

ALCAN

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Alcan Certified Reference Material Program

Certificate of Analysis

RED MUD FROM Ireland (Aughinish 1987) - RM-02

Certification:

This reference material has been certified according to Alcan standard methods for which ARDC is accredited ISO 17025. 20 bottles randomly selected were analyzed for this preliminary certification. The measurement of uncertainty, which is represented by one standard deviation, includes the inter-bottled heterogeneity and the method precision. Results are updated by benchmark analysis in 2007.

Usage:

This certified reference sample is intended both for instrument calibration and method control. Before sampling, the bottle should be vigorously shaken. An extra amount of sample should then be dried at 105°C for two hours. Finally, the exact portion is extracted. Do not return the unused sample in the bottle.

Traceability:

This material is traceable to previous Alcan standards for wet chemical analyses and phase analyses (TEA, TOC, g.Al₂O₃). For elemental composition, this material is traceable to NIST pure compounds and to previous Alcan standards.

**ALCAN CONFIDENTIAL****Assigned values:**

Parameter	Assigned Value (%)	Standard Deviation (%)	Test Method
Loss of Mass, 110-1000°C as H ₂ O and C	8.3	0.1	LECO or TGA
Aluminum as Al ₂ O ₃	13.8	0.2	Alcan SM 1359-99, XRF, glass beads/ICP
Iron as Fe ₂ O ₃	30.8	0.6	Alcan SM 1359-99, XRF, glass beads/ICP
Silicon as SiO ₂	6.1	0.1	Alcan SM 1359-99, XRF, glass beads/ICP
Titanium as TiO ₂	23.0	0.4	Alcan SM 1359-99, XRF, glass beads/ICP
Chromium as Cr ₂ O ₃	0.56	0.03	Alcan SM 1359-99, XRF, glass beads/ICP
Calcium as CaO	11.5	0.4	Alcan SM 1359-99, XRF, glass beads/ICP
Phosphorus as P ₂ O ₅	0.80	0.05	Alcan SM 1359-99, XRF, glass beads/ICP
Zirconium as ZrO ₂	0.58	0.06	Alcan SM 1359-99, XRF, glass beads/ICP
Zinc as ZnO	0.008	0.002	Alcan SM 1359-99, XRF, glass beads/ICP
Manganese as MnO	0.06	0.02	Alcan SM 1359-99, XRF, glass beads/ICP
Vanadium as V ₂ O ₅	0.53	0.07	Alcan SM 1359-99, XRF, glass beads/ICP
Potassium as K ₂ O			Alcan SM 1359-99, XRF, glass beads/ICP
Magnesium as MgO	0.2	0.1	Alcan SM 1359-99, XRF, glass beads/ICP
Sodium as Na ₂ O	3.0	0.1	Alcan SM 1359-99, XRF, glass beads/ICP
g-Al ₂ O ₃ as Al ₂ O ₃	2.1	0.2	DSC SM 1029-00
Total Extratable Alumina as Al ₂ O ₃	5.6	0.2	Alcan SM 1177-04 , high temperature digestion ¹
Total Organic Carbon as C	0.16	0.3	Wet Oxidation

1 Conditions: 5.0 N NaOH, 225 °C, 30 min

Dr. Stéphane Paré reviewed by Patrick Dubé
June 18, 2007