

Certificate of Certified Reference Material

NCS HS 11790
NCS HS 11791

Silicon Steel

Issued in 2016

Approved by China National Analysis Center for Iron and Steel

(Beijing China)

Certified Values and Extended Uncertainty (K=2)

(%)

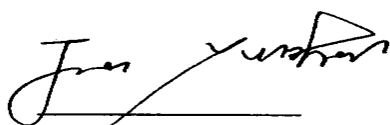
No.		C	Si	Mn	P	S	Cr	Ni	Cu	Als
NCS HS 11790	Certified Value	0.338	0.841	0.386	0.081	0.0066	0.73	1.52	0.027	0.536
	Extended uncertainty	0.003	0.006	0.004	0.002	0.0002	0.01	0.02	0.002	0.011
NCS HS 11791	Certified Value	0.095	3.08	1.90	0.0063	0.023	0.032	0.022	0.066	0.34
	Extended uncertainty	0.002	0.02	0.01	0.0004	0.001	0.001	0.001	0.002	0.01
No.		Alt	Ti	Nb	V	Mo	As	Sb	Sn	Zr
NCS HS 11790	Certified Value	0.538	0.234	0.278	0.035	0.809	0.032	0.0011	0.00073	0.013
	Extended uncertainty	0.011	0.004	0.005	0.002	0.006	0.001	0.0002	0.00007	0.002
NCS HS 11791	Certified Value	0.35	0.012	0.0037	(0.0006)	0.038	0.062	0.0018	0.023	0.023
	Extended uncertainty	0.01	0.001	0.0005		0.002	0.002	0.0002	0.002	0.001

Note:

1. Each certified Value is the mean of analytical results of 6 independent laboratories.
2. The sample is cylinder bar with a $\varnothing 37\text{mm} \times 40\text{mm}$.
3. The sample should be stored at dry place.

Analytical Methods

C: Infrared absorption method; Nonaqueous titrimetric method
 Si: The perchloric acid dehydration-gravimetric method
 Mn: Periodate oxidation photometric method; ICP-AES method
 P: N-butyl acetate extraction photometric method; ICP-AES method;
 The n-butyric alcohol-trichloromethane extraction photometric method;
 S: Infrared absorption method; The combustion-potassium iodate volumetric method
 Cr: Sodium carbonate separation diphenylcarbazide photometric method;
 Ammonium persulfate oxidation titrimetric method; ICP-AES method;
 Ni: Dimethylglyoxime photometric method; ICP-AES method.
 Cu: Neocuproine extration photometric method; ICP-AES method
 Al: Chromazurol S photometric method; ICP-AES method
 Ti: Diantipyrylmethane photometric method; ICP-AES method
 Mo: Thiocyanate direct photometric method; ICP-AES method
 As: Molybdenum blue photometric method after distillation; Hydride generation-ICP-AES; ICP-AES
 Sb: AAS; Hydride generation-ICP-AES; ICP-MS
 Nb: Sulphochlorophenol S photometric method; ICP-AES; ICP-MS
 V: N-benzoyl phenylhydroxylamine extraction photometric method; ICP-AES
 Sn: AAS; ICP-AES; ICP-MS
 Zr: ICP-AES



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