Reference Materials / Certified Reference Materials for Metals & Alloys

METAL POWER

Master Catalogue

(2019-20)

Ferrous & Non-ferrous

Contents

Introduction

Metal Power was founded in 1987 by a team of Engineers with the aim of providing specialized services to Engineering industries. Today, Metal Power offers a number of products geared towards Metallurgical and Engineering applications, including Optical Emission Spectrometer, Analytical Standards (RMs, CRMs and SUSs), Metallurgical Kits, Image Analyzers and Hydrogen Analyzer among others. The Analytical Standards have been produced as per requirement of international standard, ISO 17034, specific guidelines of ISO and the International Vocabulary of Metrology (VIM).

Reference Material (RM) -
Material, sufficiently homogeneous and stable with respect to one or more specified properties, which has been established to be fit for its intended use in a measurement process

NOTE 1 RM is a generic term.
NOTE 2 Properties can be quantitative or qualitative, e.g. identity of substances or species.
NOTE 3 Uses may include the calibration of a measurement system, assessment of a measurement procedure, assigning values to other materials, and quality control.
NOTE 4 ISO/IEC Guide 99:2007 has an analogous definition, but restricts the “measurement” to apply to quantitative values. However, Note 3 of ISO/IEC Guide 99:2007, 5.13 (VIM), specifically includes qualitative properties, called “nominal properties”.

Certified Reference Material (CRM) –
Reference material (RM) characterized by a metrologically valid procedure for one or more specified properties, accompanied by an RM certificate that provides the value of the specified property, its associated uncertainty, and a statement of metrological traceability

NOTE 1 The concept of value includes a nominal property or qualitative attributes such as identity or sequence. Uncertainties for such attributes may be expressed as probabilities or level of confidence.
NOTE 2 Metrologically valid procedures for the production and certification of RMs are given in, among others, ISO Guides 34 and 35.
NOTE 3 ISO Guide 31 gives guidance on the contents of RM certificates.
NOTE 4 ISO/IEC Guide 99:2007 has an analogous definition (5.14).

Reference Material Certificate – Document containing the essential information for the use of a CRM, confirming that the necessary procedures have been carried out to ensure the validity and metrological traceability of the stated property values

NOTE 1 The required and recommended content of a reference material certificate is described in ISO Guide 31.

Reference Material Producer-
Body (organization or company, public or private) that is fully responsible for project planning and management; assignment of, and decision on property values and relevant uncertainties; authorization of property values; and issuance of the reference material certificate or other statements for the reference materials it produces. (ISO Guide 30: 2015)

From the MD's Desk

Metal Power was founded in 1987 by a group of professionals with rich backgrounds in the metals industry with the aim of bringing to the market high-end technology products in the fields of Analytical Equipment & Systems and Metallurgical Instruments. From its inception, Metal Power Analytical has been dedicated to serving the needs of metal industries. Our effort has been to make high-quality and high-technology products that fuel industrial growth and - more importantly - profitability, by enabling better control of quality and also costs.

Metal Power offers a wide range of Certified Reference Materials (CRM) including CRMs that are typically considered difficult to make, such as Cast Iron, S.G. Iron and Aluminium Standards. Metal Power assures the highest quality across various grades of Ferrous and non-Ferrous Alloy Standards in solid form. Metal Samples are manufactured using advanced techniques for achieving homogeneity.

Our Standards are traceable, reliable, and accredited as per requirement of international standards ISO-17034. We follow ILAP (Inter-Laboratory Accreditation Programme), have systems in place as, ISO-17025 for testing and follow ISO guidelines 30-35 in the manufacturing & processing of CRMs. Each RM/CRM is accompanied by a RM Certificate / Product Information Sheet giving Certified Property Values, Standard Deviations and Uncertainty of property value.

Backing our range of standards is our deep and vast expertise in Metallurgical and Analytical applications across Ferrous and non-Ferrous industries. With over two decades of experience in selling and manufacturing CRMs, Metal Power assures you of the highest quality products to meet your exact and exacting needs.

