RDC-141

Name CO_2 REACTIVITY COKE

Material type
GRANULAR
PITCH
ELECTRODES
LINING

Utilization
R&D
IN-PLANT
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 coke (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 0.90 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 (RDC–176 or 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)

RDC 1141

Technical information

Weight per unit:	180 g
Number of tests:	36