acid loss	8
4.5.4	Molybdenum blue spectrophotometry	9
4.6	Determination of surface silicon (Si _{surf})	11
4.6.1	General	11
4.6.2	Hydrogen gas volumetric method	12
4.6.3	Silver displacement method	14
4.6.4	Molybdenum blue spectrophotometry	16
4.7	Determination of loss on acid treatment (LAT)	17
4.7.1	Principle	17
4.7.2	Reagents	17
4.7.3	Apparatus	17
4.7.4	Procedure	17
4.7.5	Expression of results	17
4.8	Determination of total carbon (C _{total})	18
4.8.1	Principle	18
4.8.2	Detection by gravimetric method	18
4.8.3	Detection by infrared absorption (IR)	19
4.9	Determination of surface iron (Fe _{surf}), surface aluminium (Al _{surf}), surface calcium (Ca _{surf}) and surface magnesium (Mg _{surf})	19
4.9.1	Principle	19
4.9.2	Atomic absorption spectrometry method (AAS)	19
4.9.3	Induced coupled plasma method (ICP)	19
4.10	Calculation of the content of residual silicon carbide (SiCR)	19
4.10.1	Residual SiC from LAT	19
4.10.2	Residual SiC from analysed impurities	20
4.10.3	Residual SiC from total and free carbon	20
5	Test report	21