Sincerely yours,

P D Pant
Chairman and Managing Director

Shri P. D. Pant
Chairman and Managing Director

1.1 - Carbon & Low Alloy Steels: Certified Reference Materials

Product Code	CRM ID Batch	Equivalent Grades	C	Si	Mn	P	S	Cr	Ni	Mo	Al	Cu	N	V	B	Co	Ti	Sn	W	Nb	Pb	As	Size in mm
3.00109	G-10080 I-15	AISI-1008, ASTM A108	0.090	0.075	0.37	0.011	0.0062	0.068	0.010	*0.0043*	0.038	0.010	0.0058	*0.0023*	*0.00036*	0.0024	0.0010	---	---	---	---	---	Ø 50x22
3.00069	G-10180 D-12	AISI-1018, DIN CK15	0.16	0.21	0.51	0.013	0.063	0.17	0.022	0.015	0.057	0.014	---	---	---	0.0035	---	---	---	---	---	---	Ø 40x25
3.00182	G10200 B-17	AISI-1020	0.19	0.18	0.67	0.034	0.045	0.24	0.089	0.041	0.011	0.10	0.0071	0.0036	---	*0.0084*	*0.0030*	0.0070	*0.0092*	---	---	---	Ø 40x25
3.00011	G-10450 E-10	DIN CK-45, EN1045	0.45	0.24	0.86	0.028	0.014	0.013	*0.0054*	0.0026	0.020	0.0028	---	0.0010	---	*0.0085*	---	---	---	---	---	---	Ø 38x25
3.00125	G-10650 E-16	AISI 1065, EN42 B	0.69	0.18	0.55	0.010	0.071	0.12	0.085	0.025	0.0031	0.14	0.0091	0.036	*0.0043*	*0.0055*	0.0020	*0.0048*	---	0.0010	*0.0020*	---	Ø 40x25
3.00128	G-11390 E-16	EN8M	0.40	0.20	1.17	0.016	0.17	0.11	0.089	0.017	*0.0037*	0.19	0.0076	*0.0020*	0.0016	*0.0087*	0.0014	*0.0082*	---	*0.0013*	---	---	Ø 40x25
3.00026	G12130 A-13	EN1A-L	0.069	*0.010*	1.15	0.049	0.34	0.043	0.077	0.019	*0.0030*	0.12	---	*0.0042*	---	0.012	---	0.035	---	---	0.28	---	Ø 38x20
3.00020	G-15410A D-11	DIN 36Mn7, EN15	0.37	0.30	1.20	0.031	0.0053	0.17	0.010	*0.0062*	0.030	0.013	---	*0.0043*	0.0025	---	0.043	---	---	---	---	*0.0030*	Ø 45x25
3.00151	G41300 J-16	AISI 4130, 25CrMo4	0.32	0.26	0.55	0.021	0.0063	1.06	*0.026*	0.19	0.029	0.013	0.0089	0.0043	---	*0.0086*	0.0024	---	---	*0.0025*	*0.0010*	---	Ø 40x23
Product Code	**CRM ID Batch**	**Equivalent Grades**	**C**	**Si**	**Mn**	**P**	**S**	**Cr**	**Ni**	**Mo**	**Al**	**Cu**	**N**	**V**	**B**	**Co**	**Ti**	**Sn**	**W**	**Nb**	**Pb**	**As**	**Size in mm**
3.00160	G41400 J-16	AISI-4140 EN-19	0.41	0.24	0.74	0.019	0.024	0.97	0.0089	0.22	0.015	0.013	0.0074	0.0067	---	0.0047	0.0045	*0.0023*	---	*0.0039*	*0.0019*	---	Ø 40x22
3.00152	G41500 J-16	AISI 4150, 50CrMo4	0.54	0.22	0.82	0.012	0.0090	1.00	0.27	0.16	0.0061	0.044	0.010	0.085	---	*0.010*	0.0034	*0.0030*	---	*0.0022*	*0.0022*	---	Ø 50x24
3.00009	G-43400 D-10	EN24, 40NiCr4Mo3	0.44	0.23	0.58	0.0094	0.010	1.03	1.44	0.25	0.022	0.12	---	0.0030	---	*0.010*	0.0040	0.0073	---	---	---	---	Ø 38x25 △
**3.00159	G-43400/B C-15	EN24, 40NiCr4Mo3	*0.37*	*0.27*	*0.81*	*0.023*	*0.020*	*0.91*	*1.16*	*0.27*	*0.022*	*0.076*	---	*0.030*	*0.0009*	*0.013*	*0.0085*	*0.0050*	---	---	---	---	Ø 40x20
3.00162	G86200 B-17	AISI-8620	0.18	0.24	0.79	0.028	0.017	0.50	0.47	0.16	0.029	0.096	0.0085	0.0089	0.00088	0.0074	0.0023	0.0055	---	*0.0026*	*0.0015*	---	Ø 40x25
3.00008	G-93100 D-10	DIN EN36C	0.18	0.24	0.48	0.012	0.0091	0.99	3.62	0.18	0.021	0.11	---	0.0028		*0.012*	*0.0037*	0.0054	---	---	---	---	Ø 38x25
3.00010	S-35300 D-10	EN353, 15NiCr1Mo12	0.19	0.22	0.59	0.023	0.021	1.13	1.02	0.12	0.016	0.11	---	0.0093	*0.0011*	*0.019*	---	---	---	---	---	---	Ø 38x25
3.00007	UNI-7846 D-10	20MnCr5	0.22	0.31	1.22	0.021	0.026	1.02	0.23	0.034	0.015	0.065	0.010	0.0034	0.0013	0.0087	0.0060	---	---	---	---	---	Ø 38x25

Certified property listed in mass percent (%). The Values listed in bold type certified, and small italic type values are indicative, it should be used only for reference purpose.

△ Only few pieces left

1.2 - Carbon & Low Alloy Steels: Certified Reference Materials

Product Code	CRM ID Batch	Equivalent Grades	C	Si	Mn	P	S	Cr	Ni	Mo	Al	Cu	N	V	B	Co	Ti	Sn	W	Nb	Pb	As	Size in mm
3.00074	TRST-1B F-12	TMT-500, TMT-450	0.35	0.42	0.71	0.046	0.051	0.41	0.19	0.085	0.0048	0.42	---	0.013	*0.0010*	*0.0060*	0.0021	*0.0031*	---	*0.0015*	---	---	Ø 40x25
3.00153	835M30 A-17	EN30B	0.34	0.33	0.60	0.025	0.017	1.34	4.00	0.34	0.025	0.13	0.0082	0.0055	0.00056	0.030	0.0044	*0.0066*	---	*0.0024*	*0.0040*	*0.0077*	Ø 33x20
3.00132	LSW8-A I-16	Special Steel	0.13	0.11	1.11	0.018	0.010	1.27	1.64	1.08	0.0052	0.13	*0.013*	0.24	0.0083	*0.026*	0.0044	---	0.65	*0.0062*	---	---	Ø 36x14
3.00129	K-11597 F-16	P11, 13CrMo4-5	0.12	0.62	0.47	0.016	0.010	1.12	0.11	0.50	0.039	0.056	0.010	0.020	0.0011	0.010	0.0058	0.0038	*0.010*	---	---	---	Ø 40x25
3.00107	K21590 H-15	P22, ASTM A182	0.14	0.33	0.44	0.015	0.0042	2.20	0.096	0.91	0.033	0.088	0.012	0.013	0.00065	0.012	0.0029	0.0078	---	*0.020*	*0.0040*	*0.0056*	Ø 40x27
3.00127	K-44220 F-16	46Si7, 300M	0.48	1.82	0.86	0.0092	0.014	0.88	1.36	0.20	*0.0055*	0.0087	*0.0052*	0.21	---	0.016	*0.0017*	*0.0030*	--	---	---	---	Ø 37x27
3.00095	K02204 A-18	ASTM A678 Grade C	0.23	0.17	1.46	0.014	0.017	0.12	*0.016*	*0.0035*	0.023	0.012	0.0082	*0.0029*	*0.00063*	*0.0038*	0.0023	0.0010	--	0.0014	0.0012		Ø 45x22
**3.00216	G10550 I-18	AISI 1050	*0.54*	*0.24*	*0.87*	*0.011*	*0.010*	*0.16*	*0.021*	---	*0.024*	---	---	*0.0031*	*0.00020*	*0.0046*	*0.0030*	---	---	---	*0.0020*	---	Ø 40x24

1.3 - High Carbon & Spring Steel Steels: Certified Reference Materials

Product Code	CRM ID Batch	Equivalent Grades	C	Si	Mn	P	S	Cr	Ni	Mo	Al	Cu	N	V	B	Co	Ti	Sn	W	Nb	Size in mm
3.00017	G-52986 G-11	SAE 52100, EN31	0.97	0.20	0.31	0.012	0.0053	1.44	0.027	0.0061	0.024	0.015	*0.0068*	0.0034	---	*0.0082*	*0.0018*	---	---	---	Ø 40x25
3.00013	G51500 J-10	AISI 6150, 50Cr4V2	0.57	0.30	0.83	0.017	0.0094	0.96	0.044	0.013	0.022	0.023	---	0.20	---	0.0087	0.0020	*0.0025*	---	---	Ø 40x25
3.00126	FS-Gr1 F-16	Special Steel	1.26	0.16	0.28	0.019	0.012	0.66	*0.012*	0.0049	0.0032	0.010	0.0077	0.0039	*0.0010*	*0.0056*	0.0023	---	---	*0.0010*	Ø 40x25
3.00015	4501 L-10	EN45, DIN 55Si7	0.59	1.67	0.80	0.031	0.025	0.089	0.021	0.012	0.014	0.033	---	0.0041	*0.0011*	0.0081	*0.0037*	---	---	---	Ø 40x25

Certified property listed in mass percent (%). The Values listed in bold type certified, and small italic type values are indicative, it should be used only for reference purpose.

