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MBH
Reference Materials

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ARMI | MBH
ANALYTICAL LTD

nqa. ISO 9001 Registered Quality Management

UKAS MANAGEMENT SYSTEMS 015

Index

April 2019

LGC and MBH

In December 2018 MBH became a member of the LGC family alongside the ARMI brand of Reference Materials. We are now also able to offer direct access to the extensive ARMI range. Please see the ARMI/LGC catalogue also on our website for additional Reference Materials.

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Please Note

This catalogue details only the current Reference Materials produced exclusively by MBH Analytical Ltd. Additional Reference Materials can be found in our sister catalogue of the ARMI brand. See our website.

Certified Reference Materials

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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.

This catalogue is not the full listing of the materials available from MBH but only those materials exclusively produced by MBH. Please also see our ARMI catalogue and further reference materials listed in other LGC catalogues.

Listing of New Materials Added to this Catalogue.

April 2019

Blocks / Discs

1.3.2 Austenitic Stainless Steels

		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Sn	Al	Co	Nb	N	B	Ta	V	Ti	W	Ca	Mg	Size (mm) Ø x H	Form
CRM	13X 30600 A	0.0090	4.23	0.0007	0.0091	0.648	14.96	17.43	0.0040	0.0121	. . . .	0.0204	0.0149	(0.004)	0.0270	. . . .	. . . .	0.0206	. . . .	. . . .	. . . .	0.0016	32 x 20	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	Mg	Ca	Zr	N	Size (mm) Ø x H	Form
CRM	13X 40900 A	0.0354	0.616	0.0059	0.0032	0.715	0.231	10.98	0.102	0.134	0.0080	0.0311	0.530	0.0990	0.0530	0.0324	. . . .	. . . .	. . . .	. . . .	. . . .	0.0070	40 x 15	W
CRM	13X 40930 A	0.0227	0.689	0.0046	0.0104	0.707	0.301	11.09	0.0328	0.222	0.0069	0.0362	0.434	0.0339	0.0241	0.051	. . . .	. . . .	. . . .	. . . .	. . . .	0.0075	40 x 15	W
CRM	13X 41008 A	0.0292	0.641	0.0048	0.0105	0.711	0.319	12.39	0.0365	0.0915	0.0077	0.076	. . . .	0.0569	0.0491	0.0202	. . . .	. . . .	. . . .	. . . .	0.007	0.0131	40 x 15	W
CRM	*13X 41008 B* **	*0.035*	*0.72*	*0.0072*	*0.013*	*0.68*	*0.33*	*12.4*	*0.041*	*0.26*	*0.008*	*0.029*	. . . .	*0.059*	*0.053*	*0.019*	. . . .	. . . .	. . . .	. . . .	*0.049*	*0.009*	*40 x 15*	*W*
CRM	13X 90901 A	0.1020	0.429	0.0009	0.0148	0.447	0.249	8.43	0.905	0.0399	0.0020	0.0216	(0.003)	0.208	. . . .	0.0704	0.0094	. . . .	. . . .	. . . .	. . . .	0.0472	40 x 15	W

** provisional values

1.3.7 High Nitrogen Stainless Steels

		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Al	V	W	Co	Nb	B	Ca	N	Alloy Type	Size (mm) Ø x H	Form
CRM	*13X 42027 A* **	*0.30*	*0.54*	*0.0005*	*0.014*	*0.36*	*0.16*	*15.3*	*0.99*	*0.035*	*0.005*	*0.050*	*0.02*	*0.02*	. . . .	. . . .	. . . .	*0.39*	*UNS S42027*	*40 x 15*	*W*

** provisional values

4.1.2 Galvanising Alloys

		Pb	Mg	Al	Cd	Fe	Sn	Cu	Ni	Mn	Bi	Sb	As	Cr	Co	Sr	Ag	Size (mm) Ø x H	Form
CRM	*41X GLV12 A* **	*0.0100*	*0.0043*	*0.171*	*0.0050*	*0.016*	*0.0082*	*0.0089*	*0.0095*	*0.0086*	*0.0050*	*0.0064*	. . . .	. . . .	*0.0035*	. . . .	*0.0043*	*50 x 20*	*C*
CRM	*41X GLV13 A* **	*0.0030*	*0.0013*	*0.220*	*0.0011*	*0.006*	*0.0012*	*0.0050*	*0.0028*	*0.0008*	*0.0008*	*<0.005*	. . . .	. . . .	*0.0012*	. . . .	*0.0011*	*50 x 20*	*C*

** provisional values

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 PSB24 A* **	*0.235*	*2.37*	*0.011*	*0.027*	*0.14*	*0.0012*	. . . .	. . . .	. . . .	. . . .	*0.027*	*0.0004*	. . . .	*40 x 15*	*C*
CRM	*85X PSB28 A* **	*0.065*	*2.78*	*0.011*	*0.010*	*0.24*	*0.0014*	. . . .	. . . .	. . . .	. . . .	*0.010*	*0.0015*	. . . .	*40 x 15*	*C*
CRM	*85X PSB33 A* **	*0.21*	*3.25*	*0.011*	*0.036*	*0.14*	*0.0014*	. . . .	. . . .	. . . .	. . . .	*0.021*	*0.0008*	. . . .	*40 x 15*	*C*
CRM	*85X PSB60 A* **	*0.025*	*5.90*	*0.009*	*0.040*	*0.078*	*0.0011*	. . . .	. . . .	. . . .	. . . .	*0.008*	*0.003*	. . . .	*40 x 15*	*C*

** provisional values

Introduction

April 2019

You will have noticed the new joint logo for ARMI and MBH on the cover of this catalogue. MBH and ARMI are now both part of LGC Standards.

In December 2018 LGC acquired MBH Analytical Ltd. We are now able to offer direct access to both the MBH product range and the ARMI range. The combined range is found within the two catalogues from ARMI and MBH, both available on the ARMI/LGC & MBH websites.

On the following pages you will find the MBH 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. Many can be offered in chippings form. Please enquire.

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 still undergoing certification 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 majority of materials are certified to current ISO/REMCO guide-lines, and those meeting the definition for Certified Reference Materials are clearly identified as CRM.

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

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 made from **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 made 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 the lifetime of this catalogue, but may differ slightly from those shown here. 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 is not likely to be remade.

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 K* **	*3.22*	*1.37*	*0.080*	*2.5*	*1.00*	*1.20*	*0.17*	*0.13*	. . . .	*1.55*	. . . .	*0.040*	*40 x 15*	CC
CRM	*11X HPC4 Q* **	*3.46*	*1.73*	*0.105*	*1.65*	*1.20*	*0.77*	*0.10*	*0.075*	. . . .	*2.05*	. . . .	*0.028*	*40 x 15*	CC
CRM	11X HPC5 A	3.68	1.175	0.223	0.246	1.028	1.42	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	40 x 15	CC

** provisional values

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 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	Contains free carbon; use for the measurement of grey irons only	40 x 15	concast

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 R	2.91	1.49	0.057	0.102	1.350	0.557	0.250	0.0278	0.132	0.0391	0.0195	0.112	0.109	0.09	0.0694	0.100	0.0141	0.046	0.011	0.0050	0.0097
CRM	11X C2 V	3.17	1.180	0.077	0.256	1.23	1.803	1.126	0.116	0.191	0.0627	0.104	0.0870	0.328	0.0160	0.116	0.0228	0.0541	0.115	0.0084	0.0157	0.0115
CRM	11X C3 AD	3.45	1.06	0.180	0.539	0.896	4.34	1.669	0.235	0.351	0.166	0.0104	0.127	0.605	0.021	0.240	0.040	0.086	0.243	0.0124	0.028	0.007
CRM	11X C4 S	1.954	2.98	0.096	0.1014	0.565	3.21	1.382	0.177	0.095	0.0140	0.006	0.080	0.0165	0.0233	0.0210	0.099	0.0235	0.0055	0.0070	0.009	0.0037
CRM	11X C5 Y	2.78	1.913	0.092	0.092	0.754	1.186	0.950	0.443	0.542	0.0357	0.060	0.0934	0.0739	0.020	0.0495	0.0072	0.0203	0.030	0.005	0.0072	0.0107
CRM	*11X C6 W* **	*3.78*	*0.80*	*0.065*	*0.09*	*0.96*	*0.07*	*0.38*	*1.33*	*0.94*	*0.030*	*0.020*	*0.19*	*0.045*	*0.010*	*0.045*	. . . .	*0.055*	*0.06*	*0.006*	*0.006*	*0.004*
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 V	2.60	1.643	0.204	1.00	0.394	0.275	0.148	0.148	0.310	0.1063	0.086	0.235	0.064	0.0217	0.126	0.0258	0.0812	0.069	0.014	0.0210	0.0068
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 D* **	*3.40*	*1.94*	*0.083*	*0.104*	*0.750*	*0.880*	*0.415*	*0.290*	*0.645*	*0.036*	*0.021*	*0.047*	*0.103*	. . . .	*0.059*	*0.325*	*0.022*	*0.038*	. . . .	. . . .	. . . .

