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MBH
Reference Materials

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DICOEX

Materiales de Referencia Certificados

Camino de Ibarsusi, 19 Bajo • 48004 Bilbao • Bizkaia

Teléfono 34 - 94 411 34 39
Fax 34 - 94 459 71 62
E-mail dicoex@dicoex.es

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Please note. Most of the MBH range of discs are also available in chippings form. Please see the following data for general composition information.
Please enquire for availability, bottle size and price.

Note: Chippings are made to order, and are non-returnable. Please ensure you have correctly identified your requirement before ordering.

Listing of new materials added in this catalogue. **2**

This catalogue is not the full listing of the materials supplied by MBH but only those materials exclusively produced by MBH. Please also see our full product catalogue.

Introduction

December 2016

On the following pages you will find the current range of reference materials, principally for optical emission spectroscopy (OES), produced by MBH. The range includes Reference Materials, Certified Reference Materials and Setting Up Samples for both ferrous and non-ferrous alloys.

Whilst every effort has been made to detail the latest information, it is possible that products will be remade or replaced and values and dimensions changed. This catalogue can therefore only be a snapshot of the information available at the time of publication. Please check on our website at www.mbh.co.uk for more up to date information on availability and new materials.

Listed you will find details of the latest additions and imminent new materials produced by MBH. Materials noted as "provisional values" are currently being certified and can be supplied with a Provisional certificate of analysis prior to the completion of the full certificate. The final certificate is mailed to all purchasers when completed.

The catalogue lists currently available or forthcoming materials produced by MBH only. If you cannot find the catalogue reference number you want listed it may have been changed, deleted or excluded because of its age or availability. It may not be produced by MBH but from another producer. Please enquire.

We trust you will find this 'MBH only' catalogue useful. Should you have any questions or require further information please do not hesitate to contact us.

Information

Abbreviations

CRM	This material is classified by MBH as a Certified Reference Material. Where the catalogue entry is not preceded with CRM the material is considered to be only of Reference Material (RM) status.
( )	The concentration value stated within the brackets is not certified and is provided for information purposes only
R.E.	Rare Earth
ppm	Parts per Million (w/w)

Form

C	Material is a **Cast** product
CC or (2xCC)	Material is **Chill Cast** product or **(Double Chill Cast)**
HIP	Material is **Hot Isostatically Pressed** powder
SC	Material is a **Spray Cast** product
W	Material is a **Wrought** product
R	Material has been cut from **Rolled** strip
** provisional values	This material is in production and is currently available for purchase and will be supplied with a provisional certificate. However the values presented are the result of an incomplete analysis programme. The final certified values are expected to be available within ~8 months, but may differ slightly. Please enquire .
Sold Out	Materials where data is struck through (for example ~~14X MN2 Q~~ etc.) and indicated as 'sold out' will be remade later; please enquire.

Material listed in previous editions but now no longer listed herein should be considered no longer available and may or may not be remade.

	1.2.3 Low Alloy Steel (continued)	C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Sn	Al	V	Co	As	Ca	N		Size (mm) Ø x H	Form
	12X 14072 A **	*0.44*	*0.32*	*0.006*	*0.015*	*0.68*	*0.14*	*1.07*	*0.57*	*0.200*	*0.005*	*0.003*	*0.31*	*0.01*	*. . . .*	*. . . .*	*0.010*	** provisional values	38 x 15	W
CRM	**12X 605M36 A**	*0.373*	*0.283*	*0.0317*	*(0.009)*	*1.504*	*0.146*	*0.243*	*0.292*	*0.199*	*0.0101*	*0.0105*	*. . . .*	*0.0151*	*0.0102*	*0.0033*	*0.0095*		38 x 15	W

	1.3.4 Ferritic & Martensitic Stainless Steels	C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Sn	Al	Ti	V	Co	Nb	W	B	Ca	N		Size (mm) Ø x H	Form
CRM	**13X 1.4122 A ****	*0.35*	*0.46*	*0.002*	*0.017*	*0.47*	*0.62*	*15.9*	*0.85*	*0.065*	*0.003*	*0.002*	*. . . .*	*0.10*	*0.022*	*0.006*	*0.003*	*. . . .*	*. . . .*	*0.030*	** provisional values	40 x 15	W
CRM	**13X 1.4418 A ****	*0.042*	*0.29*	*0.015*	*0.025*	*0.81*	*4.65*	*15.4*	*0.85*	*0.17*	*0.005*	*0.002*	*. . . .*	*0.055*	*0.10*	*0.01*	*0.01*	*. . . .*	*. . . .*	*0.042*	** provisional values	40 x 15	W
CRM	**13X 1.4923 A ****	*0.20*	*0.33*	*0.003*	*0.021*	*0.50*	*0.46*	*11.2*	*0.82*	*0.055*	*0.003*	*0.003*	*. . . .*	*0.30*	*0.02*	*0.005*	*. . . .*	*. . . .*	*0.005*	*0.033*	** provisional values	40 x 15	W
CRM	**13X 1.4713 A ****	*0.045*	*0.92*	*0.008*	*0.018*	*0.49*	*0.12*	*7.1*	*0.025*	*0.038*	*0.003*	*0.55*	*0.005*	*0.045*	*0.01*	*. . . .*	*. . . .*	*. . . .*	*. . . .*	*0.006*	** provisional values	40 x 15	W
CRM	**13X 1.4742 A ****	*0.085*	*0.90*	*0.002*	*0.022*	*0.72*	*0.45*	*17.6*	*0.10*	*0.13*	*0.005*	*0.82*	*0.005*	*0.045*	*0.015*	*0.02*	*. . . .*	*. . . .*	*. . . .*	*0.02*	** provisional values	40 x 15	W
CRM	**13X 1.4762 A ****	*0.082*	*1.05*	*0.001*	*0.028*	*0.66*	*0.35*	*24.3*	*0.055*	*0.08*	*0.005*	*1.3*	*0.007*	*0.10*	*0.03*	*0.03*	*. . . .*	*. . . .*	*0.0025*	*0.027*	** provisional values	40 x 15	W
CRM	**13X 43020 A ****	*0.15*	*0.45*	*0.19*	*0.025*	*1.45*	*0.52*	*16.0*	*0.23*	*0.07*	*. . . .*	*0.005*	*. . . .*	*0.055*	*0.02*	*0.01*	*0.01*	*0.005*	*. . . .*	*0.022*	** provisional values	40 x 15	W

	1.3.5 Special Stainless Steels	C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Al	V	W	Co	Nb	N			Size (mm) Ø x H	Form
CRM	**13X 42200 A ****	*0.22*	*0.32*	*0.001*	*0.018*	*0.65*	*0.73*	*11.5*	*1.06*	*0.14*	*0.003*	*0.25*	*1.15*	*0.01*	*0.02*	*0.02*		** provisional values	UNS S42200	38 x 15	W

	1.3.6 Precipitation Hardening Steels	C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Ti	Al	V	Co	N				Size (mm) Ø x H	Form
CRM	**13X 45500 A ****	*0.003*	*0.055*	*0.002*	*0.005*	*0.027*	*8.3*	*11.4*	*0.015*	*2.2*	*1.2*	*0.07*	*0.065*	*0.015*	*0.002*			** provisional values	UNS S45500	38 x 15	W

	8.5 Various Lead Alloys	Sn	Sb	Bi	Cu	As	Ag	Te	Se	S									Size (mm) Ø x H	Form
CRM	**85X S744 A ****	*0.25*	*1.55*	*0.02*	*0.035*	*0.12*	*0.005*	*0.002*	*0.025*	*0.003*	*. . . .*	*. . . .*			*. . . .*	*. . . .*		** provisional values		40 x 15	C

In addition to the above new materials we have also re-made many of our existing range and the new batches are detailed in the following pages.

1.1.3 High Phosphorus		C	Si	S	P	Mn	Cr	Mo	Cu	Nb	Ni	Ti	V	Size (mm) Ø x H	Form
CRM	11X HPC1 H	3.29	3.27	0.0035	0.808	0.620	1.056	0.060	....	....	....	....	....	40 x 15	CC
CRM	11X HPC2 L	3.18	2.20	0.0418	1.51	1.005	1.509	0.0354	0.0460	0.0354	0.388	0.0502	0.0350	40 x 15	CC
CRM	11X HPC3 J	3.38	1.63	0.0473	2.01	1.287	1.48	0.120	....	....	2.18	....	....	40 x 15	CC
CRM	11X HPC5 A	3.68	1.175	0.223	0.246	1.028	1.42	....	....	....	....	....	....	40 x 15	CC

1.1.4 Spheroidal Graphite		C	Si	S	P	Mn	Ni	Cr	Cu	Al	Ti	Mg	As	Zn	Size (mm) Ø x H	Form
CRM	11X SG1 A	3.53	2.96	0.0095	0.0363	0.278	0.042	0.0299	0.0194	0.0187	0.0150	0.040	0.0021	0.041	40 x 15	concast
CRM	11X SG2 A	3.48	3.03	0.0075	0.0353	0.297	0.0263	0.0304	0.0245	0.0238	0.0146	0.055	0.0022	0.040	40 x 15	concast

Note: Both these products contain free carbon; use for the measurement of grey irons only

1.1.7 Low Alloy		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Sn	Al	Ti	V	Nb	Co	W	As	Sb	Bi	Se	Zn
CRM	11X C1 Q	2.82	1.40	0.0349	0.092	1.341	0.556	0.335	0.062	0.154	0.0248	0.069	0.196	0.1036	0.091	0.0407	....	0.0105	0.055	0.0093	0.005	0.0051
CRM	11X C2 U	3.414	1.081	0.093	0.268	1.203	1.702	0.882	0.111	0.1085	0.046	0.053	0.094	0.314	(0.030)	0.226	0.062	0.0288	0.104	0.0055	0.0199	....
CRM	11X C3 AB	3.408	0.849	0.201	0.451	0.447	3.20	2.02	0.216	0.295	0.209	0.0090	0.040	0.692	(0.19)	0.241	0.0520	0.098	0.245	0.0144	0.0193	0.0386
CRM	11X C4 R	1.86	2.92	0.098	0.108	0.493	2.02	1.531	0.101	0.345	0.0102	0.040	0.080	0.0208	0.0373	0.0316	0.120	0.0050	0.015	0.0144	0.021	0.0083
CRM	11X C5 X	2.52	2.09	0.096	0.080	0.846	1.595	1.111	0.471	1.80	0.0371	0.05	0.056	0.089	0.0403	0.0558	0.031	0.0199	0.0265	0.0108	0.005	0.019
CRM	11X C7 P	3.24	0.604	0.0081	0.0587	2.214	0.0273	0.61	0.0401	0.072	0.0110	0.029	0.064	0.0081	0.0195	0.0068	0.053	0.0110	0.009	....	....	0.0152
CRM	11X C8 U	2.50	1.38	0.154	0.831	0.424	0.175	0.360	0.128	0.259	0.080	(0.10)	0.071	0.0452	0.031	0.081	0.013	0.077	0.0631	0.0164	0.0280	0.0051
CRM	11X C9 D	3.24	1.462	0.0260	0.069	1.886	2.79	1.206	0.155	0.581	0.040	0.051	(0.062)	0.359	0.0766	0.1301	0.304	0.068	0.149	....	....	0.009
CRM	11X C10 C	3.48	2.10	0.050	0.103	0.696	2.673	0.302	0.335	1.54	0.0458	0.104	0.0709	0.0589	....	....	0.327	0.0200	0.0095	....	....	....

continued

Continuation from above	Pb	B	Zr	Te	Ag	N	Size (mm) Ø x H	Form
11X C1 Q	0.0107	0.054	0.0072	....	....	0.0095	40 x 15	CC
11X C2 U	0.023	0.0213	....	....	....	0.0110	40 x 15	CC
11X C3 AB	0.022	0.0054	....	....	....	0.0095	40 x 15	CC
11X C4 R	0.019	0.0086	0.0031	....	0.008	0.0078	40.x 15	CC
11X C5 X	0.0295	0.011	0.0050	0.0010	....	0.0171	40 x 15	CC
11X C7 P	0.0106	0.0099	....	....	(0.026)	0.0153	40 x 15	CC
11X C8 U	0.0057	0.0330	0.0040	0.0043	0.008	0.0032	40 x 15	CC
11X C9 D	0.0052	0.0049	....	0.011	....	....	40 x 15	CC
11X C10 C	0.0050	....	....	....	....	0.0096	40 x 15	CC

1.1.8 Abrasion Resistant		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Al	Ti	V	Co	W	Nb	Pb	Size (mm) Ø x H	Form
CRM	11X AR5 K	3.20	1.695	0.0215	0.0405	0.535	5.15	8.83	0.149	0.0517	0.120	0.062	0.0533	0.34	0.073	0.027	0.0035	40 x 15	CC

1.1.9 Corrosion Resistant		C	Si	S	P	Mn	Ni	Cr	Cu									Size (mm) Ø x H	Form
CRM	**11X S/1 Cr3 J**	2.91	1.07	0.023	0.072	0.861	14.53	1.61	9.01									40 x 13	CC
	11X S/2Cr1 E	2.83	2.85	0.011	0.31	1.68	16.5	2.48	0.02									40 x 15	CC
	11X S/2Cr4 D	2.82	2.59	0.010	0.049	0.97	20.7	1.10	0.24									40 x 15	CC
	11X S/3Cr1 D	2.61	2.52	0.011	0.046	0.70	31.7	0.15	0.19									40 x 15	CC
	11X S/3Cr2 C	2.30	2.59	0.010	0.045	0.85	31.0	2.62	0.21									40 x 15	CC
	11X S/3Cr3 B	2.49	2.44	0.050	0.053	0.66	29.4	4.06	0.23									40 x 15	CC

		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Co	Ti	V	Nb	Al	Sn	Pb		Size (mm) Ø x H	Form
	11X 20001 J	2.90	1.01	0.143	0.005	0.58	21.4	1.50	....	0.01	....	....	....	....	....	....	....		40 x 15	C
	11X 20002 J	2.67	2.04	0.045	0.060	1.06	20.0	2.03	....	0.30	....	....	....	....	....	....	....		40 x 15	C
	11X 20003 K	2.91	3.03	0.007	0.174	1.53	17.8	2.53	....	0.52	....	....	....	....	....	....	....		40 x 15	C
	~~11X 20004 J~~	~~2.90~~	~~1.01~~	~~0.143~~	~~0.005~~	~~0.58~~	~~21.4~~	~~1.50~~	~~....~~	~~0.01~~	~~....~~	~~....~~	~~....~~	~~....~~	~~....~~	~~....~~	~~....~~	~~Sold out~~	~~40 x 15~~	~~C~~

Note: items that are cast (form C) may contain some primary carbon.

CRM	**11X 0331.1 J**	2.82	2.50	0.13	0.069	1.646	12.43	0.607	0.120	7.59	0.1117	0.1099	....	0.149	0.122	0.0439	0.0327		40 x 13	CC
CRM	**11X 0331.2 K**	2.64	2.32	0.119	0.049	1.272	14.26	1.025	0.0644	6.47	0.161	0.14	0.0158	0.104	0.191	0.0205	0.0205		40 X 13	CC
~~CRM~~	~~**11X 0331.3 G**~~	~~2.27~~	~~1.79~~	~~0.049~~	~~0.0339~~	~~0.613~~	~~17.23~~	~~2.014~~	~~0.0518~~	~~6.02~~	~~0.108~~	~~0.085~~	~~0.029~~	~~....~~	~~(0.116)~~	~~0.0127~~	~~0.0247~~	Sold out	~~40 X 13~~	~~CC~~
CRM	**11X 0331.5 C**	2.73	2.93	0.217	0.164	0.893	14.52	0.582	0.117	7.74	....	....	....	....	0.018	0.121	0.0056		40 X 13	CC

1.1.11 With Chromium		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	V	W	Co	Nb	Ti	Sn	Pb		Size (mm) Ø x H	Form
CRM	**11X 15294 V ****	*2.3*	*0.4*	*0.03*	*0.10*	*0.50*	*0.65*	*31*	*0.32*	*0.13*	*0.12*	*0.30*	*0.1*	....	....	*0.06*	*0.01*	** provisional values	40 x 15	CC
CRM	**11X 15295 R ****	*2.5*	*0.6*	*0.04*	*0.05*	*0.50*	*0.32*	*27.5*	*0.40*	*0.19*	*0.20*	*0.19*	*1.5*	*0.04*	....	*0.04*	*0.01*	** provisional values	40 x 15	CC
CRM	**11X 15309 S**	3.05	1.398	0.086	0.040	1.506	0.919	23.26	0.249	0.505	0.056	0.015	0.032	0.0192	0.0156	....	....		40 x 15	CC
CRM	**11X 15310 A**	2.71	0.892	0.0278	0.051	1.45	5.66	21.22	0.980	2.64	0.071	0.137	0.0709	....	....	....	....		40 x 15	CC

1.2.2 Residuals in Mild Steel

		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Sn	Al	Ti	V	W	As	Co	Zn	Nb	N	Bi	Se	Sb	Size (mm) Ø x H	Form
CRM	12X 10180 A	0.170	0.221	0.0336	0.0104	0.806	0.102	0.095	0.0220	0.176	0.0143	0.0243	....	....	....	0.0058	....	0.0031	....	0.0106	....	....	....	40 x 20	W
CRM	12X 10180 B	0.169	0.114	0.0056	0.0101	0.722	0.0333	0.0451	0.0062	0.0544	0.0065	0.043	....	....	....	0.0059	....	0.0079	....	0.0071	....	....	....	40 x 20	W
CRM	12X 10180 C	0.171	0.147	0.0200	0.0150	0.803	0.0284	0.0793	0.0047	0.0500	0.0024	0.0198	....	....	....	0.0029	....	0.0005	....	0.0051	....	....	....	40 x 20	W
CRM	12X 10400 A	0.420	0.220	0.0305	0.0137	0.754	0.0631	0.139	0.0169	0.140	0.0127	0.0323	....	....	....	0.0068	....	0.0033	....	0.0133	....	....	....	40 x 15	W
CRM	12X 10550 A	0.549	0.281	0.0055	0.0184	0.685	0.0247	0.338	0.0086	0.0290	0.0018	0.0325	....	....	....	0.0059	....	(0.002)	....	0.0051	....	....	....	40 x 20	W
CRM	12X 15180 A	0.170	0.212	0.0022	0.0110	1.196	0.1030	0.118	0.0231	0.141	0.0115	0.018	....	....	....	0.0117	....	0.0016	....	0.0051	....	....	....	40 x 20	W
CRM	12X 15240 A	0.201	0.198	0.0201	0.0152	1.496	0.0761	0.1032	0.0166	0.200	0.0153	0.0188	....	0.0020	....	0.0106	....	0.0020	....	0.0070	....	....	....	40 x 20	W
CRM	12X 12700 A	0.365	0.238	0.0116	0.0205	0.636	0.0197	0.070	0.0345	0.0342	....	0.055	....	0.0033	....	0.0060	0.0047	0.0120	....	0.0073	....	....	....	50 x 20	C
CRM	12X 12701 A	0.330	0.308	0.0124	0.0218	0.636	0.0557	0.235	0.0163	0.0346	....	0.0426	....	0.0040	....	0.0060	0.0058	0.0014	....	0.0072	....	....	....	50 x 20	C
CRM	12X 12746 U	0.0132	0.183	0.064	0.0247	1.70	0.161	0.182	0.654	0.368	0.202	0.021	0.0283	0.0160	0.101	0.049	0.115	....	....	....	....	....	....	40 x 15	W
CRM	12X 12747 U	0.149	0.337	0.041	0.029	2.02	0.391	0.443	0.500	0.437	0.167	0.015	0.072	0.0375	0.030	0.0114	0.200	....	....	....	....	....	....	40 x 15	W
CRM	12X 12748 U	0.106	0.221	0.050	0.0309	0.902	0.376	0.401	0.329	0.347	0.080	0.111	0.105	0.0499	0.0464	0.129	0.323	....	....	....	....	....	....	40 x 15	W
CRM	12X 12749 W	0.132	0.298	0.101	0.0257	1.250	0.485	0.554	0.224	0.311	0.040	0.004	0.031	0.069	0.034	0.071	0.436	....	....	....	....	....	....	40 x 15	W
CRM	12X 12750 U	0.258	0.599	0.0053	0.0078	0.510	0.786	0.792	0.088	0.106	0.110	0.253	0.159	0.102	0.100	....	0.581	....	0.111	....	....	....	....	40 x 15	W
CRM	12X 349 D	0.194	0.201	0.0232	0.0162	0.498	0.289	0.268	0.123	0.106	0.153	0.149	0.101	0.0172	0.049	0.0096	0.021	....	....	....	....	....	....	40 x 15	W
CRM	12X 350 B	0.138	0.672	0.0363	0.029	0.706	0.162	0.392	0.149	0.150	0.0298	0.341	0.099	0.0286	0.275	0.053	0.0206	....	....	....	....	....	....	40 x 15	W
CRM	12X 352 D	0.298	0.338	0.125	0.066	0.627	0.334	0.423	0.257	0.144	0.105	0.146	0.285	0.0584	0.223	0.0095	0.0504	....	....	....	....	....	....	40 x 15	W
~~CRM~~	~~12X 353 F~~	~~0.122~~	~~0.154~~	~~0.0200~~	~~0.0098~~	~~0.644~~	~~0.218~~	~~0.701~~	~~0.107~~	~~0.271~~	~~0.1178~~	~~0.093~~	~~0.059~~	~~0.0108~~	~~0.134~~	~~0.0489~~	~~0.0261~~	....	~~0.060~~	~~0.0112~~	Sold out			~~40 x 15~~	~~W~~
CRM	12X 354 B **	*0.25*	*0.20*	*0.01*	*0.05*	*5.0*	*0.08*	*0.05*	*0.03*	*0.07*	*0.015*	*0.02*	*0.025*	*0.02*	*0.025*	*0.03*	*0.025*	....	*0.08*	*0.002*	** provisional values			40 x 15	W
CRM	12X 355 C	0.159	0.494	0.0241	0.0214	0.508	0.0710	0.113	0.1010	0.657	0.0564	0.1104	0.153	0.1265	0.037	0.0331	0.0495	....	0.023	0.0023	....	0.0395	0.0796	40 x 15	W
CRM	12X 356 C	0.211	0.0662	0.0341	0.0526	0.199	0.0349	0.253	0.0294	0.449	0.0365	0.0338	0.0252	0.0588	0.107	0.0253	0.1499	0.0099	0.0030	0.0061	0.0072	0.0059	0.0291	40 x 15	W
CRM	12X 357 C	0.270	0.153	0.0590	0.0101	0.220	0.0954	0.094	0.0105	0.265	0.0188	0.208	0.0569	0.166	0.0194	0.0147	0.199	0.0094	0.0051	0.0079	0.0058	(0.004)	0.0140	40 x 15	W

1.2.3 Low Alloy Steel

		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Sn	Al	V	W	As	Co	Nb	Ti	Ta	Zn	Zr	N	Size (mm) Ø x H	Form
CRM	12X LA1 B	0.104	0.777	0.060	0.0090	1.262	0.210	1.026	0.068	0.0572	....	0.0104	0.448	....	0.0213	0.0144	....	....	....	....	....	0.0144	40 x 15	W
CRM	12X LA2 E	0.195	0.678	0.0263	0.0241	0.57	0.783	0.813	0.136	0.786	0.0066	1.381	0.0990	....	0.282	0.0306	....	....	....	....	....	0.0173	40 x 15	W
CRM	12X LA3 C **	*0.50*	*0.15*	*0.045*	*0.025*	*1.6*	*0.30*	*0.35*	*0.30*	*0.20*	....	*0.04*	*0.15*	....	*0.03*	*0.05*	** provis values			*0.003*	*0.02*	*0.003*	40 x 15	W
CRM	12X LA4 B	0.537	0.335	0.039	0.0363	0.303	0.521	0.499	0.489	0.334	....	0.057	0.328	0.091	....	0.105	....	....	....	....	....	0.0222	42 x 15	W
CRM	12X LA5 C	0.783	0.493	0.0261	0.0577	0.726	0.484	0.678	0.305	0.158	0.0100	0.10	0.579	....	0.0085	0.166	....	....	....	0.0091	....	....	40 x 15	W
CRM	12X LA6 C	0.018	0.088	0.0103	0.0051	0.0957	0.0549	0.1592	0.0151	0.0240	....	0.152	0.0061	....	....	0.0045	....	....	....	0.0083	....	0.0059	40 x 15	W
CRM	12X 15217 Q	0.176	1.390	0.073	0.058	0.652	0.864	1.24	0.358	0.231	0.0737	(0.021)	0.662	0.121	....	0.248	0.131	....	....	....	....	0.0253	40 x 15	W
CRM	12X 15251 T	1.17	2.27	0.0258	0.0284	1.003	1.035	0.792	0.205	0.110	0.0047	0.050	0.405	0.053	....	0.259	0.29	....	....	....	....	0.0232	40 x 15	W
CRM	12X 15252 Q	0.0478	0.265	0.0580	0.0213	0.818	2.03	0.887	0.248	0.154	0.0448	0.074	0.330	....	....	0.154	0.10	....	(0.054)	....	....	0.0218	40 x 15	W
CRM	12X 15253 S	0.173	0.299	0.053	0.0552	0.992	0.506	1.505	0.513	0.326	0.129	0.024	0.242	0.265	0.0259	0.0898	0.383	....	0.011	....	....	0.0235	40 x 15	W
CRM	12X 15255 Q	0.351	1.02	0.070	0.104	1.191	0.296	1.509	0.1193	0.279	0.101	0.073	0.475	0.150	0.0193	0.0502	0.152	0.0377	....	....	....	0.027	40 x 15	W
CRM	12X 15256 Q	0.123	0.190	0.0163	0.0125	0.492	5.33	0.362	0.0740	0.0550	0.107	0.1300	0.619	0.101	....	0.493	0.0509	....	....	....	....	0.0056	40 x 15	W
CRM	12X 15259 Q	0.603	1.81	0.0704	0.0401	0.401	4.02	0.512	0.407	0.200	0.053	0.1488	0.139	0.49	....	0.141	0.249	....	....	....	....	0.0151	40 x 15	W
CRM	12X 15260 W	0.352	0.485	0.074	0.0275	2.08	0.453	2.98	0.098	0.152	0.0094	0.191	0.442	....	0.055	0.0884	0.254	....	(0.016)	....	....	....	40 x 15	w
~~CRM~~	~~12X 15266 U~~	~~0.425~~	~~0.589~~	~~0.0156~~	~~0.0468~~	~~1.203~~	~~1.581~~	~~3.12~~	~~0.318~~	~~0.229~~	~~0.020~~	~~0.466~~	~~0.102~~	....	~~0.068~~	~~0.379~~	~~1.467~~	....	~~0.110~~	....	Sold out			~~40 x 15~~	~~CC~~
CRM	12X 15254 Z	0.285	0.916	0.047	0.043	1.117	0.394	2.12	0.758	0.123	0.0651	0.599	0.290	0.349	....	0.550	0.347	0.303	....	....	....	....	40 x 15	W
CRM	12X 15258 N	0.548	1.020	0.070	0.0439	1.434	0.327	0.465	0.215	0.0934	0.0453	0.032	0.218	0.102	....	0.272	0.103	0.120	....	....	....	....	40 x 15	W
CRM	12X 15261 X	0.546	1.513	0.0518	0.090	0.483	0.0985	0.496	1.594	0.308	0.0172	1.648	0.122	0.269	0.0051	0.333	0.601	0.385	....	....	0.0297	....	40 x 15	W

1.2.3 Low Alloy Steel (continued)

		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Sn	Al	V	Co	Ti	As	Zn	Pb	Ca	N		Size (mm) Ø x H	Form
CRM	**12X 11572 A**	0.111	0.649	0.0025	0.0069	0.498	0.0977	1.107	0.499	0.0576	0.0049	0.0290	....	....	....	0.0030	0.0009	....	....	0.0058		38 x 15	W
CRM	**12X 14072 A ****	*0.44*	*0.32*	*0.006*	*0.015*	*0.68*	*0.14*	*1.07*	*0.57*	*0.200*	*0.005*	*0.003*	*0.31*	*0.01*	....	....	....	....	....	*0.010*	** provisional values	38 x 15	W
CRM	**12X 19965 A**	0.936	0.247	0.0081	0.0196	0.600	0.141	1.713	0.210	0.148	0.0070	0.0256	0.0087	....	....	....	0.0008	....	....	0.0087		38 x 15	W
CRM	**12X 21590 A**	0.139	0.211	0.0059	0.0128	0.457	0.144	2.10	0.935	0.283	0.0190	0.0202	0.0032	....	0.0011	0.0091	0.0045	....	....	0.0134	ASTM A182 F22	40 x 15	W
CRM	**12X 32550 A**	0.257	1.59	0.0054	0.0061	1.350	1.750	0.377	0.417	0.108	0.0206	0.0178	0.0222	....	....	0.0054	....	....	....	0.0101		38 x 15	W
CRM	**12X 41300 A**	0.319	0.183	0.0156	0.0082	0.551	0.084	0.996	0.217	0.131	0.0060	0.027	....	....	....	0.0043	0.0012	....	....	0.0095		38 x 15	W
CRM	**12X 41400 A**	0.418	0.221	0.0210	0.0138	0.795	0.127	1.003	0.211	0.238	0.0181	0.0195	....	....	....	0.0088	....	....	....	0.0101		38 x 20	W
CRM	**12X 41450 A**	0.446	0.261	0.0032	0.0093	1.011	0.187	1.194	0.340	0.1318	0.0090	0.0220	0.0385	....	....	0.0053	....	....	....	0.0080		38 x 15	W
CRM	**12X 43400 A**	0.422	0.259	0.0284	0.0164	0.592	1.378	1.181	0.223	0.177	0.007	0.013	....	....	....	0.0084	0.0027	....	....	0.0089		40 x 15	W
CRM	**12X 44220 A**	0.417	1.662	0.0009	0.0050	0.874	1.89	0.846	0.401	0.031	0.0019	0.029	0.0764	....	....	0.0026	....	....	....	0.0030		38 x 15	W
CRM	**12X 46150 A**	0.160	0.24	0.0074	0.0162	0.471	1.590	0.0348	0.243	0.0158	0.0012	0.0116	0.0019	....	....	0.0016	0.0067	0.0012	....	0.0082		45 x 15	W
CRM	**12X 52986 A**	1.023	0.246	0.0011	0.0049	0.372	0.0411	1.418	0.0169	0.077	0.0063	0.0258	0.0615	....	....	(0.002)	....	....	....	(0.002)		38 x 15	W
CRM	**12X 61500 A**	0.530	0.240	0.0102	0.0104	0.912	0.0976	1.023	0.0195	0.157	0.0114	(0.007)	0.110	....	....	0.0067	0.0055	....	....	....		38 x 15	W
CRM	**12X 86200 A**	0.198	0.299	0.0104	0.0110	0.849	0.598	0.602	0.224	0.213	0.0100	0.0305	0.0045	....	....	0.0051	....	....	....	0.0091		38 x 15	W
CRM	**12X 93106 A**	0.122	0.206	0.0103	0.0071	0.605	3.255	1.107	0.0879	0.199	0.0094	0.0246	0.0030	....	....	0.0050	....	....	....	0.0098		38 x 15	W
CRM	**12X 24065 A**	0.370	0.218	0.0044	0.0129	0.502	0.271	1.412	0.1716	0.216	0.0120	1.035	0.0040	....	0.0028	0.0074	0.0033	....	....	0.0076		40 x 15	W
CRM	**12X 4330V A**	0.327	0.303	0.0030	0.0062	0.857	1.99	0.922	0.470	0.0954	0.0071	0.0311	0.0507	....	....	0.0059	....	....	....	0.0078		45 x 15	W
CRM	**12X 15CDV6 A**	0.171	0.152	0.0086	0.0056	0.839	0.044	1.397	0.875	0.0231	0.0011	0.019	0.242	....	....	0.0041	....	....	....	0.0069		40 x 15	W
CRM	**12X 40CDV12 A**	0.401	0.250	0.0013	0.0060	0.604	0.1062	3.29	0.946	0.0978	0.0049	0.0208	0.198	0.0197	....	0.0040	....	....	....	0.0155		38 x 15	W
CRM	**12X 605M36 A**	0.373	0.283	0.0317	(0.009)	1.504	0.146	0.243	0.292	0.199	0.0101	0.0105	....	0.0151	....	0.0102	....	....	0.0033	0.0095		38 x 15	W
CRM	**12X 722M24 A**	0.236	0.262	0.0199	0.0135	0.510	0.208	3.094	0.497	0.200	0.0116	0.0187	0.0080	....	....	0.0075	0.0028	....	....	....		38 x 15	W
CRM	**12X 826M40 A**	0.395	0.248	0.0025	0.0094	0.529	2.408	0.649	0.510	0.1294	0.0085	0.0404	....	....	....	0.0056	....	....	....	0.0089		38 x 15	W
CRM	**12X 835M30 A**	0.275	0.198	0.0157	0.0071	0.457	4.01	1.119	0.213	0.195	0.0101	0.004	0.0029	....	0.0012	0.0068	....	....	....	0.0087		45 x 15	W
CRM	**12X 19MNVS6 A**	0.174	0.357	0.0245	0.0114	1.563	0.110	0.1087	0.0270	0.203	0.0214	0.0101	0.0939	....	....	....	....	....	....	0.0210		38 x 15	W

