

Certificate of Certified Reference Material

NCS DC 70004

Lead Ore

Reissued in 2008

Approved by China National Analysis Center for Iron and Steel

(Beijing China)

Main content(dry basis)			(%)		
Name	SiO <sub>2</sub>	Fe <sub>2</sub> O <sub>3</sub> (T)	Al <sub>2</sub> O <sub>3</sub>	TiO <sub>2</sub>	MnO
Value	30.51±0.05 0.06	3.79±0.08 0.12	8.95±0.16 0.22	0.44±0.01 0.02	1.53±0.04 0.07
Name	CaO	MgO	K <sub>2</sub> O	Na <sub>2</sub> O	F
Value	34.56±0.28 0.34	2.06±0.03 0.05	0.82±0.04 0.05	0.066±0.005 0.008	0.23±0.02 0.02

Certified Values and Uncertainty								
	Chemical Composition (μg/g)							
NCS DC70004	Ag	As	B	Ba	Be	Bi	Br	Cd
Certified Values	5.6±0.8	43.2±3.1				12.5±1.3		2.6±0.3
Standard Deviation	1.2	5.0				2.0		0.4
NCS DC70004	Ce	Co	Cr	Cs	Cu*	Dy	Er	Eu
Certified Values	66.8±1.3	15.7±1.0	(41)		0.035±0.001	3.1±0.3	1.6±0.3	0.82±0.05
Standard Deviation	1.8	2.3			0.002	0.4	0.3	0.07
NCS DC70004	Ga	Gd	Ge	Hf	Hg	Ho	I	In
Certified Values	11.7±0.7	3.6±0.1	0.93±0.13			0.65±0.06		0.09±0.04
Standard Deviation	1.2	0.2	0.19			0.08		0.05
NCS DC70004	La	Li	Lu	Mo	Nb	Nd	Ni	Pb*
Certified Values	31.2±1.0	(18)	0.25±0.04	1.3±0.2		23.4±0.9	34.5±1.6	0.61±0.02
Standard Deviation	1.5		0.05	0.2		1.2	3.2	0.03
NCS DC70004	Pr	Rh	Sb	Sc	Se	Sm	Sn	Sr
Certified Values	6.2±0.6	(74)	12.0±0.8	8.1±1.5	0.81±0.08	4.6±0.2	2.9±0.6	
Standard Deviation	0.7		1.3	1.7	0.15	0.3	0.9	
NCS DC70004	Ta	Tb	Te	Th	Tl	Tm	U	V
Certified Values		0.60±0.03	1.2±0.3	10.5±0.5	1.0±0.1	0.26±0.02		
Standard Deviation		0.05	0.4	0.5	0.1	0.02		
NCS DC70004	W	Y	Yb	Zn*	S*			
Certified Values	30.6±1.4	16.2±2.0	1.7±0.2	0.092±0.003	0.38±0.02			
Standard Deviation	2.6	2.1	0.3	0.007	0.02			

Note:

- 1.\*Means in percent. The value in ( ) is for reference only.
- 2.Certified values are calculated according to analytical results of 20 independent laboratories.
- 3.The sample is powder packed in bottle. The minimum package is 50 grams.

Analytical Methods			
Ag	AAN,AA,ES,MS	V	POL,COL,ICP,NA,XRF,ES
As	AF,NA,COL,XRF,ICP	W	POL,COL,NA,MS
B	COL,POL,ES,ICP	Zn	AA,POL,XRF,NA,ICP
Ba	NA,ICP,XRF,AAN,ES	Zr	XRF,COL,ICP,NA,ES,MS,POL
Be	ICP,POL,COL,ES,AAN	La	ICP,NA, ,POL, MS,ES, XRF
Bi	POL,ES,MS,ICP,AF	Ce	ICP,NA,MS,POL,XRF
Br	COL, IC , NA	Pr	ICP, POL,MS,
Cd	AAN,POL,AA,ICP,MS	Nd	ICP, POL,MS,NA
Cl	COL,NA,IC	Sm	ICP, POL,MS,NA
Co	AAS,COL,NA,ICP,POL,XRF	Eu	ICP,NA,POL,MS
Cr	COL,ICP,POL,AA,XRF,ES,NA	Gd	ICP,NA,POL,MS
Cs	NA,AAN,ES,MS,FP	Tb	ICP,NA,POL,MS
Cu	AA,POL,ICP,COL,XRF,ES	Dy	ICP,NA,POL,MS
F	ISE,COL,IC	Ho	ICP,NA,POL,MS
Ga	COL,XRF,AAN,POL	Er	ICP,POL,MS
Ge	COL,POL,XAF	Tm	ICP,POL,MS,
Hf	NA,COL,ES,MS	Yb	ICP,NA,POL,MS,ES
Hg	AF,AA	Lu	ICP,NA,POL,MS
I	COL,VOL,IC	Y	ICP,NA,POL,MS,XRF
In	COL,AAN,POL,MS,ES	SiO <sub>2</sub>	GR,VOL,XRF,COL
Li	AA,FP,ICP	Al <sub>2</sub> O <sub>3</sub>	VOL,COL,XRF,NA
Mo	POL,COL,NA,MS	TFe <sub>2</sub> O <sub>3</sub>	VOL,COL,AA,XRF,NAA,ENAA
Nb	COL,ICP,XRF,MS,POL	FeO	VOL,COL,EC
Ni	AA,ICP,COL,XRF,POL,NA,ES	Fe <sub>2</sub> O <sub>3</sub>	VOL,COL,PT
Pb	AA,POL,XRF,ICP,ES	MgO	VOL,AA,XRF
Rb	AA,NA,XRF,ES,MS,AAN	CaO	VOL,AA,XRF
Sc	NA,ICP,ES	Na <sub>2</sub> O	AA,FP,XRF,NA
Sb	AF,NA,ENAA	K <sub>2</sub> O	AA,FP,XRF
Se	AF,POL,COL	TiO <sub>2</sub>	COL,XRF,ICP
Sn	POL,ES,AAN,MS	MnO	AA,COL,XRF,ICP
Sr	ICP,XRF,AA,NA,ES	P <sub>2</sub> O <sub>5</sub>	COL,XRF
Ta	COL,NA,MS	S	GR,VOL
Th	COL,NA,MS,XRF,ICP	H <sub>2</sub> O <sup>+</sup>	GR,EL
Te	NNA,AF,POL,COL	CO <sub>2</sub>	VOL,GV,EL,GR
Tl	COL,AAN,POL,ES,MS,AA	Tc	VOL,GR,EL
U	COL,POL,NA,ICP,LF,MS	C(Org)	VOL

Note:

AA: Flame Atomic Absorption Spectrometry

AAN: Non-Flame Atomic Absorption Spectrometry

AF: Atomic Fluorescence Spectrometry

COL: Colorimetry

EC: Coulometric Titration Method

EL: Coulometric Method

ENAA: Etra-Thermo Neutron Activation Method

ES: Emission Spectrography

FP: Flame Photometry

GR: Gravimetry

GV: Gas Volume Method

IC: Ion Chromatography

ICP: Inductively Coupled Plasma Method

ISE: Ion Selective Electrode Method

LF: Laser Fluorescence Spectrometry

MS: Mass Spectrometry

NA: Neutron Activation Method

POL: Polarography

PT: Potential Titration Method

VOL: Volumetry

XRF: X-Ray Fluorescence Spectrometry



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