

RDC-158

Name THERMAL EXPANSION

Material type
**GRANULAR
PITCH
ELECTRODES
LINING**

Utilization
**R&D
IN-PLANT
LAB**

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 $\varnothing 50$ x 50 mm
	Process time:	Maximum 3 hours
	Installation:	Draft-free workbench
	Dimensions (LxWxH):	48 x 56 x 120 cm
	Weight:	65 kg
	Electrical Property:	230 V 1/N/PE, 50 Hz 0.5 kW, 2.2 A
	Fluid Property:	Air, 3–7 bar
	Certified Reference Material:	RDC 1158
	Database Connection:	Yes

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Additional Recommended Equipment:

Drilling Machine (RDC-157 or RDC-179)

Saw (RDC-140 or RDC-148)

Drying oven (min. temperature 180°C)



RDC 1158

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