1.3.2 Austenitic Stainless Steels

		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Sn	Al	Co	Nb	N	B	Ta	V	Sb	Ti	W	Zr	Ca	Size (mm) Ø x H	Form
	~~13X 17001 B~~	~~0.114~~	~~0.34~~	~~0.016~~	~~0.080~~	~~1.73~~	~~6.05~~	~~14.89~~	~~0.12~~	~~0.037~~	~~0.030~~	~~0.01~~	~~0.15~~	~~0.76~~	~~0.040~~	~~0.008~~	....	....	....	....	Sold out		....	~~40 x 15~~	~~G~~
CRM	13X 17002 E	0.112	0.486	0.0250	0.0409	0.801	7.87	17.45	0.204	0.1012	....	(0.030)	0.0702	0.487	0.061	0.0012	(0.012)	0.0587	....	....	....	....	....	40 x 15	W
	13X 17003 A	0.10	0.78	0.035	0.037	0.85	11.90	11.89	0.27	0.08	....	....	0.07	0.34	....	....	....	....	....	....	....	....	....	40 x 15	C
	~~13X 17004 A~~	~~0.06~~	~~1.32~~	~~0.048~~	~~0.024~~	~~0.62~~	~~16.06~~	~~21.78~~	~~0.31~~	~~0.11~~	....	....	~~0.05~~	~~0.23~~	....	....	....	....	....	....	sold out		....	~~40 x 15~~	~~G~~
CRM	13X 17005 D	0.107	1.500	0.057	0.0209	0.349	20.84	24.72	0.699	0.1076	....	....	0.0510	0.191	0.064	0.0028	0.049	....	....	....	....	....	....	40 x 15	CC
CRM	13X 30300 A	0.041	0.424	0.312	0.0199	1.84	8.55	17.59	0.333	0.0252	....	....	0.0259	....	0.0350	0.0035	....	0.092	....	....	....	....	....	40 x 15	W
CRM	13X 30403 A	0.0201	0.284	0.0248	0.0297	1.488	7.92	18.25	0.192	0.217	....	....	0.101	(0.019)	0.081	....	....	0.113	....	....	0.018	....	....	40 x 15	W
CRM	13X 30908 A	0.0560	0.320	0.0011	0.0267	1.638	12.05	22.51	0.221	0.269	....	0.0035	0.120	0.0142	0.0652	0.0027	....	0.128	....	....	....	....	....	38 x 15	W
CRM	13X 32100 A	0.0463	0.498	0.0011	0.0298	1.52	9.32	17.39	0.282	0.415	0.0115	0.0247	0.105	0.0191	0.0115	0.0025	....	0.106	....	0.376	0.021	....	....	38 x 15	W
CRM	13X 34700 A	0.016	0.480	(0.0005)	0.0276	1.283	9.32	17.22	0.392	0.165	0.0053	0.025	0.132	0.329	0.0163	0.0007	....	0.123	....	....	0.144	....	....	38 x 15	W
CRM	13X 18001 B	0.207	0.203	0.0786	0.0090	0.463	6.13	15.92	0.816	0.149	....	0.0157	0.0231	0.612	0.0347	....	....	0.0996	....	....	....	....	....	40 x 15	W
CRM	13X 18002 D	0.159	0.352	0.0487	0.0245	0.722	7.92	17.77	0.209	0.116	....	0.0617	0.0514	1.531	0.072	....	....	0.0542	....	....	....	....	....	40 x 15	W
CRM	13X 18003 C	0.113	0.805	0.0245	0.0545	1.000	10.08	19.56	0.401	0.0433	....	0.0292	0.100	1.042	0.090	....	....	0.0750	....	....	....	....	....	40.x 15	W
CRM	13X 18004 B	0.099	1.21	0.0191	0.068	1.400	12.67	21.57	0.601	0.050	....	0.0111	0.211	0.749	0.061	....	....	0.161	....	....	....	....	....	40 x 15	W
CRM	13X 19001 B	0.055	1.20	0.0174	0.0151	0.460	5.10	15.07	1.51	0.202	....	....	0.025	0.032	0.070	....	(0.019)	0.083	....	....	....	....	....	40 x 15	W
CRM	13X 19003 C	0.047	0.497	0.046	0.0382	1.138	12.46	18.99	2.50	0.171	....	....	0.105	0.120	0.077	....	....	0.0486	....	....	....	....	....	40 x 15	W
	~~13X 19004 B~~	~~0.066~~	~~0.36~~	~~0.014~~	~~0.069~~	~~1.96~~	~~17.9~~	~~22.8~~	~~3.62~~	~~0.022~~	....	....	....	~~0.18~~	....	....	....	....	....	....	sold out		....	~~40 x 15~~	~~G~~
CRM	13X 12533 Z	0.110	0.440	0.0156	0.0149	0.812	5.06	18.80	1.05	0.131	0.0097	0.059	0.0299	....	0.073	0.0100	....	0.181	....	0.147	....	....	....	40 x 15	CC
CRM	13X 12534 X	0.0716	0.811	0.0086	0.0192	0.589	8.50	17.71	2.04	0.0586	....	0.0485	0.0602	0.201	....	....	0.031	0.110	....	0.348	0.010	....	....	40 x 15	W
CRM	13X 12535 BE	0.229	1.407	0.0591	0.0400	0.342	14.79	16.95	4.09	0.130	0.0194	0.194	0.146	....	0.029	0.0051	(0.020)	0.252	....	0.625	....	....	....	40 x 15	CC
CRM	13X 12536 S	0.149	0.865	0.136	0.052	0.406	12.07	15.30	2.54	0.065	0.018	0.049	0.298	....	0.062	0.0274	0.091	....	....	0.105	....	....	....	40 x 15	CC
CRM	13X 12537 T	0.0889	1.151	0.0206	0.0382	1.116	10.71	20.43	3.05	0.248	0.0401	(0.062)	0.1520	0.102	0.048	0.0029	0.0194	0.0908	....	0.273	....	....	....	40 x 15	CC
CRM	13X 31603 A	0.0242	0.332	0.0246	0.0284	1.78	10.17	16.83	1.98	0.322	0.0045	0.0098	0.0571	0.0078	0.080	0.0011	....	0.093	....	....	0.0444	....	....	40 x15	W
CRM	13X 31603 B	0.0167	0.325	0.0210	0.0262	1.898	10.07	16.89	2.04	0.350	0.0057	0.009	0.133	0.0099	0.082	....	....	0.101	....	(0.001)	0.063	....	0.0022	30 x 20	W
CRM	13X 31603 C	0.023	0.350	0.0245	0.0263	1.879	10.03	16.83	2.02	0.306	0.0053	(0.005)	0.148	0.0197	0.080	....	....	0.0895	....	....	0.0427	....	0.0029	30 x 20	W
CRM	13X 31635 A	0.0254	0.487	0.0301	0.0352	1.807	10.80	16.98	2.089	0.404	....	0.0054	0.174	0.010	0.020	....	....	0.0584	....	0.149	0.031	....	....	40 x 15	W
CRM	13X 12853 K	0.109	1.057	0.025	0.0216	0.838	12.09	17.15	2.73	0.587	....	....	0.285	....	....	0.0051	0.013	....	0.0203	0.0028	0.095	0.015	....	40 x 15	CC
CRM	13X 12854 L	0.053	1.308	0.0278	0.024	1.300	11.60	15.77	2.50	0.306	....	....	0.33	0.689	0.0550	0.0076	(0.06)	....	....	0.065	0.16	....	....	40 x 15	CC
CRM	13X 12855 M	0.182	1.10	0.0233	0.0240	1.162	10.80	17.13	2.86	0.446	....	....	0.226	....	....	0.0099	0.050	....	0.210	0.061	0.201	....	....	40 x 15	CC

1.3.3 Maraging Steels

		C	Si	S	P	Mn	Ni	Cr	Mo	Al	Ti	Co	N	Size (mm) Ø x H	Form
CRM	13X 14934 Q	0.0254	0.502	0.0288	0.024	0.254	17.60	0.388	4.22	0.15	0.694	9.03	0.006	40 x 15	CC
CRM	13X 14935 T	0.0105	0.441	0.055	0.036	0.494	18.96	0.745	5.61	(0.007)	0.106	7.17	0.0102	40 x 15	CC

1.3.4 Ferritic & Martensitic Stainless Steels

		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Sn	Al	Ti	V	As	Co	Nb	W	B	Sb	Pb	Ca	N	Size (mm) Ø x H	Form
CRM	**13X 12547 M**	0.238	0.344	0.0746	0.0441	1.191	1.492	17.49	1.006	0.531	0.030	....	....	0.1021	....	0.302	0.347	....	....	....	....	....	0.099	40 x 15	CC
CRM	**13X 12548 M**	0.189	0.421	0.218	0.0260	0.576	1.08	12.98	1.33	0.228	....	....	....	....	....	0.352	0.585	0.033	....	0.022	....	....	0.0508	40 x 15	CC
CRM	**13X 12549 L**	0.1025	0.344	0.124	0.0052	0.354	1.203	12.01	1.311	0.492	....	....	....	0.0144	....	0.492	0.19	....	....	....	....	....	0.0393	40 x 15	concast
	13X 14775 R	0.05	0.63	0.054	0.053	1.37	1.75	17.7	0.47	0.21	....	....	....	....	....	0.15	0.75	....	....	....	....	....	....	40 x 15	C
~~CRM~~	~~**13X 15023 V**~~	~~0.118~~	~~0.311~~	~~0.008~~	~~0.014~~	~~1.352~~	~~0.850~~	~~10.96~~	~~1.052~~	~~(0.052)~~	~~....~~	~~0.14~~	~~....~~	~~0.0252~~	~~....~~	~~0.0555~~	~~1.53~~	~~0.018~~	~~....~~	sold out		~~....~~	~~0.0409~~	~~40 x 15~~	~~CC~~
CRM	**13X 15024 X**	0.166	0.749	0.0294	0.0284	0.610	2.99	14.65	0.299	0.332	....	0.0049	....	0.150	....	0.1059	0.099	0.039	....	....	....	....	0.0156	40 x 15	W
CRM	**13X 15035 U**	0.115	0.636	0.0456	0.0415	0.674	2.38	14.00	0.399	0.204	....	(0.093)	....	0.160	....	0.199	0.500	0.048	....	....	....	....	0.0584	40 x 15	CC
CRM	**13X 15059 P**	0.084	0.495	0.0133	0.0130	0.995	1.584	15.85	0.600	0.105	(0.02)	....	0.038	0.070	....	0.266	0.430	0.081	....	....	....	....	0.113	40 x 15	CC
CRM	***13X 1.4122 A*** **	*0.35*	*0.46*	*0.002*	*0.017*	*0.47*	*0.62*	*15.9*	*0.85*	*0.065*	*0.003*	*0.002*	....	*0.10*	....	*0.022*	*0.006*	*0.003*	** provis values			....	*0.030*	40 x 15	W
CRM	***13X 1.4418 A*** **	*0.042*	*0.29*	*0.015*	*0.025*	*0.81*	*4.65*	*15.4*	*0.85*	*0.17*	*0.005*	*0.002*	....	*0.055*	....	*0.10*	*0.01*	*0.01*	** provis values			....	*0.042*	40 x 15	W
CRM	***13X 1.4923 A*** **	*0.20*	*0.33*	*0.003*	*0.021*	*0.50*	*0.46*	*11.2*	*0.82*	*0.055*	*0.003*	*0.003*	....	*0.30*	....	*0.02*	*0.005*	....	** provis values			*0.005*	*0.033*	40 x 15	W
CRM	***13X 1.4713 A*** **	*0.045*	*0.92*	*0.008*	*0.018*	*0.49*	*0.12*	*7.1*	*0.025*	*0.038*	*0.003*	*0.55*	*0.005*	*0.045*	....	*0.01*	....	....	** provis values			....	*0.006*	40 x 15	W
CRM	***13X 1.4742 A*** **	*0.085*	*0.90*	*0.002*	*0.022*	*0.72*	*0.45*	*17.6*	*0.10*	*0.13*	*0.005*	*0.82*	*0.005*	*0.045*	....	*0.015*	*0.02*	....	** provis values			....	*0.02*	40 x 15	W
CRM	***13X 1.4762 A*** **	*0.082*	*1.05*	*0.001*	*0.028*	*0.66*	*0.35*	*24.3*	*0.055*	*0.08*	*0.005*	*1.3*	*0.007*	*0.10*	....	*0.03*	*0.03*	....	** provis values			*0.0025*	*0.027*	40 x 15	W
CRM	**13X 41001 A**	0.136	0.298	0.0037	0.0142	0.464	0.0939	12.06	0.0102	0.056	0.0051	(0.004)	....	0.079	....	0.0143	....	....	....	....	....	0.0010	0.0316	41 x 15	W
CRM	**13X 41500 A**	0.0385	0.402	0.0101	0.021	0.596	3.52	13.00	0.504	0.1296	....	....	0.0012	0.091	....	0.0999	0.0405	....	....	....	....	....	0.0504	40 x 15	W
CRM	**13X 42000 A**	0.208	0.496	0.0253	0.0241	0.679	0.295	12.56	0.0398	0.202	0.0073	....	....	0.046	....	0.0161	....	....	0.0013	....	....	....	0.0273	38 x 15	W
CRM	**13X 43100 A**	0.166	0.535	0.0050	0.0199	0.378	2.10	16.39	0.0768	0.134	0.004	....	....	0.0577	....	0.0239	0.006	0.004	....	....	....	....	0.075	38 x 15	W
CRM	**13X 44004 A**	1.052	0.363	0.0178	0.0214	0.346	0.207	16.74	0.462	0.0548	....	0.0305	....	0.076	....	0.0188	....	0.030	....	....	....	....	0.0247	40 x 15	W
CRM	**13X 41600 A**	0.111	0.442	0.302	0.0253	0.627	0.331	13.23	0.0499	0.160	0.0066	(0.004)	....	0.0888	....	0.0216	0.0053	(0.003)	....	....	....	....	0.0245	41 x 15	W
CRM	***13X 43020 A*** **	*0.15*	*0.45*	*0.19*	*0.025*	*1.45*	*0.52*	*16.0*	*0.23*	*0.07*	....	*0.005*	....	*0.055*	....	*0.02*	*0.01*	*0.01*	*0.005*	** provis values		....	*0.022*	40 x 15	W
CRM	**13X 8110L D**	0.750	0.812	0.068	0.052	0.446	4.62	12.30	2.81	0.344	....	(0.071)	0.0108	0.211	0.074	0.31	....	....	0.989	....	....	....	0.0286	40 x 15	CC

1.3.5 Special Stainless Steels

		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Al	Ti	V	W	Co	Nb	Ta	N	B			Size (mm) Ø x H	Form
	13X 12538 J	0.04	0.64	....	....	0.78	6.07	23.72	1.53	....	....	....	....	....	....	....	....	....	....			40 x 15	C
CRM	**13X 12540 M**	0.131	0.805	0.0512	0.051	0.800	4.975	27.44	0.993	0.181	....	....	0.210	0.097	0.109	0.107	....	0.054	....			40 x 15	CC
CRM	**13X 14207 K**	0.147	1.52	0.052	0.0213	0.901	12.60	19.83	0.299	0.248	....	....	....	3.18	0.033	0.245	(0.064)	0.097	....	low stock		40 x 15	CC
CRM	**13X 14211 Q**	0.064	1.64	0.0146	0.0157	0.766	12.55	25.70	0.325	0.161	(0.11)	0.220	....	3.24	0.071	0.161	....	....	....			40 x 15	CC
~~CRM~~	~~**13X 14212 R**~~	~~0.104~~	~~2.02~~	~~0.025~~	~~0.0290~~	~~1.29~~	~~8.79~~	~~20.86~~	~~0.570~~	~~1.184~~	~~0.12~~	~~0.15~~	~~0.134~~	~~2.01~~	~~0.252~~	~~0.980~~	~~....~~	~~0.156~~	~~....~~	sold out		~~40 x 15~~	~~CC~~
CRM	**13X 14215 L**	0.136	0.596	0.0068	0.0050	1.110	15.86	22.89	0.0048	0.0110	....	....	0.0480	3.02	0.0057	0.0196	....	....	....			40 x 15	concast
CRM	**13X 14216 P**	0.0424	1.566	0.0070	0.0048	0.663	12.06	23.44	0.209	0.231	....	....	0.0722	2.25	0.248	0.248	....	0.0152	....			40 x 15	concast
CRM	**13X 14219 K**	0.0997	1.504	0.0456	0.0401	0.482	12.66	21.46	0.169	0.138	....	....	0.0188	4.17	0.0475	0.140	....	....	....			40 x 15	concast
CRM	**13X 31008 A**	0.063	0.503	0.0040	0.0302	1.234	19.34	24.48	0.338	0.159	....	....	0.078	0.165	0.078	0.013	....	0.063	....		UNS S31008	38 x 15	W
CRM	***13X 42200 A*** **	*0.22*	*0.32*	*0.001*	*0.018*	*0.65*	*0.73*	*11.5*	*1.06*	*0.14*	*0.003*	....	*0.25*	*1.15*	*0.01*	*0.02*	....	*0.060*	** provis values		UNS S42200	38 x 15	W
CRM	**13X 64152 A**	0.114	0.224	0.0020	0.0123	0.666	2.50	11.34	1.567	0.0622	0.0315	....	0.275	....	0.0185	....	....	0.0339	....		UNS S64152	38 x 15	W
CRM	**13X 66286 A**	0.035	0.216	(0.0006)	0.0172	1.173	25.21	14.99	1.185	0.195	0.193	1.92	0.262	0.098	0.083	....	....	0.0040	0.0044		UNS S66286	38 x 15	W

1.3.6 Precipitation Hardening Steels

		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Ti	Al	V	Co	Nb	W	B	N			Size (mm) Ø x H	Form
CRM	**13X PH2 M**	0.0598	0.502	0.0419	0.0201	1.184	3.56	16.80	1.009	4.03	0.049	0.0419	0.1028	0.0927	0.143	....	0.0047	0.052			40 x 15	W
CRM	**13X PH3 M**	0.184	1.60	0.0208	0.0188	0.395	3.08	15.86	0.751	5.99	....	....	0.176	0.420	0.394	....	0.0049	0.070			40 x 15	CC
CRM	**13X PH4 N**	0.0400	0.747	0.0166	0.0285	0.793	4.00	14.87	0.247	5.24	0.100	0.094	0.500	0.600	0.303	....	0.0033	0.078			40 x 15	W
CRM	**13X PH7 F**	0.118	1.402	0.0057	0.0283	1.487	5.41	13.16	2.52	0.777	0.0196	0.012	0.043	0.0493	0.241	....	....	0.044			40 x 15	W
CRM	**13X PH13800 A**	0.0386	0.081	0.0030	0.0064	0.0332	8.04	12.52	2.10	0.0449	0.0122	1.075	0.0188	0.0220	....	....	....	0.0041		UNS S13800	38 x 15	W
CRM	**13X PH17400 A**	0.0200	0.349	0.0215	0.0202	0.829	4.52	15.74	0.061	3.09	....	....	0.112	0.0411	0.184	....	....	0.0342		UNS S17400	41 x 15	W
CRM	**13X PH17700 A**	0.0732	0.551	0.0008	0.0181	0.496	6.98	16.88	0.340	0.146	0.051	1.172	0.0390	0.0464	0.0201	0.009	0.0033	0.0192		UNS S17700	38 x 15	W
CRM	**13X PH2S143 A**	0.044	0.479	0.0021	0.0212	0.546	5.20	13.46	1.326	1.61	....	....	0.087	0.0483	0.225	0.018	....	0.0246			32 x 15	W
CRM	**13X FV520B A**	0.0181	0.342	0.0016	0.0221	0.655	5.29	13.73	1.334	1.462	....	....	0.080	0.030	0.301	0.020	....	0.0197			40 x 15	W
CRM	**13X 45500 A ****	*0.003*	*0.055*	*0.002*	*0.005*	*0.027*	*8.3*	*11.4*	*0.015*	*2.2*	*1.2*	*0.07*	*0.065*	*0.015*	....	....	....	*0.002*	** provis values	UNS S45500	38 x 15	W

1.3.7 High Nitrogen Stainless Steels

		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Al	V	W	Co	Nb	B	N			Size (mm) Ø x H	Form
CRM	**13X NSA2 H**	0.132	0.739	0.0278	0.0252	1.014	10.08	17.82	2.013	0.259	....	0.139	....	....	0.155	....	0.131				40 x 15	CC
	13X NSA3 J	0.16	0.57	....	....	1.07	12.0	16.1	2.8	....	....	....	....	....	....	....	0.20				40 x 15	W
CRM	**13X NSA4 B**	0.115	0.519	0.0095	0.0302	5.55	17.62	23.85	4.32	0.595	0.0048	....	....	....	0.154	....	0.446				40 x 15	CC
CRM	**13X NSA5 A**	0.063	0.281	0.0212	(0.010)	4.27	9.52	20.73	2.32	0.098	(0.012)	....	....	....	0.574	....	0.340				40 x 15	CC
CRM	**13X NSA6 B**	0.0467	0.64	0.0113	0.060	1.607	31.13	26.14	7.03	1.52	(0.08)	....	....	....	0.149	....	0.245				40 x 15	CC
CRM	**13X NSA7 A**	0.0209	0.359	0.0009	0.022	0.951	5.67	25.91	3.25	1.42	(0.009)	....	....	....	0.015	....	0.247			UNS S32550	42 x 15	W
CRM	**13X NSA8 A**	0.0240	(0.40)	0.0008	0.0216	0.656	6.29	25.93	3.60	0.903	....	0.060	0.586	0.0374	(0.004)	....	0.239			UNS S32760	44 x 15	W
CRM	**13X NSA9 A**	0.019	0.469	(0.0007)	0.0248	1.592	5.44	22.57	3.11	0.240	....	0.068	0.024	0.072	0.012	....	0.156			UNS S31803	40 x 15	W
CRM	**13X NSA10 A**	0.016	0.375	0.0006	0.0207	5.23	12.96	20.69	2.636	0.175	....	0.151	0.061	0.061	0.142	(0.0029)	0.343			UNS S20910	38 x 15	W
CRM	**13X NSA11 A**	0.0159	0.275	<0.001	0.0186	0.640	23.89	20.19	6.16	0.187	(0.02)	0.0513	0.038	0.0981	0.150	....	0.203			UNS N08367	38 x 15	W
CRM	**13X NSA12 A**	0.0192	0.492	0.0007	0.0267	1.272	24.84	19.63	4.20	1.485	0.0169	0.0660	0.047	0.090	0.0088	0.0020	0.0662			UNS N08904	40 x 15	W
CRM	**13X 21800 A**	0.0765	4.03	0.0011	0.032	8.00	8.32	16.81	0.325	0.431	0.012	0.0619	....	0.0943	0.007	(0.001)	0.125			Nitronic 60/UNS S21800	38 x 15	W
CRM	**13X 31254 A**	0.0185	0.400	0.0011	0.0191	0.590	18.34	20.11	6.13	0.575	0.0134	0.0595	0.017	0.125	....	0.0025	0.205			254SMO/UNS S31254	40 x 15	W
CRM	**13X 31726 A**	0.0124	0.415	0.0012	0.0218	1.849	13.56	17.62	4.56	0.206	0.0208	0.0426	0.0384	0.0502	0.009	....	0.135			317LMN/UNS S31726	40 x 15	W
CRM	**13X 32101 A**	0.0325	0.777	(0.0004)	0.0194	4.913	1.476	21.12	0.0970	0.295	0.0122	0.0830	....	0.0347	0.0070	0.0014	0.241			UNS S32101	38 x 15	W
CRM	**13X 32900 A**	0.0251	0.556	0.0269	0.0276	1.478	5.57	24.91	1.310	0.354	0.007	0.0938	0.017	0.0724	....	0.0028	0.097			UNS S32900	40 x 15	W
	13X NSB1 D	0.17	0.58	....	....	0.44	10.0	19.1	0.11	....	....	....	....	....	....	....	0.04				40 x 15	W
	13X NSB2 D	0.06	0.66	....	....	0.62	11.1	18.2	0.21	....	....	....	....	....	....	....	0.095				40 x 15	W
CRM	**13X NSB3 G**	0.121	0.471	....	....	0.632	9.26	15.22	0.630	....	....	....	....	....	....	....	0.198				42 x 15	W
CRM	**13X NSC1 P**	0.316	0.788	0.0097	....	6.53	5.06	18.76	0.196	0.391	....	0.501	0.100	....	1.499	....	0.0877				40 x 15	CC
CRM	**13X NSC2 P**	0.560	0.997	0.0117	....	8.70	4.20	21.98	0.850	1.026	....	0.321	0.062	....	2.21	....	0.341				40 x 15	CC
CRM	**13X NSC3 Z**	0.895	1.28	0.0110	....	10.15	2.96	23.02	0.060	0.100	0.105	0.110	....	....	2.81	....	0.498				40 x 15	CC
CRM	**13X NSC4 F**	0.513	1.52	0.0071	....	7.97	7.03	32.58	1.390	0.162	0.119	0.219	0.204	0.218	2.41	....	0.942				40 x 15	CC
CRM	**13X NSC5 B**	0.558	1.19	0.0155	....	2.22	4.34	22.10	(0.01)	0.787	0.21	0.0461	....	....	2.38	....	0.296				40 x 15	CC
CRM	**13X NSC6 A**	0.0266	0.523	0.0055	0.0049	8.85	6.52	20.47	(0.002)	0.0064	(0.009)	0.0052	....	....	....	....	0.235				40 x 13	HIP
CRM	**13X NSC7 A**	0.410	0.803	0.0091	0.0155	3.80	7.41	23.63	0.448	0.144	(0.1)	0.123	0.052	0.308	0.509	....	0.337				40 x 15	CC

1.4.2 Tool Steels		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Sn	Al	V	W	As	Co	Nb	N	Pb	Alloy Type	Size (mm) Ø x H	Form
CRM	**14X HS1 C**	0.718	0.22	0.020	0.018	0.29	0.27	4.00	0.37	0.069	(0.035)	....	1.05	17.0	....	0.25	....	0.023	....	T-1	40 x 15	W
CRM	**14X HS10 A**	1.710	0.660	0.0099	0.0135	0.134	0.146	14.83	1.679	0.0605	....	....	1.142	1.75	....	0.0866	....	(0.001)	....		48 x 13	HIP
CRM	**14X HS11 A**	1.739	0.794	0.0107	0.0133	0.237	0.188	19.34	1.52	0.0562	....	....	1.032	2.24	....	0.074	....	(0.002)	....		48 x 13	HIP
CRM	**14X 72305 A**	1.085	0.206	0.0028	0.0128	0.349	0.089	0.425	0.0231	0.149	0.0101	0.0049	0.0045	....	....	....	....	0.0068	....	W-5	40 x 15	W
	14X 14946 D	0.85	0.46	0.048	0.051	0.53	1.06	5.06	0.21	0.25	....	....	1.03	16.9(7)	....	0.44	....	....	....	T-1	40 x 15	C

1.4.5 High Manganese Steels		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Sn	Al	V	Nb	Ti	Ta	N		Size (mm) Ø x H	Form
CRM	**14X MN1 AL ****	*0.57*	*0.9*	*0.005*	*0.05*	*22*	*0.7*	*1.3*	*0.5*	*0.2*	*0.04*	*0.2*	*0.025*	*0.1*	*0.035*	*0.007*	*0.06*	** provisional values	40 x 15	CC
CRM	**14X MN2 R**	0.701	1.48	0.0098	0.0198	9.65	0.530	0.355	1.546	0.081	0.061	0.120	0.121	0.294	0.179	....	0.0125		40 x 15	CC
CRM	**14X MN3 T**	0.994	1.00	0.0091	0.039	11.03	0.497	0.749	0.259	0.153	0.0195	0.041	0.0198	0.407	....	....	0.034		40 x 15	CC
CRM	**14X MN4 AC ****	*0.9*	*0.9*	*0.02*	*0.07*	*13.7*	*1.05*	*2.0*	*0.8*	*0.27*	*0.07*	*0.2*	*0.035*	*0.15*	*0.075*	*0.001*	*0.045*	** provisional values	40 x 15	CC
CRM	**14X MN5 T**	1.377	1.59	0.0110	0.0270	8.55	1.372	3.31	1.91	0.421	0.0129	(0.26)	0.0397	0.021	(1.00)	0.005	0.0155		40 x 15	CC

1.4.8 Free Machining & Resulfurised Steels		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Sn	Al	V	Co	As	Pb	B	N	Size (mm) Ø x H	Form
CRM	**14X MSFM1 L**	0.143	0.404	0.414	0.0689	1.155	0.147	0.89	0.264	0.1073	0.0289	(0.08)	0.0154	0.0509	....	....	....	0.026	40 x 15	CC
CRM	**14X MSFM2 K**	0.272	0.353	0.248	0.0491	1.568	0.235	0.996	0.355	0.162	0.0218	0.123	0.0324	0.104	....	....	....	0.028	40 x 15	CC
CRM	**14X MSFM3 G**	0.438	0.292	0.147	0.0297	1.809	0.161	0.454	0.390	0.205	0.0378	(0.18)	0.0199	0.0494	....	....	0.0043	0.0206	40 x 15	CC
CRM	**14X MSFM4 A**	0.226	0.469	0.224	0.0386	1.141	6.22	1.69	0.974	0.429	0.0141	(0.007)	0.0151	0.0253	....	....	....	0.0220	40 x 15	CC
CRM	**14X 11170 A**	0.154	0.151	0.120	0.0133	1.129	0.0877	0.1126	0.0317	0.1101	0.0110	0.0023	....	....	0.0044	0.0011	....	0.0112	38 x 15	W
CRM	**14X 11390 A**	0.419	0.198	0.191	0.0342	1.040	0.0239	0.0609	0.0067	0.0395	0.0022	0.0026	....	....	0.0028	....	....	0.0042	38 x 15	W
CRM	**14X 12144 A**	0.0800	0.0093	0.325	0.0630	1.227	0.0162	0.0807	0.0089	0.0106	....	0.0034	....	....	0.0022	0.328	....	0.0066	38 x 15	W
CRM	**14X 12130 A**	0.0871	0.022	0.305	0.061	1.219	0.0345	0.0505	0.0102	0.0201	0.0054	0.0024	....	....	0.0016	....	....	0.0097	38 x 15	W
CRM	**14X 606M36T A**	0.378	0.167	0.196	0.0159	1.574	0.0931	0.163	0.272	0.179	0.0103	0.0071	....	....	0.0085	....	....	0.0096	38 x 15	W

