CO_2 Reactivity Coke

RDC-141

R&D Carbon

Granular | Lab

General Description

To minimize the net anode consumption in the electrolysis cells, it is important to use anodes with low reactivity to CO_2 gas, which can be measured by the RDC-146 apparatus. This allows increasing the quantity of carbon available for the production of aluminium and decreasing the excess carbon consumption, which reduces the aluminium production cost.
As the CO_2 reactivity of the baked anodes is strongly impacted by the reactivity of the calcined cokes, it is worthwhile to measure it on a routine basis to predict and anticipate any anode quality variations.
The measurement is conducted with the RDC-141 apparatus, where a calcined coke sample is heated at 1000°C during a given period of time while it is exposed to a saturated CO_2 atmosphere. At the end of the heating cycle, the sample is weighed and the mass loss, in percent, is used to express the CO_2 reactivity of the sample.

Technical Information

Standard Method	ISO 12981-1
Property	CO_2 Reactivity Coke [%]
Sample	5 g of granular carbon (1.4–1 mm)
Process Time	~ 3 hours
Installation	Workbench under fume hood
Dimensions (LxWxH)	60 x 40 x 68 cm
Weight	53 kg
Electrical Property	230 V 1/N/PE, 50 Hz 0.9 kW, 4 A
Fluid Property	CO_2 : 50 l/h, 3-7 bar
Certified Reference Material	RDC 1141
Database Connection	Yes

Additional Recommended Equipment

Oil Content Heating Method (RDC–208)
Drying oven (min. temperature 110° C)
Weighing scale with an accuracy of 0.001 g
Crusher (< 1.5 mm)
Sieving machine (1.4 mm and 1 mm sieves)

Certified Reference Material

RDC 1141	
Weight per unit	180 g
Number of tests	36