** provisional values

continued

Continuation from above	Pb	B	Zr	Te	Ag	N	Size (mm) Ø x H	Form
11X C1 R	0.005	0.0357	0.0030	. . . .	. . . .	0.0091	40 x 15	CC
11X C2 V	0.0133	0.0098	. . . .	. . . .	. . . .	0.0096	40 x 15	CC
11X C3 AD	0.0170	0.0253	. . . .	. . . .	. . . .	0.0075	40 x 15	CC
11X C4 S	0.034	0.0351	. . . .	. . . .	. . . .	0.0126	40.x 15	CC
11X C5 Y	0.0108	0.0058	(0.002)	(0.002)	. . . .	0.0094	40 x 15	CC
11X C6 W **	*0.003*	*0.004*	. . . .	*0.012*	. . . .	*0.008*	*40 x 15*	CC
11X C7 P	0.0106	0.0099	. . . .	. . . .	(0.026)	0.0153	40 x 15	CC
11X C8 V	0.0052	0.0366	0.0064	0.0049	. . . .	0.0065	40 x 15	CC
11X C9 D	0.0052	0.0049	. . . .	0.011	. . . .	. . . .	40 x 15	CC
11X C10 D **	*0.0027*	*0.003*	. . . .	. . . .	. . . .	*0.007*	*40 x 15*	CC

** provisional values

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 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

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

		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Co	Ti	V	Nb	Al	Sn	Pb	Size (mm) Ø x H	Form
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 0331.2 L**	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	(0.19)	0.0205	0.0205	40 x 13	CC
CRM	**11X 0331.3 H**	2.08	1.83	0.056	0.0459	0.756	16.51	1.530	0.0381	7.01	0.126	0.075	0.0386	0.071	0.0323	0.0098	0.0088	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	Al		Size (mm) Ø x H	Form
CRM	**11X 15294 V**	2.29	0.399	0.031	0.093	0.467	0.649	30.82	0.325	0.134	0.117	0.293	0.124	. . . .	. . . .	0.0560	0.0084	. . . .		40 x 15	CC
CRM	***11X 15294 W*** **	*2.75*	*0.38*	*0.033*	*0.085*	*0.44*	*0.31*	*29.5*	*0.095*	*0.10*	*0.13*	*0.26*	*0.12*			*0.035*		*0.15*		*40 X 15*	*CC*
CRM	**11X 15295 R**	2.52	0.589	0.0413	0.0504	0.491	0.304	27.53	0.391	0.197	0.201	0.195	1.510	(0.036)	. . . .	0.047	(0.015)	. . . .		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~~	~~. . . .~~	~~. . . .~~	~~. . . .~~	~~. . . .~~	~~. . . .~~	Sold Out	~~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 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 10180 D	0.179	0.286	0.0259	0.0153	0.807	0.0531	0.0251	0.0026	0.0663	0.0033	(0.003)	....	....	....	0.0068	0.0070	....	....	0.0070	....	....	....	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 V	0.048	0.156	0.064	0.0347	1.198	0.226	0.374	0.658	0.646	0.264	0.459	0.088	0.0208	0.105	0.051	0.142	....	....	....	....	....	....	40 x 15	W
CRM	12X 12747 V	0.201	0.298	0.0275	0.0648	1.240	0.494	0.58	0.606	0.232	0.144	0.0271	0.099	0.0272	0.0276	0.0075	0.211	....	....	0.025	....	....	....	40 x 15	CC
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 X* **	*0.175*	*0.47*	*0.062*	*0.025*	*1.37*	*0.475*	*0.455*	*0.19*	*0.25*	*0.018*	*0.195*	*0.018*	*0.069*	*0.035*	*0.085*	*0.435*	....	....	....				*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

** provisional values

CRM	12X 349 E	0.319	0.256	0.0128	0.0119	0.600	0.216	0.131	0.077	0.156	0.115	0.154	0.090	0.0262	0.093	0.0107	0.0194	....	....	....	....	....	....	40 x 15	CC
CRM	12X 350 C	0.159	0.467	0.0408	0.0296	0.758	0.160	0.335	0.147	0.196	0.0382	0.290	0.076	0.0115	0.260	0.057	0.0304	....	....	....	....	....	....	40 x 15	CC
CRM	*12X 352 E* **	*0.35*	*0.43*	*0.095*	*0.067*	*0.81*	*0.34*	*0.245*	*0.22*	*0.12*	*0.11*	*0.26*	*0.24*	*0.024*	*0.27*	*0.028*	*0.025*	....	*0.055*	....				*40 x 15*	*W*
CRM	12X 353 G	0.111	0.207	0.0147	0.0099	0.726	0.214	0.701	0.1063	0.232	0.113	0.0485	0.0387	0.0189	0.135	0.0461	0.0240	....	0.0641	0.0027	0.0246	0.0192	0.138	40 x 15	W
CRM	12X 354 B	0.252	0.200	0.0105	0.0478	5.03	0.082	0.0487	0.0328	0.0679	0.0154	0.0150	0.0248	0.0204	0.0248	0.023	0.0237	....	0.0802	0.0027	....	....	....	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 D* **	*0.23*	*0.24*	*0.037*	*0.058*	*0.32*	*0.070*	*0.24*	*0.030*	*0.40*	*0.038*	*0.034*	*0.015*	*0.07*	*0.087*	*0.025*	*0.11*	*0.011*	*0.017*	*0.011*	*0.005*	*0.009*	*0.021*	*40 x 15*	*CC*
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
CRM	12X 358 A	0.129	0.199	0.0142	0.0102	0.709	0.212	0.625	0.108	0.250	0.117	0.0616	0.0453	0.0261	0.123	0.0393	0.0355	....	0.104	0.0029	0.0102	0.097	0.128	40 x 15	W

** provisional values

1.2.3 Low Alloy Steel

		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Sn	Al	V	W	As	Co	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	0.500	0.163	0.0442	0.0274	1.693	0.280	0.375	0.303	0.213	....	0.0410	0.157	....	0.0301	0.0475	0.004	0.0197	0.0039	40 x 15	W
CRM	*12X LA4 C* **	*0.65*	*0.475*	*0.025*	*0.052*	*0.36*	*0.47*	*0.53*	*0.40*	*0.26*	....	*0.18*	*0.37*	*0.090*	*0.019*	*0.097*	*0.0060*	....	*0.011*	*40 x 15*	*CC*
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 D	0.0090	0.075	0.0057	0.0041	0.0867	0.0338	0.099	0.0110	0.0250	....	0.174	0.0033	....	....	0.0051	0.0067	....	0.0070	40 x 15	W