1.4.11 High-Ni Steels		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Al	Co	Ti	Mg	N		Size (mm) Ø x H	Form
CRM	**14X FeNi6 A**	0.100	0.0750	0.0275	0.0150	0.331	6.09	0.0732	....	0.0287	0.0247	....	....	....	0.0056		40 x 15	W
CRM	**14X FeNi 8 A**	0.0974	0.099	0.0284	0.0151	0.333	8.11	0.251	....	0.0304	0.030	....	....	....	0.0062		40 x 15	W
CRM	**14X FeNi10 A**	0.094	0.061	0.0275	0.0151	0.274	10.10	0.070	....	0.0281	0.0251	....	....	....	0.0052		40 x 15	W
CRM	**14X FeNi20 B**	0.0137	1.12	0.0089	0.010	0.0284	20.06	0.102	....	0.074	0.018	0.994	....	....	....		40 x 15	CC
CRM	**14X FeNi25 B**	0.0084	0.019	0.58	0.011	0.0121	25.10	0.0334	....	0.035	0.103	0.746	....	....	....		40 x 15	CC
~~CRM~~	~~**14X FeNi35 C**~~	~~0.082~~	~~0.309~~	~~0.140~~	~~0.030~~	~~0.174~~	~~34.52~~	~~0.1006~~	~~....~~	~~0.355~~	~~0.004~~	~~0.343~~	~~....~~	~~....~~	~~....~~	sold out	~~40 x 15~~	~~CC~~
CRM	**14X FeNi40 B**	0.0450	0.030	(1.09)	0.0185	0.081	40.57	0.0446	....	0.0517	1.18	0.858	....	....	....	low stock	40 x 15	CC
CRM	**14X FeNi45 B**	0.0045	0.567	0.038	0.0416	0.0149	45.20	0.048	....	0.078	0.552	0.654	....	....	....	low stock	40 x 15	CC
~~CRM~~	~~**14X FeNi50 B**~~	~~0.0488~~	~~0.203~~	~~0.243~~	~~0.0259~~	~~0.115~~	~~50.09~~	~~0.093~~	~~....~~	~~0.105~~	~~0.052~~	~~0.499~~	~~....~~	~~....~~	~~....~~	sold out	~~40 x 15~~	~~CC~~
CRM	**14X 93603 A**	0.0101	0.153	0.0045	0.0050	0.339	35.79	0.024	0.0145	0.0460	0.0404	0.0974	.... 0.0011	0.0019	0.0057	Invar/UNS K93603	40 x 15	W
CRM	**14X 94100 A**	0.0055	0.103	0.0027	0.0051	0.443	41.00	0.0265	0.0053	0.0628	....	0.0208	0.0011	0.0021	0.0016	UNS K94100	40 x 15	W

2.1.2 Residuals in Nickel

	Si	Mn	Cu	Fe	Cr	Co	Ti	Al	Mg	Size (mm) Ø x H	Form
21X 17520 H	0.20	0.18	0.09	0.25	0.10	0.48	0.08	0.04	0.06	40 x 15	C
21X 17521 J	0.28	0.11	0.16	0.24	0.16	0.26	0.12	0.03	0.03	40 x 15	C

2.2 Ni/Cr (Nimonic Type)

	C	Si	Mn	Cu	Fe	Cr	Mo	Co	Ti	Al	Mg	Zr	Pb	W	B	Size (mm) Ø x H	Form
22X 801 D	0.14	0.51	0.56	0.22	0.57	20.75	0.25	0.25	2.19	1.33	0.03	....	....	....	....	40 x 15	C
22X 803 E	0.06	1.05	0.22	0.007	0.33	19.85	0.50	0.50	1.93	1.60	0.0002	....	....	....	....	40 x 15	C
22X 804 D	0.07	0.56	0.54	0.21	0.66	19.72	0.09	0.20	2.34	1.33	0.004	....	....	....	....	40 x 15	C
22X 806 D	0.007	0.10	0.09	0.004	0.18	19.66	0.01	0.03	2.48	1.35	....	0.004	0.007	0.02	0.004	40 x 15	C

	C	Si	Mn	Cu	Fe	Cr	Mo	Co	Ti	Al	Mg	S	P	B	Size (mm) Ø x H	Form
22X 903 C	0.08	1.09	0.25	0.01	0.83	19.84	0.07	17.60	1.86	1.67	0.002	....	....	....	40 x 15	C
22X 904 C	0.08	0.52	0.50	0.10	0.25	19.9	0.21	16.9	2.26	1.29	0.005	....	....	....	40 x 15	C
22X 1052 C	0.19	0.51	0.26	0.13	0.65	15.7	4.48	18.6	1.09	4.08	0.002	....	....	....	40 x 15	C

2.3 Fe/Ni/Cr (Incoloy Type)

	C	Si	Mn	Cu	Cr	Mo	Co	Ti	Al	Ni	Size (mm) Ø x H	Form
23X 8004 E	0.06	0.53	0.70	0.30	19.72	0.33	0.53	0.34	0.31	31.8	40 x 15	C
23X DS2 E	0.06	2.07	1.00	0.30	17.81	0.30	0.48	0.17	0.04	37.4	40 x 15	C
23X DS4 E	0.06	2.01	1.02	0.30	16.83	0.29	0.48	0.20	0.037	37.15	40 x 15	C
23X DS5 E	0.080	1.98	1.04	0.30	18.64	0.30	0.50	0.17	0.083	36.57	40 x 15	C

2.4.1 Waspalloy, 720-types

		C	Si	Mn	Cu	Fe	Cr	Mo	Co	Ti	Al	S	P	Ni	B	W	Zr	Nb	N	Size (mm) Ø x H	Form
CRM	**24X 07001 B**	0.0357	0.064	0.0311	0.0115	0.997	19.52	4.29	13.31	3.01	1.384	(0.0007)	0.0033	57.2	0.0060	....	0.0563	0.0314	....	32 x 20	W
CRM	**24X 7201 A**	0.0326	0.039	0.0022	....	0.09	15.99	3.01	14.79	5.11	2.47	0.0027	0.0030	57.09	0.0246	1.29	0.0432	....	0.0043	40 x 13	HIP

2.5 Ni/Cr/Nb/Mo

	Si	Mn	Cu	Fe	Cr	Mo	Co	W	Nb	Size (mm) Ø x H	Form
25X 10221 F	0.45	0.28	0.11	0.62	20.0	6.57	0.26	2.23	7.43	40 x 15	C
25X 10235 E	0.56	0.53	0.26	1.26	19.87	5.85	0.53	3.14	7.25	40 x 15	C

2.6 Ni/Cr/Mo

	Si	Mn	Cu	Fe	Cr	Mo	Co	Ti	Al	Size (mm) Ø x H	Form
26X 11384 E	0.15	0.13	0.12	0.98	20.5	10.2	0.30	2.6	0.50	40 x 15	C

2.7 Ni/Cr/Mo/Co

		Si	Mn	Cu	Fe	Cr	Mo	Co	Ti	Al	Size (mm) Ø x H	Form
	27X 14184 F	0.41	0.40	0.09	0.40	21.8	10.7	10.5	0.02	0.02	40 x 15	C
	27X 14188 D	0.33	0.30	(0.003)	0.44	21.17	10.3	10.4	0.03	<0.01	40 x 15	C
	27X 14387 E	0.28	0.27	<0.005	1.11	20.2	10.8	10.0	<0.005	<0.005	40 x 15	C

2.8 Ni/Cr/Fe (Inconel Type)

		C	Si	Mn	Cu	Fe	Cr	Mo	Co	Ti	Al	Mg	S	P	Nb	Ta	B	Ni	N		Size (mm) Ø x H	Form
	28X 6001 G	....	0.95	0.12	0.83	6.33	16.38	....	1.02	0.58	0.02	0.01	....	....	....	....	....	....	....		40 x 15	C
	28X 6002 F	....	0.25	0.65	0.02	8.24	16.23	....	0.22	0.12	0.18	0.004	....	....	....	....	....	....	....		40 x 15	C
	28X 6003 E	....	0.74	0.47	0.42	7.1	15.56	....	0.62	0.22	0.025	0.01	....	....	....	....	....	....	....		40 x 15	C
	28X 6004 E	....	0.65	0.38	0.42	7.17	16.21	....	0.77	0.27	0.05	0.008	....	....	....	....	....	....	....		40 x 15	C
	28X 6005 E	....	0.60	0.39	0.39	6.98	16.93	....	0.62	0.28	0.06	0.002	....	....	....	....	....	....	....		40 x 15	C
	28X X7504 D	0.03	0.39	1.09	0.22	6.42	14.22	0.46	....	2.59	0.70	....	....	....	0.95	....	....	....	....		40 x 15	C
CRM	**28X 6251 M**	0.002	0.252	0.069	0.057	4.21	20.24	9.58	0.0078	0.0097	0.006	....	0.0013	0.0023	2.64	0.0111	0.0040	62.95	....		40 x 15	concast
~~CRM~~	~~**28X 6252 P**~~	~~0.093~~	~~0.605~~	~~0.323~~	~~0.161~~	~~4.55~~	~~21.48~~	~~9.01~~	~~0.215~~	~~0.072~~	~~....~~	~~....~~	~~0.0145~~	~~0.0106~~	~~3.60~~	~~0.017~~	~~....~~	~~60.00~~	~~0.0796~~	sold out	~~40 x 15~~	~~CC~~
CRM	**28X 6253 T ****	*0.12*	*1.3*	*0.52*	*0.31*	*5.6*	*22*	*7.8*	*0.40*	*0.25*	*0.2*	....	*0.01*	*0.02*	*4.5*	*0.04*	....	*[bal]*	*0.09*	** provisional values	40 x 15	CC
CRM	**28X 6254 M**	0.047	(0.79)	0.457	0.044	3.33	22.71	8.92	0.195	(0.15)	(0.01)	....	0.0160	0.0097	3.60	....	0.005	59.55	0.0364		40 x 15	CC
CRM	**28X 6255 M**	0.0343	0.447	0.203	0.0646	2.03	19.63	8.31	0.164	0.348	0.337	....	0.0081	0.0104	4.09	0.093	0.0101	64.2	....		40 x 15	concast
CRM	**28X 6256 A**	0.0173	0.041	0.0004	0.018	(0.034)	21.29	8.81	....	0.266	0.301	....	(0.002)	0.0033	3.75	....	....	65.4	0.007		40 x 13	HIP
CRM	**28X 06625 A**	0.020	0.273	0.090	0.0288	0.917	21.94	9.15	0.031	0.238	0.184	....	0.0037	(0.002)	3.52	....	0.0009	63.49	0.0219		40 x 15	W
CRM	**28X 7181 J**	0.0198	0.811	0.150	0.042	18.98	18.42	3.25	(0.014)	0.125	0.070	....	0.0089	0.0146	4.88	....	0.0021	53.10	0.038		40 x 15	CC
CRM	**28X 7182 N**	0.0840	0.706	0.417	0.125	18.04	19.22	2.59	0.515	0.691	(0.31)	....	0.0125	0.0110	4.54	0.025	0.0042	52.6	0.064		40 x 15	CC
~~CRM~~	~~**28X 7183 U**~~	~~0.104~~	~~0.903~~	~~0.534~~	~~0.321~~	~~15.48~~	~~18.38~~	~~3.66~~	~~0.986~~	~~0.959~~	~~0.499~~	~~....~~	~~0.0217~~	~~0.0213~~	~~5.66~~	~~....~~	~~0.0114~~	~~(52.3)~~	~~0.0420~~	sold out	~~40 x 15~~	~~CC~~
CRM	**28X 7184 K**	0.085	0.403	0.215	0.123	18.22	16.91	3.07	0.44	0.633	0.620	....	0.0158	0.0103	5.07	0.077	0.0052	54.16	0.084	low stock	40 x 15	CC
CRM	**28X 7185 K**	0.060	0.882	0.286	0.203	18.44	20.77	2.71	0.220	0.281	0.359	....	0.0089	0.0189	4.61	0.115	0.0107	50.67	0.172		40 x 15	CC
CRM	**28X 7186 K ****	*0.03*	*0.55*	*0.22*	*0.10*	*16.1*	*17.5*	*3.1*	*0.32*	*0.89*	*0.67*	....	*0.008*	*0.02*	*5.1*	....	*0.005*	*[bal]*	*0.035*	** provisional values	40 x 15	CC
CRM	**28X 07718 A**	0.026	0.076	0.055	0.038	19.55	18.62	3.01	0.172	0.945	0.544	....	0.0015	0.0063	5.05	....	0.0034	51.99	0.0056		38 x 15	W

2.10 Ni/Co/Cr/Al/Ti

		C	Si	Mn	Cu	Fe	Cr	Mo	Co	Ti	Al	Zr	V	Size (mm) Ø x H	Form
	210X 11979 G	0.025	0.30	0.13	0.07	0.56	8.07	3.28	14.32	5.22	3.76	0.04	0.82	40 x 15	C

2.12 Ni/Cu (Monel Type)

		C	Si	Mn	Cu	Fe	Cr	Mo	Co	Ti	Al	Mg	S	P	Nb	Pb	Sn	Zn	Cd	Be	Bi	Se	Ni	Size (mm) Ø x H	Form
CRM	**212X 4001 P**	0.0130	1.48	2.95	28.92	0.503	0.0795	....	0.111	(0.094)	0.0396	0.0016	0.0206	0.0198	0.100	0.0703	0.053	....	....	....	....	....	65.49	40 x 15	CC
CRM	**212X 4002 L**	0.0369	0.090	1.68	32.41	1.022	0.084	....	0.064	0.0421	0.081	0.0222	0.0019	....	0.0318	0.0373	....	....	....	....	....	....	64.33	40 x 15	CC
CRM	**212X 4003 K**	0.036	0.245	1.105	30.13	2.63	0.097	0.0317	0.0286	0.0201	0.010	0.050	0.0257	0.0059	0.150	0.053	....	....	....	....	....	....	(65.3)	40 x 15	CC
CRM	**212X 4004 M**	0.081	0.557	0.953	29.0	3.68	0.822	0.197	0.0758	0.652	0.71	....	0.0110	0.0400	0.949	0.0206	0.0596	....	0.0010	....	....	....	62.1	40 x 15	CC
CRM	**212X 4005 F**	0.0529	2.55	1.784	21.53	1.503	0.152	0.094	0.170	0.792	1.29	0.0168	0.0193	0.016	0.30	0.0212	....	....	....	....	....	....	(69.6)	40 x 15	CC
CRM	**212X 4005 G ****	*0.05*	*2.5*	*1.45*	*21.5*	*1.0*	*0.15*	*0.1*	*0.15*	*0.9*	*1.4*	*0.002*	*0.003*	*0.01*	*0.3*	*0.01*	....	....	** provisional values			....	*[bal]*	40 x 15	CC
CRM	**212X 4006 H**	0.065	3.94	0.907	24.56	2.29	0.123	....	0.0327	1.507	3.99	0.041	0.0256	....	0.497	0.0310	0.0290	0.0708	....	....	....	....	61.96	40 x 15	CC
CRM	**212X 4007 B ****	*0.05*	*2.1*	*1.0*	*29.2*	*2.0*	....	*0.04*	*0.02*	*0.10*	*0.03*	*0.05*	*0.003*	*0.02*	*2.3*	*0.02*	*0.01*	*0.05*	*0.003*	....	*0.04*	*0.02*	*[bal]*	40 x 15	CC

		C	Si	Mn	Cu	Fe	Cr	Mo	Co	Ti	Al	Mg	S	P	Nb	Zr	Pb	B	N	Ni			Size (mm) Ø x H	Form
	212X NA2 G	0.07	2.50	1.06	29.8	1.53	....	....	....	....	....	0.008	0.023	0.019	....	....	0.02	....	....	....			40 x 15	C
CRM	**212X NA4 A**	0.098	3.83	1.082	29.34	2.26	0.120	0.026	0.046	0.037	0.012	0.0014	0.004	0.0053	(0.51)	....	0.018	....	....	62.8		low stock	40 x 10	CC
CRM	**212X 04400 A**	0.157	0.253	1.027	32.47	2.065	0.166	0.0307	0.0432	0.0193	0.030	0.053	(0.002)	0.0033	....	....	....	0.0019	0.0005	63.69			40 x 15	W
CRM	**212X 05500 A**	0.135	0.167	0.634	29.91	1.162	0.073	....	(0.009)	0.632	3.00	0.0098	0.0010	0.0031	....	0.0343	....	0.0015	0.0010	64.3			38 x 15	W

2.15 Ni/Co/Cr/Fe/Mo (Hastelloy Type)

		C	Si	Mn	Cu	Fe	Cr	Mo	Co	Ti	Al	S	P	B	Nb	V	W	Mg	Zr	N	Ni		Size (mm) Ø x H	Form
CRM	**215X HB1 P**	0.0422	0.150	0.697	0.0718	5.78	1.090	33.04	0.252	....	....	0.0506	0.0056	....	0.203	0.504	....	....	....	0.0156	58.00		40 x 15	CC
CRM	**215X HB2 G**	0.049	0.390	0.800	0.0526	4.20	0.689	31.84	0.584	0.13	0.19	0.0196	0.0084	....	0.248	0.480	....	....	....	0.0108	60.2		40 x 15	CC
CRM	**215X HB3 H**	0.069	0.799	0.61	0.134	6.32	2.35	27.17	1.03	0.21	0.23	0.0156	0.0197	....	0.699	0.287	....	....	....	0.0271	(60.1)		40 x 15	CC
CRM	**215X HB4 G ****	*0.085*	*1.02*	*0.593*	*0.018*	*5.88*	*0.374*	*28.0*	*1.71*	*0.034*	....	*0.031*	*0.05*	....	*0.056*	*0.215*	*0.10*	....	....	*0.001*	*[bal]*	** provisional	40 x 15	concast
~~CRM~~	~~**215X HB5 L**~~	~~0.151~~	~~1.05~~	~~0.335~~	~~0.268~~	~~3.45~~	~~0.123~~	~~26.1~~	~~2.49~~	~~0.192~~	~~0.49~~	~~0.0113~~	~~0.038~~	~~0.003~~	~~....~~	~~0.136~~	~~....~~	~~....~~	~~....~~	~~0.006~~	~~65.3~~	Sold out	~~40 x 15~~	~~CC~~
CRM	**215X HC1 M ****	*0.026*	*0.50*	*1.26*	*0.020*	*4.02*	*15.6*	*19.7*	*2.48*	*0.268*	*0.008*	*0.002*	....	....	....	*0.153*	*3.59*	....	....	*0.005*	*[bal]*	** provisional	40 x 15	concast
CRM	**215X HC2 K ****	*0.046*	*1.23*	*0.91*	....	*2.96*	*16.5*	*18.4*	*1.71*	*0.170*	*0.005*	*0.016*	....	....	....	*0.295*	*4.05*	....	....	*0.009*	*[bal]*	** provisional	40 x 15	concast
CRM	**215X HC3 M ****	*0.089*	*0.95*	*0.67*	*0.10*	*4.84*	*17.92*	*17.3*	*0.98*	*0.148*	*0.110*	*0.013*	*0.021*	....	....	*0.40*	*4.62*	....	....	*0.006*	*[bal]*	** provisional	40 x 15	concast
CRM	**215X HC4 M ****	*0.13*	*1.15*	*0.45*	*0.32*	*6.0*	*18.5*	*17*	*0.72*	*0.09*	*0.05*	*0.02*	*0.04*	....	....	*0.50*	*5.0*	....	....	*0.075*	*[bal]*	** provisional	40 x 15	CC
CRM	**215X HC5 V ****	*0.20*	*1.38*	*0.10*	*0.47*	*8.22*	*20.1*	*16.0*	*0.048*	*0.195*	*0.72*	*0.039*	*0.056*	....	....	*0.608*	*6.15*	....	....	*0.008*	*[bal]*	** provisional	40 x 15	concast
CRM	**215X HC6 A**	0.005	(0.048)	0.099	....	5.00	15.67	16.14	1.16	0.003	0.066	0.0021	....	....	....	0.012	3.22	....	....	0.0034	58.45		40 x 13	HIP
CRM	**215X 10276 A**	0.008	0.029	0.498	0.0423	5.79	15.56	15.96	0.182	0.0186	0.203	(0.001)	0.0027	....	0.031	0.196	3.59	0.0090	0.009	0.0099	57.81		38 x 15	W

2.19 Various Nickel Alloys

		C	Si	Mn	Cu	Fe	Cr	Mo	Co	Ti	Al	S	P	Ta	V	W	Nb	Zr	B	Mg	Ni	N	Size (mm) Ø x H	Form
CRM	**219X 20500 C**	0.0212	1.29	0.300	0.0101	1.515	51.1	0.0103	0.0110	....	....	0.0137	0.0048	....	....	0.0086	0.0117	....	....	....	45.45	0.199	40 x 15	CC
~~CRM~~	~~**219X 1867 D**~~	~~0.092~~	~~0.187~~	~~0.131~~	~~0.308~~	~~0.244~~	~~7.78~~	~~6.00~~	~~9.80~~	~~1.355~~	~~6.05~~	~~0.0055~~	~~0.0054~~	~~4.05~~	~~....~~	~~0.066~~	~~0.052~~	~~0.273~~	~~0.0152~~	~~....~~	~~63.81~~	Sold out	~~40 x 15~~	~~CC~~
CRM	**219X 08825 A**	0.015	0.232	0.499	1.87	31.82	21.94	3.01	0.0646	1.192	0.149	(0.001)	0.0189	....	0.038	....	(0.007)	0.0021	0.0028	(0.003)	39.12	....	40 x 15	W
CRM	**219X 20004 A**	0.224	0.916	14.07	0.319	9.48	13.63	0.104	(0.104)	0.52	....	0.0028	0.0147	0.077	....	....	1.53	....	....	....	59.1	....	40 x 15	CC
CRM	**219X 86182 A**	0.148	0.807	7.68	0.150	7.88	15.88	0.078	0.047	0.421	....	0.0034	0.0098	0.031	....	....	2.17	....	....	....	64.7	....	40 x 13	CC

3.1 Brass - Cu/Zn Binaries

		Sn	Pb	Zn	Fe	Ni	Al	Si	As	Mn	Bi	Sb	Cr	Co	P	Ag	S	B	Cd	Te	Cu	Size (mm) Ø x H	Form
CRM	**31X B1 Q ****	*0.03*	*0.015*	*45*	*0.02*	*0.02*	*0.002*	*0.01*	*0.007*	*0.01*	*0.02*	*0.007*	*0.01*	*0.002*	*0.04*	....	....	*0.001*	*0.002*	....	*[bal]*	40 x 15	CC
CRM	**31X B2 M**	0.0113	0.0103	39.50	0.0146	0.0121	(0.001)	0.0047	0.0049	0.0147	0.0105	0.0111	....	0.0032	0.0121	....	....	0.0008	0.0029	....	60.42	40 x 15	CC
CRM	**31X B3 L**	0.0149	0.0194	34.95	0.0541	0.0431	0.287	0.0126	0.0144	0.0072	0.0098	0.0159	0.0022	0.0212	....	....	....	0.0021	0.0108	....	64.57	40 x 15	CC
CRM	**31X B4 M**	0.053	0.045	28.97	0.111	0.0649	0.0011	(0.002)	0.0516	0.0011	0.0103	0.0118	0.0038	0.0263	0.0302	....	0.0114	....	0.0236	....	70.60	40 x 15	CC
CRM	**31X B5 K**	0.045	0.021	23.60	0.056	0.0085	(0.001)	(0.001)	0.0054	0.0006	0.0061	0.0057	0.0002	0.0062	....	....	....	0.0002	0.00050	....	76.22	40 x 15	CC
CRM	**31X B6 K**	0.0029	0.0122	19.93	0.0097	0.0066	0.0010	0.015	0.0009	0.0039	0.0010	0.0011	<0.0005	0.0063	....	....	....	0.0023	0.0037	....	79.90	40 x 15	CC
CRM	**31X B7 L**	0.089	0.0416	15.34	0.099	0.0351	0.0435	0.018	0.0054	0.0088	0.0607	0.0196	....	0.0044	....	....	....	0.0013	0.0064	(0.002)	84.22	40 x 15	CC
CRM	**31X B8 J**	0.0311	0.082	10.23	0.132	0.0421	(0.001)	(0.002)	0.0074	0.0006	0.030	0.0254	(0.001)	0.0072	0.0026	....	0.045	....	0.0155	....	89.37	40 x 15	CC
CRM	**31X B9 M ****	*0.01*	*0.10*	*5.0*	*0.04*	*0.04*	*0.01*	....	*0.01*	*0.001*	*0.005*	*0.01*	....	....	*0.005*	*0.01*	....	*0.0005*	....	*0.02*	*[bal]*	40 x 15	CC

** provisional values

3.1.1 Alloyed Brass

		Sn	Pb	Zn	Fe	Ni	Al	Si	As	Mn	Bi	Sb	P	S	B	Co	Cr	Cd	Ag	Te	Cu	Size (mm) Ø x H	Form
CRM	**31X B10 M**	0.0310	0.0274	36.05	(1.39)	1.475	0.358	0.0389	0.0087	0.205	0.0215	0.0124	....	....	....	0.0390	0.0192	....	....	....	60.18	40 x 15	CC
CRM	**31X B11 H**	0.0117	0.0134	36.65	0.802	1.033	0.0262	0.0063	0.0061	0.653	0.0054	0.0057	....	....	....	....	....	....	....	....	60.72	40 x 15	CC
CRM	**31X B12 G**	0.0229	0.0244	36.67	0.430	0.491	0.081	0.0207	0.0181	1.720	0.0198	0.0194	....	....	....	....	....	....	....	....	60.51	40 x 15	CC
CRM	**31X B13 G**	0.0127	0.0188	36.67	0.182	0.212	0.0148	0.032	0.0120	2.84	0.0116	0.0056	....	....	....	....	....	....	....	....	60.03	40 x 15	CC
CRM	**31X B14 G**	0.486	0.0104	36.52	0.0183	0.0190	4.02	0.051	0.0091	0.0117	0.0103	0.0139	....	....	....	0.0109	....	....	0.0130	....	58.85	40 x 15	CC
CRM	**31X B15 H**	0.944	0.0073	36.80	0.0176	0.0102	2.98	0.109	0.0048	0.0122	0.0074	0.0111	....	....	....	0.0046	....	....	0.0071	....	59.07	40 x 15	CC
CRM	**31X B16 H**	2.13	0.0295	37.18	0.0162	0.0076	1.98	0.197	0.0056	0.0029	0.0042	0.0126	....	....	....	0.0023	....	....	0.0052	....	58.37	40 x 15	CC
CRM	**31X B17 F**	0.010	(0.05)	(33.9)	(0.02)	(0.01)	6.05	(0.007)	(0.015)	<0.001	<0.001	<0.001	....	....	....	....	....	....	....	....	60.0	40 x 15	CC
CRM	**31X B18 K**	0.0117	1.018	39.41	0.0237	0.0233	0.0193	0.019	0.0215	0.0207	0.0196	0.0205	0.0195	....	....	0.0015	(0.013)	0.0254	0.0143	0.017	59.37	40 x 15	CC
CRM	**31X B19 R**	0.0324	2.49	37.78	0.0295	0.0218	0.087	0.0392	0.0129	0.0109	0.0208	0.0105	0.0630	0.0019	....	....	....	0.0048	....	(0.002)	59.33	40 x 15	CC
CRM	**31X B20 N**	0.0244	4.43	37.03	0.024	0.021	0.0025	(0.005)	0.0028	0.0005	0.0025	0.0039	0.0230	(0.004)	....	....	....	....	....	....	58.53	40 x 15	CC
CRM	**31X B21 E**	0.101	0.113	29.55	0.126	0.117	0.0244	0.059	0.0908	0.0603	0.104	0.105	0.1269	(0.002)	....	....	....	....	....	....	69.32	40 x 15	CC
CRM	**31X B22 F**	0.160	0.152	15.92	0.158	0.154	0.0402	0.047	0.165	....	0.17	0.161	0.207	0.030	0.0043	0.139	....	0.0117	....	....	82.47	40 x 15	CC
CRM	**31X B23 D**	0.060	0.046	9.97	0.060	0.047	0.0048	0.0046	0.0482	0.0053	0.0463	0.0448	0.030	0.053	....	0.0472	....	0.0010	....	....	89.57	40 x 15	CC
CRM	**31X B24 D**	1.93	0.050	1.99	0.0342	0.134	(0.002)	....	0.0116	0.0030	0.0126	0.118	0.0065	0.050	....	....	....	0.0008	....	....	95.65	40 x 15	CC
CRM	**31X B25 B**	0.613	0.298	40.83	0.056	0.236	0.470	0.254	0.0284	0.127	0.0594	0.0843	0.093	....	(0.0045)	....	....	....	....	....	56.95	40 x 15	CC
CRM	**31X B26 F**	1.476	0.930	30.30	0.650	1.397	1.005	0.252	0.126	0.408	0.106	0.098	0.0593	....	....	0.1197	....	0.0147	0.053	....	62.93	40 x 15	CC
CRM	**31X B27 B**	0.985	0.492	17.65	0.111	0.0315	0.0015	0.0044	0.048	0.0059	0.0320	0.0243	0.0150	0.0080	(0.0005)	....	....	....	....	....	80.65	40 x 15	CC
CRM	**31X B29 A**	0.0328	0.146	24.75	0.144	4.11	0.219	....	....	0.0625	....	....	3.33	....	....	....	0.062	0.0144	....	....	67.08	40 x 15	CC

3.1.2 Brass - Trace Elements

		Sn	Pb	Zn	Fe	Ni	Al	Si	As	Mn	Bi	Sb	Cr	Co	Cd	B	Te	Ag	Cu		Size (mm) Ø x H	Form
CRM	**31X TB1 K**	0.134	0.207	35.17	0.171	0.0619	0.493	0.080	0.111	0.280	0.0414	0.105	....	0.0500	0.0118	0.0010	....	0.0455	63.08		40 x 15	CC
~~CRM~~	~~**31X TB2 H**~~	~~0.106~~	~~0.0982~~	~~36.47~~	~~0.087~~	~~0.111~~	~~0.0876~~	~~0.031~~	~~0.111~~	~~0.204~~	~~0.0404~~	~~0.0533~~	~~0.0112~~	~~0.0864~~	~~0.0014~~	~~0.0014~~	~~....~~	~~....~~	~~62.54~~	sold out	~~40 x 15~~	~~CC~~
CRM	**31X TB3 K**	0.089	0.169	37.92	0.0282	0.0637	0.0045	0.016	0.0454	0.0244	0.0030	0.0222	....	....	0.0043	(0.0005)	....	....	61.58		40 x 15	CC
CRM	**31X TB4 G**	0.0197	0.0246	33.64	0.0340	0.0133	0.0041	0.0203	0.0106	0.0013	0.0058	0.0095	....	0.0067	0.0032	(0.0004)	0.0035	....	66.07		40 x 15	CC
CRM	**31X TB5 A**	0.107	0.576	40.63	0.178	0.079	0.0458	0.122	0.349	0.445	0.314	0.174	(0.20)	0.0229	0.501	....	....	0.213	55.84		40 x 15	CC

3.1.3 Naval Brass

		Sn	Pb	Zn	Fe	Ni	Al	Si	As	Mn	Bi	Sb	P	S	Co	B	C	Ag	Cu	Size (mm) Ø x H	Form
CRM	**31X NB1 H**	0.535	0.504	29.73	0.037	0.520	(0.0004)	0.004	0.161	0.051	0.0065	0.0057	0.0223	0.0024	(0.0006)	....	....	....	68.35	40 x 15	CC
CRM	**31X NB2 H**	1.009	0.239	35.47	0.112	0.0578	0.168	0.107	0.0970	0.151	0.100	0.099	0.0139	0.0019	....	....	....	....	62.21	40 x 15	CC
CRM	**31X NB3 H**	1.67	0.197	24.64	0.113	0.0299	0.094	0.145	0.074	0.0166	0.093	0.265	0.150	(0.006)	....	0.0026	(0.0020)	....	72.45	40 x 15	CC
CRM	**31X NB4 J**	2.01	0.067	32.57	0.235	0.230	0.178	0.203	0.0062	0.0053	0.104	0.450	0.230	(0.0032)	....	0.0009	....	....	63.71	40 x 15	CC
CRM	**31X CZ112 A**	1.130	0.458	37.07	0.0488	0.0150	(0.001)	(0.003)	0.0052	0.0010	....	0.0043	0.0136	....	....	....	....	0.0043	61.24	41 x 15	W

