



Certificate of Certified Reference Material

NCS DC 86313

Beryllium Ore

Reissued in 2016

Approved by China National Analysis Center for Iron and Steel

(Beijing China)

Sample preparation:

Samples grinding were carried out in ball mill until the grain sizes attain to less 0.074mm after being crushed in jaw crusher to grains of the size less than 20meshes. Then packed in bottle.

Main content (dry basis)

(%)

No.		SiO ₂	Al ₂ O ₃	Fe ₂ O ₃ (T)	FeO	CaO	MgO	MnO
NCS DC86313	Certified Values	71.97	15.55	0.47	0.15	0.52	0.083	0.020
	Standard Deviation	0.08	0.12	0.03	0.02	0.03	0.008	0.003
		TiO ₂	K ₂ O	Na ₂ O	P ₂ O ₅	F ⁻	H ₂ O ⁺	L.O.I
NCS DC86313	Certified Values	0.010	3.28	3.63	(0.018)	0.0088	(0.63)	0.86
	Standard Deviation	0.002	0.06	0.07		0.0013		0.01

Certified Values and Standard Deviation

(μg /g)

No		ΣRE _x O _y	La ₂ O ₃	CeO ₂	Pr ₆ O ₁₁	Nd ₂ O ₃	Sm ₂ O ₃	Eu ₂ O ₃
NCS DC 86313	Certified Value	63.6	6.08	13.1	1.58	5.96	1.99	0.11
	Standard Deviation	1.6	0.45	0.4	0.23	0.46	0.12	0.01
		Gd ₂ O ₃	Tb ₄ O ₇	Dy ₂ O ₃	Ho ₂ O ₃	Er ₂ O ₃	Tm ₂ O ₃	Yb ₂ O ₃
NCS DC 86313	Certified Value	2.83	0.57	3.62	0.67	1.95	0.29	1.88
	Standard Deviation	0.12	0.03	0.22	0.06	0.11	0.04	0.15
		Lu ₂ O ₃	Y ₂ O ₃	Sc ₂ O ₃	Mo	BeO		
NCS DC 86313	Certified Value	0.25	23.0	1.91	3.37	3.02*		
	Standard Deviation	0.04	0.5	0.12	0.34	0.06*		

Note:

1. Certified values are calculated according to analytical results of 9 independent laboratories.
The value in () is for reference only. Value with * means in percent.
- 2.The sample is powder packed in glass bottle. The minimum package is 70 grams. The minimum weight for analysis is 0.1g.
- 3.The sample should be stored at dry and cool place.
The sample should be stoved at 105 °C for one hour before use, then put in drier to room temperature for use.

Analytical Methods

Composition	Analytical methods	Composition	Analytical methods
BeO	ICP-AES POL GR	Yb ₂ O ₃	ICP-AES ICP-MS NAA
Li ₂ O	AAS ICP-AES ICP-MS	Lu ₂ O ₃	ICP-AES ICP-MS NAA
Rb ₂ O	AAS FP ICP-MS ICP-AES	Y ₂ O ₃	ICP-AES ICP-MS NAA
Cs ₂ O	AAS FP ICP-MS NAS	Sc ₂ O ₃	ICP-AES ICP-MS NAA
TaO ₅	ICP-AES ICP-MS NAA GR	W	POL ICP-MS
Nb ₂ O ₅	ICP-AES ICP-MS COL	Mo	POL ICP-MS
ZrO ₂	ICP-AES ICP-MS XRF NAA GR	Sn	COL POL ES ICP-MS
HfO ₂	XRF ICP-AES ICP-MS XRF NAA	Th	NAA ICP-MS XRF
ΣRE _x O _y	ICP-AES ICP-MS NAA	SiO ₂	GR ICP-AES XRF
La ₂ O ₃	ICP-AES ICP-MS NAA	Al ₂ O ₃	VOL ICP-AES XRF NAA
CeO ₂	ICP-AES ICP-MS NAA	Fe ₂ O ₃ (T)	XRF ICP-AES COL
Pr ₆ O ₁₁	ICP-AES ICP-MS NAA	FeO	VOL
Nd ₂ O ₃	ICP-AES ICP-MS NAA	CaO	AAS ICP-AES XRF NAA
Sm ₂ O ₃	ICP-AES ICP-MS NAA	MgO	AAS ICP-AES XRF
Eu ₂ O ₃	ICP-AES ICP-MS NAA	K ₂ O	AAS ICP-AES XRF FP
Gd ₂ O ₃	ICP-AES ICP-MS NAA	Na ₂ O	AAS ICP-AES XRF FP NAA
Tb ₄ O ₇	ICP-AES ICP-MS NAA	MnO	AAS ICP-AES XRF
Dy ₂ O ₃	ICP-AES ICP-MS NAA	TiO ₂	COL XRF ICP-AES
Ho ₂ O ₃	ICP-AES ICP-MS NAA	P ₂ O ₅	COL XRF ICP-AES
Er ₂ O ₃	ICP-AES ICP-MS NAA	F	ISE
Tm ₂ O ₃	ICP-AES ICP-MS NAA	H ₂ O ⁺	GR
		L.O.I	GR

Note: AAS: Atomic absorption spectrometry
 COL: Colorimetry
 ES: Emission spectrometry
 FP: Flame photometry
 GR: Gravimetry
 ICP-AES: Inductively coupled plasma- atomic emission spectrography
 ICP-MS: Inductively coupled plasma- mass spectrometry
 ISE: Ion selective electrode method
 NAA: Neutron activation analysis method
 POL: Polarography
 VOL: Volumetry
 XRF: X-ray fluorescence spectrometry



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