** provisional values

1.2.3 Low Alloy Steel (continued)

		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Sn	Al	V	W	As	Co	Nb	Ti	Ta	Zr	B	N	Size (mm) Ø x H	Form
CRM	**12X 15217 R**	0.166	1.392	0.078	0.064	0.885	0.860	1.011	0.311	0.257	0.058	0.081	0.607	0.100	. . . .	0.193	0.102	. . . .	. . . .	. . . .	. . . .	0.014	40 x 15	CC
CRM	**12X 15251 U**	1.017	2.05	0.0215	0.0253	0.910	0.896	0.612	0.205	0.1194	0.0108	0.1085	0.391	0.0393	. . . .	0.228	0.266	. . . .	. . . .	. . . .	. . . .	0.0031	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 T**	0.222	0.347	0.0821	0.0900	1.208	0.991	2.022	1.039	0.266	0.309	0.0242	0.276	0.276	0.0216	0.265	0.374	. . . .	0.007	. . . .	. . . .	0.029	40 x 15	CC
CRM	***12X 15255 R*** **	*0.39*	*1.02*	*0.064*	*0.083*	*1.08*	*0.31*	*1.45*	*0.11*	*0.285*	*0.11*	*0.155*	*0.48*	*0.14*	. . . .	*0.045*	*0.21*	*0.052*	*0.035*	. . . .	. . . .	*0.006*	*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 V**	0.455	0.674	0.0258	0.0344	1.240	1.317	3.49	0.298	0.226	0.0082	0.526	0.106	. . . .	0.0640	0.286	1.438	. . . .	0.116	. . . .	. . . .	. . . .	40 x 15	W
	** provisional values																							
CRM	**12X 15254 AA**	0.299	0.831	0.0460	0.065	1.151	0.311	1.830	0.711	0.0853	0.0458	0.625	0.288	0.310	. . . .	0.498	0.310	0.285	0.003	. . . .	0.0039	. . . .	40 x 15	CC
CRM	**12X 15258 P**	0.392	1.014	0.0322	0.0670	1.23	0.497	0.631	0.361	0.1090	0.0718	0.087	0.378	0.125	. . . .	0.310	0.133	0.100	(0.002)	. . . .	0.0100	. . . .	40 x 15	CC
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	N	Alloy Type	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**	0.430	0.322	0.0061	0.0151	0.680	0.136	1.061	0.573	0.203	(0.011)	0.0039	0.301	0.0098	. . . .	. . . .	. . . .	. . . .	0.0103		38 x 15	W
CRM	**12X 16604 A**	0.299	0.239	0.0018	0.0064	0.444	1.892	1.912	0.334	0.131	0.0060	0.0111	0.0069	0.0366	. . . .	. . . .	. . . .	. . . .	0.0046		40 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 41400 B**	0.452	0.32	0.0417	0.0095	0.764	0.156	0.999	0.177	0.161	0.0099	0.0137	. . . .	. . . .	. . . .	0.0152	. . . .	. . . .	0.0124		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

1.2.3 Low Alloy Steel (continued)

		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Sn	Al	V	Co	Ti	As	Zn	Ca	N	Size (mm) Ø x H	Form
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	Ti	W	Ca	Mg	Size (mm) Ø x H	Form
CRM	13X 17001 C	0.0769	0.215	0.0134	0.055	1.543	6.31	14.83	0.0967	0.0161	....	0.0312	0.0979	0.546	....	0.0085	0.0124	....	....	....	....	....	40 x 15	concast
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
CRM	13X 17004 B	0.0844	1.23	0.0396	0.0189	0.497	16.04	21.37	0.455	0.0449	....	0.0433	0.0555	0.179	0.0086	0.0066	0.057	....	0.034	....	....	....	40 x 15	W
CRM	13X 17005 E	0.0217	1.739	0.0431	0.0040	0.209	20.06	24.69	0.599	0.120	....	0.049	0.0265	0.101	0.0097	0.0030	0.015	....	0.0073	....	....	....	40 x 15	W
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 B	0.0277	0.288	0.0266	0.0321	1.820	8.13	18.30	0.313	0.497	0.0139	0.0056	0.178	0.0201	0.083	....	....	0.0700	0.0013	0.035	0.0027	....	40 x 15	W
CRM	13X 30600 A	0.0090	4.23	0.0007	0.0091	0.648	14.96	17.43	0.0040	0.0121	....	0.0204	0.0149	(0.004)	0.0270	....	....	0.0206	....	....	....	0.0016	32 x 20	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 31400 A	0.0330	2.23	0.0006	0.0262	1.603	18.76	24.38	0.240	0.210	....	0.0225	0.1296	0.0189	0.0288	....	....	0.092	....	0.015	0.0024	....	40 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 14828 A	0.104	2.19	0.0067	0.0268	1.529	11.25	19.37	0.301	0.409	0.0128	0.008	0.143	0.0163	0.0377	....	....	0.0803	....	0.0167	....	....	40 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
CRM	13X 19004 C	0.075	0.356	0.0135	0.074	2.017	17.90	22.77	3.43	0.0112	(0.001)	0.030	0.0501	0.152	....	(0.001)	0.011	0.0417	....	....	....	....	40 x 15	concast

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	Ca	Size (mm) Ø x H	Form
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 T	0.146	0.546	0.090	0.0449	0.374	12.12	16.09	2.48	0.0793	0.0068	0.108	0.280	0.060	0.0084	0.0214	0.104	0.0513	....	0.444	....	....	40 x 15	W
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 D	0.0203	0.395	0.0265	0.0363	1.475	10.04	17.58	2.019	0.356	0.0084	0.006	0.188	0.010	0.062	....	....	0.0722	....	(0.001)	0.040	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 L	0.069	0.994	0.0062	0.0053	1.156	12.31	17.13	2.718	0.092	....	0.18	0.0415	0.180	0.0086	0.0018	0.034	....	....	0.0455	0.089	....	40 x 15	W
~~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~~	Sold Out	~~40 x 15~~	~~CC~~
CRM	13X 12855 N	0.107	0.863	0.0063	0.0020	0.918	11.79	16.29	2.96	0.340	....	0.048	0.155	0.098	0.0078	0.0098	0.122	....	0.093	0.083	0.199	....	40 x 15	W

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 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	Sb	Sb	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	0.022	....	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
CRM	13X 14775 S	0.006	0.552	0.154	0.047	1.405	1.949	17.78	0.529	0.167	0.0007	0.0301	....	0.0287	(0.002)	0.153	0.691	....	....	....	....	....	40 x 15	concast
CRM	13X 15023 W	0.089	0.340	0.0053	0.0078	1.75	0.947	11.05	0.961	0.0312	....	(0.004)	....	0.0308	....	0.0501	1.440	0.0396	....	....	....	0.0081	40 x 15	concast
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	....	....	....	Low stocks	40 x 15	CC
CRM	13X 14122 A	0.356	0.449	0.0021	0.0177	0.480	0.632	15.91	0.855	0.066	0.0041	(0.002)	....	0.101	....	0.0224	0.006	0.004	....	....	....	0.0290	40 x 15	W
CRM	13X 14418 A	0.0450	0.291	0.0108	0.0265	0.819	4.65	15.44	0.847	0.173	0.005	(0.003)	....	0.0539	....	0.1004	(0.009)	0.013	....	....	....	0.0423	40 x 15	W
CRM	13X 14923 A	0.205	0.330	0.0031	0.0197	0.501	0.452	11.26	0.819	0.0563	0.004	0.003	....	0.295	....	0.0207	0.005	....	....	....	0.0044	0.0321	40 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	Mg	Ca	Zr	N	Size (mm) Ø x H	Form
CRM	**13X 14713 A**	0.0446	0.911	0.0080	0.0203	0.495	0.122	7.17	0.0266	0.0368	0.0034	0.551	0.0056	0.0411	0.0110	....	....	....	0.0016	....	....	0.0065	40 x 15	W
CRM	**13X 14742 A**	0.084	0.910	0.0008	0.0214	0.714	0.449	17.60	0.0968	0.1267	0.0046	0.804	0.0051	0.0463	0.0186	0.0202	....	....	0.0022	....	....	0.0209	40 x 15	W
CRM	**13X 14762 A**	0.082	1.069	0.0007	0.0275	0.662	0.346	24.38	0.0553	0.0801	0.0048	1.318	0.0058	0.0993	0.0293	0.0277	....	....	0.0024	0.0025	....	0.0285	40 x 15	W
CRM	**13X 40900 A**	0.0354	0.616	0.0059	0.0032	0.715	0.231	10.98	0.102	0.134	0.0080	0.0311	0.530	0.0990	0.0530	0.0324	....	....	....	....	....	0.0070	40 x 15	W
CRM	**13X 40930 A**	0.0227	0.689	0.0046	0.0104	0.707	0.301	11.09	0.0328	0.222	0.0069	0.0362	0.434	0.0339	0.0241	0.051	....	....	....	....	....	0.0075	40 x 15	W
CRM	**13X 41008 A**	0.0292	0.641	0.0048	0.0105	0.711	0.319	12.39	0.0365	0.0915	0.0077	0.076	....	0.0569	0.0491	0.0202	....	....	....	....	0.007	0.0131	40 x 15	W
CRM	***13X 41008 B*** **	*0.035*	*0.72*	*0.0072*	*0.013*	*0.68*	*0.33*	*12.4*	*0.041*	*0.26*	*0.008*	*0.029*	....	*0.059*	*0.053*	*0.019*	....	....	....	....	*0.049*	*0.009*	*40 x 15*	*W*
	** provisional values																							
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 41800 A**	0.172	0.316	0.0006	0.0176	0.328	2.053	12.30	0.0689	0.104	0.0040	(0.003)	....	0.0200	0.0357	(0.006)	2.75	....	....	....	....	*0.0283*	38 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 42200 A**	0.220	0.314	0.0012	0.0182	0.651	0.738	11.41	1.042	0.136	0.0052	0.0020	....	*0.246*	*0.0114*	*0.0203*	*1.177*	....	....	....	....	*0.0585*	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 B**	1.012	0.440	0.0018	0.0232	0.378	0.197	16.50	0.468	0.0687	....	0.0160	(0.004)	0.0484	0.0167	0.008	0.0156	....	....	....	....	0.0308	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**	0.147	0.415	0.189	0.0246	1.439	0.517	16.07	0.226	0.0687	....	0.0047	....	0.0542	0.0191	0.0102	0.0108	(0.003)	....	....	....	0.0212	40 x 15	W
CRM	**13X 90901 A**	0.1020	0.429	0.0009	0.0148	0.447	0.249	8.43	0.905	0.0399	0.0020	0.0216	(0.003)	0.208	....	0.0704	0.0094	....	....	....	....	0.0472	40 x 15	W
CRM	**13X 8110L E**	0.697	0.788	0.0943	0.047	0.650	4.20	0.223	2.71	....	....	(0.004)	0.031	0.220	(0.32)	....	....	1.07	....	As = 0.072%		0.0200	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	Alloy Type	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 L**	0.0388	1.448	0.0060	0.0061	0.597	12.43	19.63	0.573	0.186	0.0226	0.0119	0.0043	2.99	0.0089	0.258	0.082	0.0099	....		40 x 15	W
~~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~~	~~....~~	~~....~~	~~....~~	Sold Out	~~40 x 15~~	~~CC~~
CRM	**13X 14212 S**	0.119	2.47	0.0386	0.032	0.166	8.81	21.64	0.520	0.611	....	....	0.1175	3.68	0.1090	0.550	....	0.0055	....		40 x 15	concast
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 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 (continued)