3.1.5 High Tensile Brass

		Sn	Pb	Zn	Fe	Ni	Al	Si	As	Mn	Sb	P	S	C	Cu	Size (mm) Ø x H	Form
CRM	**31X HT31 A**	0.0149	0.020	18.19	2.90	0.196	6.70	0.041	0.0006	5.27	(0.0011)	0.00032	(0.0003)	0.006	66.67	50 x 18	W
CRM	**31X HT37 A**	0.0116	0.623	34.69	0.0344	0.0105	0.0004	1.38	0.0011	2.88	0.0007	0.003	<0.0005	0.003	60.33	40 x 18	W
CRM	**31X HT38 A**	0.039	0.051	36.66	0.0530	0.0242	0.960	0.869	0.0008	2.60	(0.0006)	0.0024	(0.001)	0.003	58.77	50 x 18	W

3.1.6 Bismuth Brass

		Bi	Sn	Pb	Zn	Fe	Ni	Al	Si	As	Mn	Co	Sb	P	S	Se	Cd	B	Cu		Size (mm) Ø x H	Form
CRM	**31X BIB1 D**	1.87	0.463	0.157	37.20	0.053	0.255	0.124	0.169	0.0303	0.0273	....	0.0106	0.0451	(0.001)	0.0031	0.0100	....	59.57		40 x 15	CC
CRM	**31X BIB2 D**	0.998	1.177	0.151	33.43	0.228	0.467	0.403	0.148	0.0202	....	0.055	0.0780	0.0304	0.0011	0.0052	0.0093	....	62.84		40 x 15	CC
CRM	**31X BIB3 C**	4.04	0.198	0.181	31.83	0.0510	0.127	0.154	0.0516	0.0476	....	0.0032	0.0321	0.0626	0.0018	0.0047	0.0014	....	63.18		40 x 15	CC
CRM	**31X BIB4 C ****	*0.85*	*0.85*	*0.09*	*34.5*	*0.12*	*0.21*	*0.40*	*0.2*	....	....	*0.03*	*0.05*	*0.037*	*0.005*	*0.015*	*0.003*	*0.0015*	*[bal]*	** provisional values	40 x 15	CC

3.1.7 Leaded Brass

		Pb	Sn	Zn	Fe	Ni	Mn	Al	Si	As	Bi	Sb	P	S	Co	Ag	Se	Cd	B	Cu	Size (mm) Ø x H	Form
CRM	**31X 7835.1 T**	2.72	0.349	33.49	0.157	0.1224	....	0.0083	(0.008)	0.0059	0.0075	(0.008)	0.0112	....	0.0021	0.0056	....	0.0020	....	63.09	40 x 15	CC
CRM	**31X 7835.2 K**	2.07	0.152	32.94	0.0309	0.0462	....	0.060	0.0193	0.0280	0.0099	0.0358	0.0226	....	0.0290	0.0102	....	0.0020	0.0023	64.49	40 x 15	CC
CRM	**31X 7835.3 J**	1.501	0.1032	35.57	0.246	0.294	....	0.142	(0.009)	0.1023	0.0282	0.0916	0.0307	....	0.0046	0.0159	....	0.0031	....	61.81	40 x 15	CC
CRM	**31X 7835.4 J**	1.049	0.070	30.36	0.0350	0.477	....	0.525	....	0.142	0.0169	0.068	0.121	....	0.0027	....	....	0.0088	0.0021	67.13	40 x 15	CC
CRM	**31X 7835.5 A**	1.64	0.116	6.23	0.126	0.249	....	0.078	....	0.104	....	0.114	0.018	....	....	....	....	....	....	91.25	40 x 15	CC
CRM	**31X 7835.6 C**	1.422	0.548	36.60	0.0211	0.021	....	0.573	0.0214	0.0152	0.0043	....	0.0253	(0.0016)	0.0048	0.0044	0.0010	0.0017	0.0045	60.70	40 x 15	CC
CRM	**31X 7835.7 A**	2.29	0.137	7.50	0.030	0.943	....	0.0084	0.039	....	0.048	0.0327	0.080	0.0075	0.0120	....	....	0.0047	....	88.87	40 x 15	CC
CRM	**31X 7835.8 B**	3.22	0.451	21.55	0.0446	0.157	0.0102	0.219	....	0.151	0.101	0.110	0.154	....	0.313	0.549	....	0.0944	....	72.7	40 x 15	CC
CRM	**31X 7835.9 A**	1.024	1.48	14.34	0.408	0.100	0.0009	0.092	....	0.107	0.81	0.445	0.0390	0.0161	0.0813	2.12	0.34	0.0673	....	78.48	40 x 15	CC
CRM	**31X 7835.10 A**	1.419	0.234	34.36	0.408	0.159	0.0318	0.648	0.010	0.0635	0.0202	0.0216	0.0417	....	0.0203	....	....	....	....	62.55	40 x 15	CC
CRM	**31X 7835.11 A**	1.695	0.1522	30.98	0.192	0.1007	0.0101	0.908	0.010	0.143	0.011	0.0122	0.024	....	0.0065	....	....	....	....	65.75	40 x 15	CC
CRM	**31X CZ114 A**	1.219	0.511	38.25	0.740	0.0183	1.475	0.714	(0.006)	....	0.0107	(0.003)	0.0018	....	....	....	....	....	....	57.10	38 x 15	W
CRM	**31X CZ115 A**	1.169	0.729	39.20	0.601	0.0143	1.095	0.0007	(<0.005)	0.0008	....	0.0020	0.0091	....	....	0.0041	....	....	....	57.19	41 x 15	W
CRM	**31X CZ121 A**	3.01	0.1940	38.57	0.167	0.1028	0.0052	0.0034	(0.003)	0.0299	0.0046	0.0050	0.0028	....	....	0.0060	....	....	....	57.84	41 x 15	W

See also Section 3.1.1 products 31X B18 - B20

3.1.8 Manganese Brass

		Mn	Sn	Pb	Zn	Fe	Ni	Al	Si	As	Bi	Sb	P	S	Co	Ag	Cr	C	Cu		Size (mm) Ø x H	Form
~~CRM~~	~~31X MNB1 C~~	~~0.188~~	~~0.105~~	~~1.44~~	~~29.37~~	~~0.268~~	~~0.053~~	~~0.599~~	~~0.128~~	~~....~~	~~....~~	~~....~~	~~....~~	~~....~~	~~....~~	~~....~~	~~....~~	~~....~~	~~67.77~~	sold out	~~40 x 15~~	~~CC~~
CRM	31X MNB2 D	2.05	0.289	0.983	31.30	0.548	0.118	0.272	0.579	0.0201	....	0.0177	0.0246	....	0.0086	0.041	....	....	63.75		40 x 15	CC
CRM	31X MNB3 E	3.08	0.459	0.504	25.97	1.15	0.348	0.584	1.53	0.0179	....	0.0056	0.0259	....	0.0556	0.0162	....	....	66.18		40 x 15	CC
CRM	31X MNB4 F	2.97	0.547	0.221	25.59	1.728	0.347	3.91	0.103	0.0125	....	0.0189	0.0274	....	0.0312	0.0131	....	....	64.62		40 x 15	CC
CRM	31X MNB5 Q	0.137	1.60	0.243	37.12	0.013	0.996	2.96	0.44	0.0100	....	0.0118	(0.008)	....	0.0155	0.0063	0.19	....	56.18		40 x 15	CC
CRM	31X MNB5 R	0.175	1.228	0.157	37.11	0.898	1.32	3.24	0.528	0.0021	....	(0.006)	0.0399	....	0.066	0.0195	0.0116	....	55.14		40 x 15	CC
CRM	31X MNB6 C	0.871	0.0310	0.016	28.53	0.0697	0.261	0.0148	0.0196	0.0107	....	0.0128	0.0226	....	0.0107	0.0509	....	....	70.01		40 x 15	CC
CRM	31X MNB11 A	11.99	0.161	1.610	22.85	0.337	4.46	1.19	0.071	0.0010	0.0021	0.0051	0.0186	(0.0007)	0.0046	....	0.0046	(0.009)	57.36		40 x 15	CC
CRM	31X MNB12 B	18.37	0.194	1.96	21.76	0.313	0.497	0.70	0.0487	0.0077	0.0204	0.0072	0.0521	(0.0006)	0.0040	....	0.0013	0.0125	56.03		40 x 15	CC

3.1.9 Silicon Brass

		Sn	Pb	Zn	Fe	Ni	Al	Si	As	Mn	Sb	P	Co	Cd	Ag	B	Cu		Size (mm) Ø x H	Form
CRM	31X WSB6 E	0.071	0.225	0.450	0.088	0.1114	0.0311	3.60	0.0048	0.900	0.0022	0.0206	0.0079	0.0004	....	....	94.47		40 x 15	CC
CRM	31X WSB6 F	0.015	0.03	0.05	0.15	0.05	0.002	3.1	0.01	0.90	0.04	0.02	0.01	0.004	0.015	0.005	[bal]		40 x 15	CC

3.2.1 Phosphor-Bronze

		Sn	Pb	Zn	Fe	Ni	Al	Si	As	Mn	Bi	Sb	P	S	Co	Mg	C	Ag	Cu		Size (mm) Ø x H	Form
CRM	32X PB10 P	12.37	0.0182	0.256	0.0043	0.0130	(0.002)	(0.001)	0.0126	<0.001	0.034	0.0134	0.0030	0.0144	0.0062	....	....	....	87.14		40 x 15	CC
CRM	32X PB11 G	3.306	0.995	1.71	0.399	0.898	0.081	0.123	0.198	0.132	0.0310	0.584	0.946	0.0148	0.090	0.0091	....	....	90.44		40 x 15	CC
CRM	32X PB12 F	5.03	0.0436	0.130	0.053	0.205	(0.001)	(0.002)	0.0512	0.0014	0.0647	0.1822	0.076	0.0108	0.0150	....	....	0.0155	94.16		40 x 15	CC
CRM	32X PB13 E	6.55	0.109	0.301	0.0549	0.0953	0.0251	0.053	0.0391	0.0440	0.0224	0.092	0.089	....	0.0088	....	....	0.0205	92.48		40 x 15	CC
CRM	32X PB14 E **	*9.6*	*0.035*	*0.10*	*0.02*	*0.12*	*0.02*	*0.002*	*0.025*	*0.015*	*0.15*	*0.04*	*0.13*	*0.07*	*0.005*	....	....	*0.015*	*[bal]*	** provis values	40 x 15	CC
CRM	32X PB15 A	2.21	0.174	0.76	0.116	0.212	0.045	0.043	0.123	0.0125	....	0.026	0.0873	....	0.0509	0.0275	....	....	96.07		40 x 15	CC
CRM	32X PB20 A	4.55	0.0045	0.007	0.0013	0.0090	<0.001	0.0046	0.0011	(0.007)	....	0.0012	0.196	0.0030	....	....	(0.0014)	....	95.22		38 x 17	W
CRM	32X PB23 A	7.56	0.0042	0.0020	(0.0005)	0.0033	(0.0004)	0.0016	0.0011	(0.0006)	....	0.0025	0.319	0.0015	....	....	0.004	....	92.04		49 x 17	W
CRM	32X 51000 A	4.86	0.0031	0.0112	0.0025	0.0083	(0.001)	....	....	....	....	....	0.300	0.0021	....	....	....	0.0024	94.84		38 x 15	W
CRM	32X 52100 A	7.72	0.0031	0.0028	(0.001)	0.0110	0.0008	....	0.0009	....	0.0019	....	0.147	0.0007	....	....	....	0.0011	92.08		38 x 15	W

3.2.2 Leaded Bronze

		Sn	Pb	Zn	Fe	Ni	Al	Si	As	Mn	Bi	Sb	P	S	Co	Cd	Ag	Cu		Size (mm) Ø x H	Form
CRM	32X LB10 F	8.26	12.46	0.426	0.0045	0.695	0.0188	0.008	0.146	....	0.0563	0.557	0.0063	0.010	0.0395	....	0.0459	77.23		40 x 15	CC
CRM	32X LB11 D	10.87	10.17	0.124	0.0025	0.565	0.0022	(0.002)	0.0315	(0.0003)	0.0338	0.111	0.007	0.053	0.0202	....	0.118	77.97		40.x 15	CC
CRM	32X LB12 D	9.52	9.06	0.584	0.0223	0.433	(0.001)	<0.001	0.0897	....	0.0231	0.442	0.383	0.094	0.0751	....	....	79.27		40 x 15	CC
CRM	32X LB13 C	5.80	7.59	0.520	0.0160	0.828	0.0011	(0.0035)	0.131	0.0005	0.0721	0.0186	0.0161	0.115	0.0293	....	0.0063	84.87		40 x 15	CC
CRM	32X LB14 G	5.63	15.42	0.586	0.0094	0.254	0.0006	(0.001)	0.0500	0.0005	0.720	0.0750	0.0589	0.0176	0.089	....	0.120	77.02		40 x 15	CC

3.2.2 Leaded Bronze continued

		Sn	Pb	Zn	Fe	Ni	Al	Si	As	Mn	Bi	Sb	P	S	Co	Cd	Ag	Cu	Size (mm) Ø x H	Form
CRM	32X LB15 E	4.51	21.42	0.064	0.0012	0.123	(0.001)	0.0008	0.0273	....	(0.13)	0.127	0.0035	0.032	0.0051	....	0.0217	73.60	40 x 15	CC
CRM	32X LB16 A	5.55	18.78	0.458	0.0040	0.793	(0.001)	....	....	....	0.0119	(0.001)	(0.002)	0.0012	....	....	0.0016	74.42	32 x 17	W
CRM	32X LB17 A	5.97	9.83	0.634	0.488	0.465	0.388	....	1.51	0.296	0.220	4.10	0.051	....	0.0083	0.151	0.911	74.83	40 x 15	CC
CRM	32X 93700 A	9.95	8.38	0.78	0.0011	0.307	....	....	....	....	....	0.0051	(0.0015)	0.0017	0.0004	....	....	80.43	42 x 15	concast

3.2.3 Aluminium Bronze

		Sn	Pb	Zn	Fe	Ni	Al	Si	As	Mn	P	Cr	Co	Mg	Nb	Sb	Ag	Bi	Se	Be	Cu	Size (mm) Ø x H	Form
~~CRM~~	~~32X ALB1 P~~	~~0.0314~~	~~0.207~~	~~0.0228~~	~~3.11~~	~~5.74~~	~~8.83~~	~~0.106~~	~~0.0083~~	~~0.057~~	~~0.0145~~	~~0.0052~~	....	~~0.0092~~	....	....	....		sold out		~~81.85~~	~~40 x 15~~	~~CC~~
CRM	32X ALB2 L	0.0806	0.0685	0.671	4.628	4.515	10.48	0.198	0.0062	0.401	0.031	0.052	0.198	0.0088	0.070	....	0.018	....	....	....	78.50	40 x 15	CC
CRM	32X ALB3 S	0.1209	0.118	1.314	3.718	3.51	10.43	0.155	0.0213	0.243	0.0345	0.0392	0.0760	0.0659	0.018	....	0.0272	....	....	....	80.01	40 x 15	CC
CRM	32X ALB4 H	0.085	0.120	0.264	3.55	7.03	7.87	0.252	0.0130	1.028	0.036	0.022	....	0.153	....	....	....	....	....	....	79.61	40 x 15	CC
CRM	32X ALB5 K	0.0293	0.0512	0.80	2.04	3.92	7.21	0.107	....	1.417	(0.05)	0.192	0.0606	0.179	0.181	....	0.0061	....	....	....	83.71	40 x 15	CC
CRM	32X ALB6 K	0.120	0.0749	0.126	2.71	5.42	9.69	0.073	0.0116	0.787	(0.006)	....	0.139	0.0104	....	....	0.0082	....	....	....	80.77	40 x 15	CC
CRM	32X ALB7 C	0.30	0.029	0.527	4.82	4.96	4.01	0.399	0.056	0.383	0.057	0.061	....	0.0039	....	....	....	....	....	....	84.40	40 x 15	CC
~~CRM~~	~~32X ALB8 E~~	~~0.312~~	~~0.071~~	~~0.352~~	~~5.54~~	~~6.68~~	~~6.38~~	~~0.603~~	~~0.145~~	~~1.562~~	~~0.171~~	~~0.36~~	~~0.554~~	~~0.015~~	....	~~0.024~~	~~0.0099~~		low stock		~~77.17~~	~~40 x 15~~	~~CC~~
CRM	32X ALB9 C	0.0601	0.267	0.142	3.12	0.628	13.52	0.235	0.0163	0.159	0.096	0.0206	0.0027	0.090	....	....	0.0417	....	....	....	81.64	40 x 15	CC
CRM	32X ALB10 B	0.201	0.152	0.961	3.63	7.21	12.11	0.158	0.0194	1.626	0.069	0.0152	0.0984	0.0122	....	....	0.0144	....	....	....	73.64	40 x 15	CC
CRM	32X ALB11 A	0.0289	0.118	0.576	3.81	4.33	8.80	0.069	....	1.13	0.045	....	0.089	0.075	....	0.093	....	0.120	0.006	0.0194	80.58	40 x 15	CC
CRM	32X ALB11 B	0.0062	0.0316	0.508	3.99	4.44	8.85	0.015	....	1.290	0.0249	....	0.0180	0.072	....	0.203	....	0.082	0.007	0.064	80.38	40 x 15	CC

		Sn	Pb	Zn	Fe	Ni	Al	Si	Mn	P	Cr	Co	Mg	Ag	C	Cu	Size (mm) Ø x H	Form
CRM	32X ALB12 A	0.310	0.0018	0.0625	1.094	6.33	8.29	0.0202	0.958	0.0101	....	0.0056	0.0013	0.044	....	82.90	41 x 15	W
CRM	32X ALB13 A	0.0072	(0.001)	0.0194	1.171	1.381	7.09	0.086	5.39	0.009	....	0.0011	....	....	....	84.96	35 x 15	W
CRM	32X 61400 A	0.301	(0.001)	0.060	2.74	0.0242	6.81	0.0124	0.082	0.0008	....	....	0.0050	0.0010	....	89.99	42 x 15	W
CRM	32X CA1 A	0.0180	0.007	0.162	4.63	4.94	9.79	0.090	0.296	0.003	0.0049	....	0.0003	0.0012	(0.007)	80.03	42 x 18	W
CRM	32X CA7 A	0.0172	(0.004)	0.006	2.09	0.234	9.37	0.017	0.151	....	0.0028	....	0.0004	0.0009	0.0028	88.06	42 x 18	W
CRM	32X CA12 A	0.0157	(0.0017)	0.0405	0.657	0.088	6.14	2.57	0.0290	....	....	....	0.0005	0.0010	(0.002)	90.48	42 x 18	W
CRM	32X CA23 A	0.0164	(0.0026)	0.031	3.63	4.71	9.19	0.026	1.298	0.0011	0.0018	....	0.0003	0.0008	(0.0050)	81.05	50 x 18	W
CRM	32X CA31 A	0.0037	(0.0024)	0.041	4.06	4.28	8.95	0.036	0.336	(0.003)	0.0026	....	0.0008	0.0008	0.006	82.24	42 x 18	W

3.2.4 Bismuth Bronze (Sebiloy Type)

		Sn	Pb	Zn	Fe	Ni	As	Bi	Sb	P	S	Co	Al	Se	In	Ag	Cd	Cu	Size (mm) Ø x H	Form
CRM	32X SEB1 D	4.26	0.197	7.81	0.071	0.102	0.0402	4.25	0.305	0.0021	0.0052	0.0478	....	0.812	....	....	0.0033	81.88	40 x 15	CC
CRM	32X SEB2 D	6.96	0.104	1.40	0.074	0.0449	0.0160	4.57	0.0222	0.036	0.030	0.0133	....	0.044	0.074	0.0443	0.0255	86.56	40 x 15	CC
CRM	32X SEB3 E	2.96	0.296	0.887	0.0113	1.214	0.0325	6.47	0.108	0.0139	0.0180	0.0491	....	1.30	....	....	0.0095	86.47	40 x 15	CC
CRM	32X SEB4 E	10.05	0.0357	7.02	0.093	0.0199	0.0065	2.48	0.0343	0.0043	....	0.308	0.0007	0.119	....	....	0.0017	79.82	40 x 15	CC
CRM	32X SEB5 C	5.18	0.268	5.30	0.0430	0.317	....	1.056	0.0334	0.072	0.050	0.0156	(0.001)	0.471	....	....	0.0051	87.21	40 x 15	CC
CRM	32X SEB6 C	7.14	0.0463	4.55	0.151	0.860	0.083	0.615	0.235	0.0118	....	0.231	....	0.322	....	....	0.0036	85.66	40 x 15	CC
CRM	32X SEB7 A	3.20	0.343	4.42	0.074	1.165	0.038	3.58	0.262	0.0206	0.067	0.119	....	1.19	....	....	0.0074	85.46	40 x 15	CC

3.2.9 Bronze

		Sn	Pb	Zn	Fe	Ni	Al	Si	As	Mn	Cr	Co	Bi	Sb	Cd	Au	Ag	P	S	Cu		Size (mm) Ø x H	Form
CRM	**32X SN1 F**	11.65	5.66	0.259	0.0014	1.931	(0.001)	(0.001)	0.0111	<0.001	....	0.0136	....	0.0274	....	....	....	0.0022	0.0126	80.34		40 x 15	CC
CRM	**32X SN2 J**	14.22	2.06	0.940	0.041	1.025	(0.002)	0.009	0.0119	0.0246	....	0.0343	0.119	0.106	....	....	0.0107	0.220	0.0106	81.17		40 x 15	CC
CRM	**32X SN3 G**	16.14	0.159	0.150	0.14	0.464	(0.14)	0.0247	0.0323	0.067	....	0.0460	....	0.362	....	....	....	0.646	0.035	81.7		40 x 15	CC
CRM	**32X SN4 B ****	*19.0*	*0.85*	*0.50*	*0.08*	*0.60*	*0.05*	*0.02*	*0.06*	*0.015*	....	*0.10*	*0.015*	*0.15*	....	....	*0.50*	*1.2*	*0.015*	*[bal]*	** provis values	40 x 15	CC
CRM	**32X SN5 B**	15.90	0.860	0.604	1.009	0.667	0.215	....	0.0557	0.528	0.0238	0.129	0.124	0.702	0.130	0.0102	0.095	....	....	78.97		40 x 15	CC
~~CRM~~	~~**32X SN6 A**~~	~~7.31~~	~~1.559~~	~~1.17~~	~~0.099~~	~~0.203~~	~~0.0313~~	~~....~~	~~0.764~~	~~0.0024~~	~~0.0074~~	~~0.655~~	~~0.158~~	~~0.323~~	~~0.0903~~	~~0.0073~~	~~1.159~~	~~....~~	~~0.018~~	~~86.39~~	sold out	~~40 x 15~~	~~CC~~
CRM	**32X SN7 A**	12.60	2.60	1.96	(0.06)	0.175	0.052	....	1.071	0.0010	....	0.443	0.052	0.263	0.0385	0.0005	0.305	0.056	....	80.30		40 x 15	CC
CRM	**32X CSN1 A**	0.306	....	0.0039	0.0020	....	....	....	....	....	....	....	....	....	....	....	....	0.0007	....	....		20 x 22	W

3.3 Gun Metal

		Sn	Pb	Zn	Fe	Ni	Al	Si	As	Mn	Bi	Sb	P	S	Se	Cr	Co	Ag	Cd	Cu		Size (mm) Ø x H	Form
CRM	**33X GM4 AC**	2.57	5.21	5.78	0.024	1.510	(0.001)	0.0011	0.0205	0.0007	0.0132	0.0101	0.0022	0.107	....	....	0.0195	0.0108	....	84.79		40 x 15	CC
CRM	**33X GM5 N**	5.18	4.80	4.16	0.194	0.802	0.070	0.070	0.0408	....	0.0510	0.0654	0.0098	0.063	....	....	0.0207	0.049	0.0111	84.56		40 x 15	CC
CRM	**33X GM6 K**	6.58	3.94	1.409	0.0256	0.890	0.0012	(0.001)	0.158	0.0022	0.0359	0.259	0.0041	0.090	....	....	0.0100	0.0148	....	86.51		40 x 15	CC
CRM	**33X GM7 J**	9.61	1.119	2.72	0.050	0.511	0.0110	(0.003)	0.103	0.0088	0.119	0.1092	0.082	0.064	....	....	0.095	0.050	....	85.40		40 x 15	CC
CRM	**33X GM8 G**	4.03	6.21	5.71	0.033	0.1491	....	....	0.0114	....	0.062	0.0237	0.0062	0.0083	....	....	0.0222	0.1018	....	83.64		40 x 15	CC
CRM	**33X GM20 A**	4.07	0.106	3.87	0.570	0.999	(0.001)	....	0.196	0.219	0.031	2.004	0.063	....	....	0.015	0.0382	0.141	0.0229	87.58		40 x 15	CC
CRM	**33X GM21 A**	4.55	6.99	5.05	0.751	0.129	0.255	0.0156	0.464	....	0.452	1.049	0.050	0.080	0.194	....	....	0.694	0.255	78.90		40 x 15	CC
CRM	**33X GM24 A**	3.85	3.35	3.67	0.0083	0.0087	....	0.0028	0.0010	<0.0005	0.0009	0.0012	0.190	0.003	....	(0.0013)	....	0.0046	....	88.88		44 x 17	W
CRM	**33X GM29 A**	6.12	0.050	4.23	0.0102	0.0289	....	0.0027	0.0017	(0.0005)	0.0019	0.0015	0.138	0.0024	....	(0.0004)	....	0.0026	....	89.36		33 x 19	W
CRM	**33X RB1 A**	2.137	5.02	7.95	0.928	0.0539	0.0048	0.063	0.0030	0.0167	0.0029	0.432	0.020	0.0044	....	0.0013	....	0.0174	....	83.24		40 x 15	CC
CRM	**33X RB2 B ****	*4.6*	*3.0*	*9.0*	*0.50*	*0.33*	*0.01*	....	*0.04*	*0.005*	*0.09*	*0.05*	*0.045*	*0.07*	....	....	*0.035*	*0.09*	....	*[bal]*	** provis values	40 x 15	CC
CRM	**33X 54400 A**	3.97	4.69	3.87	0.072	0.244	0.0009	....	0.0156	....	....	0.0362	0.243	0.0251	....	....	0.0013	0.0124	....	86.79		38 x 15	W

3.4 Nickel Silver

		Sn	Pb	Zn	Fe	Ni	Al	Si	Mn	P	S	Co	Cr	Ag	Mg	C	Cu		Size (mm) Ø x H	Form
~~CRM~~	~~**34X NS1 F**~~	~~0.0110~~	~~0.0141~~	~~33.41~~	~~0.064~~	~~7.81~~	~~(0.003)~~	~~(0.002)~~	~~0.0009~~	~~0.0140~~	~~(0.0004)~~	~~0.052~~	~~0.0003~~	~~0.069~~	~~0.0020~~	~~(0.0018)~~	~~58.63~~	sold out	~~40 x 15~~	~~CC~~
~~CRM~~	~~**34X NS2 F**~~	~~0.019~~	~~0.063~~	~~25.31~~	~~0.085~~	~~13.39~~	~~....~~	~~(0.003)~~	~~0.0013~~	~~0.0091~~	~~(0.020)~~	~~0.0118~~	~~(0.001)~~	~~0.0026~~	~~<0.0005~~	~~....~~	~~61.09~~	sold out	~~40 x 15~~	~~CC~~
CRM	**34X NS3 F**	0.056	0.178	19.96	0.285	14.96	<0.001	(0.002)	0.0377	0.0295	0.0028	0.0922	....	0.100	<0.001	....	64.16		40 x 15	CC
CRM	**34X NS4 F**	0.0301	0.071	17.09	0.449	16.61	0.0454	0.102	0.304	0.0570	0.0110	0.152	....	0.0324	0.0009	....	64.97		40 x 15	CC
CRM	**34X NS5 G**	0.142	0.896	23.87	0.247	16.55	0.085	0.122	0.1103	0.104	....	0.211	....	0.0096	....	....	57.53		40 x 15	CC
CRM	**34X 79830 A**	0.1158	2.033	41.80	0.079	9.76	0.0012	....	0.311	0.0047	(0.001)	(0.001)	....	0.0028	....	(0.005)	45.88		38 x 15	W

3.6.1 Cupro Nickel

		Sn	Pb	Zn	Fe	Ni	Al	Si	Mn	Bi	P	S	Co	Cr	Mg	B	C	Ti	Nb	Zr	Be	Cu	Size (mm) Ø x H	Form
CRM	36X CN1 P	0.227	0.035	0.351	1.856	9.27	0.055	0.104	1.77	....	0.0574	0.0071	0.114	0.156	0.0321	....	0.0106	....	0.0236	....	....	(85.9)	40 x 15	CC
CRM	36X CN2 J	0.061	0.048	0.0358	1.70	15.47	0.005	0.044	1.26	0.0045	0.015	0.035	0.264	0.240	0.0006	....	0.004	0.0102	(0.032)	....	....	80.78	40 x 15	CC
CRM	36X CN3 M	0.190	0.223	1.014	0.996	19.55	....	0.349	0.726	....	0.049	0.0153	0.0701	0.0259	0.075	(0.002)	0.020	....	0.030	....	0.0042	76.60	40 x 15	CC
CRM	36X CN4 L	0.0093	0.0193	0.164	0.548	25.58	0.040	0.448	0.529	0.0096	0.0140	0.0075	0.0305	0.0273	0.008	....	(0.005)	....	0.461	....	....	72.09	40 x 15	CC
CRM	36X CN5 P	0.0090	0.0120	0.209	0.347	31.03	....	0.689	0.217	....	0.034	0.088	0.0238	0.141	0.0106	0.0053	(0.008)	0.0203	0.430	....	0.0035	66.67	40 x 15	CC
CRM	36X CN6 J	....	0.0165	0.147	0.481	32.51	0.079	0.150	0.567	0.0260	0.0187	0.0097	0.0433	2.17	....	....	0.0198	0.0510	0.271	0.0228	....	63.41	40 x 15	CC
CRM	36X CN7 F	0.039	0.028	0.203	1.021	29.95	....	0.304	0.659	(0.014)	(0.021)	0.0151	0.108	1.51	0.0041	(0.004)	0.0106	(0.037)	0.58	(0.003)	....	65.58	40 x 15	CC
CRM	36X CN8 J	0.0502	0.037	0.107	1.65	28.94	(0.030)	0.309	0.951	0.0518	0.019	0.0119	0.121	1.38	....	0.005	0.013	(0.038)	0.585	....	....	65.78	40 x 15	CC
CRM	36X CN9 K	0.0351	0.070	....	1.262	26.40	0.051	0.406	1.005	0.0197	(0.021)	0.0105	0.0785	2.02	....	....	0.005	0.111	1.37	0.102	....	66.94	40 x 15	CC
CRM	36X CN10 B	0.0164	0.013	0.058	4.76	28.35	1.346	0.906	0.552	....	(0.009)	0.030	0.122	1.498	....	(0.012)	0.0107	0.227	0.450	0.080	....	61.63	40 x 15	CC
CRM	36X CN11 A	(0.002)	(0.003)	(0.006)	0.992	14.96	1.457	0.083	4.34	....	(0.002)	0.0012	0.0049	0.380	0.0241	....	(0.001)	....	0.124	....	....	77.56	40 x 15	W
CRM	36X CN12 A	(0.001)	0.0037	0.157	0.105	13.05	2.41	0.040	0.402	....	0.0011	....	0.0056	....	0.072	0.0055	0.0101	....	0.0010	....	....	83.79	40 x 15	W
CRM	36X CN13 A	(0.001)	(0.001)	0.0017	0.870	14.52	2.65	0.012	0.442	....	0.0011	(0.002)	(0.001)	....	0.0039	(0.002)	(0.003)	....	....	....	....	81.46	38 x 15	W
CRM	36X 70600 A	0.0090	0.0086	0.115	1.619	10.65	(0.001)	....	0.759	....	0.0062	0.0136	0.0087	....	....	....	(0.002)	....	....	....	....	86.70	40 x 15	W
CRM	36X 71500 A	0.0113	0.0114	0.150	0.888	31.24	(0.001)	....	0.850	....	0.0074	0.0454	0.0163	....	....	0.0049	0.0240	....	....	....	....	66.74	40 x 15	W