** Provisional Analysis

2.1 - Stainless Steels / Cr-Mn & Cr Stainless Steel: Certified Reference Materials

Product Code	CRM ID Batch	Equivalent Grades	C	Si	Mn	P	S	Cr	Ni	Mo	Al	Cu	N	V	B	Co	Ti	Sn	W	Nb	Size in mm
3.00058	**S-17400** G-14	**17-4PH, ASTM A167**	**0.049**	**0.39**	**0.70**	**0.021**	**0.030**	**15.11**	**4.08**	**0.011**	*0.0030*	**3.17**	**---**	**0.029**	---	**0.032**	*0.0043*	**---**	**---**	**0.29**	**Ø 40x25**
3.00230	**S-17700 D-19**	**17-7PH, ASTM A167**	*0.051*	*0.56*	*1.07*	*0.030*	*0.002*	*16.43*	*7.30*	*0.014*	*1.18*	*0.049*	---	*0.093*	---	*0.18*	*0.072*	---	---	---	*Ø 40x25*
3.00022	**S-20100 K-11**	**AISI 201**	**0.088**	**0.34**	**7.50**	**0.091**	**0.017**	**17.90**	**3.78**	**0.13**	**---**	**1.38**	**0.19**	**0.042**	---	**0.086**	**---**	**---**	**---**	*0.0085*	**Ø 40x25**
3.00229	**S-20200 D-19**	**AISI 202**	*0.13*	*0.30*	*0.39*	*0.020*	*0.033*	*11.66*	*0.080*	---	---	---	---	---	---	*0.038*	*0.0030*	---	---	---	*Ø 39x18*
3.00232	**S-20910 F-19**	**AISI 209**	*0.50*	*0.36*	*4.12*	*0.019*	*0.0045*	*20.75*	*12.12*	*1.69*	*0.025*	*0.15*	*0.34*	*0.20*	*0.0034*	*0.073*	*0.027*	*0.008*		*0.23*	*Ø 48x25*
3.00112	**S-30200** B-16	**SS-302**	**0.083**	**0.36**	**1.12**	**0.034**	**0.014**	**17.95**	**8.07**	**0.30**	*0.0030*	**0.34**	*0.060*	**0.069**	---	**0.15**	*0.0029*	**---**	*0.033*	*0.014*	**Ø 40x25**
3.00003	**S-30400 A-10**	**AISI 304**	**0.067**	**0.43**	**1.21**	**0.031**	**0.014**	**18.14**	**8.17**	**0.21**	*0.0037*	**0.29**	**0.051**	**0.064**	---	**0.15**	*0.0032*	**---**	*0.029*	**---**	**Ø 50x20**
3.00004	**S-30403 B-10**	**AISI 304 L**	**0.019**	**0.29**	**1.90**	**0.044**	**0.024**	**18.11**	**8.32**	**0.28**	*0.0057*	**0.33**	*0.079*	**0.044**	---	*0.093*	*0.0020*	**0.012**	**---**	**0.011**	**Ø 38x25**
3.00113	**S31000** B-16	**SS-310**	**0.055**	**0.46**	**1.49**	**0.036**	**0.0060**	**24.23**	**19.27**	**0.21**	**0.0056**	**0.30**	**0.064**	*0.067*	---	**0.13**	*0.023*	**---**	*0.044*	**0.095**	**Ø 40x25**
3.00005	**S-31603 B-10**	**AISI 316 L**	**0.018**	**0.42**	**1.48**	**0.037**	**0.016**	**16.49**	**10.03**	**2.10**	---	**0.51**	**0.050**	**0.084**	---	*0.085*	*0.0037*	**---**	**---**	**---**	**Ø 36x25**
Product Code	**CRM ID Batch**	**Equivalent Grades**	**C**	**Si**	**Mn**	**P**	**S**	**Cr**	**Ni**	**Mo**	**Al**	**Cu**	**N**	**V**	**B**	**Co**	**Ti**	**Sn**	**W**	**Nb**	**Size in mm**
3.00110	**S31635 L-15**	**AISI 316-Ti, ASTM A240**	**0.020**	**0.43**	**1.83**	**0.037**	**0.020**	**16.79**	**10.56**	**2.08**	**0.022**	**0.40**	**0.020**	**0.072**	*0.0013*	**0.17**	**0.29**	*0.0070*	**0.045**	**0.014**	**Ø 40x25**
3.00207	**S31703 J-17**	**SS 317L**	**0.022**	**0.34**	**1.58**	**0.040**	**0.022**	**18.16**	**10.99**	**3.07**	---	**0.35**	**0.055**	**0.054**	**0.0010**	**0.29**	*0.0026*	*0.0051*	*0.036*	---	**Ø 40x25**
3.00006	**S-32100 B-10**	**AISI 321**	**0.035**	**0.49**	**1.94**	**0.037**	**0.0035**	**17.51**	**9.28**	**0.33**	**0.012**	**0.49**	**---**	**0.060**	---	**0.15**	**0.21**	**---**	**---**	*0.015*	**Ø 40x25**
3.00233	**S-32900 G-19**	**AISI 329**	*0.045*	*0.70*	*0.24*	*0.026*	*0.0025*	*22.70*	*1.91*	*0.75*	*0.028*	*0.17*	*0.030*	*0.044*	*0.0040*	*0.10*		*0.002*		*0.020*	**Ø 42x25**
3.00029	**S-41000A J-12**	**AISI 410**	**0.15**	**0.47**	**0.76**	**0.025**	**0.0040**	**12.09**	**0.22**	---	**0.0033**	**0.033**	**---**	---	---	**---**	---	**---**	**---**	---	**Ø 39x20**
3.00030	**S-41000B J-12**	**AISI 410**	**0.13**	**0.30**	**0.39**	**0.020**	**0.033**	**11.66**	**0.080**	---	*0.0031*	**---**	**---**	---	---	**0.038**	**0.0030**	**---**	**---**	*0.0033*	**Ø 39x18**
3.00084	**S-41600 K-11**	**SS 416**	**0.12**	**0.40**	**1.19**	**0.026**	**0.28**	**12.15**	**0.060**	**---**	*0.0027*	**0.015**	**---**	**0.024**	*0.0028*	**0.024**	**0.0030**	---	---	---	**Ø 40x25**
3.00087	**S-43100 K-14**	**AISI 431**	**0.15**	**0.36**	**0.90**	**0.033**	**0.016**	**15.53**	**1.42**	**0.16**	**---**	**0.12**	**---**	**0.037**	**---**	**0.046**	**0.0016**	**0.004**	**---**	*0.0083*	**Ø 40x25**
3.00180	**S44004 E-17**	**SS 440C**	**1.11**	**0.41**	**0.65**	**0.024**	**0.019**	**16.71**	**0.53**	**0.11**	*0.0056*	**0.10**	**0.026**	**0.079**	**---**	**0.032**	*0.004*	**---**	*0.0075*	*0.028*	**Ø 39x23**