		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Ti	Al	V	Co	Nb	W	B	N	Alloy Type	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**	0.0041	0.059	0.0020	0.0049	0.0263	8.36	11.39	0.0185	2.20	1.187	0.073	0.0689	0.0152	0.250	....	....	0.0030	UNS S45500	38 x 15	W
CRM	**13X 46500 A**	(0.003)	0.075	0.0010	0.0020	0.004	10.91	11.70	0.948	0.0373	1.51	0.069	0.0049	0.0101	0.005	....	0.0016	0.0031	UNS S46500	32 x 20	W

1.3.7 High Nitrogen Stainless Steels

		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Al	V	W	Co	Nb	B	Ca	N	Alloy Type	Size (mm) Ø x H	Form
CRM	**13X NSA2 J**	0.132	0.739	0.0275	0.0252	1.03	10.08	17.82	2.013	0.259	....	0.139	....	....	0.155	....	....	0.131		40 x 15	CC
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 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 B**	0.0130	0.278	0.0005	0.0160	0.864	6.37	25.69	3.28	1.53	0.0142	0.0802	0.133	0.0471	(0.009)	0.0018	....	0.232	UNS S32550	41 x 15	W
CRM	**13X NSA8 B**	0.0206	0.285	0.0007	0.0248	0.598	7.48	25.49	3.49	0.589	....	0.0583	0.599	0.0448	0.026	0.0017	0.0011	0.232	UNS S32760	38 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 NSA9 B**	0.0304	0.290	0.0009	0.0237	1.524	5.75	22.39	3.27	0.154	....	0.0607	0.033	0.0337	0.021	0.0018	....	0.184	UNS S31803	44 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 NSA13 A**	0.0200	0.257	0.0005	0.0249	0.761	6.73	25.27	3.73	0.156	(0.007)	0.0712	0.035	0.0328	0.028	0.0030	....	0.269	UNS S32750	41 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
CRM	***13X 42027 A *****	*0.30*	*0.54*	*0.0005*	*0.014*	*0.36*	*0.16*	*15.3*	*0.99*	*0.035*	*0.005*	*0.050*	*0.02*	*0.02*	....	....	....	*0.39*	*UNS S42027*	*40 x 15*	*W*
	** provisional values																				
	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

1.3.7 High Nitrogen 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 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 Q*** **	*0.57*	*1.0*	*0.014*	. . . .	*8.0*	*3.57*	*20.8*	*0.35*	*1.05*	*0.36*	*0.30*	*0.060*	. . . .	*2.0*	*0.30*	*40 x 15*	*CC*
CRM	**13X NSC3 AA**	0.868	1.51	0.0295	. . . .	8.43	5.00	22.32	0.057	0.292	0.051	0.098	. . . .	. . . .	2.45	0.498	40 x 15	CC
CRM	***13X NSC4 G*** **	*0.47*	*1.55*	*0.0065*	. . . .	*7.75*	*7.45*	*31.6*	*1.3*	*0.20*	*0.27*	*0.22*	*0.21*	*0.24*	*2.36*	*0.915*	*40 x 15*	*CC*
CRM	***13X NSC5 C*** **	*0.53*	*1.15*	*0.025*	. . . .	*2.07*	*4.38*	*21.6*	*0.48*	*0.85*	*0.24*	*0.105*	*0.048*	*0.088*	*2.3*	*0.27*	*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 B*** **	*0.39*	*0.9*	*0.010*	*0.020*	*3.52*	*7.42*	*24.0*	*0.44*	*0.22*	*0.21*	*0.165*		*0.29*	*0.83*	*0.435*	*40 x 15*	*CC*

** provisional values

1.4.2 Tool Steels

		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Sn	Al	V	W	Co	N	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 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**	0.597	0.944	0.0054	0.053	22.08	0.692	1.321	0.499	0.178	0.0393	(0.23)	0.0226	0.096	0.0346	(0.011)	0.0585	40 x 15	CC
CRM	***14X MN2 S*** **	*0.79*	*2.20*	*0.007*	*0.025*	*12.4*	*0.73*	*0.36*	*1.08*	*0.087*	*0.015*	*0.022*	*0.090*	*0.23*	*0.019*	*0.004*	*0.037*	*40 x 15*	*CC*
CRM	***14X MN3 U*** **	*1.07*	*1.05*	*0.016*	*0.025*	*10.2*	*0.39*	*0.59*	*0.35*	*0.135*	*0.027*	*0.048*	*0.023*	*0.41*	*0.102*	*0.010*	*0.026*	*40 x 15*	*CC*
CRM	**14X MN4 AC**	0.938	0.900	0.0194	0.073	13.62	1.052	1.983	0.796	0.270	0.0634	0.20	0.0332	0.153	0.075	. . . .	0.0450	40 x 15	CC
CRM	**14X MN5 U**	1.36	1.47	0.0273	0.0552	8.78	2.10	3.18	1.93	0.691	0.0228	0.0257	0.0490	0.102	0.93	(0.007)	0.0231	40 x 15	CC
CRM	**14X MN5 V**	1.42	2.27	0.0207	0.057	8.02	3.09	3.28	2.26	0.551	0.0278	0.145	0.0810	0.041	0.51	0.004	0.0146	40 x 15	CC

** provisional values

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	40 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	40 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	40 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	40 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		Alloy Type	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 FeNi8 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~~	~~. . . .~~	~~. . . .~~	~~. . . .~~		Sold Out	~~37 x 13~~	~~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~~	~~. . . .~~	~~. . . .~~	~~. . . .~~		Sold Out	~~40 x 15~~	~~CC~~
CRM	**14X FeNi35 D**	0.035	0.255	0.146	0.0400	0.303	34.17	0.409	. . . .	0.0363	(0.004)	0.400	. . . .	. . . .	. . . .			40 x 15	concast
CRM	**14X FeNi40 C**	0.0129	0.050	1.03	0.0148	0.0316	40.12	0.645	. . . .	0.0810	2.00	1.057	. . . .	. . . .	. . . .			40 x 15	CC
CRM	**14X FeNi45 C**	0.0082	0.772	0.0015	0.0269	0.0222	45.88	0.076	. . . .	0.089	0.988	0.572	. . . .	. . . .	. . . .			40 x 15	CC
CRM	**14X FeNi50 C**	0.0245	0.151	0.16	0.0168	0.0571	51.56	0.0662	. . . .	0.089	0.319	0.416	. . . .	. . . .	. . . .			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