		Sn	Pb	Zn	Fe	Ni	Al	Mn	P	Co	Cr	As	Ag	Cd	C	Cu	Size (mm) Ø x H	Form
CRM	36X CN21 A	0.038	0.051	0.0203	0.0316	5.50	1.95	0.0391	0.053	0.0079	0.0050	0.0067	0.0064	0.0021	....	92.17	40 x 15	CC
CRM	36X CN22 A	0.0371	0.0260	0.0175	0.088	1.806	6.09	(0.016)	0.0178	0.0231	0.0144	0.0208	0.0196	0.0083	....	91.80	40 x 15	CC
CRM	36X CN23 A	0.102	0.115	14.88	0.140	14.38	0.007	0.0095	0.0299	0.0509	0.0021	0.047	0.042	0.0021	....	70.22	40 x 15	CC

		Sn	Pb	Zn	Fe	Ni	Al	Mn	P	Co	Cr	As	Ag	Cd	C	Cu	Size (mm) W x D x H	Form
CRM	36X CN24 A	(0.002)	0.0056	8.00	0.127	15.41	(0.001)	23.60	0.0037	0.0096	0.0065	(0.001)	0.0466	....	0.0436	52.56	Block 38 x 13 x 13	concast

3.6.1a Cu/Ni/Sn (Spinodal Alloy)

		Sn	Ni	Cu	Zn	Fe	Al	Si	Mn	Bi	Sb	P	S	Ag	Pb	Mg	Co	B	Ti	Nb	Size (mm) Ø x H	Form
CRM	36X SP1 A	5.75	8.33	84.90	0.344	0.45	0.0020	0.004	0.084	0.0039	0.0177	(0.003)	0.005	0.005	0.0115	....	0.057	0.0007	(0.0004)	(0.031)	40 x 15	CC
CRM	36X SP2 A	8.92	15.72	74.91	0.029	(0.09)	0.0003	(0.0023)	0.0019	(0.0027)	0.006	(0.0006)	0.0030	0.0181	0.026	0.0002	0.119	0.0005	(0.0008)	....	40 x 15	CC

3.6.4 Cu/Be/Co

		Sn	Pb	Zn	Fe	Ni	Al	Si	Co	P	Ag	Mg	Be	Cu	Size (mm) Ø x H	Form
CRM	36X CBC3 D	0.0021	0.0025	0.004	0.046	0.007	0.019	0.039	0.209	....	....	0.0040	1.840	97.77	40 x 15	W
CRM	36X CBC4 E	0.002	0.329	0.003	0.0274	0.0080	0.0258	0.048	0.215	0.0027	....	0.0035	1.869	97.47	40 x 15	W
CRM	36X CBC5 B	0.0013	0.0015	0.0010	0.0108	1.905	0.0104	0.004	0.0084	....	0.0011	0.0009	0.404	97.61	41 x 15	W

3.6.5 Cu/Cr

		Sn	Pb	Zn	Fe	Ni	Al	Si	Mn	S	P	Co	Cr	Ag	As	Mg	Zr	Cu		Size (mm) Ø x H	Form
CRM	36X CCR1 E	0.0018	0.0008	(0.001)	0.0170	0.0111	0.0013	....	....	0.0016	0.0223	....	0.652	0.0042	0.0007	(0.0003)	0.079	99.24		50 x 17	W
CRM	36X 274 B **	*0.001*	*0.001*	*0.001*	*0.02*	*2.6*	*0.001*	*0.65*	*0.001*	....	*0.001*	*0.005*	*0.35*	*0.002*	....	....	....	*[bal]*	** provisional values	40 x 15	W

3.7.1 Various Copper Alloys

		Sn	Pb	Zn	Fe	Ni	Al	Si	Mn	P	S	Cr	Co	C	Cu	Size (mm) Ø x H	Form
CRM	37X 218 A	0.015	0.0025	0.027	0.074	2.52	0.0022	0.58	0.083	0.0014	0.007	0.032	0.0013	0.0022	96.57	38 x 17	W
CRM	37X 218 B	0.0032	0.0014	0.0054	0.0209	1.892	0.0018	0.564	0.0022	....	....	0.176	....	....	97.29	38 x 15	W
CRM	37X 65500 A	0.0426	0.0034	0.0353	0.035	0.0059	0.0028	3.13	0.960	0.0046	0.0010	0.0029	....	(0.004)	95.75	38 x 15	W

3.8 Residuals in Pure Copper - Wire

All Elements ppm

		Sn	Pb	Zn	Fe	Ni	Ag	As	Mn	Bi	Sb	Cr	Si	P	Cd	Te	Se	S	O	Size (mm) Ø x H	Form
CRM	38X C1 C	(0.01)	(0.05)	<0.1	1.7	0.27	11	0.19	(0.005)	0.10	0.10	<0.005	<0.1	<0.05	<0.01	(0.21)	(0.25)	2.0	266	(5 x 80mm pcs.)	Wire

3.9 Residuals in Pure Copper

All Elements ppm

		Sn	Pb	Zn	Fe	Ni	Al	As	Mn	Bi	Sb	P	S	Co	Cr	Cd	Ag	Au	Se	Te	In	Mg	Ge	Size (mm) Ø x H	Form
CRM	39X 17866 AG	1710	280	470	(20)	608	(10)	547	17	128	65	16	520	325	....	52	77	24	72	224	364	....	....	40 x 15	CC
CRM	39X 17867 AD	1150	196	325	....	410	....	387	....	153	143	15	410	194	....	110	79	75	67	78	130	41	62	40 x 15	CC
CRM	39X 17868 AG	1030	1040	1970	1100	222	72	226	123	308	300	510	220	248	....	130	249	101	133	206	76	85	....	40 x 15	CC
CRM	39X 17869 AF	440	880	820	79	102	136	99	23	450	400	163	90	36	....	201	376	53	243	319	37	10	....	40 x 15	CC
CRM	39X 17870 AH	54	328	285	740	555	1440	23	596	494	415	535	18	21	12	22	556	17	118	500	102	330	....	40 x 15	CC
CRM	39X 17871 C	48	65	27	(6)	344	11	207	....	530	124	....	54	9	....	58	219	37	287	82	47	....	<10	40 x 15	CC
CRM	39X 27866 A	448	54	287	30	487	....	383	....	47	52	147	469	308	12	139	57	16	28	32	437	....	29	38 x 20	W
CRM	39X 27869 A	106	225	65	30	190	....	98	....	376	362	119	112	36	(2)	28	349	80	127	153	90	....	123	38 x 20	W

All Elements %

		Sn	Pb	Zn	Fe	Ni	Al	As	Mn	Bi	Sb	P	S	Co	Cr	Cd	Ag	Au	Se	Te	In	Size (mm) Ø x H	Form
CRM	39X 17872 A	0.180	0.293	0.107	(0.045)	0.0537	0.0118	0.0203	0.0055	0.0240	0.0217	0.0045	0.0242	0.0102	....	0.0013	0.0214	(0.002)	0.0103	0.0208	0.0241	42 x 15	C
CRM	39X 17873 B	0.0247	0.059	0.0160	0.0052	0.0280	....	0.0197	0.0005	0.0254	0.0202	0.0009	0.0095	0.0004	(0.0003)	0.0023	0.0291	....	0.0143	0.0144	0.0040	40 x 15	CC

4.1 Residuals in Pure Zinc

All elements ppm

		Pb	Mg	Al	Cd	Fe	Sn	Cu	Ni	Mn	Bi	Sb	Tl	In	Hg	Size (mm) Ø x H	Form
CRM	**41X Z1 Q**	27.6	(1)	(1.1)	12.0	28.2	5.1	11.6	1.4	4.7	3.0	(2.4)	2.8	2.6	3.4	50 x 20	C
CRM	**41X Z2 P**	40.0	(3.3)	1.5	21.4	33.1	19.7	20.1	11.1	34.1	11.6	2.0	11.2	11.1	15.0	50 x 20	C
CRM	**41X Z3 M**	50.2	(3.4)	15.8	32.7	60.5	29.7	34.5	20.9	52.4	31.5	16.7	21.0	23.3	28.9	50 x 20	C
CRM	**41X Z4 L**	58.4	33.1	65	43.7	148	22.1	32.6	32.0	28.6	31.9	34.0	27.7	30.4	25	50 x 20	C
CRM	**41X Z5 N**	286	107	243	165	262	63.2	109	51.4	49.4	56	54	68	57.3	50	50 x 20	C
CRM	**41X Z6 A**	310	<5	96	93	(20)	38	88	2	2	122	....	4	228	....	50 x 20	C
CRM	**41X Z11 A**	77	....	261	155	19	72	116	....	....	189	26	(10)	345	(9)	50 x 20	C

4.1.1 Zinc with Impurities

		Pb	Mg	Al	Cd	Fe	Sn	Cu	Ni	Mn	Bi	Sb	Tl	Ag	As	Cr	Co	Ag	Ti	Size (mm) Ø x H	Form
CRM	**41X 0336Zn1 L**	1.007	0.0062	0.0177	0.0067	0.0106	0.0051	0.0088	0.0009	0.0102	....	....	....	....	0.0008	....	....	....	....	50 x 20	C
CRM	**41X 0336Zn2 M**	0.486	0.099	1.55	0.145	(0.01)	0.038	0.354	0.0137	0.0212	0.0099	0.0007	0.0012	0.0102	0.0009	....	....	....	....	50 x 20	C
CRM	**41X 0336Zn3 K**	0.0282	0.147	0.336	0.341	0.0456	0.127	0.353	0.0022	0.0106	....	....	....	....	0.0003	....	....	....	....	50 x 20	C
CRM	**41X 0336Zn5 A**	0.91	<0.0005	0.035	0.056	0.016	0.21	0.023	(0.0005)	(0.0001)	(0.001)	0.008	....	....	....	....	....	....	....	50 x 20	C
CRM	**41X 4380Zn1 D**	0.0618	0.0032	0.039	0.394	0.0276	0.0510	0.178	0.0058	0.0006	0.0021	0.0019	....	....	....	0.0007	....	0.0012	0.0004	50 x 20	C
CRM	**41X 4380Zn2 C**	0.268	0.0243	0.0153	0.284	0.048	0.0021	0.0288	0.0023	0.0087	0.0076	0.0093	....	....	....	0.0027	....	....	0.0251	50 x 20	C
CRM	**41X 4380Zn3 C**	0.180	0.0220	0.0203	0.0950	0.017	0.080	0.073	0.0120	0.0180	0.0103	0.0046	....	....	....	0.0029	....	....	0.125	50 x 20	C
CRM	**41X 4380Zn4 D**	0.310	0.118	0.446	0.086	0.017	0.0416	0.0284	0.0172	0.0092	0.0101	0.0156	....	....	....	0.0029	0.0018	....	(0.0003)	50 x 20	C
CRM	**41X 4380Zn5 C**	0.140	0.00165	0.0215	0.0571	0.0120	0.0101	0.071	0.00147	0.035	0.0308	0.0061	....	....	....	0.0075	....	....	0.339	50 x 20	C
CRM	**41X 4380Zn6 D**	0.427	0.0044	0.0260	0.0466	0.0307	0.101	0.0327	0.0073	0.200	0.0047	(0.002)	....	....	....	0.0064	0.0091	0.0030	0.0029	50 x 20	C
CRM	**41X 4380Zn7 D**	1.18	0.0029	0.277	0.0156	0.0018	0.0036	0.0133	0.0120	0.0036	....	0.086	....	....	....	....	....	....	0.0065	50 x 20	C
CRM	**41X 4380Zn8 D**	0.700	0.0054	0.232	0.0097	0.0074	0.0177	0.0208	0.0445	0.0081	0.0156	0.0151	....	....	....	(0.0001)	....	0.0140	0.0020	50 x 20	C
CRM	**41X 4380Zn9 A**	0.0139	0.0153	0.295	0.0032	0.0113	0.0008	0.0416	0.0009	0.0018	0.00046	0.0060	....	....	....	0.0015	....	....	....	50 x 20	C
CRM	**41X 4380Zn10 A**	0.0043	0.184	0.0004	0.0007	0.49	0.0014	0.0022	0.063	....	....	0.0005	....	....	....	0.117	....	....	....	50 x 18	C

4.1.2 Galvanising Alloys

		Pb	Mg	Al	Cd	Fe	Sn	Cu	Ni	Mn	Bi	Sb	As	Cr	Co	V	Sr		Size (mm) Ø x H	Form
CRM	**41X GLV1 D**	0.0224	0.0008	0.202	0.0100	0.021	0.0134	0.0169	0.0019	....	0.0040	0.0010	0.0002	....	0.0003	....	....		50 x 20	C
CRM	**41X GLV2 B**	0.259	0.0006	0.111	0.0037	0.143	0.0148	0.0050	0.0145	(0.033)	0.0172	0.0071	0.0035	0.014	0.0024	....	....		50 x 20	C
CRM	**41X GLV3 B**	0.0091	0.00145	0.334	0.0188	0.0031	0.0060	0.0260	0.0300	0.0111	0.0016	0.058	(0.0007)	0.00084	0.00150	....	....		50 x 20	C
CRM	**41X GLV4 D**	0.0058	0.0025	0.503	0.0013	0.008	0.0035	0.0246	0.0078	0.164	0.0047	0.0235	0.0002	0.0010	0.0061	....	....		50 x 20	C
CRM	**41X GLV5 B**	0.0166	0.0014	0.0139	0.0136	0.0443	0.0172	0.0103	0.0025	....	0.0098	0.148	0.00044	....	0.0011	....	....		50 x 20	C
~~CRM~~	~~**41X GLV6 A**~~	~~0.120~~	~~....~~	~~0.474~~	~~0.0053~~	~~0.0047~~	~~0.0152~~	~~0.039~~	~~0.0008~~	~~0.0013~~	~~0.0248~~	~~0.0112~~	~~0.0014~~	~~0.0029~~	~~0.0047~~	~~<0.0005~~	~~....~~	sold out	~~50 x 20~~	~~C~~
CRM	**41X GLV7 A**	0.082	....	0.399	0.00056	0.0031	(0.0006)	0.023	0.0060	0.0025	0.0108	0.0031	0.0016	0.0010	(0.0001)	<0.0001	....		50 x 20	C
CRM	**41X GLV8 B**	0.0039	0.0009	0.258	0.0004	0.0080	0.0005	0.0111	0.0023	0.0035	0.0006	0.0062	....	(0.0001)	....	....	....		50 x 20	C
CRM	**41X GLV9 A**	0.0043	0.0014	0.547	0.0028	0.0039	0.0028	0.0037	0.0009	0.0027	0.0019	0.0048	....	....	0.0005	....	....		50 x 20	C
CRM	**41X GLV10 A**	0.0066	0.0040	0.969	0.0030	0.0051	0.0062	0.0073	0.0022	0.0062	0.0031	0.0009	....	....	0.0002	....	....		50 x 20	C
CRM	**41X GLV11 A**	0.0057	0.0009	0.463	0.0010	0.0027	0.0009	0.0017	0.0008	0.0008	0.0009	0.168	....	....	(0.0001)	....	(0.0004)		50 x 20	C

4.1.3 Zn/Mn, Zn/Mg, Zn/Ni & Zn/Sb Binaries

		Pb	Al	Cd	Fe	Cu	Ni	Mn	Mg	Sb	Sn	Bi	Size (mm) Ø x H	Form
	41X ZMn1 A	(0.0026)	(0.0001)	(0.0002)	(0.0025)	(0.0005)	(0.0009)	1.07	....	....	....	....	50 x 20	C
	41X ZMg1 A	....	....	....	....	....	....	....	1.13	....	....	....	40 x 15	C
CRM	**41X ZNiBi A**	0.0187	0.050	0.0020	0.0133	0.0132	2.02	....	....	....	0.154	0.502	50 x 20	C
CRM	**41X ZNi2 A**	0.0172	0.0135	0.0010	0.0061	0.0056	1.97	....	....	....	0.141	0.0050	50 x 20	C
	41X ZSb1 A	....	....	....	....	....	....	....	....	1.03	....	....	40 x 15	C
	41X ZSb4 A	....	....	....	....	....	....	....	....	3.78	....	....	40 x 15	C
	41X ZSb8 A	....	....	....	....	....	....	....	....	7.68	....	....	40 x 15	C

4.1.4 Special Alloys

		Pb	Mg	Al	Cd	Fe	Sn	Cu	Ni	Mn	Ti	Cr	Size (mm) Ø x H	Form
CRM	**41X 2951Zn1 A**	0.0042	0.0029	0.029	0.0005	0.011	(0.0007)	0.79	0.0038	0.0013	0.278	0.083	50 x 20	C
CRM	**41X 2951Zn2 A**	0.0040	0.0123	0.032	0.0037	0.019	(0.0015)	1.37	0.0027	0.0011	0.209	0.142	50 x 20	C
CRM	**41X 2951Zn3 A**	0.0065	0.0164	0.078	0.0062	0.029	(0.006)	1.89	0.0010	0.0018	0.133	0.184	50 x 20	C

4.1.5 RoHS Monitors

		Pb	Cd	Hg	Cr	Size (mm) Ø x H	Form
CRM	**41X ZSC1 A**	0.0621	0.0288	0.026	0.0039	50 x 20	C
CRM	**41X ZSC2 A**	0.111	0.0016	0.0053	0.0036	50 x 20	C
CRM	**41X ZSC3 A**	0.0273	0.119	0.0021	0.0148	50 x 20	C
CRM	**41X ZSC4 A**	0.156	0.0131	0.050	0.0299	50 x 20	C
CRM	**41X ZSC6 A**	0.0077	0.215	0.029	<0.0002	50 x 20	C

4.2 Zn/Al

		Pb	Mg	Al	Cd	Fe	Sn	Cu	Ni	Mn	Sb	Cr	Si	Tl	In	Ce	La	Zr	Size (mm) Ø x H	Form
CRM	**42X Z1 J**	0.0017	0.0009	4.66	0.0014	0.013	0.0007	0.0050	0.0014	0.0038	0.0011	0.0004	(0.002)	....	....	0.0011	(0.0008)	....	50 x 20	C
CRM	**42X Z2 K**	0.0029	0.0146	3.79	0.0017	0.0055	0.0011	0.0300	0.0155	0.0274	0.0010	(0.0001)	0.0011	....	....	0.0055	0.0026	....	50 x 20	C
CRM	**42X Z3 J**	0.0068	0.0503	3.84	0.0065	0.0145	0.0048	0.135	0.0071	0.0090	0.0006	....	(0.002)	....	....	0.0032	0.0013	....	50 x 20	C
CRM	**42X Z4 J**	0.0133	0.0663	3.52	0.0065	0.019	0.0052	0.0752	0.0170	0.0083	....	(0.0002)	0.006	....	0.0025	0.0361	0.0183	....	50 x 20	C
CRM	**42X Z5 M**	0.0030	0.0508	4.33	0.0013	(0.05)	0.0012	0.111	0.041	0.0049	....	(0.0002)	....	0.0017	0.0047	0.0328	0.0150	....	50 x 20	C
CRM	**42X Z6 B**	0.0093	0.177	3.67	0.0039	0.008	0.0057	0.238	0.00030	0.0157	0.0169	0.0034	(0.010)	0.0021	0.0019	(0.012)	(0.011)	....	50 x 20	C
CRM	**42X Z7 B**	0.0097	0.0095	4.39	0.030	0.027	0.012	0.0249	0.0067	0.0045	....	(0.0001)	0.006	....	....	0.072	0.061	....	50 x 20	C
CRM	**42X Z8 A**	0.0025	0.0033	7.03	0.0003	0.013	(0.002)	0.0215	0.0019	0.0014	....	(0.0002)	0.013	....	....	0.0081	0.0079	....	50 x 20	C
CRM	**42X Z9 A**	0.0021	0.0464	5.58	0.0054	0.032	(0.0004)	0.0070	(0.0003)	0.0006	....	....	(0.004)	....	....	0.0047	0.0044	0.011	50 x 20	C
CRM	**42X Z11 A**	0.0058	0.0329	3.19	0.0020	(0.036)	0.0017	0.093	0.0241	0.0196	0.0047	0.0016	....	0.0047	0.0037	0.0014	(0.0009)	....	50 x 20	C
CRM	**42X Z12 A**	0.0079	0.0488	4.72	0.00277	0.046	0.0022	0.156	0.0413	0.0483	0.0070	0.00063	....	0.0076	0.0068	0.0116	0.0084	....	50 x 20	C
CRM	**42X Z15 A**	0.0074	0.0026	9.99	0.0023	0.026	0.0006	0.0028	0.0017	0.0037	0.0006	0.0003	....	....	0.0024	....	....	....	50 x 20	C
CRM	**42X Z16 A**	0.0090	0.105	12.28	0.0045	0.033	0.0034	0.235	0.0039	0.0028	....	0.0007	0.011	(0.003)	0.0051	....	....	....	50 x 20	C

4.3 Zn/Al/Cu

		Pb	Mg	Al	Cd	Fe	Sn	Cu	Ni	Mn	Bi	Sb	Ti	Cr	Si	Be	Ag	Sr		Size (mm) Ø x H	Form
CRM	43X Z1 K	0.0038	0.0256	4.50	0.0014	0.0070	0.0019	0.717	0.0010	0.0014	0.0015	0.0007	....	0.0007	....	....	....	....		50 x 20	C
CRM	43X Z2 M	0.0106	0.0828	3.89	0.0053	0.0081	0.0099	1.004	0.0024	0.0086	0.0022	0.0068	0.0008	0.0063	0.011	....	....	....		50 x 20	C
CRM	43X Z2 N	0.0125	0.0885	4.02	0.0080	0.0023	0.0052	1.049	0.0022	0.099	0.0027	0.0062	0.0008	0.0011	(0.001)	....	....	....		50 x 20	C
CRM	43X Z3 M	0.0077	0.114	3.40	0.0109	(0.042)	0.0058	1.499	0.0062	0.0013	0.0092	0.0029	....	0.0046	....	....	....	....		50 x 20	C
CRM	43X Z4 C	0.0062	0.0480	4.79	0.0033	0.0017	0.0030	2.69	0.0258	0.0153	0.0113	(0.002)	....	....	(0.001)	....	....	....		50 x 20	C
CRM	43X Z5 B	0.0029	0.0144	3.164	0.0030	0.10	(0.0004)	5.92	0.0056	0.0061	0.0148	0.065	....	....	....	....	0.0254	(0.0013)		50 x 20	C
CRM	43X Z6 B	0.005	0.0238	4.51	0.0031	0.024	0.0052	2.85	0.0027	0.0022	0.0054	0.0044	....	0.0005	....	....	....	....		50 x 20	C
CRM	43X Z7 A	0.0058	0.062	3.68	0.00092	0.029	0.0031	3.14	0.0005	0.0025	(0.001)	0.0016	0.067	0.0003	....	0.0194	....	....	Beric type Alloy	50 x 20	C
CRM	43X Z8 A	0.0027	0.00155	2.51	0.00090	(0.002)	(0.0005)	0.481	0.00033	0.00021	....	....	....	0.00024	....	....	....	....		50 x 20	C
CRM	43X Z9 A	0.0078	0.0472	3.17	0.0034	0.073	0.0020	4.82	0.0027	0.0108	0.0033	0.0033	0.0012	0.0034	....	0.0010	....	....		50 x 20	C
CRM	43X Z10 A	0.0046	0.0403	3.99	0.0014	0.007	0.0012	2.97	0.0036	0.0050	....	....	....	0.0003	0.009	....	....	....		50 x 20	C
CRM	43X Z11 F	0.0202	0.0357	11.12	0.0175	0.015	0.0145	0.335	0.0014	0.0032	0.0046	0.0009	....	(0.0003)	0.0013	....	....	....		50 x 20	C
CRM	43X Z12 E	0.0041	0.0287	10.38	0.0045	0.037	0.0017	0.791	0.0033	0.0026	0.0021	0.0032	0.0050	0.0008	(0.002)	....	....	....		50 x 20	C
CRM	43X Z13 E	0.0086	0.0198	9.01	0.0072	0.0045	0.0056	1.113	0.0036	0.0025	0.0014	0.0020	....	0.0004	(0.001)	....	....	....		50 x 20	C
CRM	43X Z14 E	0.015	0.0133	8.05	0.0083	0.031	0.0054	1.13	0.0066	0.0050	0.0096	0.0089	0.0014	0.0047	0.016	....	....	....		50 x 20	C
CRM	43X Z15 C	0.0054	0.0024	7.36	0.0030	0.009	0.004	1.53	0.0019	0.0020	0.005	0.005	0.0020	0.0025	(0.011)	....	....	....		50 x 20	C
CRM	43X Z21 D	0.0087	0.0142	23.9	0.0010	0.0067	0.0007	2.68	0.0021	0.0022	....	....	....	....	0.0191	....	....	(0.0005)		50 x 20	C
CRM	43X Z22 D	0.0053	0.0099	27.4	0.0043	0.068	0.0020	2.11	0.0101	0.0057	....	....	0.0073	0.0010	0.019	....	....	....		50 x 20	C
CRM	43X Z23 E	0.0112	0.0242	30.7	0.0042	0.055	0.0115	3.22	0.0236	0.0090	....	....	0.0045	0.0147	0.077	....	....	....		50 x 20	C

		Pb	Mg	Al	Cd	Fe	Sn	Cu	Ni	Mn	Cr	Si	Ce	La		Size (mm) Ø x H	Form
CRM	43X SC1 A	0.0150	0.740	3.75	0.0011	0.073	0.0082	1.903	0.0161	0.0201	0.0082	0.022	....	....		50 x 20	C
CRM	43X SC2 A	0.0097	0.498	3.41	0.0018	0.046	0.0031	4.80	0.0096	0.0183	0.023	0.0133	....	....		50 x 20	C
CRM	43X SC3 A	0.0066	0.257	3.14	0.0028	0.018	0.0078	3.03	0.0261	0.0337	0.0108	0.022	....	....	spin-casting alloys	50 x 20	C
CRM	43X SC4 A	0.0064	0.093	4.35	0.0058	0.022	0.0056	1.122	0.0249	0.044	0.009	0.022	....	....		50 x 20	C
CRM	43X GALF1 A	0.0505	0.0999	4.68	0.0499	0.061	0.0514	4.39	....	....	....	....	0.0569	0.0284		50 x 20	C
CRM	43X GALF2 A	0.0050	0.0504	5.40	0.0043	0.032	0.0040	0.0585	....	....	....	....	0.0318	0.0158		50 x 20	C
CRM	43X GALF3 A	0.0032	0.0099	8.37	0.0018	0.018	0.0025	0.507	....	....	....	....	0.0152	0.0076	galfan-type alloys	50 x 20	C
CRM	43X GALF4 A	0.0122	0.0062	10.71	0.0108	0.074	0.0110	2.470	....	....	....	....	0.079	0.041		50 x 20	C
CRM	43X GALF5 A	0.0084	0.0016	15.03	0.0080	(0.072)	0.0081	0.0114	....	....	....	....	0.0041	0.0019		50 x 20	C

4.5 Zn/Al 'Galvalume'

	Zn	Si	Fe	Cu	Ni	Sn	Pb	Mg	Ca	Ti	Li	Sr	Al		Size (mm) Ø x H	Form
45X ZnAl1 B	24.6	3.07	0.22	0.057	....	0.017	0.021	0.044	0.0021	0.016	0.0015	....	(bal)		55 x 6	CC
45X ZnAl3 B	45.2	0.606	0.047	0.0088	....	0.0034	0.0062	(0.0002)	0.0004	0.020	(0.0004)	....	(bal)		55 x 6	CC
45X ZnAl7 C	47.5	1.59	0.077	0.0050	0.0049	0.0096	0.010	0.0070	....	0.0049	....	(0.0004)	(bal)	Note these are not CRMs	55 x 6	CC
45X ZnAl7 D	43.6	1.56	0.170	0.0100	0.0032	(0.0005)	0.0042	0.0005	....	0.028	....	(0.007)	(bal)		55 x 6	CC

5.1.1 Residuals in Aluminium

		Cu	Mg	Si	Fe	Mn	Ni	Zn	Pb	Sn	Ti	Cr	Zr	Co	V	Ag	Bi	Sb	Cd	Ga	As	Hg	Size (mm) Ø x H	Form
CRM	**51X G00H1 D**	0.0131	0.054	0.142	0.831	0.0074	0.231	0.243	0.0021	0.096	0.0135	0.0061	(0.001)	....	0.0081	....	0.023	(0.003)	....	....	....	....	40 x 15	C
CRM	**51X G00H2 E**	0.111	0.093	0.350	0.356	0.154	0.119	0.113	0.114	0.0065	0.128	0.0174	0.0150	....	0.0148	....	0.011	0.0265	0.0031	0.011	(0.005)	....	40x15 or 50x20	C
CRM	**51X G00H3 D**	0.399	0.0077	0.895	0.313	0.210	0.0115	0.097	0.055	0.083	0.0043	0.095	0.0095	0.0042	0.0142	0.0079	0.076	0.0025	0.0186	0.010	(0.0003)	<0.001	50 x 20	C
CRM	**51X G00H4 B**	0.051	0.024	0.028	0.072	0.0309	0.036	0.151	0.021	0.031	0.029	0.040	0.0261	0.030	0.0108	0.0227	0.0202	....	0.0208	0.022	0.0014	0.012	50 x 20	C
CRM	**51X G00H5 B**	0.227	0.110	0.739	0.490	0.196	0.161	0.479	0.130	0.201	0.100	0.0249	0.0005	0.045	0.0295	0.11	0.130	0.056	0.0103	0.0122	(0.0005)	<0.001	50 x 20	C
CRM	**51X A1350 A**	0.0016	0.0032	0.0232	0.0968	0.0019	0.0071	0.0148	(0.001)	0.0005	0.0029	0.0024	0.0007	0.0005	0.0042	....	....	....	....	0.0137	....	....	50 x 20	W