Certified property listed in mass percent (%). The Values listed in bold type certified, and small italic type values are indicative, it should be used only for reference purpose.

** **Provisional Analysis**

2.2 - Tools, High-Mn, Silico-Mn, Duplex Steels & Heat Resistant Steel: Certified Reference Materials

Product Code	CRM ID Batch	Equivalent Grades	C	Si	Mn	P	S	Cr	Ni	Mo	Al	Cu	N	V	B	Co	Ti	Sn	W	Nb	Size in mm
3.00012	J-95405 L-09	ASTM-A297 39Ni-18Cr	0.50	2.76	1.71	0.023	0.028	21.59	36.13	0.56	0.077	0.049	---	*0.022*	---	0.058	*0.010*	---	---	---	Ø 45x25
**3.00234	T-20812A E-19	H12	*0.35*	*1.26*	*0.24*	*0.028*	*0.017*	*4.55*	---	*1.04*	---	*0.007*	---	*0.18*	---	---	---	*0.010*	*1.26*	---	*Ø 50x25*
3.00018	T-30402 G-11	D2	1.50	0.25	0.29	0.023	0.0037	11.50	0.25	0.79	*0.013*	0.077	*0.034*	0.67	---	0.022	*0.0035*	0.0074	---	---	Ø 40x25
3.00114	T30403 B-16	D3	2.10	0.29	0.30	0.022	0.0038	11.82	0.20	0.11	0.0084	0.056	---	0.069	---	0.018	---	---	0.023	---	Ø 40x25
3.00090	T-11313 L-14	M3	0.87	0.30	0.19	0.037	0.043	3.98	0.24	5.42	*0.035*	0.11	---	2.11	---	0.90	*0.0035*	0.020	6.33	*0.028*	Ø 40x25
3.00172	S31254 D-17	F44	0.014	0.18	0.60	0.022	0.0029	20.09	17.47	6.08	0.021	0.65	0.20	0.068	---	0.057	*0.0058*	---	0.088	0.022	Ø 41x20
3.00021	S-32750-A H-11	F 51	0.018	0.43	1.35	0.035	0.020	22.62	5.11	3.15	*0.046*	0.39	0.22	0.089	---	0.12	*0.0045*	---	0.17	0.015	Ø 50x25
3.00024	S-31803 H-11	AISI 2205	0.031	0.60	1.51	0.022	0.0042	22.24	5.98	3.16	---	0.29	0.17	0.13	0.0034	0.11	*0.0048*	---	0.050	0.017	Ø 37x25
3.00065	J 91309 I-13	Special Steel	1.31	1.20	15.49	0.034	0.029	2.14	0.39	0.66	0.028	0.062	*0.048*	0.059	*0.0032*	0.010	0.0052	---	---	0.010	Ø 35x15
**3.00161	CRMN-1 B-17	Special Steel	*0.542*	*0.380*	*8.31*	*0.024*	*0.003*	*16.67*	*0.452*	---	---	*0.036*	---	*0.026*	---	*0.164*	---	---	---	---	*Ø 35x15*
3.00027	S-63019 E-12	21-4N	0.56	0.35	8.19	0.030	0.0071	20.54	4.45	0.30	*0.0024*	0.11	0.40	0.093	---	0.36	*0.0050*	---	*0.18*	0.027	Ø 40x20
**3.00183	S65007 G-17	Valve Steel	*0.43*	*3.3*	*0.71*	*0.013*	*0.009*	*8.3*	*0.063*	*0.041*	*0.016*	*0.030*	--	*0.053*	--	*0.016*	*0.007*	--	--	--	*40x40x25*

Certified property listed in mass percent (%). The Values listed in bold type certified, and small italic type values are indicative, it should be used only for reference purpose.