2.2 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 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 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	Fe	Nb	W	V	Mg	Sn	S	P	B	N	Size (mm) Ø x H	Form
23X 08811 A	0.068	0.263	1.009	0.247	19.72	0.242	0.082	0.543	0.453	31.31	45.81	0.009	0.0279	0.060	0.0044	0.0054	<0.001	0.0212	0.0038	0.0096	40 x 15	W
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 C**	0.0360	0.042	0.024	0.0118	1.023	19.62	4.31	13.20	3.14	1.476	0.0005	0.0023	56.92	0.0062	0.041	0.060	0.050	. . . .		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~~	Sold Out	~~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~~	Sold Out	~~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
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 Q**	0.078	0.982	0.331	0.230	4.73	20.33	8.78	0.279	0.113	0.130	. . . .	0.0144	0.0110	3.14	(0.004)	. . . .	60.62	0.085	40 x 15	CC
CRM	**28X 6253 T**	0.116	1.32	0.490	0.306	5.62	21.91	7.82	0.39	0.247	(0.19)	. . . .	0.0106	0.0242	4.50	0.039	. . . .	(56.8)	0.092	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 K**	0.0198	0.811	0.150	0.042	18.98	18.37	3.25	(0.014)	0.125	0.07	. . . .	0.0089	0.0146	4.88	. . . .	0.0021	53.10	0.038	40 x 15	CC
CRM	**28X 7186 K**	0.0237	0.562	0.238	0.109	15.97	17.55	3.16	0.301	0.910	0.664	. . . .	0.0096	0.0192	5.07	. . . .	0.0048	(55.3)	0.040	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

2.12 Ni/Cu (Monel Type)

		C	Si	Mn	Cu	Fe	Cr	Mo	Co	Ti	Al	Mg	S	P	Nb	Pb	Sn	Zn	Cd	Bi	Se	Ni	Size (mm) Ø x H	Form
CRM	212X 4001 Q	0.0130	1.48	2.95	28.92	0.503	0.0795	. . . .	0.111	(0.094)	(0.038)	0.0016	0.0206	0.0198	0.100	0.0703	(0.056)	. . . .	. . . .	. . . .	. . . .	65.49	40 x 15	CC
CRM	212X 4005 G	0.0494	2.52	1.437	21.53	1.053	0.20	0.102	0.156	1.005	1.399	(0.003)	0.0038	0.0106	0.341	0.0091	. . . .	. . . .	. . . .	. . . .	. . . .	(70.1)	40 x 15	CC
CRM	212X 4007 B	0.0483	2.18	1.08	28.95	2.02	0.498	0.048	0.0205	0.099	0.0307	0.050	0.0039	0.025	2.40	0.0192	0.0110	(0.093)	(0.003)	0.040	0.019	[bal]	40 x 15	CC

		C	Si	Mn	Cu	Fe	Cr	Mo	Co	Ti	Al	Mg	S	P	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 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	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 HB4 G	0.0843	1.005	0.597	0.0192	5.94	0.375	27.94	1.703	0.0338	0.0159	0.0313	0.049	0.056	0.212	(0.096)	. . . .	. . . .	0.0013	61.80	40 x 15	concast
CRM	215X HC1 M	0.0255	0.493	1.272	0.024	4.03	15.62	19.72	2.49	0.267	0.008	(0.002)	. . . .	. . . .	0.149	3.59	. . . .	. . . .	0.0040	. . . .	40 x 15	concast
CRM	215X HC2 K	0.0456	1.22	0.909	. . . .	2.97	16.46	18.44	1.70	0.181	0.005	0.0163	. . . .	. . . .	0.282	4.02	. . . .	. . . .	0.0091	(53.8)	40 x 15	concast
CRM	215X HC3 M	0.0897	0.944	0.685	0.0988	4.84	17.86	17.38	0.973	0.150	0.111	0.0131	0.0211	. . . .	0.399	4.63	. . . .	. . . .	0.0066	. . . .	40 x 15	concast
CRM	215X HC4 M	0.141	1.15	0.441	0.331	6.01	18.44	16.93	0.709	(0.094)	(0.052)	0.0222	0.0390	. . . .	0.491	4.99	. . . .	. . . .	0.071	(50.3)	40 x 15	CC
CRM	215X HC5 V	0.201	1.379	0.100	0.485	8.15	20.05	16.03	0.0460	0.198	0.721	0.038	0.054	. . . .	0.607	6.19	. . . .	. . . .	0.0081	(45.9)	40 x 15	concast
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 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 B	0.148	0.83	7.68	0.150	7.88	15.88	0.078	0.047	0.40	. . . .	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	0.0279	0.0155	44.82	0.0223	0.0200	(0.001)	(0.007)	0.0070	0.0079	0.0183	0.0075	0.0091	0.0015	0.0385	....	....	0.0007	0.0018	....	54.99		40 x 15	CC
CRM	*31X B2 N* **	*0.013*	*0.055*	*39.5*	*0.10*	*0.10*	*0.15*	*0.015*	*0.015*	*0.03*	*0.015*	*0.013*	*....*	*0.04*	*0.018*	*0.012*	*....*	*0.003*	*0.003*	*0.002*	*[bal]*		*40 x 15*	*CC*
CRM	31X B3 M	0.0202	0.0299	35.01	0.0264	0.0259	0.074	....	0.0196	0.0296	0.0149	0.0205	....	0.0109	0.0421	0.0247	....	0.0022	0.0040	0.0098	64.58		40 x 15	CC
CRM	31X B3 N	0.0394	0.085	35.05	0.0408	0.0171	....	....	0.0104	0.0290	0.0152	0.0148	....	0.0066	0.0366	0.0152	....	0.0008	0.0027	0.0056	64.56		40 x 15	CC
CRM	*31X B4 N* **	*0.050*	*0.080*	*30.5*	*0.025*	*0.010*	*....*	*0.03*	*0.055*	*0.030*	*0.015*	*0.007*	*0.002*	*0.008*	*0.008*	*....*	*0.005*	*....*	*0.035*	*....*	*[bal]*		*40 x 15*	*CC*
CRM	31X B5 L	0.266	0.084	23.98	0.038	0.0275	0.0138	(0.005)	0.0357	(0.002)	0.0088	0.016	....	0.0250	....	....	....	(0.001)	0.0040	....	75.38		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	0.062	0.090	4.92	0.0361	0.0379	(0.001)	....	0.0103	0.0006	0.0059	0.0089	....	....	0.0047	0.0065	....	(0.001)	....	0.0181	94.81		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~~	Sold Out	~~40 x 12~~	~~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~~	Sold Out	~~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~~	Sold Out	~~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 J**	0.127	0.065	35.71	0.059	0.0758	0.0282	0.049	0.0166	0.142	0.0176	0.0498	0.0054	0.0151	0.0015	. . . .	0.0206	0.0142	63.68	40 x 15	CC
CRM	***31X TB3 L*** **	*0.14*	*0.12*	*37.0*	*0.02*	*0.03*	*0.04*	*0.02*	*0.048*	*0.035*	*0.008*	*0.03*	. . . .	*0.004*	*0.010*	*0.0015*	*0.003*	*0.013*	*[bal]*	*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 B**	0.129	0.575	35.62	0.094	0.106	0.0711	0.111	0.396	0.283	0.292	0.229	0.0031	0.0202	0.49	. . . .	. . . .	0.216	61.49	40 x 15	CC