5.4 Al/Si

		Cu	Mg	Si	Fe	Mn	Ni	Zn	Pb	Sn	Ti	Cr	Co	V	Be	Bi	Cd	Sr	Ga	Zr	Li	Ca	Size (mm) Ø x H	Form
CRM	**54X G231H1 D**	1.141	0.342	10.52	0.945	0.0568	0.349	0.726	0.096	0.156	0.0233	0.107	....	....	0.0018	....	....	0.010	....	....	....	....	50 x 15	C
CRM	**54X G231H2 C**	0.868	0.159	11.6	0.131	0.191	0.171	0.397	0.082	0.127	0.085	0.0469	....	....	0.0146	....	....	(0.0006)	....	....	....	....	50 x 15	C
CRM	**54X G231H3 C**	0.420	0.039	13.17	0.393	0.477	0.0932	0.130	0.0080	0.0139	0.128	0.0630	....	....	0.0003	....	....	....	....	....	....	....	50 x 15	C
CRM	**54X GS20J1 E**	0.308	0.186	18.8	0.79	0.097	0.159	0.43	0.120	0.130	0.129	0.115	....	....	(0.0001)	....	....	<0.0001	....	....	....	....	40x13 or 50x17	C
CRM	**54X GS20J2 E**	0.168	0.178	18.7	0.56	0.059	0.091	0.305	0.066	0.075	0.082	0.066	....	....	<0.0001	....	....	<0.0001	....	....	....	....	40x13 or 50x17	C
CRM	**54X GS20J3 D**	0.079	0.118	23.9	0.328	0.302	(0.003)	0.030	0.077	(0.012)	0.0055	0.0017	....	....	<0.0001	....	....	<0.0001	....	....	....	....	40x13 or 50x17	C
CRM	**54X GS20J4 D**	(0.0037)	0.0050	25.5	0.227	0.146	0.265	0.224	0.0014	(0.0021)	0.107	0.194	....	....	0.0017	....	....	(0.002)	....	....	....	....	40x13 or 50x17	C
CRM	**54X G06H1 R**	0.630	0.489	8.43	1.08	0.022	0.611	0.60	0.082	0.133	0.248	0.084	0.015	0.010	....	0.006	0.0074	....	....	....	<0.001	....	40 x 13	C
CRM	**54X G06H2 S**	0.54	0.40	10.19	0.640	0.234	0.55	0.47	0.213	0.116	0.179	0.130	0.0086	0.018	....	0.027	(0.0004)	....	....	....	(0.0044)	....	40 x 13	C
CRM	**54X G06H3 P**	0.322	0.202	9.94	0.510	0.345	0.214	0.0270	0.0203	0.0488	0.079	0.0530	0.0208	0.0278	....	0.0067	0.0048	....	....	....	....	....	50 x 15	C
CRM	**54X G06H4 R ****	*0.13*	*0.12*	*12.1*	*0.25*	*0.52*	*0.12*	*0.12*	*0.04*	*0.005*	*0.12*	*0.01*	*0.12*	*0.06*	** provisional		*0.003*	*0.003*	*0.005*	....	*0.002*	*0.002*	65 x 20	HIP
CRM	**54X G06H5 L**	0.0229	(0.0022)	13.76	0.210	0.85	0.0067	0.225	(0.0020)	0.022	0.0106	0.026	....	0.008	....	....	(0.0002)	....	....	....	(0.0001)	....	40x13 or 50x 17	C
CRM	**54X G13H1 N**	1.87	2.89	8.91	0.801	0.0137	1.83	0.37	0.240	0.260	0.112	0.062	0.0051	....	0.0078	<0.001	....	<0.001	....	<0.005	....	....	40x13 or 50x17	C
CRM	**54X G13H2 M**	1.29	1.37	10.42	0.767	0.248	1.15	0.530	0.083	0.145	0.166	0.103	0.004	....	...	....	....	....	....	....	....	....	40x13 or 50x17	C
CRM	**54X G13H3 M**	0.82	0.89	10.2	0.79	0.43	0.95	0.42	0.050	0.092	0.152	0.060	0.009	....	0.0075	....	....	....	....	(0.004)	....	....	40 x 13	C
CRM	**54X G13H4 P**	0.688	0.644	12.41	0.534	0.227	0.789	0.443	0.062	0.060	0.109	0.0283	0.0048	....	0.0018	....	....	0.045	....	0.0165	....	....	50 x 15	C
CRM	**54X G13H5 L**	0.216	0.092	13.26	0.715	0.119	0.115	0.070	0.013	0.009	0.032	0.044	0.0016	....	0.0049	....	....	(0.033)	....	....	....	....	50 x 15	C
CRM	**54X G25D1 L**	0.010	0.67	3.37	0.721	0.815	0.262	0.359	(0.0033)	<0.005	0.099	0.140	....	0.016	0.0011	0.112	....	....	....	(0.004)	....	....	40x15 or 50x20	C
CRM	**54X G25D2 K**	0.130	0.59	3.93	0.576	0.479	0.139	0.169	0.073	0.042	0.152	0.150	0.105	(0.006)	0.049	0.22	0.011	....	....	....	....	....	40x15 or 50x20	C
CRM	**54X G25D3 S**	0.119	0.386	6.29	0.379	0.253	0.0353	0.102	0.050	0.046	0.067	0.0413	0.0086	0.0047	0.0022	....	....	(0.045)	....	....	....	....	50 x 15	C
CRM	**54X G25D4 P**	0.148	0.151	7.22	0.14	0.195	0.0665	0.207	0.142	0.076	0.0978	0.043	0.0204	0.0542	0.0067	0.0705	0.0070	....	....	....	....	....	50 x 15	C
CRM	**54X G25D5 L**	0.273	(0.0011)	8.14	0.191	(0.0046)	0.0082	0.020	0.273	0.130	0.0068	0.0097	0.0024	(0.0025)	0.022	....	....	....	....	....	....	....	40x15 or 50x20	C
CRM	**54X G25D6 A**	0.0021	0.715	5.97	0.080	0.0096	0.0044	0.0050	(0.003)	(0.002)	0.0071	0.0009	....	0.0133	0.0220	....	....	....	0.0027	....	....	....	50 x 15	C
CRM	**54X G25DX A**	0.0200	0.402	7.20	0.0792	0.0302	0.0084	0.0354	0.0018	0.0011	0.1519	0.0053	....	0.0080	....	....	....	....	0.0209	0.0065	....	0.0048	65 x 30	HIP

5.5 Al/Si/Cu

		Cu	Mg	Si	Fe	Mn	Ni	Zn	Pb	Sn	Ti	Cr	Co	V	Bi	Sb	Zr	Be	Li	Size (mm) Ø x H	Form
CRM	**55X G900J1 F**	0.91	0.966	0.127	0.549	0.0133	0.0048	0.152	0.202	0.348	0.0056	0.0012	....	0.0108	0.071	....	0.0236	0.0011	....	50 x 15	C
CRM	**55X G900J2 G**	0.726	0.594	0.227	0.504	0.192	0.083	0.295	0.217	0.240	0.079	0.080	....	....	0.366	0.0374	0.0637	0.0035	(0.007)	50 x 15	C
	55X G900J3 F	0.41	0.38	0.82	0.29	0.56	0.21	0.39	0.14	0.15	0.16	0.25	0.070	....	....	(0.029)	....	....	....	40 x 15	C
CRM	**55X G900J4 F**	0.249	0.459	1.39	0.306	0.75	0.351	0.149	0.088	0.153	0.171	0.343	....	(0.010)	0.285	....	....	....	....	40x15 or 50x20	C
	55X G900J5 E	0.024	0.009	1.65	0.18	1.16	0.41	0.023	0.014	0.006	0.33	0.46	....	....	....	....	....	....	....	40x15 or 50x20	C

5.5 Al/Si/Cu (continued)

		Cu	Mg	Si	Fe	Mn	Ni	Zn	Pb	Sn	Ti	Cr	Co	V	Be	Bi	Sb	Ag	Ca	P	Cd	Zr	Size (mm) Ø x H	Form
CRM	55X G02D5 A	0.406	0.331	10.03	0.557	0.391	0.0652	0.131	0.067	0.051	0.0180	0.760	0.0752	0.0129	0.0037	....	0.031	....	....	....	0.0182	....	50 x 15	C
CRM	55X G02D6 K	0.510	0.376	11.55	0.528	0.300	0.0511	0.577	0.0580	0.0355	0.055	0.366	0.0195	0.0182	0.0026	....	0.0150	....	....	....	0.0115	....	50 x 15	C
CRM	55X G02D7 N	1.35	0.332	9.79	0.950	0.502	0.192	0.786	0.311	0.158	0.195	0.0481	0.0419	0.0208	0.0012	....	0.0039	....	....	....	0.0022	....	50 x 13	C
CRM	55X G02D8 L	2.36	0.119	9.38	0.779	0.443	0.364	1.38	0.248	0.239	0.182	0.0704	0.0303	0.0438	0.0008	....	0.0245	....	....	....	0.0049	....	50 x 13	C
CRM	55X G02D8 M	2.481	0.1517	9.24	0.776	0.256	0.406	1.415	0.201	0.201	0.1535	0.0756	0.0107	0.0536	0.0008	....	0.0112	....	....	....	0.0029	....	65 x 30	HIP
CRM	55X G02D9 K	3.51	0.093	8.49	0.423	0.269	0.494	2.48	0.10	0.187	0.096	0.185	0.0074	0.0223	0.0035	0.033	0.049	....	....	....	0.0012	....	50 x 15	C
CRM	55X G02D10 L	4.59	0.0206	7.33	0.975	0.0524	0.645	2.77	0.022	0.138	0.0302	0.128	0.0544	0.0341	0.0389	....	0.0086	....	....	....	0.0012	....	50 x 15	C
CRM	55X G02DX A	2.33	0.118	9.58	0.773	0.247	0.206	1.030	0.029	0.0288	0.0410	0.0321	0.0108	0.0129	0.0020	0.020	....	0.0052	(0.001)	0.0053	0.0011	0.0103	65 x 30	HIP
CRM	55X G02DY A	3.67	0.309	11.31	0.591	0.107	0.109	0.153	0.0620	0.0747	0.0687	0.063	0.0195	0.0250	0.0012	0.0100	....	0.0102	(0.001)	0.0100	0.0032	0.0218	65 x 30	HIP
CRM	55X G04HX A	3.40	0.063	5.78	0.280	0.193	0.302	0.492	0.0125	0.0112	0.176	0.0165	0.0060	0.0183	0.0006	0.0058	0.0053	0.0030	0.0011	(0.002)	0.0048	0.0278	65 x 30	HIP

		Cu	Mg	Si	Fe	Mn	Ni	Zn	Pb	Sn	Ti	Cr	Co	V	Bi	Ca	Cd	Sr	Ga	Na	Li	P	Size (mm) Ø x H	Form
CRM	55X G04H2 D	3.21	0.360	5.22	0.349	0.203	0.0104	0.185	0.0159	0.0049	0.0553	0.0108	....	....	....	0.0010	....	0.0025	....	(0.0009)	....	(0.0020)	45 x 20	C
CRM	55X G04H3 N	3.67	0.173	5.56	0.643	0.362	0.0100	0.507	0.025	0.0047	0.109	0.0136	....	....	....	0.0010	....	0.0022	....	(0.0009)	....	0.0021	45 x 20	C
CRM	55X G04H6 E	5.56	0.151	3.30	0.83	0.028	0.77	0.199	0.221	0.181	0.126	0.126	0.0024	0.014	0.029	....	0.0039	....	....	....	0.019	....	40x15 or 50x20	C
CRM	55X G04H7 E	4.65	0.263	4.43	0.633	0.212	0.500	0.537	0.227	0.174	0.0476	0.035	0.030	0.0057	0.022	....	0.0073	....	....	....	0.0066	....	40x15 or 50x20	C
CRM	55X G04H8 J	2.86	0.126	4.96	0.529	0.255	0.197	0.998	0.128	0.0809	0.179	0.0301	0.0160	0.0214	0.007	....	0.0055	....	....	....	0.0033	....	50 x 15	C
CRM	55X G04H9 E	2.70	0.043	6.60	0.393	0.436	0.160	1.70	0.101	0.0563	0.117	0.0172	0.0114	0.0188	(0.0037)	....	0.0018	....	....	....	(0.0028)	....	50 x 15	C
CRM	55X G04H10 D	1.36	0.004	7.21	0.512	0.532	0.0232	2.26	(0.0074)	<0.01	0.0097	0.090	0.043	0.008	0.029	....	....	....	0.011	....	(0.001)	....	40x15 or 50x20	C
	55X G26H1 F	4.34	0.29	7.69	1.78	0.015	0.012	1.14	0.24	(0.008)	0.21	0.20	0.022	0.012	0.07	....	....	....	....	....	....	....	40x15 or 50x20	C
CRM	55X G26H2 F	4.14	1.49	9.36	0.71	0.52	0.41	0.64	0.111	0.110	0.120	0.083	0.052	0.011	0.035	....	(0.0024)	....	....	....	....	....	40x15 or 50x20	C
	55X G26H3 F	2.19	1.01	9.6	1.07	0.45	0.51	0.79	0.23	0.16	0.147	0.130	0.076	0.020	....	....	....	....	....	....	....	....	40x15 or 50x20	C
CRM	55X G26H4 D	3.72	1.64	10.37	0.511	0.165	0.909	0.286	0.120	0.234	0.304	0.0623	....	0.0189	(0.025)	....	....	....	....	....	....	....	40x15 or 50x20	C
CRM	55X G26H5 E	1.40	1.41	11.38	0.199	0.495	1.13	0.008	0.0108	0.035	0.018	0.0394	0.015	0.0169	0.0201	....	....	....	....	....	....	....	50 x 20	C

		Cu	Mg	Si	Fe	Mn	Ni	Zn	Pb	Sn	Ti	Cr	Co	V	Be	Sb	Cd	P	Bi	Ca	Size (mm) Ø x H	Form
CRM	55X G28J1 Z	1.82	1.26	14.33	0.678	0.024	2.47	0.258	0.0036	0.182	0.104	0.319	0.119	0.0095	....	....	....	(0.0048)	....	....	40x13 or 50x17	C
CRM	55X G28J2 T	1.44	0.0902	15.04	0.516	0.231	1.63	0.292	0.058	0.136	0.065	0.088	0.0029	0.0221	(0.0002)	0.030	0.0023	....	....	....	50 x 20	C
	55X G28J3 U	1.45	1.30	21.6	0.43	0.33	1.47	0.30	0.07	0.11	0.07	0.09	....	....	....	....	....	....	....	....	40x13 or 50x17	C
CRM	55X G28J4 T	0.82	0.60	20.4	0.52	0.45	0.84	0.32	0.094	0.041	0.28	0.040	0.079	0.010	....	....	....	(0.002)	....	....	40x13 or 50x17	C
	55X G28J5 Y	0.69	0.73	27.6	0.26	0.67	0.43	0.015	0.18	0.03	0.24	0.009	....	....	....	....	....	<0.005	....	....	40 x 13	C
CRM	55X G28J6 A	(0.035)	(0.032)	27.15	(0.26)	(0.12)	<0.01	(0.052)	(0.008)	<0.002	(0.024)	(0.006)	....	....	....	(0.007)	(0.038)	....	....	....	65 x 30	SC
CRM	55X A30J1 H	5.75	1.03	14.6	1.07	0.132	0.014	0.233	0.135	0.006	0.194	0.031	0.091	0.0114	0.0043	....	....	(0.004)	0.015	....	40x13 or 50x17	C
CRM	55X A30J4 G	3.21	0.508	16.4	0.511	0.350	0.164	0.067	0.0257	0.0190	0.0231	0.0752	....	0.020	....	....	....	(0.003)	....	....	40x13 or 50x17	C
CRM	55X A30J5 A	4.51	0.722	17.08	0.727	0.213	0.209	0.693	0.084	0.0776	0.070	0.069	0.0396	....	0.0029	....	....	0.016	0.0100	0.0053	65 x 30	HIP

5.6 Al/Cu

		Cu	Mg	Si	Fe	Mn	Ni	Zn	Pb	Sn	Ti	Cr	Co	V	Be	Bi	Sb	Zr	Ag	Li	Ca	Size (mm) Ø x H	Form
CRM	**56X G14H4 C**	3.82	1.72	0.504	0.251	0.122	2.37	0.091	0.050	0.037	0.069	0.0309	0.0288	0.0252	....	....	....	....	....	....	....	50 x 20	C
CRM	**56X G250J1 C**	3.82	0.075	0.26	0.41	0.040	1.33	0.28	0.101	0.125	0.008	0.0067	0.008	0.102	<0.0005	....	(0.003)	(0.003)	....	....	....	40x15 or 50x20	C
CRM	**56X G250J2 D**	4.81	0.060	0.211	0.346	0.225	1.10	0.155	(0.0016)	(0.004)	0.210	0.063	0.195	0.018	....	....	0.324	0.247	....	....	....	40x15 or 50x20	C
CRM	**56X G250J3 C**	4.90	(0.001)	0.11	0.079	0.278	0.92	0.103	0.024	0.031	0.162	0.024	0.264	0.036	0.0014	....	0.35	0.275	....	....	....	40x13 or 50x18	C
CRM	**56X G250J5 D**	4.36	0.022	0.205	0.535	0.150	1.77	0.086	0.076	0.097	0.051	0.047	0.34	0.021	0.0022	....	0.076	0.22	....	....	....	40x15 or 50x20	C
CRM	**56 X G2000J1 C**	3.29	1.70	0.099	0.086	1.27	0.0046	0.864	0.022	0.099	0.0053	0.0007	0.00044	0.0097	....	0.008	....	0.293	0.0048	(0.0001)	....	40x15 or 50x20	C
CRM	**56 X G2000J2 C**	3.73	1.292	0.517	1.38	0.937	0.149	0.711	1.114	0.092	0.096	0.0200	0.056	0.170	0.0054	0.078	....	0.188	0.0446	0.0112	....	50 x 20	C
CRM	**56 X G2000J3 C**	4.78	1.018	0.773	0.382	0.589	0.091	0.114	0.375	0.0157	0.196	0.0573	0.108	0.0099	0.0039	0.152	....	0.0268	0.0105	0.0019	....	40x15 or 50x20	C
CRM	**56 X G2000J4 C**	5.02	0.505	1.33	0.705	0.271	0.089	0.0131	0.879	0.0092	0.135	0.053	0.0247	0.0132	....	0.0049	....	0.105	0.0122	0.0025	....	40x15 or 50x20	C
CRM	**56 X G2000J5 C**	5.52	0.39	0.321	0.98	0.007	0.204	0.368	0.69	<0.005	0.063	0.0078	0.077	0.027	0.0050	0.136	....	0.064	0.234	0.009	....	40x15 or 50x20	C
CRM	**56X G2007 A**	3.699	0.663	0.328	0.252	0.605	0.0087	0.386	0.889	0.0676	0.0236	0.0354	....	....	....	0.147	....	0.0020	....	....	0.0051	50 x 20	W
CRM	**56X G2011 A**	5.70	0.0102	0.089	0.632	0.0183	0.0044	0.0188	0.332	0.0037	0.0121	0.0031	....	....	....	0.527	....	....	....	....	....	50 x 20	W
CRM	**56X G2014 A**	4.41	0.453	0.611	0.243	0.572	0.0070	0.195	0.0110	(0.0047)	0.0244	0.0766	....	....	....	0.0013	....	0.135	....	....	....	50 x 20	W
CRM	**56X G2024 A**	4.34	1.509	0.122	0.178	0.658	0.0055	0.0446	0.0010	0.0010	0.0099	0.0389	....	0.0070	....	....	....	0.0053	....	....	....	50 x 20	W
CRM	**56X G2618 A**	2.45	1.625	0.175	1.057	0.0394	0.953	0.0139	0.0020	0.0007	0.069	0.0165	....	0.0162	....	....	....	0.0011	....	....	0.0020	50 x 20	W

5.6.1 Al/Cu/Ag

		Cu	Mg	Si	Fe	Mn	Ni	Zn	Pb	Sn	Ti	Cr	Ag	Size (mm) Ø x H	Form
CRM	**56X A201.1 A**	4.49	0.198	0.193	0.089	0.310	0.0066	0.0113	0.0020	(0.0025)	0.132	0.0029	0.494	50 x 20	C

5.7 Al/Cu/Si

		Cu	Mg	Si	Fe	Mn	Ni	Zn	Pb	Sn	Ti	Cr	Co	V	Be	Sb	Cd	Ga	Zr	B	Li	Size (mm) Ø x H	Form
CRM	**57X G12H1 C**	5.54	0.40	2.52	0.88	0.032	0.31	1.03	0.016	0.095	0.114	0.069	0.113	0.15	0.0019	....	0.012	....	0.07	....	0.008	40x15 or 50x20	C
CRM	**57X G12H2 C**	7.96	0.336	2.79	1.021	0.0900	0.309	0.999	0.12	0.202	0.0081	0.0148	0.0391	0.0027	....	....	0.0025	....	0.0111	(0.003)	....	50 x 15	C
CRM	**57X G12H3 C**	8.69	0.296	1.48	0.350	0.117	0.479	0.554	0.092	0.132	0.196	0.086	0.039	0.0126	0.0016	....	0.0055	....	(0.001)	....	....	50 x 20	C
	57X G12H5 G	12.2	0.028	0.55	0.19	0.073	0.11	0.072	0.068	0.067	0.036	0.016	0.054	0.033	0.003	0.066	0.023	0.017	0.045	....	....	40x15 or 50x20	C
CRM	**57X G12H6 A**	8.28	0.292	1.63	0.85	0.223	0.387	6.74	0.110	0.108	0.108	0.054	0.0247	0.0143	(0.0003)	....	0.0028	....	0.0262	....	....	50 x 20	C
CRM	**57X G12H7 A**	4.75	0.020	1.21	0.369	0.0327	0.0380	0.384	0.030	0.0307	0.0565	0.0221	0.0483	0.0111	....	....	0.0002	....	0.0328	0.0093	....	50 x 20	C
	57X AlCu25 A	25.08	0.0012	5.78	0.42	0.0035	0.0017	5.89	....	0.0024	....	....	....	....	....	....	....	....	....	....	....	50 x 20	C
	57X AlCu28 A	27.78	0.0020	5.44	0.22	0.0032	0.0030	5.42	....	0.0023	....	....	....	....	....	....	....	....	....	....	....	50 x 20	C

5.8 Al/Zn

		Cu	Mg	Si	Fe	Mn	Ni	Zn	Pb	Sn	Ti	Cr	Co	Be	Zr	Cd	Sb	Li	Size (mm) Ø x H	Form
CRM	**58X G40H6 B**	0.111	(0.003)	0.09	0.08	0.004	0.008	7.55	<0.002	<0.005	0.064	0.005	0.006	(0.002)	(0.004)	0.032	<0.0005	(0.004)	40x15 or 50x20	C
CRM	**58X G40H7 B**	0.050	0.304	0.161	0.101	0.078	0.142	7.16	0.054	0.067	0.0045	0.0018	0.026	0.0012	0.0030	0.027	0.007	(0.0003)	40x15 or 50x20	C
	58X G40H8 B	0.14	0.69	0.1	0.30	0.20	0.22	6.5	0.090	0.010	0.063	0.22	....	....	(0.004)	....	....	....	40x15 or 50x20	C
CRM	**58X G40H9 C**	0.172	0.960	0.347	0.320	0.0372	0.062	4.83	0.190	0.068	0.279	0.241	0.0150	(0.0001)	0.157	....	....	....	50 x 20	C
CRM	**58X G40H10 C**	0.188	1.25	0.224	0.361	0.269	0.097	4.66	0.044	0.042	0.187	0.468	0.050	(0.0003)	0.215	....	....	....	50 x 20	C

5.9 Al/Zn/Mg/Cu

		Cu	Mg	Si	Fe	Mn	Ni	Zn	Pb	Sn	Ti	Cr	Co	V	Bi	Cd	Ga	Zr	Be	B	Size (mm) Ø x H	Form
CRM	**59X G77J1 G**	2.810	4.52	0.1015	0.209	0.810	0.205	2.289	0.158	0.148	0.251	0.297	0.0104	0.0064	0.0578	0.0351	0.010	0.0484	....	....	65 x 30	HIP
CRM	**59X G77J2 E**	2.37	3.04	0.206	0.293	0.239	0.527	3.25	0.127	0.0054	0.0156	0.0966	....	0.0153	....	0.0023	....	0.152	....	....	40x15 or 50x20	C
CRM	**59X G77J3 F**	1.30	2.53	0.647	0.70	0.246	0.402	4.72	0.108	0.122	0.148	0.150	0.032	0.0181	0.0297	0.0095	....	0.0144	....	....	50 x 20	C
CRM	**59X G77J4 E**	0.81	1.47	0.59	1.04	0.224	0.0037	5.30	0.073	0.219	0.119	0.071	....	0.0067	....	0.00054	....	0.080	....	....	40x15 or 50x20	C
CRM	**59X G77J5 E**	0.0203	0.851	0.562	1.37	0.0398	1.002	7.82	0.0194	0.0140	0.0255	0.0301	0.0373	0.052	....	0.0142	....	0.0194	0.0036	....	50 x 15	C
CRM	**59X G77J6 B**	1.08	2.60	0.094	0.293	0.0318	0.0248	12.02	0.0123	0.0267	0.020	0.0127	0.0087	0.0107	....	0.0015	....	0.261	0.0079	....	50 x 20	C
CRM	**59X G7020 A**	0.0320	1.313	0.049	0.178	0.200	0.0051	4.82	0.0018	0.0022	0.0261	0.192	....	0.0107	....	....	....	0.146	....	0.0025	50 x 20	W
CRM	**59X G7022 A**	0.631	2.69	0.126	0.120	0.127	0.0030	5.17	0.0019	0.0006	0.0160	0.140	....	....	....	....	....	0.0016	....	....	50 x 20	W
CRM	**59X G7050 A**	2.119	2.030	0.045	0.0745	0.0047	0.0041	6.18	0.0010	0.0010	0.0242	0.0097	....	0.0092	....	....	....	0.100	....	0.0011	50 x 20	W
CRM	**59X G7068 A**	1.676	2.70	0.051	0.117	0.0156	0.0056	7.96	0.0020	(0.001)	0.0419	0.0324	....	....	....	....	....	0.088	....	....	50 x 20	W
CRM	**59X G7075 A**	1.68	2.324	0.147	0.239	0.0757	0.0045	5.69	0.0177	0.0008	0.0615	0.196	....	....	....	....	0.0088	0.0008	....	....	50 x 20	W

5.11 Al/Mg

		Cu	Mg	Si	Fe	Mn	Ni	Zn	Pb	Sn	Ti	Cr	Co	V	Be	Cd	Ga	Zr	B	Li	Mo	Size (mm) Ø x H	Form
CRM	**511X G05H1 H**	0.32	2.02	0.42	0.79	0.012	0.125	0.47	0.023	0.178	0.204	0.242	....	0.053	(0.0002)	0.013	....	(0.002)	....	....	....	40 x 15	C
CRM	**511X G05H2 H**	0.188	3.58	0.299	0.641	0.124	0.157	0.372	0.049	0.0495	0.068	0.172	....	0.0248	0.0018	0.0023	....	0.0105	0.0083	....	....	50 x 15	C
	511X G05H3 H	0.093	3.97	0.21	0.41	0.40	0.090	0.092	0.107	0.096	0.25	0.095	....	....	0.0074	....	....	....	....	....	....	40x15 or 50x20	C
	511X G05H4 F	0.056	5.1	0.11	0.14	0.55	0.040	0.062	0.15	0.14	0.048	0.029	....	....	0.014	....	....	....	....	....	....	40 x 15	C
CRM	**511X G05H5 F**	0.071	9.22	0.141	0.129	1.110	0.0129	0.019	0.185	0.0089	0.0157	0.0113	....	0.041	0.0062	....	....	0.107	....	....	....	50 x 20	C
CRM	**511X G10H4 C**	0.163	10.24	0.244	0.193	0.228	0.117	0.117	0.080	0.075	0.155	0.083	....	....	0.0061	....	....	....	....	....	....	50 x 20	C
CRM	**511X G10H5 B**	0.0227	13.97	0.050	0.057	0.098	0.036	0.029	0.165	0.013	0.0052	0.0017	....	....	0.0274	....	....	....	....	0.0032	....	50 x 20	C
CRM	**511X G3000B1 C**	0.287	0.253	0.788	0.669	0.752	0.142	0.0347	0.145	0.163	0.0327	0.0972	....	0.054	....	....	0.051	....	....	....	....	40x15 or 50x20	C
CRM	**511X G3000B2 B**	0.20	0.68	0.23	0.335	0.81	0.063	0.098	0.137	0.105	0.111	0.200	0.007	<0.005	0.0017	(0.0007)	0.012	....	....	0.017	(0.059)	40x15 or 50x20	C
CRM	**511X G3000B3 B**	0.120	0.80	0.35	0.376	1.06	0.116	0.140	0.062	0.028	0.22	0.056	0.008	<0.005	0.005	(0.001)	0.014	....	....	....	(0.093)	40 x 15	C
CRM	**511X G3000B4 C**	0.086	1.267	0.130	0.440	0.916	0.0347	0.058	0.0285	0.0456	0.052	0.0121	....	0.0199	0.0140	....	0.0284	....	....	....	....	50 x 20	C

5.11 Al/Mg continued		Cu	Mg	Si	Fe	Mn	Ni	Zn	Pb	Sn	Ti	Cr	V	Zr	Bi	Ga	Size (mm) Ø x H	Form
CRM	**511X G5083 A**	0.042	3.98	0.22	0.363	0.592	0.0094	0.0488	0.0069	0.0015	0.0294	0.237	0.0092	0.0011	0.0016	....	50 x 20	W
CRM	**511X G6061 A**	0.260	0.896	0.696	0.304	0.0721	0.0044	0.0105	0.0014	0.0012	0.0204	0.200	0.0138	....	....	0.0160	50 x 20	W
CRM	**511X G6063 A**	0.0014	0.437	0.412	0.185	0.0239	0.0021	0.0062	0.0011	(0.001)	0.011	0.0021	0.0087	....	....	....	50 x 20	W
CRM	**511X G6082 A**	0.0184	0.759	0.753	0.081	0.534	0.0035	0.054	0.0012	0.0011	0.0278	0.0606	....	....	....	....	50 x 20	W
CRM	**511X G6082 B**	0.0141	0.660	0.910	0.180	0.566	0.0044	0.0016	(0.001)	(0.001)	0.0158	0.0055	....	....	(0.0007)	....	50 x 20	W

5.11 Al/Mg with Bi, Sn and Pb		Cu	Mg	Si	Fe	Mn	Ni	Zn	Pb	Sn	Ti	Cr	Bi	Zr	Be	V	B	Ga		Size (mm) Ø x H	Form
CRM	**511X G6012**	0.114	1.10	1.35	0.285	0.910	0.0154	0.255	1.10	0.040	0.016	0.269	0.552	0.032	0.0072	....	....	....		50 x 17	C
CRM	**511X G6012A**	0.351	0.712	0.768	0.71	0.424	0.048	0.060	0.211	1.88	0.197	0.0223	0.701	0.0480	0.0110	....	....	....		50 x 17	C
CRM	**511X G6023 A**	0.451	0.512	1.21	0.51	0.556	0.036	0.0260	0.0110	1.037	0.0117	0.0054	0.353	0.0110	0.0020	....	....	....		50 x 17	C
CRM	**511X G6026 A** **	*0.42*	*0.70*	*0.90*	*0.47*	*0.72*	*0.005*	*0.08*	*0.28*	*0.005*	*0.025*	*0.07*	*0.49*	*0.003*	....	*0.005*	*0.002*	*0.008*	** provisional values	50 x 20	W
CRM	**511X G6065 A**	0.214	1.180	0.495	0.74	0.131	0.0144	0.164	0.0310	0.0251	0.112	0.0759	1.27	0.144	0.0011	....	....	....		50 x 17	C
CRM	**511X G6262 A**	0.267	0.881	0.649	0.58	0.163	0.028	0.198	0.0081	0.539	0.045	0.121	0.444	0.0051	0.0011	....	....	....		50 x 17	C
CRM	**511X G6262 B**	0.243	0.829	0.557	0.329	0.0737	0.0034	0.0209	0.499	(0.001)	0.0194	0.0666	0.424	....	....	....	....	....		50 x 20	W

5.14 Al/Mn		Cu	Mg	Si	Fe	Mn	Ni	Zn	Pb	Sn	Ti	Cr	Zr	Size (mm) Ø x H	Form
CRM	**514X 9091.1 C**	0.046	(0.001)	0.035	0.081	6.93	(0.0026)	0.029	0.016	0.013	0.0017	<0.005	0.184	40 x 13	C

5.17 Sacrificial Anode		Cu	Mg	Si	Fe	Mn	Ni	Zn	Pb	Sn	Ti	Cr	In	Ga	Cd	Size (mm) Ø x H	Form
CRM	**517X LF1 A**	0.0020	0.0097	0.248	0.101	0.0013	0.0010	3.71	(0.002)	(0.005)	0.0396	(0.001)	0.0187	0.0164	<0.0005	45 x 20	C

5.18 Pressed Powder Alloys		Cu	Mg	Si	Fe	Mn	Ni	Zn	Pb	Sn	Ti	Cr	Co	V	Ca	Mo	Zr	Sr	B	P	Size (mm) Ø x H	Form
CRM	**518X 429 A**	1.023	1.25	28.9	0.201	0.0165	0.014	0.0042	0.0020	....	0.0163	0.0034	2.22	0.0090	0.020	....	....	0.0006	(0.002)	(0.004)	65 x 25	HIP
CRM	**518X 905 A**	2.51	0.645	0.10	2.54	0.994	4.98	0.0052	(0.001)	(0.0024)	0.587	0.0090	0.0033	0.0186	(0.0007)	0.807	0.77	....	....	....	45 x 40	HIP

6.1 Residuals in Pure Magnesium

		Al	Zn	Mn	Zr	Cu	Si	Fe	Ni	Ca	Sn	Pb	Ag	Be	Cd	Ce	La	Nd	Y		Size (mm) Ø x H	Form
CRM	61X MGP2 A ++	0.065	0.0122	0.0118	(0.0007)	0.0109	0.031	0.0061	0.0029	0.0138	0.0073	0.0061	0.003	<0.0001	0.0063	0.0019	0.0014	....	....	++ unsuitable for use with glow discharge systems	45 x 20	C
CRM	61X MGP3 A ++	0.096	0.0196	0.0137	(0.0014)	0.0292	0.044	0.014	0.0048	0.054	0.0155	0.0148	0.0125	<0.0001	0.0154	0.0055	0.0038	....	....		45 x 20	C
CRM	61X MGP4 A ++	0.0247	0.0158	0.0100	0.030	0.0108	0.037	(0.0044)	0.0028	0.028	0.0067	0.0066	0.0203	<0.0001	0.0071	0.0041	0.0030	....	....		45 x 20	C
CRM	61X MGP5 A	0.119	0.099	0.201	....	0.092	0.094	0.0048	0.0176	....	0.0352	0.0357	0.0342	0.0018	0.0292	0.049	0.0382	0.0446	0.0132		40x15 or 50x20	C
CRM	61X MGP6 A	0.0449	0.010	0.0125	....	0.0067	0.044	0.0041	0.0025	(0.001)	0.0091	0.0120	0.0043	....	0.0025	0.0209	0.0137	0.0238	0.0375		40x15 or 50x20	C