** Provisional Analysis

3.1 - CI/SGI: Certified Reference Materials

Product Code	CRM ID Batch	Equivalent Grades	C	Si	Mn	P	S	Cr	Ti	Ni	Al	Cu	V	B	Co	As	Sn	Mo	W	Nb	Pb	Mg	Size in mm
3.00031	**CI-GR1** B-12	**ASTM G2500 FG-150**	**3.20**	**2.49**	**0.61**	**0.019**	**0.0072**	**0.15**	**0.010**	**0.012**	**---**	**0.019**	**---**	**---**	**---**	**---**	**---**	*0.0037*	*0.034*	**---**	**---**	**---**	**~Ø36x15**
****3.00032**	**CI-GR2** G-12	**ASTM 532 /532M II A**	*2.07*	*0.875*	*0.381*	*0.032*	*0.024*	*11.50*	*0.007*	*0.094*	**---**	*0.105*	*0.022*	**---**	*0.025*	*0.011*	**---**	**---**	**---**	**---**	**---**	**---**	**~Ø36x13**
3.00033	**CI-GR3** I-12	**---**	**2.41**	**2.10**	**0.34**	**0.087**	**0.022**	**1.16**	**0.0030**	**0.068**	**0.011**	**0.065**	**0.014**	**---**	*0.0079*	**---**	**---**	**0.0044**	**---**	*0.0015*	*---*	*0.030*	**~Ø36x16**
3.00061	**CI-GR4** I-13	**---**	**2.18**	**3.46**	**0.29**	**0.021**	**0.27**	**0.51**	**0.019**	**0.054**	*0.019*	**0.065**	**0.065**	**0.012**	**0.028**	**---**	**0.028**	**0.56**	*0.030*	**0.016**	*0.013*	*0.011*	**~Ø36x15**
3.00034	**CI Gr-5** C-13	**---**	**2.43**	**2.97**	**0.32**	**0.051**	**0.14**	**0.084**	**0.100**	**0.097**	**---**	**0.021**	**0.36**	**0.020**	**0.042**	**---**	*0.0048*	**1.16**	**---**	*0.015*	**---**	**---**	**~Ø36x16**
3.00035	**CI Gr-6** B-13	**---**	**1.98**	**2.46**	**0.46**	**0.097**	**0.13**	**0.43**	**0.016**	**0.15**	*0.046*	**0.21**	**0.13**	**0.035**	**0.023**	**---**	**0.20**	**0.28**	**---**	*0.021*	**---**	*0.0055*	**~Ø36x16**
3.00062	**CI GR-7** H-13	**ASTM G3500b**	**3.07**	**1.58**	**0.69**	**0.018**	**0.070**	**0.33**	**0.018**	**0.35**	**0.050**	**0.015**	**0.013**	**0.018**	*0.044*	*0.035*	**---**	**0.073**	**0.086**	*0.013*	**---**	**0.017**	**~Ø38x15**
3.00063	**CI GR-8** H-13	**FG 200**	**3.52**	**1.92**	**1.30**	**0.18**	**0.093**	**0.25**	**0.048**	**0.30**	*0.051*	**0.13**	**0.051**	**0.0066**	**0.025**	**---**	*0.19*	**0.23**	*0.037*	**0.046**	**---**	**---**	**~Ø38x15**
3.00072	**CIGR-9K** J-13	**---**	**2.69**	**0.93**	**0.69**	**0.43**	**0.070**	**0.98**	*0.025*	**0.31**	*0.15*	**2.08**	**0.027**	**---**	**0.034**	**---**	*0.024*	**0.061**	**0.013**	**---**	**---**	**---**	**~Ø38x15**
3.00133	**CIGR-10** J-13	**ASTM A48 Class 35**	**3.66**	**1.74**	**2.03**	**0.12**	**0.10**	**0.40**	**0.064**	**0.88**	**0.29**	**1.42**	**0.031**	**0.0024**	**0.12**	**---**	**0.0047**	**0.051**	*0.026*	**0.097**	**---**	**0.0078**	**~Ø37x15**
Product Code	**CRM ID Batch**	**Equivalent Grades**	**C**	**Si**	**Mn**	**P**	**S**	**Cr**	**Ti**	**Ni**	**Al**	**Cu**	**V**	**B**	**Co**	**As**	**Sn**	**Mo**	**W**	**Nb**	**Pb**	**Mg**	**Size in mm**
3.00037	**CIGR-11** A-14	**ASTM A48 Class 40**	**2.91**	**2.09**	**0.43**	**0.080**	**0.027**	**0.26**	**0.11**	**0.87**	**0.10**	**0.15**	**0.20**	**0.020**	**0.053**	**---**	**0.047**	**0.046**	**0.015**	**0.021**	**---**	**0.038**	**~Ø36x15**
3.00089	**CI-GR11C** J-14	**ISO 600/3**	**3.02**	**1.56**	**0.27**	**0.015**	**0.027**	**0.18**	**0.027**	**0.72**	**0.087**	**0.19**	*0.0027*	*0.017*	**0.0032**	**---**	**0.038**	**0.024**	*0.020*	**0.17**	**---**	**0.050**	**~Ø38x15**
****3.00052**	**SGI-GR13** E-13	**---**	*2.60*	*4.03*	*3.19*	*0.148*	*0.011*	*1.14*	*0.028*	*19.30*	*0.013*	*0.195*	*0.013*	**---**	*0.013*	**---**	**---**	*0.464*	**---**	**---**	*---*	*0.123*	***~Ø38x15***
3.00066	**CI-GR14** I-13	**---**	**1.99**	**6.39**	**0.34**	**0.023**	**0.27**	**0.47**	*0.029*	**0.058**		**0.063**	**0.061**	*0.016*	*0.016*	**---**	*0.032*	**0.61**	**---**	**0.036**	**---**	**---**	**~Ø36x15**
3.00088	**CI-GR250** K-14	**---**	**2.28**	**1.62**	**0.25**	**0.016**	**0.027**	**1.71**	**0.033**	**1.38**	**0.13**	**0.14**	**0.12**	**0.018**	**0.053**	**---**	**0.040**	**0.047**	*0.019*	**---**	**---**	*0.045*	**~Ø38x15**
****3.00053**	**Ni RM-1** E-13	**BS 3468 F2**	*2.76*	*3.50*	*3.52*	*0.164*	*0.047*	*1.24*	*0.028*	*21.86*	*0.004*	*0.194*	*0.021*	**---**	*0.012*	**---**	**---**	**---**	*0.035*	**---**	**---**	**---**	***~35x35x15***
****3.00038**	**Ni Cr1** H-12	**AS 2027 Ni-Cr 1-550 TY 4**	*2.62*	*1.59*	*0.38*	*0.022*	*0.018*	*9.86*	*---*	*7.05*	*0.004*	*0.23*	*0.020*	**---**	*0.025*	**---**	**---**	**---**	**---**	*0.009*	**---**	*0.009*	***~36x36x15***
****3.00154**	**CI CR-25** B-17	**ASTM A532 - 3A**	*3.63*	*1.00*	*0.50*	*0.014*	*0.013*	*26.50*	*---*	*0.029*	*0.008*	*0.011*	*---*	*0.40*	*0.01*	*---*	*---*	*1.20*	*---*	*---*	*---*	*---*	***Ø 36x14***
3.00204	**CI-GR-11S** K-17	**---**	**3.72**	**3.23**	**0.44**	**0.076**	**0.029**	**0.24**	**0.081**	**0.50**	**0.17**	**0.44**	**0.086**	**---**	**0.054**	**---**	**0.083**	**0.066**	**---**	*0.048*	**---**	**0.066**	**Ø 36x14**
3.00209	**CI GR-11S** L-17	**---**	**4.12**	**1.41**	**0.55**	**0.14**	**0.051**	**0.23**	**0.11**	**0.82**	**0.098**	**0.64**	**0.17**	**0.019**	**0.034**	**--**	**0.049**	**0.086**	**0.074**	**0.10**	**---**	**0.028**	**Ø 36x14**
3.00213	**CIGR-15** G-18	**---**	**3.18**	**2.18**	**0.37**	**0.073**	**0.052**	**0.15**	**0.098**	**0.73**	**0.21**	**0.14**	**0.13**		**0.044**		*0.047*	**0.081**		*0.10*	*0.015*	**0.049**	**Ø 36x15**