** provisional values

3.1.3 Naval Brass

		Sn	Pb	Zn	Fe	Ni	Al	Si	As	Mn	Bi	Sb	P	S	Co	B	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 J**	1.38	0.127	24.46	0.071	0.0599	0.130	0.127	0.0559	0.124	0.0786	0.197	0.203	(0.004)	. . . .	0.0028	0.0464	72.86	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	B	Cu	Size (mm) Ø x H	Form
CRM	**31X HT31 B**	0.079	0.0139	17.06	3.01	0.226	6.82	0.0443	0.0005	5.69	. . . .	0.0030	0.0007	0.0057	0.0014	67.00	40 x 15	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 E**	1.031	1.267	0.118	35.01	0.143	0.550	0.504	0.151	0.0224	. . . .	0.0437	0.087	0.0232	<0.001	0.0027	0.0055	. . . .	61.12	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**	0.851	0.85	0.092	34.69	0.123	0.199	0.412	0.203	0.0131	0.0146	0.0291	0.0477	0.0373	. . . .	0.0133	0.0028	0.0017	62.45	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 U* **	*2.77*	*0.44*	*33.5*	*0.175*	*0.120*	*0.011*	*0.020*	*0.018*	*0.014*	*0.008*	*0.016*	*0.050*	*. . . .*	*0.009*	*0.009*	*. . . .*	*0.0037*	*. . . .*	*[bal]*		*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~~	Sold Out	~~40 x 15~~	~~CC~~
CRM	*31X 7835.3 K* **	*1.70*	*0.355*	*36.5*	*0.49*	*0.15*	*0.048*	*0.485*	*0.07*	*0.059*	*0.029*	*0.061*	*0.035*	*. . . .*	*0.007*	*0.021*	*. . . .*	*0.0060*	*. . . .*	*[bal]*		*40 x 15*	*CC*
CRM	*31X 7835.4 K* **	*0.97*	*0.21*	*37.9*	*0.24*	*0.10*	*0.027*	*0.16*	*. . . .*	*0.057*	*0.018*	*0.03*	*0.16*	*. . . .*	*0.007*	*. . . .*	*. . . .*	*0.009*	*0.002*	*[bal]*		*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 D* **	*1.29*	*0.71*	*37.0*	*0.12*	*0.06*	*. . . .*	*0.63*	*0.01*	*0.007*	*0.004*	*. . . .*	*0.04*		*0.006*	*0.005*	*. . . .*	*0.0017*	*0.004*	*[bal]*		*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 B	1.045	1.60	16.26	0.191	0.196	0.0045	0.119	0.0471	0.101	0.91	0.44	0.0627	0.0200	0.113	2.014	0.300	0.0586	. . . .	76.6		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

** provisional values

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
CRM	31X CZ122 A	1.97	0.0866	36.21	0.066	0.0261	0.00097		(0.001)	0.150	. . . .	0.0088	. . . .	. . . .	. . . .	0.0030	. . . .	0.0011	. . . .	61.51		40 x 15	W
CRM	31X CZ132 A	2.05	0.160	39.90	0.165	0.0510	0.0007	0.0007	(0.004)	0.0119	. . . .	0.0054	. . . .	0.0008	0.0009	0.0050	. . . .	0.0012	. . . .	57.63		40 x 15	W

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 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 F* **	*2.1*	*0.42*	*0.52*	*25.5*	*1.25*	*0.38*	*1.4*	*1.65*	*0.045*	*. . . .*	*0.045*	*0.055*	*. . . .*	*0.038*	*0.005*	*0.038*	*. . . .*	*[bal]*		*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

** provisional values

CRM	31X MNB11 B	12.50	0.199	0.345	21.21	0.420	4.71	1.204	0.0545	0.0060	0.0051	0.0073	0.0380	. . . .	0.0636	. . . .	. . . .	. . . .	59.24			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~~		Sold Out	~~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 F	0.0142	0.0310	0.0506	0.158	0.0509	(0.001)	3.13	0.0110	0.924	0.0406	0.0179	0.0095	0.0039	0.0131	0.0054	95.40		40 x 15	CC

3.2.1 Phosphor-Bronze

		Sn	Pb	Zn	Fe	Ni	Al	Si	As	Mn	Bi	Sb	P	S	Co	Mg	Te	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 H*** **	*3.2*	*1.08*	*1.6*	*0.37*	*0.72*	*0.07*	*0.085*	*0.19*	*0.04*	*0.025*	*0.47*	*0.92*	*0.008*	*0.035*	*0.015*	. . . .	. . . .	*(bal)*		*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 F**	6.34	0.075	0.374	0.057	0.099	0.0034	0.0107	0.0309	0.0216	0.0309	0.1091	0.128	. . . .	0.0091	. . . .	0.0298	0.0196	92.64		40 x 15	CC
CRM	**32X PB14 E**	9.65	0.0354	0.103	0.0211	0.103	0.0201	(0.003)	0.0235	0.0141	0.146	0.0433	0.128	0.070	0.0047	. . . .	. . . .	0.0152	89.70		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 PB16 A**	17.59	0.088	0.0082	(0.001)	0.127	(0.001)	0.005	0.0035	. . . .	0.0530	0.013	0.0073	0.0049	. . . .	. . . .	(0.002)	0.0166	82.02		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	. . . .	. . . .	. . . .	. . . .	95.22		38 x 17	W

** provisional values

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	Te	Ag	Cu		Size (mm) Ø x H	Form
CRM	**32X LB10 G**	8.29	12.60	0.110	0.0011	0.690	(0.001)	. . . .	0.169	. . . .	0.093	0.599	0.0034	0.0100	0.084	0.0107	0.0686	77.10		40 x 15	CC
CRM	**32X LB11 E**	10.19	10.21	0.039	0.0034	0.498	(0.001)	0.0093	0.0408		0.0519	0.0680	0.0050	0.0295	0.0098	0.0147	0.0617	78.72		40.x 15	CC
CRM	**32X LB12 E**	9.63	8.64	0.459	0.029	0.354	0.0337	0.0099	0.112	. . . .	0.0338	0.484	0.240	0.053	0.061	0.0215	0.0450	79.76		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~~	Sold Out	~~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
CRM	***32X LB15 F*** **	*4.5*	*20.5*	*0.16*	*<0.005*	*0.10*	*<0.005*	*<0.005*	*0.015*	. . . .	*0.12*	*0.19*	*0.08*	*0.005*	*<0.005*	. . . .	*0.038*	*(bal)*		*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~~		~~0.911~~	~~74.83~~	Sold Out	40 x 15	CC

** provisional values

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~~	~~. . . .~~	~~. . . .~~	~~. . . .~~	a few small pieces			~~81.85~~		~~40 x 15~~	~~CC~~
CRM	*32X ALB2 M* **	*0.10*	*0.03*	*0.27*	*3.8*	*4.8*	*10.7*	*0.21*	*0.017*	*0.32*	*0.035*	*0.05*	*0.16*	*0.008*	*0.025*	. . . .	*0.022*	. . . .	. . . .	. . . .	*[bal]*		*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~~	~~. . . .~~	~~. . . .~~	~~. . . .~~	~~low stock~~			~~79.61~~	Sold Out	~~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~~	~~. . . .~~	~~. . . .~~	~~. . . .~~	a few small pieces			~~84.40~~		~~40 x 15~~	~~CC~~
CRM	32X ALB8 F	0.435	0.049	1.395	5.37	6.11	6.21	0.513	0.189	1.57	0.261	0.088	0.425	0.194	(0.002)	0.0250	0.0100	. . . .	. . . .	. . . .	77.04		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

** provisional values

		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 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 F**	10.05	0.0357	7.02	0.093	0.0199	0.0065	2.50	0.0343	0.0043	. . . .	0.32	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~~	Sold Out	~~40 x 15~~	~~CC~~
CRM	***32X SEB7 B*** **	*3.1*	*0.28*	*4.7*	*0.09*	*1.15*	*0.035*	*3.2*	*0.16*	*0.005*	*0.05*	*0.13*	. . . .	*1.35*	. . . .	*0.033*	*0.008*	*[bal]*		*40 x 15*	*CC*

** provisional values

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**	18.96	0.864	0.496	0.0811	0.607	0.0513	0.0223	0.0651	0.0148	. . . .	0.100	0.0150	0.143	. . . .	. . . .	0.495	1.208	0.0132	76.87		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~~	Sold Out	~~40 x 15~~	~~CC~~
CRM	**32X SN6 B**	6.78	1.644	2.00	0.376	0.295	0.059	. . . .	0.804	0.090	0.015	0.750	0.127	0.304	0.0242	0.0027	1.007	. . . .	. . . .	85.73		40 x 15	CC
CRM	***32X SN7 B*** **	*12.5*	*2.3*	*1.2*	*0.035*	*0.28*	*0.025*	. . . .	*1.15*			*0.35*	*0.20*	*0.24*	*0.03*		*0.32*	*0.005*	*0.02*	*[bal]*		*40 x 15*	*CC*