6.3 Mg/Mn

		Al	Zn	Mn	Cu	Si	Fe	Ni	Ca	Sn	Pb	Ag	Be	Cd	Size (mm) Ø x H	Form
CRM	63X MGE1 E	(0.088)	0.083	0.860	0.0503	0.052	0.0014	0.0162	....	0.0053	0.011	0.0195	(0.0002)	0.0017	40x15 or 50x20	C
CRM	63X MGE2 B	0.0432	0.0245	1.75	0.0203	0.019	0.0020	0.0035	0.0015	0.0024	0.0020	0.0090	....	0.0009	40x15 or 50x20	C
CRM	63X MGE3 C	(0.056)	0.0101	1.62	0.0072	0.014	0.0005	0.0028	....	0.006	0.0046	0.0041	<0.0001	0.0046	40x15 or 45x20	C

6.4 Mg/Al

		Al	Zn	Mn	Cu	Si	Fe	Ni	Sn	Pb	Be	Ce	La	Nd	Typical alloy type		Size (mm) Ø x H	Form
CRM	64X MGQ1 A	1.083	0.235	0.377	0.0840	0.062	0.0034	0.0041	0.0195	0.0199	0.00036	....	....	....	AZ10A		40x15 or 50x20	C
CRM	64X MGQ2 A	4.53	0.107	0.378	0.0151	0.051	0.0041	0.0061	0.0107	0.0107	0.0013	....	....	....	AM50A		40x15 or 50x20	C
CRM	64X MGQ3 A	8.66	0.0039	0.206	0.0349	0.083	0.0090	0.0032	0.0019	0.0022	0.0041	....	....	....	AM90A		40x15 or 50x20	C
CRM	64X MGQ4 A	6.50	0.188	0.183	0.310	0.067	0.0040	0.0068	0.0282	0.0322	0.00029	....	....	....	AM60A		40x15 or 50x20	C
CRM	64X MGQ5 A	5.76	0.0465	0.276	0.0072	0.052	0.0043	0.0010	0.0050	0.0056	0.0013	....	....	....	AM60B		40x15 or 50x20	C
CRM	64X MGQ6 A	2.31	0.072	(0.26)	0.0045	(0.97)	(0.004)	0.0026	0.0055	0.0060	0.0007	....	....	....	AS21A	Mn and Si segregation	40x15 or 50x20	C
CRM	64X MGQ7 A	4.02	0.061	(0.43)	0.0167	(1.05)	0.0028	0.0053	0.0096	0.0126	0.00042	....	....	....	AS41A	Mn and Si segregation	40x15 or 50x20	C
CRM	64X MGQ8 A	1.030	0.0442	0.700	0.0019	0.045	0.0018	0.0004	0.0022	0.0008	0.00015	....	....	....	AZ10-mod		40x15 or 50x20	C
CRM	64X MGQ9 A	2.14	0.243	0.0684	0.0104	(0.37)	0.0069	0.0020	0.0076	0.0096	0.0015	0.111	0.083	0.114	AS21B	Si segregation	40x15 or 50x20	C

6.5 Mg/Al/Zn

		Al	Zn	Mn	Cu	Si	Fe	Ni	Sn	Pb	Be	Ca	Ag	Ce	La	Cd	Sr	Hg	Typical alloy type	Size (mm) Ø x H	Form
CRM	65X MGA1 J ++	5.45	1.26	0.060	0.221	0.20	0.021	0.021	0.072	0.012	0.006	0.029	0.012	0.009	0.007	0.013	++ unsuitable for use with glow-discharge systems			45 x 20	C
CRM	65X MGA5 A	8.00	0.411	0.401	0.0195	0.110	0.006	0.0201	0.0124	0.042	0.0013	(0.014)	0.0050	....	....	0.0035	0.0004	....		50 x 20	C
CRM	65X MGA11 A	3.63	1.59	0.044	0.0496	0.022	0.0048	0.0134	0.093	0.0190	0.0021	0.102	(0.0002)	(0.0005)	(0.0005)	0.0014	....	0.006		40x15 or 50x20	C
CRM	65X MGA12 A	5.68	3.18	0.198	0.266	0.0142	0.0053	0.0148	0.0021	0.010	(0.0036)	0.037	0.0128	0.0009	0.0007	0.0121	....	(0.016)		40x15 or 50x20	C
CRM	65X MGA13 A	7.45	0.925	0.092	0.125	0.022	(0.008)	0.0039	0.043	0.0085	(0.010)	0.0064	0.0074	0.0024	0.0021	0.0055	....	(0.033)		40x15 or 50x20	C
CRM	65X MGA14 B	9.09	0.685	0.282	0.0102	0.080	0.0084	0.0082	0.0085	0.0061	0.0029	....	0.0016	0.0120	0.0111	0.0014	....	(0.08)		50 x 15	C
CRM	65X MGA15 A	10.67	0.348	0.067	0.0273	0.034	0.010	0.0026	0.0021	0.0051	0.0062	(0.0014)	0.030	0.0069	0.0048	0.0034	....	0.011		40x15 or 50x20	C
CRM	65X MGA16 A	6.78	4.03	0.271	0.099	0.023	0.0073	0.0057	0.028	0.050	0.0011	0.0024	0.0035	0.0017	0.0012	0.0066	....	0.005		40x15 or 50x20	C
CRM	65X MGA17 A	4.20	0.128	0.203	0.0215	0.33	0.0069	0.0141	0.0050	0.0009	....	0.021	0.0064	....	....	0.0049	....	....		40x15 or 50x20	C

6.5 Mg/Al/Zn - continued.

		Al	Zn	Mn	Cu	Si	Fe	Ni	Sn	Pb	Be	Typical alloy type	Size (mm) Ø x H	Form
CRM	65X MGA18 A	6.75	0.502	0.192	0.052	0.043	0.0081	0.0074	0.0114	0.0244	0.00051	AZ61A	40x15 or 50x20	C
CRM	65X MGA19 A	8.97	2.17	0.322	0.0426	0.196	0.0085	0.0065	0.0489	0.0489	0.00025	AZ92A	40x15 or 50x20	C
CRM	65X MGA20 A	5.87	1.32	0.067	0.0131	0.052	0.0078	0.0025	0.0320	0.0075	0.0018	AZ61A	40x15 or 50x20	C
CRM	65X MGA21 A	12.37	5.11	0.0777	0.0020	0.028	0.0140	0.0010	0.0063	0.0048	0.0006	AZ125A	40x15 or 50x20	C
CRM	65X MGA22 A	8.62	0.89	0.40	0.078	0.085	0.0060	0.0058	0.0033	0.0038	0.0006	AZ91A	40x15 or 50x20	C
CRM	65X MGA23 A	9.75	0.555	0.130	0.0155	0.027	0.0085	0.0011	0.0024	0.0019	0.0024	AZ91D	40x15 or 50x20	C

		Al	Zn	Mn	Cu	Si	Fe	Ni	Ca	Sn	Pb	Ag	Ce	La	Be	Cd	Ti		Size (mm) Ø x H	Form
CRM	65X MGB1 E	1.90	1.60	0.770	0.051	0.069	0.0027	0.0020	(0.067)	0.0098	0.0095	0.0300	....	....	0.0008	0.076	....		40x15 or 50x20	C
CRM	65X MGB2 C	2.67	0.95	0.333	0.113	0.069	0.010	0.0028	0.011	0.0047	0.0036	0.0099	0.0009	0.0007	0.0008	0.0115	0.0003		40 x 18	C
CRM	65X MGB2 D	2.81	1.047	0.526	0.065	(0.088)	0.0032	0.0043	(0.010)	0.0052	0.0053	0.0099	....	....	0.0014	0.0103	....		40x15 or 50x20	C
CRM	65X MGB3 B ++	3.19	0.608	0.0122	0.0214	0.012	(0.005)	0.0020	0.030	0.0050	0.0037	(0.002)	....	....	0.0029	0.012	(0.003)	++ unsuitable for use with glow-discharge	45 x 20	C
CRM	65X MGB3 C	3.38	0.711	0.277	0.0222	0.042	0.0028	0.0027	(0.003)	0.0017	0.0023	0.0028	....	....	0.0019	0.0025	....		40x15 or 50x20	C
CRM	65X MGB4 C	3.86	0.333	0.031	0.0183	0.037	(0.009)	0.0003	0.0010	0.0050	0.0037	0.0046	0.0003	(0.0001)	0.0033	0.00016	(0.0008)		40 x 18	C

6.6 Mg/Zn

		Al	Zn	Mn	Zr	Cu	Si	Fe	Ni	Ca	Sn	Pb	Ag	Ce	La	Nd	Be	Sr	Size (mm) Ø x H	Form
CRM	66X MGC4 C	0.039	6.81	0.166	<0.001	0.0024	0.06	0.006	0.0009	....	0.021	0.0030	0.0074	....	....	....	(0.0001)	(0.00014)	40x15 or 50x20	C
CRM	66X MGC5 A	0.072	6.61	1.17	....	0.0286	0.026	0.0008	0.0111	....	0.0051	0.0281	....	....	....	....	....	....	40x15 or 50x20	C
CRM	66X MGD1 B	0.147	1.19	0.125	....	0.066	(0.073)	0.0029	0.0162	....	0.026	0.026	....	0.065	0.031	0.064	....	....	40x15 or 50x20	C
CRM	66X MGD5 A	0.040	6.25	0.307	....	2.88	0.134	0.008	0.0120	(0.030)	0.104	0.097	0.044	....	....	....	<0.0005	....	40x15 or 50x20	C

6.7 Mg/Al/Rare Earth

		Al	Zn	Mn	Cu	Si	Fe	Ni	Be	Ce	La	Nd	Pr	Gd	Size (mm) Ø x H	Form
CRM	67X MGK2 A	3.84	0.132	0.534	0.0041	0.057	0.0016	0.0033	0.0025	0.70	0.34	0.125	0.053	0.053	40x15 or 50x20	C
CRM	67X MGK3 A	4.56	0.050	0.516	0.0017	0.068	0.0024	0.0016	0.0007	0.83	0.374	0.175	0.069	0.038	40x15 or 50x20	C

7.1 Tin with Impurities

		As	Bi	Sb	Pb	Cu	Fe	Cd	Zn	Ni	Al	Ag	Cr	Co	In	Au	Te	Se	P	Ga	Ge	Hg	Size (mm) Ø x H	Form
CRM	71X PB3 A	0.0022	0.0103	0.0024	2.77	0.0074	....	0.0008	0.0016	....	....	0.0011	....	....	....	....	....	....	....	....	....	....	40 x 15	C
CRM	71X PB4 A	0.0045	(0.002)	0.0059	4.00	0.0014	....	0.0027	0.0063	....	....	0.0047	....	....	....	....	....	....	....	....	....	....	40 x 15	C
CRM	71X SR0 C	0.0005	0.0029	0.0055	0.0457	0.0073	0.0040	0.0024	0.0053	0.0025	0.0414	0.0024	....	0.0004	0.0088	0.0012	0.0021	0.0006	0.0004	0.0054	0.0021	0.0099	40 x 15	C
CRM	71X SR1 E	0.0102	0.0107	0.0156	0.0324	0.0111	(0.0021)	0.0104	0.0146	0.0041	(0.0016)	0.0212	....	....	0.0120	0.0014	0.0112	(0.0015)	....	0.0049	....	0.0142	40 x 15	C
CRM	71X SR2 F	0.0070	0.0403	0.074	0.151	0.116	0.0133	0.0351	0.0058	0.0183	0.0022	0.0305	0.0031	....	0.0597	0.0077	0.0246	....	....	....	0.009	0.140	40 x 15	C
CRM	71X SR3 F	0.097	0.123	0.128	0.306	0.121	0.0203	0.100	0.054	0.0371	(0.0014)	0.050	....	....	0.104	0.0145	0.070	0.0031	....	0.0339	....	0.115	40 x 15	C

7.3 Tin White Metals (Pewter, Babbit)

		As	Bi	Sb	Pb	Cu	Fe	Cd	Zn	Ni	Al	Ag	Co	In	S	P	Size (mm) Ø x H	Form
CRM	73X SC1 A	0.008	0.084	1.48	0.067	2.02	0.0025	0.006	0.003	0.0041	0.0025	0.010	<0.001	0.008	<0.002	....	40 x 15	C
CRM	73X SC2 B	0.0355	0.602	3.05	0.0457	1.028	0.0037	0.0282	(0.0007)	0.0156	....	0.0318	0.0217	0.0099	....	....	40 x 15	C
CRM	73X SC3 A	0.029	0.020	4.60	0.040	0.222	0.017	0.024	0.0014	0.0136	0.001	0.013	0.006	0.031	(0.002)	....	40 x 15	C
CRM	73X SC4 B	0.0268	0.153	5.94	0.429	2.63	0.0014	0.0085	(0.001)	0.0130	(0.002)	0.0525	0.0020	0.0143	....	0.005	40 x 15	C
CRM	73X SC5 A	0.013	0.43	7.03	0.136	0.57	0.004	0.008	0.001	0.0058	0.003	0.063	0.011	0.036	(0.001)	....	40 x 15	C
CRM	73X SC6 A	0.204	0.115	0.092	0.100	5.17	0.007	0.0125	0.01	0.013	(0.003)	0.08	0.0050	0.058	(0.004)	....	40 x 15	C
CRM	73X SC7 B	0.059	0.013	13.86	0.32	5.71	(0.043)	0.0019	0.0033	0.0160	(0.001)	0.0059	0.0143	0.0194	(0.001)	....	40 x 15	C
CRM	73X SC8 B	0.11	0.0531	5.52	0.110	3.78	0.055	0.098	0.004	0.0351	(0.001)	0.0253	0.0267	0.0325	0.004	....	40 x 15	C
CRM	73X SC9 B	0.117	0.0825	8.31	0.305	8.03	0.053	0.0506	....	0.0084	(0.001)	0.0055	0.0051	0.0059	....	....	40 x 12	C
CRM	73X SC11 C	0.248	0.554	12.98	0.0630	11.51	0.0052	1.72	0.005	0.110	....	(0.056)	....	....	....	0.025	40 x 12	C
CRM	73X SC12 B	(0.034)	0.0301	7.50	0.091	6.03	0.024	0.758	0.0210	0.115	0.0015	0.842	0.0210	....	....	....	40 x 15	C
CRM	73X SC13 A	0.054	0.0188	4.21	0.259	4.19	0.053	0.0021	0.0126	....	(0.01)	....	....	....	....	(0.02)	40 x 15	C

7.4 Tin Lead-Free Solders

		As	Bi	Sb	Pb	Cu	Fe	Cd	Zn	Ni	Al	Ag	P	Se	Au	Co	Ge	In	Size (mm) Ø x H	Form
CRM	74X AM F	0.0038	0.190	1.064	0.126	3.07	(0.001)	0.0061	(0.006)	0.0260	(0.001)	0.496	(0.002)	(0.001)	....	....	....	0.0082	40 x 15	C
CRM	74X E F	0.0092	0.0099	0.0168	0.0248	2.94	0.0008	0.0003	(0.005)	0.0069	(0.001)	0.667	(0.001)	0.0008	....	....	....	0.0074	40 x 15	C
CRM	74X HA G	0.0032	0.0639	2.10	0.077	0.629	0.0029	0.0018	2.73	0.0133	(0.002)	2.80	(0.001)	(0.001)	....	....	....	0.0090	40 x 15	C
CRM	74X HB G	0.045	0.038	4.81	0.056	4.49	0.0138	0.0103	(0.02)	1.22	(0.003)	0.086	(0.002)	0.0038	....	....	....	0.0179	40 x 15	C
CRM	74X HN E	0.010	0.122	0.037	0.0404	3.82	0.010	0.0057	(0.0009)	0.185	0.005	0.143	(0.002)	0.0016	....	....	....	....	40 x 15	C
CRM	74X TC F	0.024	0.106	0.124	0.183	4.99	0.0031	0.0150	0.004	0.0167	(0.001)	0.039	(0.002)	0.0473	....	....	....	0.0215	40 x 15	C
CRM	74X BZ1 A	0.0119	3.03	0.031	0.0238	0.026	0.011	0.0012	8.27	0.0097	0.0021	0.004	....	....	....	....	....	....	40 x 15	C
CRM	74X AB1 A	0.0280	0.997	0.0111	0.0353	0.0285	0.0435	0.0199	....	0.0036	....	3.58	....	....	0.0010	0.0032	....	0.0262	40 x 15	C
CRM	74X GE1 A	....	....	....	0.0339	0.662	....	0.0059	....	0.0289	0.065	0.052	....	....	....	....	0.046	....	38 x 13	C
CRM	74X GE2 A	....	....	....	0.0467	0.713	....	0.0086	....	0.031	0.068	0.079	....	....	....	....	0.479	....	38 x 13	C

7.4 Tin Lead-Free Solders

		As	Bi	Sb	Pb	Cu	Fe	Cd	Zn	Ni	Al	Ag	P	In	Au	Se	Co	Hg	Ge	Cr	Size (mm) Ø x H	Form
CRM	**74X OA A**	0.080	1.065	0.0098	0.128	3.41	0.007	0.00063	(0.002)	0.0025	(0.001)	0.100	0.0072	0.0034	(0.0001)	....	....	....	....	....	40 x 15	C
CRM	**74X WS A**	0.0105	0.0063	1.49	0.037	4.58	(0.004)	0.00140	0.0009	0.0048	(0.001)	0.298	0.0122	0.0032	(0.0002)	....	....	....	....	....	40 x 15	C
CRM	**74X CA1 B**	....	0.0131	0.0169	0.077	0.682	....	0.0071	....	....	0.0262	0.440	....	....	0.0053	....	....	....	....	....	40 x 15	C
CRM	**74X CA2 B**	0.018	0.0365	0.079	0.0496	0.795	0.0023	0.0017	0.0005	0.0361	<0.001	3.50	0.010	0.0053	0.0009	0.0022	0.0019	0.0017	0.023	....	40 x 13	C
CRM	**74X CA3 B**	0.0039	0.0156	0.0266	0.0491	0.0869	0.006	0.00045	0.0009	0.0077	0.0010	2.98	0.031	0.0042	0.007	....	....	....	0.0093	....	40 x 15	C
CRM	**74X CA4 C**	0.0076	0.0608	0.0709	0.0800	0.545	0.0052	0.0018	(0.006)	0.0872	0.0005	3.01	....	0.0057	....	(0.001)	0.0052	0.0054	....	0.0094	40 x 15	C
CRM	**74X CA5 B**	0.0125	0.0050	0.124	0.044	1.189	0.0021	0.0023	(0.002)	0.0149	(0.001)	4.09	(0.011)	0.0129	0.0091	0.0004	....	0.0030	....	....	40 x 15	C
CRM	**74X CA6 B**	0.0133	0.0098	(0.010)	0.0287	0.602	0.0120	0.0005	(0.0005)	0.0246	(0.0003)	0.305	(0.001)	0.0243	0.0048	(0.0005)	....	0.0039	....	....	40 x 15	C
CRM	**74X CA7 B**	0.0085	0.0102	0.0194	0.107	0.347	0.007	0.0059	0.0501	0.0315	....	4.02	....	0.0053	....	....	(0.002)	0.049	....	0.0045	40 x 15	C
CRM	**74X CA8 B**	0.0144	0.0172	0.0180	0.084	0.950	0.0043	0.0101	....	0.0020	....	2.47	0.010	0.0062	....	....	0.0202	0.101	0.0020	....	40 x 15	C
CRM	**74X CA9 A**	0.0173	0.0364	0.076	0.038	0.097	0.0085	0.0015	0.0010	0.0039	0.0007	1.002	0.011	0.0165	0.0025	....	....	....	0.0049	....	40 x 15	C

8.1 Binaries: Pb/Sb, Pb/As & Pb/Mg

		Sb	As	Mg	Size (mm) Ø x H	Form
CRM	81X PA0.5 C	0.481	....	....	40 x 15	C
CRM	81X PA1.0 C	0.989	....	....	40 x 15	C
CRM	81X PA2.0 D	1.996	....	....	40 x 15	C
CRM	81X PA3.5 E	3.49	....	....	40 x 15	C
CRM	81X PA7.0 D	7.02	....	....	40 x 15	C
CRM	81X PA10.0 C	9.60	....	....	40 x 15	C
CRM	81X PA12.5 D	12.72	....	....	40 x 15	C
	81X PAs1 A	....	1.25	....	40 x 15	C
	81X PMg1 A	....	....	1.15	40 x 15	C
	81X PMg2 A	....	....	0.173	40 x 15	C
	81X PMg3 A	....	....	0.023	40 x 15	C

8.2 Pb/Ag

		Sn	Sb	Bi	Cu	As	Ag	Zn	Cd	Fe	In	Al		Size (mm) Ø x H	Form
CRM	82X PAg 1.5R E	0.036	0.386	0.065	0.27	0.005	1.55	(0.004)	....	....	....	....		40 x 15	C
CRM	82X PAg 2.5R D	0.082	0.246	0.13	0.26	0.009	2.21	(0.0024)	....	....	....	....	These products are affected	40 x 15	C
CRM	82X PAg 3.5R D	0.25	0.106	0.290	0.073	0.020	3.54	(0.0004)	0.0027	<0.001	0.037	0.0015	by localized Ag segregation	40 x 15	C
CRM	82X PAg 6.0R A	0.50	0.48	0.52	0.18	0.021	5.93	0.007	0.010	<0.001	0.008	<0.001		40 x 15	C
	82X PAG0.7 A	....	....	....	....	....	0.733	....	....	....	....	....		40 x 15	C
	82X PAG0.9 A	....	....	....	....	....	0.903	....	....	....	....	....		40 x 15	C

8.3 Lead with Impurities

		Sn	Sb	Bi	Cu	As	Ag	Fe	Zn	Cd	In	Ni	Te	Se	Au	Tl	Na	Hg	Pt	S	Size (mm) Ø x H	Form
CRM	83X PR1 K	0.016	0.0100	0.0508	0.0465	0.0338	0.1029	....	(0.002)	0.074	0.0080	(0.0004)	0.0058	0.0008	0.0019	....	....	....	....	....	40 x 15	C
CRM	83X PR2 G	0.0948	0.0499	0.0404	0.0309	0.0233	0.055	....	0.0005	0.0020	0.0010	0.0006	0.0100	0.0005	0.0005	(0.0017)	0.0013	0.003	....	....	40 x 15	C
CRM	83X PR3 G **	*0.043*	*0.093*	*0.14*	*0.074*	*0.0013*	*0.003*	....	*(0.0005)*	*0.043*	*0.005*	*0.010*	*0.004*	*0.017*	....	....	....	** provisional values			40 x 15	C
CRM	83X PR4 H	....	0.0050	0.0150	0.0454	0.0003	0.0114	....	....	0.0081	....	0.0029	0.0229	(0.004)	0.0021	0.0021	....	0.019	....	....	40 x 15	C
CRM	83X PR5 G	0.0010	0.0006	0.0086	0.0006	0.0004	0.0011		(0.0002)	0.0003	0.0002	(0.0002)	0.0003	0.0004	....	(0.0001)	....	(0.0001)	....	....	40 x 15	C
CRM	83X PR7 B	0.189	0.795	0.479	0.176	0.051	0.290	(0.0008)	(0.0006)	0.455	0.653	(0.0015)	0.0097	0.0052	....	....	....	....	0.0047	....	40 x 15	C
CRM	83X PR8 D	0.604	0.257	1.18	0.0448	0.134	0.497	....	0.0004	0.199	0.293	0.0008	0.0014	(0.0003)	0.0106	....	....	0.086	....	....	40 x 15	C
CRM	83X PR11 A	0.119	0.497	0.0117	0.0551	0.0095	0.0030	(0.0003)	....	0.0008	....	0.0011	....	(0.0001)	....	0.0042	....	....	....	0.009	40 x 15	C
CRM	83X PR12 A	0.0005	0.0011	0.0119	0.0353	(0.0003)	0.0030	(0.0003)	....	0.0011	....	0.0009	....	(0.0002)	....	0.0051	....	....	....	(0.0002)	40 x 15	C
CRM	83X CU06 A	(0.0004)	(0.0008)	0.0134	0.0554	(0.0001)	0.0019	....	(0.0003)	(0.0001)	....	0.0003	(0.0002)	(0.0005)	....	....	....	....	....	0.0011	40 x 15	C

8.3 Lead with Impurities - continued

		Sn	Ag	Zn	Cd	Al	Li	Na	Mg	Ca	Ba		Size (mm) Ø x H	Form
CRM	**83X PR9 A**	0.153	0.0049	0.0045	0.0007	0.0138	0.066	0.077	0.054	0.556	0.200		40 x 13	C
	83X PR9-1 A	0.054	0.003	0.0007	0.0004	0.0001	0.004	0.015	0.006	0.096	0.033	these are not CRMs	40 x 13	C
	83X PR9-2 A	0.015	0.003	0.0002	0.0004	0.0001	0.002	0.007	0.002	0.046	0.015		40 x 13	C

8.4 Battery Alloys (Pb/Sn/Ca)

		Sn	Sb	Bi	Cu	As	Ag	Zn	Cd	Al	Ca	Ni	Te		Size (mm) Ø x H	Form
CRM	**84X BA1 K**	0.888	0.0009	0.0146	(0.0013)	0.0005	0.0098	0.0068	0.0014	0.0336	0.120	(0.0001)	(0.0003)		40 x 15	C
CRM	**84X BA2 D**	0.544	(0.003)	0.0230	(0.002)	0.0004	0.0044	0.0273	0.0040	0.0183	0.0756	(0.0004)	(0.0003)		40 x 15	C
CRM	**84X BA3 D ****	*0.32*	*0.005*	*0.035*	*0.006*	. . . .	*0.006*	*0.003*	*0.005*	*0.004*	*0.022*	. . . .	. . . .	** provisional values	40 x 15	C
CRM	**84X BA4 C**	0.0480	0.0078	0.0260	0.0064	(0.003)	0.0020	0.0065	0.0092	0.0015	0.0014	(0.0004)	0.0205		40 x 15	C
CRM	**84X BA7 B**	0.594	0.0022	0.0140	0.0020	(0.0004)	0.0015	0.0024	0.0004	0.0085	0.0391	(0.0003)	(0.0002)		40 x 15	C
CRM	**84X BA8 D**	0.325	0.0043	0.0147	0.0008	0.0005	0.0035	0.0018	0.0004	0.0359	0.136	0.0002	(0.0002)		40 x 15	C
CRM	**84X BA9 C**	2.94	(0.005)	0.0145	0.0021	(0.0005)	0.0023	0.0017	0.0011	0.0207	0.118	(0.0001)	(0.0003)		40 x 15	C
CRM	**84X BA11 B**	1.289	(0.005)	0.0159	0.0017	0.0006	0.0025	0.0006	0.0006	0.0207	0.0546	. . . .	. . . .		40 x 15	C
CRM	**84X BA12 B**	1.483	0.0007	0.0181	(0.001)	0.0005	0.0051	0.0025	0.0009	0.0148	0.0665	. . . .	. . . .		40 x 15	C
CRM	**84X BA13 B**	1.685	0.0018	0.0282	0.0010	0.0004	0.0076	0.0079	0.0014	0.0363	0.0725	. . . .	. . . .		40 x 15	C
CRM	**84X BA14 A**	0.959	(0.002)	0.0162	0.0016	(0.0004)	0.0103	0.0057	0.0015	0.0188	0.076	(0.0002)	(0.0002)		40 x 15	C
CRM	**84X BA15 A**	0.941	0.0047	0.0140	0.0011	0.0005	0.0095	0.0062	0.0013	0.0161	0.0865	. . . .	. . . .		38 x 15	C
CRM	**84X BA20 B**	0.370	0.0038	0.0144	. . . .	. . . .	0.0295	0.0435	0.0051	0.065	0.368	. . . .	. . . .		38 x 15	C
CRM	**84X BA21 B**	0.162	0.0028	0.0173	. . . .	. . . .	0.0102	0.0155	0.0007	0.0125	0.553	. . . .	. . . .		40 x 15	C
CRM	**84X BA22 B**	0.128	0.0022	0.0138	. . . .	. . . .	0.0044	0.0053	0.0018	0.074	0.799	. . . .	. . . .		38 x 15	C
CRM	**84X BA23 B**	0.237	0.0061	0.0134	. . . .	. . . .	0.0024	0.0026	0.00012	0.0569	1.052	. . . .	. . . .		38 x 15	C

8.5 Various Lead Alloys

		Sn	Sb	Bi	Cu	As	Ag	Zn	Cd	Ni	Te	Se	S	Co		Size (mm) Ø x H	Form
CRM	**85X PSn2 C**	2.06	0.0239	0.0154	0.0128	0.0048	0.0048	(0.0004)	0.0007	0.0003	0.0045	0.0042	(0.0009)	0.0004		40 x 15	C
CRM	**85X PSb3 J**	0.161	2.26	0.0214	0.0308	0.293	0.0042	(0.0008)	0.0028	0.0016	0.0055	0.0317	(0.0008)	. . . .		40 x 15	C
CRM	**85X PSb5 E**	0.285	4.51	0.0134	0.0593	0.149	0.0018	0.00057	0.0016	0.0015	0.0029	0.014	0.018	. . . .		38 x 15	C
CRM	**85X PSb5 F ****	*0.22*	*4.80*	*0.025*	*0.035*	*0.22*	*0.004*	*(0.0002)*	*0.0010*	*0.0015*	*0.0015*	*0.008*	*0.007*	. . . .	** provisional values	40 x 15	C
CRM	**85X PSb8 B**	0.041	8.04	0.0178	0.0169	0.0352	0.0049	<0.001	0.0010	0.0016	0.0043	0.0022	0.005	. . . .		40 x 15	C
CRM	**85X PSb10 B**	0.090	10.00	0.0410	0.169	0.127	0.0020	0.015	0.0018	0.0027	0.0037	0.0020	<0.001	. . . .		40 x 15	C
CRM	**85X PSb12 B**	0.270	11.50	0.0310	0.330	0.071	0.0019	0.071	0.00053	0.0033	0.0056	0.0004	<0.001	. . . .		40 x 15	C