Certified property listed in mass percent (%). The Values listed in bold type certified, and small italic type values are indicative, it should be used only for reference purpose. **** Provisional Analysis**

4.1 - Aluminium Base: Certified Reference Materials

Product Code	CRM ID Batch	Equivalent Grades	Si	Cu	Mg	Mn	Fe	Cr	Ni	Zn	Ti	V	Pb	Sn	Sr	Zr	Co	Al	B	P	Size in mm
3.00047	A91050 C-13	1050	0.16	0.0075	*0.0015*	0.0031	0.35	0.0024	*0.0063*	*0.0057*	0.013	0.0028	*0.0070*	*0.0021*	---	*0.0022*	---	---	---	---	Ø40x32
3.00104	A-91060 B-15	1060	0.14	*0.0034*	0.0034	0.0022	0.097	*0.0062*	0.004	0.0038	0.0065	0.010	---	*0.0055*	---	---	---	---	---	---	Ø44x25
3.00044	A96101 B-13	EC 6101	0.46	0.0047	0.72	0.012	0.14	0.0023	0.0043	0.0036	0.017	0.013	*0.0067*	*0.0021*	---	---	---	---	---	---	Ø36x20
3.00184	A96063 G-17	6063	0.39	0.029	0.44	0.046	0.25	0.013	0.0081	0.024	0.019	0.010	0.0049	*0.0050*	---	---	*0.0015*	---	*0.0020*	---	Ø43x22
3.00039	A96351 K-10	6351	0.81	0.025	0.72	0.49	0.19	0.0091	---	0.0089	0.031	0.0057	---	0.0088	---	---	---	---	---	---	Ø40x23
3.00103	A-97075 L-14	7075	0.11	1.61	2.38	0.045	0.13	0.19	*0.012*	5.79	0.027	---	0.011	*0.0042*	---	---	---	---	---	---	Ø38x30
3.00102	A-95083 L-14	5083	0.17	0.063	4.48	0.63	0.20	0.10	*0.0060*	0.055	0.046	0.010	*0.011*	---	---	---	---	---	---	---	Ø50x20
**3.00119	AlZn-1 E-16	Special Alloy	*0.065*	*0.53*	*0.015*	*0.002*	*0.13*	---	*0.005*	*32.56*	*0.004*	---	*0.004*	*0.002*	---	*0.001*	*0.001*	*66.68*	*0.00024*	---	Ø50x42
Product Code	**CRM ID Batch**	**Equivalent Grades**	**Si**	**Cu**	**Mg**	**Mn**	**Fe**	**Cr**	**Ni**	**Zn**	**Ti**	**V**	**Pb**	**Sn**	**Sr**	**Zr**	**Co**	**Al**	**B**	**P**	**Size in mm**
3.00166	A03560 A-17	AlSi7Mg, AC4C, LM25	7.17	0.050	0.43	0.12	0.41	0.016	0.010	0.083	0.26	0.012	0.018	*0.0053*	*0.009*	---	---	---	---	---	Ø50x40
3.00214	A03562 H-18	AC4C-H	7.14	0.029	0.31	0.046	0.18	0.0061	0.010	0.016	0.11	0.012	*0.0046*	0.0028	---	*0.0010*	---	*92.22*	---	---	Ø50x35
3.00041	A03190 E-11	LM27	6.98	2.67	0.20	0.43	0.56	0.015	0.0088	0.027	0.043	*0.0070*	0.013	---	---	---	---	---	---	---	Ø50x40
3.00167	A03830 C-17	ADC-12	10.13	2.05	0.090	0.19	0.71	0.026	0.11	0.86	0.14	---	0.053	---	---	--	*0.0023*	---	--	--	Ø50x40
3.00042	AC-44100 A-12	LM6	10.69	0.13	0.018	0.090	0.60	0.012	0.010	0.044	0.024	---	*0.010*	0.0027	---	---	---	---	---	---	Ø45x25
3.00060	43100 G-13	LM9	10.91	0.14	0.33	0.34	0.54	0.013	0.0086	0.056	0.049	0.012	0.013	---	*0.0036*	---	---	---	---	---	Ø48x30
3.00134	AC-44100B I-15	LM6	12.42	0.050	*0.0047*	0.023	0.46	0.011	0.0091	0.046	0.025	*0.0090*	*0.0066*	0.0050	---	0.015	---	---	---	---	Ø50x40
**3.00206	AC42000 J-17	AC4B	*7.42*	*2.52*	*0.201*	*0.25*	*0.53*	*0.037*	*0.045*	*1.52*	*0.114*	---	*0.050*	*0.036*	---	*0.007*	--	--	--	--	Ø50x40
**3.00210	A03200 C-18	AC2B	*6.01*	*2.49*	*0.29*	*0.16*	*0.34*	*0.021*	*0.012*	*0.083*	*0.13*	*0.012*	*0.017*	*0.020*	*0.009*	*0.005*	*0.002*	--	--	*0.004*	Ø50x35
**3.00211	A46100 E-18	AlSi10Cu	*10.72*	*1.62*	*0.087*	*0.19*	*1.06*	*0.015*	*0.063*	*0.14*	*0.18*	---	*0.017*	*0.0027*	--	--	--	--	--	--	Ø50x36
3.00202	A03330 A-18	LM24	8.27	3.22	0.24	0.19	0.84	0.051	0.088	2.10	0.069	0.027	0.15	*0.097*	--	*0.0033*	--	--	--	--	Ø45x30
**3.00225	A46100B K-18	AlSi132	*11.1*	*1.5*	*0.15*	*0.25*	*0.55*	*0.015*	*0.020*	*0.10*	*0.060*		*0.030*	*0.010*	--	--	--	--	--	--	Ø50x30

Certified property listed in mass percent (%). The Values listed in bold type certified, and small italic type values are indicative, it should be used only for reference purpose.

