

Standard Calibrations and ranges for the M1650 mobile spectrometer

Arun Technology offers standard calibrations, which have been carefully chosen to cover internationally recognised types and classifications of material. Internationally certified reference materials (CRMs) are used to define the calibration curves. These ranges may be adjusted to meet a particular customer requirement provided suitable standards or samples are available.

Ferrous Base - Material Steel – alloy types elements and ranges

Element	C Steels FeC	LA Steels FeL	Ferritic FeF	Austenitic FeA	Tool Steels FeT	Mn Steels FeM
C	1.0-4.0	1.0-4.0				0.2-2.0
Si	0.1-3.0	0.1-3.0	0.1-1.5	0.1-2.5	0.05-2.0	0.03-1.5
Mn	0.1-2.0	0.1-2.5	0.1-1.5	0.1-2.0	0.1-2.0	0.05-20.0
Cr	0.03-1.0	0.1-4.0	1.0-25.0	1.0-30.0	0.15-12.0	0.1-4.0
Mo	0.03-0.4	0.05-1.5	0.05-1.0	0.05-6.0	0.05-10.0	0.05-2.0
Ni	0.05-1.0	0.2-5.0	0.1-2.0	0.1-35.0	0.1-2.0	0.03-4.0
Co	0.02-0.25	0.02-0.2		0.2-15.0	0.2-15.0	
Al	0.02-0.15	0.02-0.4				0.005-0.1
Cu	0.02-0.6	0.05-1.0		0.03-6.0	0.02-0.4	0.015-0.5
Ti	0.02-0.15	0.02-0.4		0.1-2.5		
V	0.01-0.2	0.02-0.6		0.02-0.5	0.02-2.0	0.025-0.3
W				3.0-4.0	1.0-25.0	
Nb		0.01-0.15		0.06-1.5	0.001-0.01	
Mg						
Sn		0.04-0.15				

Aluminium Base - Material Aluminium Alloys – alloy types elements and ranges

Element	Low Alloy AlL	High Alloy AlH
Si	0.02-2.0	0.05-18.0
Fe	0.05-2.5	0.05-3.0
Cu	0.015-1.0	0.015-12.0
Mn	0.01-1.0	0.01-1.5
Mg	0.002-1.0	0.01-10.0
Cr	0.005-0.5	0.05-0.5
Ni	0.005-1.0	0.05-3.0
Zn	0.15-1.0	0.15-10.0
Sn	0.01-0.5	
Ti	0.01-0.3	
Pb	0.02-0.6	0.03-1.0
Be	0.0005-0.015	
Bi	0.01-0.5	
Ca	0.005-4.0	0.01-4.0
Cd	0.005-3.0	0.03-3.5
Sr	0.001-0.01	
V	0.005-0.05	

Copper Base - Material Copper alloys – alloy types**elements and ranges**

Element	Brass	Mn Brass	Bronze & Gun Metal	Al Bronze	Si Bronze	Cupro Nickel & Nickel Silver
	CuB	CuM	CuG	CuA	CuS	CuN
Pb	0.05-5.0	0.1-3.0	0.5-12.0	0.02-0.2	0.05-1.5	0.05-1.5
Zn	4.0-45.0	20.0-40.0	0.05-11.0	0.05-0.5	0.3-15.0	0.05-35.0
Fe	0.05-2.0	0.1-2.5	0.1-0.5	0.5-6.0	0.05-1.5	0.05-2.0
Ni	0.05-1.5	0.1-4.0	0.05-3.0	0.3-7.0	0.1-0.7	5.0-35.0
Co						
Cd	0.01-0.3	0.02-0.4				
Si	0.05-0.35	0.01-1.0	0.05-0.5	0.05-0.2	2.0-6.0	0.05-1.0
Mn	0.03-1.3	0.05-5.0	0.02-1.0	0.2-1.5	0.05-2.5	0.05-2.0
Mg				0.005-0.15	0.005-0.02	0.003-0.01
Al	0.05-6.0	0.02-3.0	0.02-0.1	5.0-12.0	0.05-1.5	0.005-0.05
Sn	0.2-2.0	0.05-1.5	0.2-12.0	0.05-0.15	0.05-1.5	0.04-0.15
Cr	0.05-1.0		0.05-1.0			0.2-2.0
Be	Ab-2.0		Ab-2.0			
Bi	0.03-0.25	0.02-0.15	0.005-0.4			
As		0.1-0.5				

Magnesium Base - Material Magnesium Alloys – alloy types**elements and ranges**

Element	Mg Alloys
	MgH
Al	1.0-11.0
Mn	0.1-2.5
Zn	0.5-7.0
Si	0.05-0.25
Cu	0.01-0.15
Ni	0.01-0.03

Zinc Base - Material Zinc alloys – alloy types**elements and ranges**

Element	Zn Alloys
	ZnH
Pb	0.1-1.0
Mg	0.03-0.2
Al	1.0-30.0
Cd	0.005-0.05
Cu	0.2-4.0
Fe	0.02-0.2

Titanium Base - Material Titanium alloys – alloy typeselements and ranges

Element	Titanium & Alloys TiH
Al	0.5-10.0
Mo	0.2-4.0
Sn	0.5-12.0
Zr	0.3-6.0
Mn	0.3-7.0
V	0.1-16.0
Fe	0.2-2.5
Nb	0.5-7.0
Cr	0.1-4.0
Ni	0.005-0.02
Cu	0.3-3.0
Pd	Ab-0.25

Nickel Base - Material Nickel Alloys – alloy typeselements and ranges

Element	Inconel, Nimonic & Hastelloy NiN	Incoloy NiI	Monel NiM	Nickel Cobalt NiC
Si	0.1-1.6	0.1-2.0	0.1-4.0	
Mn		0.15-1.5	0.3-3.0	
Al	0.1-1.0	0.05-0.35	0.1-4.0	0.3-6.0
Co	0.5-3.0	0.1-1.0	0.03-0.15	7.0-20.0
Cr	13.0-30.0	10.0-25.0		8.0-25.0
Cu	0.1-3.0	0.3-3.0	20.0-35.0	
Fe	1.0-20.0	25.0-50.0	0.3-3.5	
Mo	1.0-30.0	0.5-8.0		0.7-6.0
Nb	0.3-6.0	0.03-0.3	0.03-0.3	0.15-1.0
Ti	0.1-3.0	0.15-3.5	0.1-1.5	0.4-7.0
V	0.02-1.0			
Mg				
Hf				1.0-2.0
W	3.0-6.0			4.0-12.0

Cobalt Base - Material Cobalt Alloys – alloy typeselements and ranges

Element	Cobalt Alloys CoH
Si	0.1-0.8
Mn	0.2-2.0
Al	0.03-1.2
Cr	15.0-30.0
Fe	0.3-2.0
Mo	0.3-7.0
Nb	0.1-2.5
Ni	0.5-25.0
W	1.0-14.0

Zirconium Base - Material Zirconium Alloys – alloy types **elements and ranges**

Element	Zirconium Alloys ZrH
Sn	Ab-2.5
Ni	Ab-0.05
Cr	Ab-0.1
Cu	Ab-0.5
Fe	0.03-0.3
Mo	Ab-0.5
Nb	Ab-2.5