8.5 Various Lead Alloys

		Sn	Sb	Bi	Cu	As	Ag	Fe	Zn	Cd	In	Ni	Te	Se	Au	Tl	S	Hg	Co	Mn		Size (mm) Ø x H	Form
CRM	**85X ANTH F**	1.25	6.25	0.0196	0.0072	0.183	0.0070	(0.0004)	0.0005	0.0039	....	0.0045	0.0067	0.014	....	....	0.0026	....	0.0006	....		40 x 15	C
CRM	**85X CADH B**	0.096	1.85	0.0292	0.0260	0.201	0.0076	0.0005	0.044	2.09	....	0.0045	0.0121	0.0010	....	....	<0.0005	....	....	<0.0005		40 x 15	C
CRM	**85X CADL A**	0.010	1.54	0.0169	0.0093	0.0065	0.0076	(0.0006)	(0.0018)	1.69	....	(0.0005)	0.0030	(0.0011)	....	....	....	....	....	....		40 x 15	C
CRM	**85X HRH H**	0.851	1.107	0.0996	0.072	0.721	0.236	....	....	0.0066	....	0.0012	0.0024	0.0375	....	....	(0.0022)	....	....	....		40 x 15	C
CRM	**85X SASH A**	0.0130	1.54	0.0602	0.0245	0.683	0.0016	....	....	0.00024	....	0.0005	0.0006	....	....	....	(0.0005)	....	....	....		40 x 15	C
CRM	***85X S744 A ******	*0.25*	*1.55*	*0.02*	*0.035*	*0.12*	*0.005*	....	....	....	....	....	*0.002*	*0.025*	....	....	*0.003*	** provisional values				40 x 15	C
CRM	**85X A16 A**	0.0356	1.57	0.0165	0.0006	0.0503	0.0297	(0.0001)	0.0001	0.0001	....	0.0006	....	0.0218	....	....	(0.0003)	....	....	....		38 x 15	C
CRM	**85X M2 A**	0.071	1.847	0.0141	0.0281	0.259	0.0016	(0.0002)	(0.0001)	0.0003	....	0.0005	....	0.0247	....	....	(0.0008)	....	....	....		38 x 15	C
CRM	**85X MS2X A**	0.392	1.367	0.0188	0.0277	0.176	0.0043	(0.0001)	0.0003	0.0002	....	0.0004	....	0.0334	....	....	(0.0002)	....	....	....		38 x 15	C
CRM	**85X N35 A**	0.044	3.42	0.0130	0.0246	0.201	0.0011	(0.0001)	0.0001	0.00013	....	0.0006	....	0.0004	....	....	0.007	....	....	....		38 x 15	C
CRM	**85X SB28 A**	0.051	2.87	0.0140	0.0035	0.162	0.0025	(0.0002)	(0.0001)	(0.0001)	....	0.0012	....	0.0223	....	....	0.0010	....	....	....		38 x 15	C
CRM	**85X SM31 A**	0.0274	2.98	0.0114	0.0084	0.0581	0.0009	(0.0001)	0.0002	(0.0001)	....	0.0006	....	0.0183	....	....	0.0003	....	....	....	....	38 x 15	C
CRM	**85X YUM A**	0.0046	2.47	0.0137	0.0234	0.306	0.0018	....	(0.0002)	0.0002	....	0.0007	0.0005	0.0008	....	....	0.0062	....	....	....		40 x 15	C
CRM	**85X 2.5LA A**	0.068	2.48	0.0142	0.0372	0.334	0.0017	....	0.0002	(0.0002)	....	0.0005	0.0004	0.0006	....	....	(0.0006)	....	....	....		40 x 15	C
CRM	**85X SSBC A**	9.70	2.14	0.413	....	0.075	0.456	....	....	0.455	0.209	....	0.0037	0.0029	0.0079	0.0196	(0.0008)	....	....	....		40 x 15	C
CRM	**85X SSCH A**	2.64	5.52	0.0441	0.177	0.208	0.0134	(0.002)	0.0007	0.0040	....	0.010	0.0070	(0.015)	....	....	0.0035	....	....	....		40 x 15	C
CRM	**85X 0494Pb1 A**	0.051	0.95	0.0017	0.012	0.049	....	....	....	....	....	....	....	0.004	....	....	....	....	....	....		40 x 15	C
CRM	***85X 9494Pb2 C ******	*0.13*	*1.95*	*0.04*	*0.028*	*0.10*	*0.032*	....	....	....	....	....	*0.004*	*0.027*	....	....	*0.005*	** provisional values				40 x 15	C
CRM	***85X 0494Pb3 D ******	*0.23*	*3.10*	*0.13*	*0.092*	*0.25*	*0.02*	....	....	....	....	....	*0.017*	*0.046*	....	....	*0.018*	** provisional values				40 x 15	C
CRM	**85X 0616Pb1 C**	0.0045	1.59	0.0333	0.0143	0.060	0.0071	....	0.0004	0.0016	....	0.0011	0.0065	0.0087	....	....	....	0.0010	....	....		40 x 15	C

8.6 Lead Babbits

		Sn	Sb	Bi	Cu	As	Ag	Fe	Zn	Cd	In	Ni	Pd	Te	Size (mm) Ø x H	Form
CRM	**86X PSS1 B**	4.29	11.54	0.195	0.0249	0.554	0.0049	0.0018	0.0030	0.0057	0.0074	0.0100	0.0023	....	40 x 15	C
CRM	**86X PSS2 B**	7.00	8.04	0.0646	0.127	1.43	0.0179	(0.001)	0.031	0.066	0.0059	0.0165	0.0049	....	40 x 15	C
CRM	**86X PSS3 B**	9.39	14.13	0.0273	0.489	0.409	0.0140	0.0025	0.0030	0.0170	0.0111	0.0009	....	0.0050	40 x 15	C
CRM	**86X PSS4 B**	10.64	15.93	0.102	0.355	0.241	0.0264	0.0035	0.012	0.0539	0.0174	0.0010	....	0.0146	40 x 15	C

9.1 Tin / Lead Solders

		Sn	Sb	Bi	Cu	As	Ag	Fe	Zn	Cd	In	Ni	Al	Te	Au	Se	Hg	Size (mm) Ø x H	Form
CRM	**91X S10PR1 C**	9.10	0.0278	0.0277	0.0097	0.0045	0.0078	(0.0016)	<0.001	0.0029	....	0.0006	....	....	....	....	....	40 x 15	C
CRM	**91X S10P D**	10.07	(0.002)	(0.006)	(0.001)	(0.001)	(0.001)	<0.001	<0.0001	<0.0001	<0.001	<0.001	<0.001	....	....	....	....	40 x 15	C
CRM	**91X S30PR2 C**	30.17	0.619	0.158	0.095	0.028	0.060	0.009	0.016	0.0060	....	0.0077	<0.0005	....	0.0017	....	....	40 x 15	C
CRM	**91X S30PR3 C**	30.88	0.269	0.294	0.102	0.0126	0.024	0.0016	(0.003)	0.0115	0.0085	0.0269	....	....	0.0063	....	....	40 x 15	C
CRM	**91X S40PR2 D**	40.68	0.596	0.154	0.085	0.010	0.086	0.0096	0.0275	0.0046	....	0.0050	....	....	....	....	....	40 x 15	C
CRM	**91X S40P D**	40.00	(0.002)	(0.005)	(0.001)	(0.007)	(0.001)	(0.001)	<0.0001	<0.0001	(0.002)	<0.001	<0.0005	....	....	....	....	40 x 15	C
CRM	**91X S50PR4 B**	53.06	0.132	0.114	1.184	0.0364	0.0704	0.0025	0.032	0.0123	0.0502	0.0171	(0.0006)	...	0.0355	0.003	....	40 x 15	C
CRM	**91X S50P E**	50.05	(0.002)	(0.005)	(0.002)	(0.006)	(0.001)	(0.001)	<0.0001	<0.0001	(0.003)	(0.001)	<0.0005	....	....	....	....	40 x 15	C
CRM	**91X S62AG2 A**	61.68	0.347	0.168	0.069	0.022	2.03	0.0065	0.0011	0.0016	....	(0.0016)	(0.0011)	....	0.0020	....	....	40 x 15	C
CRM	**91X S63PR0 B**	60.03	0.0182	0.0084	0.0202	0.0094	0.0097	(0.002)	<0.0005	0.0097	0.0048	0.0018	....	0.0034	0.0148	....	0.004	40 x 15	C
CRM	**91X S63PR1 G**	61.45	0.052	0.0588	0.214	0.0064	0.0061	(0.002)	(0.002)	0.0045	0.0308	0.0060	....	0.0047	0.0348	....	(0.015)	40 x 15	C
CRM	**91X S63PR2 K**	61.84	0.531	0.175	0.0841	0.0094	0.0528	0.0053	0.0032	0.0089	0.0157	0.0027	0.0005	0.0036	0.082	....	....	40 x 15	C
CRM	**91X S63PR3 G**	64.01	0.243	0.254	0.101	0.0264	0.0193	0.0078	0.0061	0.0009	0.0097	0.0085	....	0.0068	0.169	....	(0.038)	40 x 15	C
CRM	**91X S63Bi1 A**	61.9	0.470	0.597	0.105	<0.002	0.0592	0.0204	(0.002)	0.0095	0.0067	0.0131	(0.0015)	0.0012	0.074	....	....	40 x 15	C
CRM	**91X S63P J**	62.96	0.011	0.0056	0.0156	(0.001)	0.0170	0.0015	(0.0003)	(0.0001)	0.0064	0.0003	(0.0003)	(0.0002)	(0.0005)	....	....	40 x 15	C

9.3 Tin / Lead / Antimony Solders

		Sn	Sb	Bi	Cu	As	Ag	Fe	Zn	Cd	In	Ni	Te	Size (mm) Ø x H	Form
CRM	**93X S30APR1 C**	28.58	2.54	0.059	0.192	0.010	0.0144	(0.012)	(0.0004)	0.0014	0.0094	0.0010	0.0024	40 x 15	C
CRM	**93X S30APR2 C**	30.68	1.80	0.168	0.062	0.0178	0.049	0.0026	0.028	0.0061	0.0199	0.042	0.0102	40 x 15	C
CRM	**93X S30APR3 C**	33.0	0.96	0.28	0.008	0.018	0.021	0.0026	0.005	0.009	....	0.010	....	40 x 15	C

9.5 Fusible Alloys	Sn	Sb	Bi	Cu	As	Ag	Fe	Zn	Cd	In	Al	Pb	Co	Ni	Au	Nominal Melting Temperature ^{O}C	Size (mm) Ø x H	Form
95X 117 A	7.99	0.012	45.3	0.011	....	0.0047	....	0.0053	4.99	18.6	....	23.1	....	....	....	**47**	40 x 15	C
95X 136 A	12.05	0.023	48.7	0.0029	....	0.0057	....	0.030	0.0091	21.5	....	17.8	....	....	....	**58**	40 x 15	C
95X 158 A	13.5	0.057	50.2	0.048	....	0.002	....	0.044	9.6	0.006	....	27.0	....	....	....	**70**	40 x 15	C
95X 174 A	16.79	0.082	57.12	0.0029	....	0.0076	....	0.036	0.0089	26.2	....	0.081	....	....	....	**79**	40 x 15	C
95X 255 A	0.24	0.32	55.7	0.045	....	0.0019	....	0.035	0.0065	0.010	....	43.7	....	....	....	**124**	40 x 15	C
95X BIS40P1 B	42.3	0.092	57.4	0.0670	0.0101	0.035	(0.001)	....	0.0050	0.0164	....	0.043	....	....	....	**138**	40 x 15	C
95X BIS40P2 A	44.7	0.005	55.3	0.003	0.002	0.005	0.001	0.002	0.0008	0.005	0.002	0.020	0.001	0.002	0.0006	**....**	40 x 15	C
95X BIS50P1 A	50.0	....	49.8	....	....	....	0.051	0.006	0.022	....	....	....	....	0.025	....	**....**	40 x 15	C
95X BIS50P2 A	50.3	....	49.6	....	0.002	0.090	0.007	....	....	....	0.005	....	....	....	0.015	**....**	40 x 15	C
95X BIS50P3 A	48.6	....	49.8	....	0.073	1.50	0.003	0.002	0.015	....	....	....	....	....	0.0025	**....**	40 x 15	C
95X BIS70P1 A	69.1	....	29.6	....	0.025	1.10	0.010	....	....	0.040	<0.001	....	....	0.029	0.0004	**....**	40 x 15	C
95X BIS70P2 A	65.0	....	32.8	....	....	2.01	....	0.001	....	0.049	<0.001	....	....	....	....	**....**	40 x 15	C
95X CDS50P1 A	50.1	0.113	0.13	0.26	0.027	0.030	(0.0022)	0.007	18.1	0.092	<0.002	31.0	....	....	....	**145**	40 x 15	C
95X PBS40P1 A	42.6	0.016	13.8	0.025	0.005	0.011	(0.0006)	0.0010	0.0043	0.005	(0.0006)	(43.6)	....	....	....	**....**	40 x 15	C
95X SC34 A	34.05	....	....	....	....	....	....	....	(65.99)	....	....	....	....	....	....	**....**	40 x 15	C
95X SC36 A	36.09	....	....	....	....	....	....	....	(63.98)	....	....	....	....	....	....	**....**	40 x 15	C

10. Titanium Base

Updated: 15th December 2016

Blocks / Discs

10.1 Various Ti Alloys		Al	Sn	V	Mo	Nb	Zr	Cr	Fe	Ni	Cu	Si	Y	C	S	N	O	H	Size (mm) Ø x H	Form
CRM	**101X Ti2 A**	6.02	2.05	....	2.08	....	3.97	0.0054	0.053	0.0073	(0.003)	0.110	0.0002	0.016	....	0.0053	0.143	0.0076	please ask	HIP

Note: This product is nearly sold out; only a few pieces remaining

11. Cobalt Base

Updated: 15th December 2016

Blocks / Discs

11.1 Co/Cr/W (Alloy WI 52 Type)		C	Si	S	P	Mn	Ni	Cr	W	Fe	Mo	Nb	Ta	Al	Cu	N	Pb	Sn	Size (mm) Ø x H	Form
	111X 12671 J	....	0.51	....	....	0.61	0.88	20.5	11.8	1.45	....	1.95	....	....	....	....	....	....	40 x 15	C

11.2 Co/Cr/Mo (Stellite 8 / BS 3531 Type)		C	Si	S	P	Mn	Ni	Cr	W	Fe	Mo	Al	Nb	Cu	Ta	B	N		Size (mm) Ø x H	Form
CRM	**112X 14943 H ****	*0.20*	*0.20*	*0.02*	*0.005*	*1.0*	*0.15*	*31*	*0.05*	*0.75*	*8.0*	*0.1*	*0.09*	*0.21*	*0.01*	*0.005*	*0.03*	** provisional values	40 x 15	CC

11.9 Various Cobalt Alloys		C	Si	S	P	Mn	Ni	Cr	W	Fe	Mo	Cu	Nb	Al	B	N	Size (mm) Ø x H	Form
CRM	**119 X COB1 H**	0.0518	0.492	0.0099	0.0195	0.513	22.11	24.62	11.99	15.14	0.416	0.0607	0.398	0.056	....	0.094	40 x 15	CC
CRM	**119X ST3 L**	2.36	0.807	0.0260	....	0.887	2.15	29.9	12.6	3.42	0.163	0.032	....	....	0.127	0.053	40 x 15	CC

13.1 Silver with Impurities

	All Elements ppm																			Size (mm)	Form
	Cu	Pb	Bi	Zn	As	Sb	Se	Au	Sn	Pt	Pd	Fe	Te	Mn	Cd	Ni	Si	Ga	Al	Ø x H	
131X AGP1 B	815	420	523	502	145	485	299	521	505	505	332	57	435	404	377	276	....	....	....	25 x 3	R
131X AGP2 B	193	75	96	109	29	107	65	114	95	112	105	(20)	90	49	56	57	....	....	....	25 x 3	R
131X AGP3 B	66	12	12	34	6	21	16	26	22	23	16	(11)	18	3	6	12	....	....	....	25 x 3	R
131X AGP4 B	41	5	7	20	3	12	6	9	6	7	7	(23)	5	3	2	6	....	....	....	25 x 3	R

R = Samples prepared from rolled strip

131X PAg1 A	75	40	40	50	12	50	35	120	40	35	180	5	120	35	35	25	30	60	8	34 x 12	concast
131X PAg2 A	400	12	12	40	8	12	10	20	10	10	180	7	15	10	5	9	4	15	2	34 x 12	concast

	All Elements ppm							Size (mm)	Form
	Bi	Se	Fe	Cu	Cr	Si	Al	Ø x H	
131X AgSe1 A	304	162	23	....	....	....	....	40 x 10	C
131X AgSe2 A	790	465	22	1333	37	39	43	40 x 10	C

C = Samples cast

13.2 Silver Copper Alloys

	All Elements %			Size (mm)	Form
	Ag	Cu	Zn	Ø x H	
132X AGB75 C	75.11	24.53	....	40 x 10	C
132X AGB85 C	84.87	15.09	....	40 x 10	C
132X AGB87 B	87.13	12.67	....	40 x 10	C
132X AGB90 B	89.73	10.24	....	40 x 10	C
132X AGB93 B	92.70	7.27	....	40 x 10	C
132X AGB100 C	99.94	0.0090	....	40 x 10	C

C = Samples cast

132X 925Zn1 B	92.70	6.09	1.39	Unmounted	25 x 3**	R
132X 925Zn3 B	92.64	4.53	2.88	Unmounted	25 x 3**	R

**Also available mounted in 30mm dia. Bakelite holder

R = Samples prepared from rolled strip

13.3 Silver Alloys

	These Elements in %								These Elements in ppm												Size (mm)	Form
	Au	Cu	Pb	Zn	Sn	Bi	Sb	Fe	Al	As	Cd	Co	Mn	Ni	Pd	Pt	Se	Te	Ge	In	Ø x H	
133X AGA1 A	1.48	19.95	0.207	0.211	0.291	0.194	0.050	0.039	96	255	165	406	61	118	54	67	169	271	107	37	Unmounted	25 x 3	R
133X AGA2 A	0.507	10.00	1.02	0.502	0.520	0.113	0.192	0.027	19	144	113	163	115	264	76	114	78	98	47	65	Unmounted	25 x 3	R
133X AGA3 A	0.258	4.91	1.89	0.816	0.921	0.048	0.459	(0.015)	(20)	80	42	50	98	450	156	256	44	54	45	134	Unmounted	25 x 3	R
133X AGQ1 C	0.251	2.532	0.245	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	Unmounted	25 x 3	R
133X AGQ2 C	0.978	5.808	0.469	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	Unmounted	25 x 3	R
133X AGQ3 C	1.975	9.612	0.921	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	Unmounted	25 x 3	R

R = Samples prepared from rolled strip

16. Setting Up Samples

Updated: 13th December 2016

All of these samples have been prepared to meet the daily setting up requirements of laboratories using Direct Reading Spectrometers.
Analytical Data are supplied with each sample but are not certified as accurate as these are not intended to be used as Primary Reference Materials, and should not be used for calibration..

16.4.2 Aluminium

	Cu	Mg	Si	Fe	Mn	Ni	Zn	Pb	Sn	Ti	Cr	Co	Be	Sb	Ca	Sr	Zr	Ag	Size (mm) Ø x H	Form
164X ALSUS7	4	0.15	0.9	0.55	0.06	1.1	0.12	0.11	0.01	0.3	0.01	0.2	0.1	0.12	<0.001	0.003	0.18	. . . .	50 x 25	C
164X ALSUS8	0.75	0.9	9.5	0.25	0.45	0.12	0.25	0.001	0.13	0.02	0.06	0.025	0.015	0.03	<0.001	0.07	0.025	0.09	50 x 25	C

16.5.1 Pure Copper

All Elements ppm

	Sn	Pb	Zn	Fe	Ni	Al	Si	As	Mn	Bi	Sb	P	S	Cr	Co	Ag	Mg	C	Se	O	N	Size (mm) Ø x H	Form
165X CUSUS1	0.7	11	0.4	8	1	0.05	0.05	0.05	0.01	0.05	0.1	1	11	0.01	0.1	0.05	0.01	(0.5)	0.05	(370)	(6)	50 x 45	W

16.5.2 Copper

	Sn	Pb	Zn	Fe	Ni	Al	Si	As	Mn	Bi	Sb	P	S	Cr	Co	Mg	Se	Cu	Size (mm) Ø x H	Form
165X MNB5 SUS	1.6	0.20	38	0.55	1.1	3.2	0.40	. . . .	0.20	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	55	40 x 17	CC
165X PB10 SUS	11.0	0.04	0.05	0.002	0.06	0.001	0.001	0.02	<0.001	0.02	0.15	0.002	0.03	0.001	0.01	. . . .	0.01	89	42 x 18	CC
165X ALB1 SUS	0.03	0.20	0.06	2.8	5.3	9.0	0.10	0.005	0.08	0.015	. . . .	0.015	. . . .	0.01	. . . .	0.04	. . . .	82	40 x 18	CC

16.6 Magnesium

	Al	Zn	Mn	Cu	Si	Fe	Ni	Ti	Sn	Pb	Ag	Be	Cd	Size (mm) Ø x H	Form
166X MGSUS3	0.4	0.09	0.8	0.07	0.01	<0.005	0.02	. . . .	0.005	0.04	0.02	0.0005	0.005	50 x 15	C
166X MGSUS4	9	5	0.12	0.2	0.015	0.02	0.003	0.005	0.05	0.02	1.6	0.003	0.04	50 x 15	C

16. Setting Up Samples

Updated: 13th December 2016

Blocks / Discs

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16.8 Lead

	Sn	Sb	Bi	Cu	As	Ag	Fe	Zn	Cd	In	Ni	Te	Se	Tl	Au	S	Hg	Size (mm) Ø x H	Form
168X PBSUS1	1.3	6.2	0.04	0.03	0.37	0.01	0.002	0.001	0.015	0.01	0.003	0.01	0.01	0.001	0.001	0.002	....	45 x 30	C
168X PBSUS5	0.9	0.35	0.35	0.06	0.35	0.2	<0.001	....	0.09	0.08	0.001	0.003	....	0.002	0.0005	0.0005	0.02	50 x 25	C
168X PBSUS6	0.15	0.12	0.22	0.10	0.025	0.04	<0.001	0.002	0.015	0.01	0.003	0.0005	0.003	0.03	0.001	0.0005	....	45 x 35	C

16.8.1 Lead for fire assay

	ppm Pt	ppm Pd	ppm Au	ppm Rh	ppm Ru	ppm Ir	ppm Ag	ppm Fe	ppm Bi	ppm Cu	ppm Ni	ppm Te	ppm As	ppm Sb	ppm Tl	ppm S	Size (mm) Ø x H	Form
168X PBSUS PM1	55	20	35	12	0.1	2	40	1	100	5	3	1	2	1	10	2	48 x 28	C

16.9 Zinc

	Pb	Mg	Al	Cd	Fe	Sn	Cu	Ni	Mn	Bi	Sb	Ti	Tl	In	Ag	Cr	Si	Size (mm) Ø x H	Form
169X ZN SUS1	0.6	0.002	0.35	0.3	0.05	0.3	0.35	0.06	0.001	0.005	0.2	0.001	0.06	0.25	0.04	0.001	0.003	50 x 20	C

16.11 Tin

	As	Bi	Sb	Pb	Cu	Fe	Cd	Zn	Ni	Al	Ag	Co	In	Au	Se	Te	Tl	Size (mm) Ø x H	Form
1611X SNSUS6	0.3	0.08	0.15	1.0	0.4	0.03	0.01	0.005	0.03	....	0.1	0.02	0.005	0.001	0.003	0.001	0.005	50 x 20	C
1611X SNSUS7	2.1	2.3	9	0.35	11	(0.05)	0.03	0.005	0.05	<0.001	0.3	0.005	0.03	0.005	0.005	0.003	0.03	50 x 20	C

16.12 Cobalt

	C	Si	S	P	Mn	Ni	Cr	W	Fe	Mo	Al	Nb	Cu	B	Sn	Pb	Ta	Ti	V	Co	Size (mm) Ø x H	Form
1612X COSUS1	1.0	1.6	0.07	0.05	1.7	17	26	8.0	3.5	6.5	1.5	2.2	0.15	0.01	0.08	0.01	0.02	0.20	0.25	~30	43 x 20	C

18. Gases in Metals

Updated: 13th December 2016

Powders

18.1 Gases in Tool Steels

		C	S	N	O	Approximate Matrix Composition	Size grams
CRM	**18X D7 A**	2.32	0.0111	0.0124	0.072	12% Cr, 4% V, 1% Mo	100

This material is supplied in powder form - particle size approximately <200u

Most of the MBH range of discs can also be supplied in chippings form. See the sections earlier for general composition information. Chippings are made to order from the currently available disc material as detailed in this catalogue.

Please note that the certification for chippings may differ slightly from the disc certification. This is caused by a review of the relevant analytical techniques used in certifying the material applicable to the chippings form of the material

Note: chippings are made to order and are non-returnable

Please enquire to confirm availability, bottle quantity and price.

As material is made to order it is not possible for us to give a general listing of available material. Please contact us for all chippings enquiries to confirm our ability to supply and to confirm the quantity of material per bottle and unit price.

Definitions

The materials in this catalogue have been categorised as Certified Reference Materials, Reference Materials or Setting Up / Control Samples.
The following definitions used in ISO Guide 30: 1992 apply to the first two categories;

Certified Reference Material (CRM)	"A Reference Material, accompanied by a certificate, one or more of whose property values are certified by a procedure which establishes its traceability to an accurate realisation of the unit in which the property values are expressed and for which each certified values ia accompanied by an uncertainty at a stated level of confidence." Such materials are indicated with **CRM** in the left hand margin against the catalogue number.
Reference Material (RM)	"A material or substance one or more of whose property values are sufficiently homogeneous and well established to be used for the calibration of an apparatus, the assessment of a measured method, or for assigning values to materials."
Setting Up Samples (SUS)	Samples which have been prepared to meet the routine setting up requirements of laboratories using direct reading spectrometers. Whilst analytical data are supplied with each sample they are not certified and are only intended to be used as Setting Up Samples.

Note: **Products that are <u>not</u> marked in this catalogue as 'CRM' may be presumed to be Reference Materials as defined above.**

Use of Reference Materials

Whilst modern instrumental methods of analysis are capable of high accuracy and precision, they are comparative techniques.
Reference materials must be selected and used correctly for optimum performance to be achieved, and the following points should be considered.

The instrument manufacturer's recommendations and advice should be followed.

Users should be aware of the possible effects of structure, sample preparation and physico-chemical interferences when using reference materials.

Validity of Information

IMPORTANT - Please Note

The majority of the analytical data in this catalogue indicates actual values for the batch currently available. However some materials may be remade during the lifetime of this catalogue and the values achieved for the replacements may differ from those stated.

We recommend that customers verify the availability of any material where it is important that the material supplied has the element concentration values listed.

All concentration values in this catalogue are given in % (w/w) unless otherwise stated.

All stated dimensions and weights are approximate. Finished sizes/weights may differ from those stated.

Whilst every effort is taken to present accurate data, errors and omissions excepted, it remains the responsibility of the purchaser to verify data prior to purchase.

For materials not classified as 'CRM' it is the responsibility of the purchaser to ensure the end-user is willing to use a material of lower status.

Prices

All prices are stated Packed Ex Works (Barnet) and include usual commercial packing, but exclude any shipping costs, special packing requirements requested by the customer (and subject to prior agreement) or extra documentation (please enquire)

Prices are subject to change without notice. We recommend that customers verify the price of items prior to placing their order.

Although we endeavour to give advance notice of any price changes, the prices ruling at the time of placing your order will apply unless otherwise agreed in writing. Should prices be requested in US$ or Euro €, we will be pleased to submit our quotation in either of these currencies. Payment should be made to the corresponding currency account at our bank as detailed below.

We are pleased to provide written quotations upon request indicating current availability and estimated despatch costs.

Value Added Tax (VAT)

All orders delivered to a UK address are subject to VAT at the rate applicable at the time of despatch. European Community countries are also subject to UK VAT unless we are advised of your VAT number at the time of placing your purchase order. Orders originating from outside the EU but for delivery to an address in the EU (such as a freight agent) for onward despatch will also be liable for VAT until we receive proof of export from the EU within 90 days of our initial despatch from MBH. The VAT charged will then be refunded upon receipt of the proof of export (bank fees will apply) but this must be presented to MBH within the 90 day period. After 90 days you will need to apply direct to the tax authorities for any refund of VAT.

Insurance & Freight

Insurance and freight costs are charged extra at cost. We will be pleased to provide our quotation detailing these costs upon request.
All materials are packed in strong cardboard outer cartons suitable for despatch by air parcel post, courier or air freight as necessary.
Special packing instructions and freight requirements should be discussed and agreed with us prior to placing your order.

Payment Terms

Payment should be in the currency stated on the invoice and made to the corresponding currency account, free of all local/senders bank charges.
MBH will only accept our own bank's charges.
Payments must be sent for the full amount **after** deduction of all transmission fees (including senders fee & intermediary bank fees).

Payment may be made by any of the following methods.

- Visa Purchasing Card or major debit/credit/charge card (Visa, Mastercard or American Express). Payments over £500.00 are subject to a 2.5% surcharge. Please note we can only invoice/collect payment in Sterling for card transactions. The currency amount billed to your card will reflect your card company's currency conversion rate from Sterling and fee.

  The card payment will be taken (in Sterling) at the time of confirming your order and a receipt forwarded with the invoice.

continues…….

Periodic Table of the Elements

1																	18
1 H Hydrogen 1.008	2											13	14	15	16	17	2 He Helium 4.003
3 Li Lithium 6.941	4 Be Beryllium 9.012											5 B Boron 10.811	6 C Carbon 12.011	7 N Nitrogen 14.007	8 O Oxygen 15.999	9 F Fluorine 18.998	10 Ne Neon 20.180
11 Na Sodium 22.990	12 Mg Magnesium 24.305	3	4	5	6	7	8	9	10	11	12	13 Al Aluminum 26.982	14 Si Silicon 28.086	15 P Phosphorus 30.974	16 S Sulfur 32.066	17 Cl Chlorine 35.453	18 Ar Argon 39.948
19 K Potassium 39.098	20 Ca Calcium 40.078	21 Sc Scandium 44.956	22 Ti Titanium 47.867	23 V Vanadium 50.942	24 Cr Chromium 51.996	25 Mn Manganese 54.938	26 Fe Iron 55.845	27 Co Cobalt 58.933	28 Ni Nickel 58.693	29 Cu Copper 63.546	30 Zn Zinc 65.38	31 Ga Gallium 69.723	32 Ge Germanium 72.631	33 As Arsenic 74.922	34 Se Selenium 78.971	35 Br Bromine 79.904	36 Kr Krypton 84.798
37 Rb Rubidium 84.468	38 Sr Strontium 87.62	39 Y Yttrium 88.906	40 Zr Zirconium 91.224	41 Nb Niobium 92.906	42 Mo Molibdenum 95.95	43 Tc Technetium 98.907	44 Ru Ruthenium 101.07	45 Rh Rhodium 102.906	46 Pd Palladium 106.42	47 Ag Silver 107.868	48 Cd Cadmium 112.414	49 In Indium 114.818	50 Sn Tin 118.711	51 Sb Antimony 121.760	52 Te Tellurium 127.6	53 I Iodine 126.904	54 Xe Xenon 131.249
55 Cs Cesium 132.905	56 Ba Barium 137.328	57-71 Lanthanides	72 Hf Hafnium 178.49	73 Ta Tantalum 180.948	74 W Tungsten 183.84	75 Re Rhenium 186.207	76 Os Osmium 190.23	77 Ir Iridium 192.217	78 Pt Platinum 195.085	79 Au Gold 196.967	80 Hg Mercury 200.592	81 Tl Thallium 204.383	82 Pb Lead 207.2	83 Bi Bismuth 208.980	84 Po Polonium [208.982]	85 At Astatine 209.987	86 Rn Radon 222.018
87 Fr Francium 223.020	88 Ra Radium 226.025	89-103 Actinides	104 Rf Rutherfordium [261]	105 Db Dubnium [262]	106 Sg Seaborgium [266]	107 Bh Bohrium [264]	108 Hs Hassium [269]	109 Mt Meitnerium [268]	110 Ds Darmstadtium [269]	111 Rg Roentgenium [272]	112 Cn Copernicium [277]	113 Uut Ununtrium unknown	114 Fl Flerovium [289]	115 Uup Ununpentium unknown	116 Lv Livermorium [298]	117 Uus Ununseptium unknown	118 Uuo Ununoctium unknown

57 La Lanthanum 138.905	58 Ce Cerium 140.116	59 Pr Praseodymium 140.908	60 Nd Neodymium 144.243	61 Pm Promethium 144.913	62 Sm Samarium 150.36	63 Eu Europium 151.964	64 Gd Gadolinium 157.25	65 Tb Terbium 158.925	66 Dy Dysprosium 162.500	67 Ho Holmium 164.930	68 Er Erbium 167.259	69 Tm Thulium 168.934	70 Yb Ytterbium 173.055	71 Lu Lutetium 174.967
89 Ac Actinium 227.028	90 Th Thorium 232.038	91 Pa Protactinium 231.036	92 U Uranium 238.029	93 Np Neptunium 237.048	94 Pu Plutonium 244.064	95 Am Americium 243.061	96 Cm Curium 247.070	97 Bk Berkelium 247.070	98 Cf Californium 251.080	99 Es Einsteinium [254]	100 Fm Fermium 257.095	101 Md Mendelevium 258.1	102 No Nobelium 259.101	103 Lr Lawrencium [262]

Teléfono 34 - 94 411 34 39 **Fax** 34 - 94 459 71 62 **E-mail** dicoex@dicoex.es

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Materiales de Referencia Certificados

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