**** Provisional Analysis**

5.1 - Copper Base: Certified Reference Materials

Product Code	CRM ID Batch	Equivalent Grades	Cu	Sn	Pb	Zn	Fe	Ni	Mn	S	Al	Sb	Bi	As	Mg	Si	Te	P	Cd	Ag	Co	Cr	O	Size in mm
3.00217	C-11000 H-18	ETP Cu	99.97	---	0.0026	*0.0012*	0.0023	---	---	0.0020	*0.0037*	*0.010*	---	---	---	---	---	---	---	0.0014	---	0.0014	---	Ø39x25
3.00108	C-10100 H-15	OFE Cu	99.97	*0.0003*	*0.0016*	*0.003*	0.0028	*0.0015*	*0.0002*	*0.0012*	*0.0009*	---	---	---	*0.0007*	---	---	---	---	*0.0009*	*0.0004*	---	*0.0009*	Ø40x20
3.00155	C12200 L-16	DHP Cu	99.89	*0.0054*	0.0020	*0.012*	0.0052	0.057	---	*0.0045*	---	0.0010	---	---	---	---	---	0.021	---	0.0088	---	---	---	Ø40x25
**3.00116	C-14500A E-16	Copper-Tellurium	*99.25*	*0.001*	*0.001*	*0.002*	---	*0.001*	*0.010*	*0.006*		---	---	---	---	*0.01*	*0.679*	---	---	*0.0006*	---	---	---	Ø40x22
**3.00158	C22000 B-17	CuZn 90:10	---	*0.051*	*0.021*	*9.45*	---	---	*0.013*	---	---	*0.028*	---	---	---	---	---	---	---	---	*0.033*	---	---	Ø40x25
3.00118	C-16200 E-16	Copper-Cadmium	99.25	---	---	0.0036	0.0035	0.0017	---	---	---	---	---	---	---	*0.0018*	---	---	0.68	0.0016	---	---	---	Ø40x20
3.00067	C35000 G-13	Leaded Brass	61.26	0.20	1.59	*36.79*	0.25	0.15	*0.0025*	*0.0057*	0.012	---	*0.0013*	0.0060	---	---	---	*0.0017*	---	---	---	---	---	Ø40x23
3.00122	C-36000 E-16	Leaded Brass	55.65	0.51	3.65	39.44	0.48	0.29	0.011	---	*0.028*	---	0.0066		---	0.010	---	0.0031	---	---	---	---	---	Ø40x22
Product Code	**CRM ID Batch**	**Equivalent Grades**	**Cu**	**Sn**	**Pb**	**Zn**	**Fe**	**Ni**	**Mn**	**S**	**Al**	**Sb**	**Bi**	**As**	**Mg**	**Si**	**Te**	**P**	**Cd**	**Ag**	**Co**	**Cr**	**O**	**Size in mm**
3.00156	C44300 L-16	CuZn	70.40	0.92	0.033	28.51	0.057	0.065	---	0.0045	---	---	*0.0043*	0.042	---	---	---	0.0016	---	---	---	---	---	Ø40x25
3.00049	C-46700B A-12	CuZn39Sn1	62.04	1.23	0.046	36.59	0.018	0.0030	---	*0.0036*	*0.0015*	---	---	---	---	---	---	---	---	---	---	---	---	Ø40x18
3.00157	C-68700 K-16	Al Brass	77.03	0.041	0.017	21.06	---	0.034	0.0066	---	2.01	---	---	---	---	---	---	---	---	---	---	---	---	Ø40x25
3.00051	C-83600 D-12	LG2	84.63	5.38	*5.32*	3.39	0.21	0.50	0.0026	0.070	*0.010*	*0.17*	0.011	0.021	---	---	--	0.020	---	---	---	---	---	36x36x18
3.00150	C90700 I-13	High-Sn Bronze	*86.53*	11.27	0.93	0.37	0.030	0.35	---	0.051	---	*0.038*	---	0.016	---	---	---	---	---	0.0092	---	---	---	Ø40 x 28
3.00171	C93800 D-17	High Lead Tin Bronze	78.22	6.65	*12.34*	0.93	0.015	1.76	0.0018	0.051	---	0.22	0.010	0.018	---	0.0026	---	0.047	---	0.016	*0.0023*	---	---	Ø40x23
3.00054	C95800 H-13	ASTM B148, BS1400-AB2	79.75	---	0.0056	0.11	4.64	4.66	1.14	---	9.45	---	*0.0040*	*0.0050*	---	0.083	---	*0.0099*	---	---	---	---	---	Ø40x25
3.00200	C95210 J-17	CuAl10Fe3 Al-Bronze	86.58	0.014	*0.020*	0.18	2.81	0.60	0.11	--	9.53	--	--	--	--	0.047	--	0.021	--	0.023	--	---	--	*39x39x25*

Certified property listed in mass percent (%). The Values listed in bold type certified, and small italic type values are indicative, it should be used only for reference purpose.

** Provisional Analysis

6.1 - Nickel Base: Certified Reference Materials

Product Code	CRM ID Batch	Equivalent Grades	C	Fe	Si	Cu	Mn	V	P	Nb	S	Mo	Cr	Co	Ti	Al	Ni	Ta	W	Size in mm
3.00098	N06625 C-15	Inconel 625	0.041	5.07	0.21	0.097	0.13	---	0.0090	3.21	0.0014	8.78	21.02	0.10	*0.032*	---	61.11	0.013	---	Ø42x24
**3.00101	N06625 L-15	Inconel 625	*0.039*	*4.81*	*0.35*	*0.091*	*0.11*	*0.024*	*0.007*	*3.22*	*0.003*	*8.60*	*21.24*	*0.098*	*0.028*	---	---	---	---	Ø42x24
3.00099	N08825 E-16	Inconel 825	0.011	34.19	0.19	1.91	0.62	0.084	---	---	---	2.61	20.16	0.076	0.86	0.090	38.95	---	*0.025*	Ø45x25

7.1 - Zn Base: Certified Reference Materials

Product Code	CRM ID Batch	Equivalent Grades	Si	Cu	Sn	Fe	Al	Mg	Pb	Ti	Zn	Mn	Cr	Ni	Sb	Cd	Size in mm
3.00111	Z35531/A B-16	Zamak 5	---	0.94	0.0017	0.0028	3.93	0.038	0.0019	---	*95.07*	---	---	---	---	---	Ø50x26
**3.00136	Z-33520 I-16	Zamak 3	---	---	---	*0.005*	*4.6*	*0.03*	*0.002*	---	*95.30*	---	---	*0.005*	---	---	Ø50x40

7.2 - Zn Base: Reference Materials

Product Code	RM ID Batch	Equivalent Grades	Si	Cu	Sn	Fe	Al	Mg	Pb	Ti	Zn	Mn	Cr	Ni	Sb	Cd	Ag	Size in mm
3.00131	Z-12002 F-16	Pure Zinc	---	0.00057	---	0.00071	---	0.00030	0.0016	---	99.99	*0.00050*	---	*0.00010*	---	0.00023	0.00047	40x40x25

Certified property listed in mass percent (%). The Values listed in bold type certified, and small italic type values are indicative, it should be used only for reference purpose.