** provisional values

CRM	**32X CSN1 A**	0.306	. . . .	0.0039	0.0020	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	0.0007	. . . .	. . . .		20 x 22	W
CRM	**32X 52480 A**	10.33	0.329	0.397	0.020	0.369	. . . .	(0.002)	. . . .	. . . .	. . . .	. . . .	0.0013	0.0182	. . . .	. . . .	0.0131	0.0103	0.0071	88.54		40 x 15	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 AD**	3.02	5.27	5.90	0.0932	1.482	0.0015	0.0010	0.0228	0.0006	0.0442	0.0568	0.0034	0.034	. . . .	. . . .	0.0077	0.0206	. . . .	84.02	40 x 15	CC
CRM	**33X GM5 P**	4.48	5.18	5.66	0.127	0.728	0.055	0.0310	0.0498	. . . .	0.018	0.072	0.0507	0.0411	. . . .	. . . .	0.0298	0.0497	0.0048	83.39	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 K**	10.07	1.79	1.363	0.0178	0.531	. . . .	. . . .	0.095	. . . .	0.098	0.111	0.0050	0.0613	. . . .	. . . .	0.100	0.0682	. . . .	85.69	40 x 15	CC
CRM	***33X GM8 H *****	*3.9*	*5.8*	*6.0*	*0.14*	*0.49*	*0.005*	. . . .	*0.01*	. . . .	*0.015*	*0.06*	*0.035*	*0.02*	. . . .	*0.015*	*0.015*	*0.10*	. . . .	*[Bal]*	*40 x 15*	*CC*
CRM	**33X GM9 A**	2.93	6.91	13.81	0.090	0.710	0.0052	(0.003)	0.0251	. . . .	0.076	0.184	0.0547	0.0153	. . . .	. . . .	0.079	0.0321	0.0072	75.1	40 x 15	CC
CRM	***33X GM20 B *****	*4.5*	*0.30*	*1.78*	*0.43*	*0.21*	*0.14*	. . . .	*0.28*	*0.04*	*0.035*	*2.35*	*0.06*	. . . .	. . . .	. . . .	*0.04*	*0.21*	*0.02*	*[bal]*	*40 x 15*	*CC*
CRM	**33X GM21 B**	4.50	7.53	4.96	0.693	0.197	0.173	0.0213	0.333	. . . .	0.459	1.033	0.0697	0.0628	0.173	. . . .	. . . .	0.701	0.249	78.86	40 x 15	CC

** provisional values

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 RB2 B**	4.65	2.99	9.01	0.503	0.330	0.0078	(0.002)	0.0395	0.0076	0.091	0.0494	0.0435	0.069	. . . .	. . . .	0.0326	0.105	. . . .	82.02	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	Ag	Mg	C	Cu	Size (mm) Ø x H	Form
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 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 K**	0.0258	0.0449	1.03	0.0404	11.45	0.0009	0.049	(0.69)	. . . .	0.0408	0.0100	0.197	0.0043	0.030	. . . .	0.0013	0.0350	0.0176	. . . .	. . . .	86.25	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 C**	0.0164	0.013	0.058	4.76	28.35	. . . .	0.906	0.552	. . . .	(0.009)	0.030	0.122	1.491	. . . .	(0.012)	0.0107	(0.22)	0.450	0.080	. . . .	61.67	40 x 15	CC

3.6.1 Cupro Nickel continued

		Sn	Pb	Zn	Fe	Ni	Al	Si	Mn	P	S	Co	Cr	Mg	B	C	Nb	Cu	Size (mm) Ø x H	Form
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	38 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

																			Size (mm) W x D x H	Form
CRM	36X CN24 A	(0.0023)	0.0056	8.00	0.127	15.41	(0.0010)	23.60	0.0037	0.0096	0.0065	(0.0011)	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	Zr	Be	Cu	Size (mm) Ø x H	Form
CRM	36X CBC2 F	(0.001)	(0.001)	0.0018	0.0076	0.121	0.0097	0.0257	2.22	0.0067	0.0013	0.0036	(0.001)	0.439	97.15	40 x 15	W
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
CRM	36X CBC6 A	0.0041	0.0014	0.0010	0.0243	1.132	0.0490	0.0263	1.045	0.0016	0.0015	0.0070	0.0553	0.507	97.11	40 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)	0.0011	(0.001)	0.0164	2.59	0.0011	0.645	0.0004	. . . .	0.0015	0.0042	0.333	0.0016	. . . .	. . . .	. . . .	96.44	40 x 15	W

3.7.1 Various Copper Alloys

		Sn	Pb	Zn	Fe	Ni	Al	Si	Mn	P	S	Cr	C	Cu	Size (mm) Ø x H	Form
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 AH**	614	501	840	75	511	28	435	147	109	95	125	326	273	316	410	86	(4)	53	65	97	. . . .	52		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 AH**	322	190	5500	227	277	98	145	204	226	319	107	124	50	267	280	209	. . . .	103	273	197	(100)	272		40 x 15	CC
CRM	**39X 17869 AG**	700	714	261	365	111	186	104	325	401	375	245	69	84	199	27	399	22	197	392	26	103	47		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~~	~~. . . .~~	Sold Out	~~40 x 15~~	~~CC~~
CRM	**39X 17871 D**	1058	503	918	19	412	. . . .	150	. . . .	527	141	204	52	. . . .	. . . .	27	309	5	310	137	32	. . . .	(9)		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~~	Sold Out	~~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~~	Sold Out	~~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	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 N	0.492	0.0568	1.000	0.147	0.0283	0.0547	0.216	0.0047	0.0227	0.0043	0.0019	0.0016	. . . .	. . . .	0.0190	0.0131	. . . .	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	Sr	Ag	Size (mm) Ø x H	Form
CRM	**41X GLV1 E**	0.0175	0.0021	0.285	0.0087	(0.001)	0.0049	0.0188	0.0021	. . . .	0.0045	0.0016	(0.0004)	. . . .	0.0008	. . . .	. . . .	50 x 20	C
CRM	**41X GLV2 C**	0.0248	0.0006	0.0905	0.0037	0.0155	0.0097	0.0057	0.0053	0.0218	0.0158	0.0049	0.0017	0.0015	0.0055	. . . .	. . . .	50 x 20	C
CRM	**41X GLV3 C**	0.0249	0.0014	0.326	0.0183	0.0014	0.0031	0.0332	0.0335	0.0185	0.0031	0.0555	0.0036	0.0003	0.0034	. . . .	. . . .	50 x 20	C
CRM	**41X GLV4 E**	0.0058	0.0025	0.503	0.0013	(0.01)	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 B**	0.097	. . . .	0.441	0.0051	0.0020	0.0155	0.0371	0.0007	0.00235	0.0254	0.0122	. . . .	0.0007	0.0061	. . . .	. . . .	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)	. . . .	. . . .	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
CRM	***41X GLV12 A *****	*0.0100*	*0.0043*	*0.171*	*0.0050*	*0.016*	*0.0082*	*0.0089*	*0.0095*	*0.0086*	*0.0050*	*0.0064*	*. . . .*	*. . . .*	*0.0035*	*. . . .*	*0.0043*	*50 x 20*	*C*
CRM	***41X GLV13 A *****	*0.0030*	*0.0013*	*0.220*	*0.0011*	*0.006*	*0.0012*	*0.0050*	*0.0028*	*0.0008*	*0.0008*	*<0.005*	*. . . .*	*. . . .*	*0.0012*	*. . . .*	*0.0011*	*50 x 20*	*C*

** provisional values

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

		Pb	Al	Cd	Fe	Cu	Ni	Sb	Sn	Bi	Size (mm) Ø x H	Form
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 10	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 D*** **	*0.004*	*0.0097*	*4.35*	*0.0021*	*0.024*	*0.0025*	*0.024*	*0.008*	*0.0047*	. . . .	. . . .	*0.002*	. . . .	. . . .	*0.059*	*0.027*	. . . .	*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 Z10 A**	0.0065	0.0020	4.93	0.0029	0.0009	0.0033	0.314	0.0099	0.0183	0.0022	. . . .	. . . .	0.0013	0.0018	. . . .	. . . .		50 x 20	C

