

Material type

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Utilization

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General description

The coefficient of thermal expansion of an electrode is an important parameter to predict its thermal shock resistance. When an electrode at ambient temperature is put in operation at a high temperature, a heat wave will penetrate the block body and create a temperature gradient. A high coefficient of thermal expansion increases the strain in the body and, thus, the thermal stresses to the extent that cracking can occur.

The measurement is conducted with the RDC-158 apparatus, where a core sample with a diameter of 50 mm and a height of 50 mm is placed in a furnace, preheated at 300 °C, for a given period of time. The length change at the end of the test is recorded and used for the calculation of the coefficient of thermal expansion in 10⁻⁶/K.

This equipment is not suitable for the quality control of graphite electrodes, as different temperature ranges and a higher precision level would be required.

Technical information

Standard Method:	ISO 14420
Property:	
Coefficient of Thermal Expansion	[10 ⁻⁶ /K]
Sample:	Core Ø50 x 50 mm
Process time:	3 hours
Installation:	Draft free workbench
Dimensions (LxWxH):	48 x 56 x 120 cm
Weight:	65 kg
Electrical Property:	230V 1/N/PE, 50 Hz 0.5 kW, 2.2 A
Fluid Property:	Air, 3 7 bar
Certified Reference Standard:	RDC 1158
Database Connection:	Yes

Additional Recommended Equipment:

Drilling Machine (RDC 157 or RDC 179)

Saw (RDC 140 or RDC 148)

Drying oven (min. temperature 180 °C)



Technical information

Weight per unit:	[-]
Number of tests:	[-]