** Provisional Analysis

8.1 - Pb Base: Reference Materials

Product Code	CRM ID Batch	Equivalent Grades	Cu	Sn	Fe	Al	Mg	Pb	Ti	Bi	Ag	Cd	Sb	Zn	As	Se	Ni	Size in mm
**3.00115	Pb-Gr1 D-16	---	*0.048*	*1.58*	---	*0.001*	---	*93.50*	---	*0.015*	*0.0043*	*3.71*	*1.12*	---	---	---	---	**Ø40x20**
**3.00142	Pb-Sb3 I-16	---	*0.026*	*0.153*	---	*0.0002*	---	*97.05*	---	*0.0085*	*0.002*	---	*2.48*	*0.0002*	*0.272*	*0.011*	*0.0002*	**Ø50x20**

8.2 - Pb Base: Reference Materials

Product Code	RM ID Batch	Equivalent Grades	Pb	Bi	Ag	Zn										Size in mm
3.00130	L-50001 F-16	**Pure Lead**	**99.97**	0.010	0.0019	*0.0003*										**Ø50x20**

9.1 - Ti Base: Certified Reference Materials

Product Code	RM ID Batch	Equivalent Grades	Al	V	Fe	Si	Zr	Mo	O	N	H	Cu	Cr	Sn		Size in mm
3.00187	R56400 G-17	**6Al4V**	**6.18**	**4.14**	**0.17**	**0.026**	**0.0040**	*0.098*	*0.16*	*0.014*	*0.0023*	*0.0043*	**---**	**---**		**Ø40x18**
3.00205	R56320 I-17	**9Ti3Al2.5V**	**4.13**	**2.14**	**0.032**	**0.018**	*0.13*	---	---	---	---	---	*0.0030*	*0.0063*		**Ø40x18 45x20**
3.00188	R56260 H-17	**6Al2Sn4Zr6Mo**	**6.23**	**---**	**0.096**	**0.056**	**4.10**	**6.29**	---	---	---	*0.0038*	**---**	**2.12**		**Ø31x24**

9.2 - Co Base: Reference Materials

Product Code	RM ID Batch	Equivalent Grades	Al	Mn	S	P	Fe	Si	C	Cr	Mo	Ni	W			Size in mm
**3.00203	R30605 K-17	**Stellite 25**	*0.039*	*1.85*	*0.028*	*0.026*	*3.22*	*0.296*	*0.127*	*24.4*	*0.399*	*11.43*	*16.51*			**Ø38x19**

Certified property listed in mass percent (%). The Values listed in bold type certified, and small italic type values are indicative, it should be used only for reference purpose.

**** Provisional Analysis**

10.1 - Setting- Up Samples - Iron Base: Low Alloy, High Alloy and Stainless Steel

Product Code	SUS ID Batch	C	Si	Mn	P	S	Cr	Ti	Ni	Al	Nb	B	Mo	W	Mg	Co	Sn	Cu	V	Pb	Zr	As	N	Sb	Ca	Zn	Size in mm
4.00005	GR1D A-11	0.012	0.021	0.070	0.036	0.005	0.036	0.155	0.035	0.011	0.013	0.001	0.009	0.005	0.012	0.003	0.008	0.014	0.015	---	---	---	---	---	---	---	Ø40x25
4.00021	SS-2A E-12	0.058	2.10	1.58	0.013	0.018	15.95	0.160	8.70	0.570	0.213	0.002	2.13	0.090	---	0.260	<0.01	0.950	0.070	<0.01	0.012	<0.01	0.240	0.240	0.010	---	Ø40x25
4.00033	GR5A A-14	2.62	2.47	1.67	0.091	0.080	12.42	0.158	2.45	0.007	0.003	0.003	3.30	0.010	---	0.026	0.005	2.34	0.101	---	---	---	0.043	---	---	---	36x36x15
4.00034	GR6A B-14	1.43	0.80	0.30	0.042	0.016	32.45	0.032	0.577	0.100	0.004	---	0.710	---	---	0.036	0.003	0.363	0.140	---	---	---	0.067	---	---	---	36x36x15
4.00036	GR7A B-14	2.07	1.73	1.78	0.140	0.022	1.59	0.014	15.4	0.018	0.001	0.001	---	0.020	---	0.009	0.006	6.62	---	---	---	---	0.008	---	---	---	36x36x15
4.00055	GR8A C-14	3.06	0.889	1.31	0.248	0.213	0.688	0.001	0.871	0.019	---	0.001	1.21	---	---	0.002	---	2.13	---	---	---	---	0.021	---	---	---	36x36x15
4.00041	QA-01 G-18	3.0	1.50	0.80	0.25	0.10	0.65	0.073	0.75	0.03	0.10	<0.015	<0.01	<0.05	<0.005	<0.05	0.30	0.02	0.40	0.015	---	0.015	---	---	---	0.02	Ø36x14

These (SUS) Standards are to be used for re-standardization / drift corrections of calibration of spectrometer, but they are not certified with respect to accurate composition. Only approximate values are issued with these Standards.

10.2 - Setting- Up Samples- Copper Base:

Product Code	SUS ID Batch	S	Cu	Pb	Sn	Mn	Fe	Ni	P	Zn	Si	As	Bi	Ag	Sb	Al	Cr	C	Co	Ti	B	Cd	Size in mm
4.00070	SUS-Cu1 H-18	0.006	--	0.002	0.009	0.0003	0.022	--	--	0.032	0.002	0.002	--	0.003	--	0.001	0.003	0.005	--	--	0.002	0.001	Ø39x20
4.00062	SUS-Cu6B E-15	0.143	Bal	7.95	6.26	0.002	0.14	0.48	0.002	3.13	---	0.042	0.014	0.060	0.325	---	---	---	0.02	---	---	---	Ø40x20
4.00071	SUS-Cu6C I-13	0.105	79.47	9.94	8.80	0.003	0.039	0.221	0.021	0.879	0.003	0.019	0.009	0.019	0.458	---	---	---	0.019	--	---	---	Ø40x29
4.00072	SUS-Cu7B I-17	0.037	67.27	0.019	0.016	0.72	0.81	30.90	0.019	0.13	0.014	---	---	---	---	---	---	0.026	0.025	---	---	---	Ø44x23

These (SUS) Standards are to be used for re-standardization / drift corrections of calibration of spectrometer, but they are not certified with respect to accurate composition. Only approximate values are issued with these Standards.

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