** provisional values

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 L**	0.0011	0.0345	4.48	0.0004	0.0009	(0.0005)	0.720	0.0069	0.0075	(0.0008)	(0.0006)	. . . .	. . . .	. . . .	. . . .	0.0037	. . . .	50 x 20	C
CRM	**43X Z2 P**	0.0048	0.0614	4.07	0.0031	0.0013	0.0033	1.019	0.0100	0.0162	0.0038	0.0012	. . . .	. . . .	. . . .	. . . .	0.0098	. . . .	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

4.3 Zn/Al/Cu (continued)

		Pb	Mg	Al	Cd	Fe	Sn	Cu	Ni	Mn	Bi	Sb	Ti	Cr	Si	Sr	Size (mm) Ø x H	Form
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 F**	0.0019	0.0123	7.98	0.00567	0.0025	0.0005	1.238	0.0058	<0.001	0.0106	0.0105	<0.001	0.0037	<0.001	. . . .	50 x 20	C
CRM	***43X Z15 D *****	*0.0029*	*0.023*	*8.30*	*0.0036*	*0.0053*	*0.0017*	*1.17*	*0.008*	*0.0067*	*0.0053*	*0.0005*	*. . . .*	*. . . .*	*. . . .*	*. . . .*	*50 x 20*	*C*
	** provisional values																	
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 ZnAl7 C	47.5	1.59	0.077	0.0050	0.0049	0.0096	0.010	0.0070	. . . .	0.0049	. . . .	(0.0004)	(bal)	55 x 6	CC
45X ZnAl7 E	43.6	1.56	0.170	0.0100	0.0032	(0.0005)	0.0042	0.0005		0.028		(0.004)	(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 C**	0.0465	0.054	(0.04)	0.082	0.0792	0.0323	0.197	0.0204	0.0285	0.0292	0.0602	0.0278	0.0109	0.0220	0.0208	0.0246	0.0077	0.0267	0.0315	(0.0026)	0.0011	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 E**~~	~~1.141~~	~~0.336~~	~~10.52~~	~~0.945~~	~~0.0568~~	~~0.349~~	~~0.726~~	~~0.096~~	~~0.156~~	~~0.0233~~	~~0.107~~	~~....~~	~~....~~	~~0.0018~~	~~....~~	~~....~~	~~(0.009)~~	~~....~~	~~....~~	~~....~~	~~....~~	Sold Out ~~50 x 13~~	~~C~~
CRM	**54X G231H1 F**	1.063	0.339	9.50	0.892	0.0111	0.295	0.624	0.147	0.169	0.0290	0.116	....	....	(0.0001)	....	....	0.0041	....	....	....	0.0075	65 x 30	HIP
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 13	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 13	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)~~	~~....~~	Sold Out	~~....~~	~~(0.0044)~~	~~....~~	Sold Out ~~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**	0.128	0.123	11.96	0.262	0.502	0.124	0.124	0.040	0.0057	0.121	0.0132	0.117	0.0604	....	....	0.0028	0.0024	0.0057	....	0.0018	0.0024	65 x 30	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)	....	40 x 13	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 Q**	0.688	0.644	12.41	0.534	0.227	0.789	0.443	0.062	0.060	0.109	0.283	0.0048	....	0.0018	....	....	(0.037)	....	0.0165	....	(0.0015)	~50 x 15	C
CRM	***54X G13H4 R*** **	*0.68*	*0.64*	*12.2*	*0.39*	*0.59*	*0.75*	*0.195*	*0.047*	*0.047*	*0.091*	*0.032*	*0.010*	*0.003*	*0.0022*	....	....	*0.043*	*0.01*	*0.019*	....	*0.0035*	*65 x 30*	*HIP*
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 13	C

** provisional values

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 50x17	C
CRM	**54X G25D3 T**	0.119	0.386	6.29	0.379	0.256	(0.038)	0.102	0.050	0.046	0.067	0.0413	0.0086	0.0047	0.0022	....	....	(0.04)	....	....	....	....	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~~	~~....~~	~~....~~	~~....~~	~~....~~	~~....~~	Sold Out		~~40 x 15~~	~~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

		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 P**	1.489	0.343	10.24	1.02	0.493	0.209	0.908	0.352	0.171	0.214	0.0558	0.0378	0.0242	0.0001	. . . .	0.0021	. . . .	0.0070	. . . .	0.0008	. . . .	65 x 30	HIP
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 B**	2.198	0.115	9.45	0.762	0.244	0.207	0.989	0.0319	0.0285	0.0553	0.0308	0.0096	0.0119	. . . .	0.0168	. . . .	0.0046	0.0021	0.0019	0.0007	0.0109	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)	(0.01)	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	Ga	Cd	Li		Size (mm) Ø x H	Form
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)~~	Sold Out	~~50 x 15~~	~~C~~

5.5 Al/Si/Cu (continued)

		Cu	Mg	Si	Fe	Mn	Ni	Zn	Pb	Sn	Ti	Cr	Co	V	Bi	Cd	Size (mm) Ø x H	Form
	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)	40 x 15	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
	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
	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
	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 A30J1 J *****	*5.04*	*0.87*	*14.9*	*1.13*	*0.105*	*0.0095*	*0.14*	*0.145*	*0.009*	*0.21*	*0.007*	*0.075*	*0.0114*	*0.0047*	. . . .	. . . .	*0.0025*	*0.017*	*0.0032*	*65 x 30*	*HIP*
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

** provisional values

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 50x15	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 D	3.73	1.292	0.517	1.38	0.837	0.149	0.711	1.114	0.092	0.096	0.0200	0.056	(0.18)	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	....	....	50 x 20	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 15	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)	....	....	....	40 x 15	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 18	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 B	1.227	2.231	0.066	0.122	0.0229	0.0035	5.49	0.0011	(0.001)	0.0248	0.1831	....	0.0058	....	....	0.0105	0.0008	....	(0.003)	50 x 20	W

5.11 Al/Mg

		Cu	Mg	Si	Fe	Mn	Ni	Zn	Pb	Sn	Ti	Cr	V	Be	Cd	Ga	Zr	B	Li	Size (mm) Ø x H	Form
CRM	511X G05H1 J	0.319	1.99	0.397	0.730	0.0111	0.120	0.230	0.0132	0.203	0.201	0.245	0.071	....	0.0071	0.0096	0.0022	....	....	65 x 30	HIP
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	....	....	....	....	....	40 x 15	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 G	0.0365	8.99	0.0626	0.081	1.273	0.0124	0.131	0.247	0.0112	0.0246	0.0306	0.0216	0.0004	0.0115	....	0.100	0.0011	....	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

5.11 Al/Mg

		Cu	Mg	Si	Fe	Mn	Ni	Zn	Pb	Sn	Ti	Cr	Co	V	Be	Cd	Ga	Li	Mo		Size (mm) Ø x H	Form
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)~~	Sold Out	~~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

		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**	0.413	0.692	0.898	0.470	0.703	0.0075	0.0775	0.277	0.0043	0.0255	0.0706	0.498	0.0030	. . . .	0.0066	0.0017	0.0092	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	Hg		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
	517 GO LF30	0.023	. . . .	. . . .	0.01	. . . .	. . . .	4.1	. . . .	. . . .	0.027	. . . .	0.034	0.020	0.028	. . . .		55 x 4	CC
	517 GO LF31	0.013	. . . .	0.07	0.06	. . . .	. . . .	4.3	. . . .	. . . .	0.020	. . . .	0.029	0.010	0.019	. . . .		55 x 4	CC
	517 GO LF32	. . . .	. . . .	0.09	0.11	. . . .	. . . .	4.6	. . . .	. . . .	0.010	. . . .	0.021	0.005	0.010	. . . .		55 x 4	CC
	517 GO LF33	. . . .	. . . .	0.14	0.20	. . . .	. . . .	5.1	. . . .	. . . .	0.005	. . . .	0.014	0.002	0.005	. . . .		55 x 4	CC
	517 GO LF34	0.008	. . . .	0.05	0.05	. . . .	. . . .	0.32	0.007	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	0.030		55 x 4	CC
	517 GO LF35	0.014	. . . .	0.10	0.19	. . . .	. . . .	0.84	0.018	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	0.037	Note these are not CRMs	55 x 4	CC
	517 GO LF36	0.002	. . . .	0.18	0.10	. . . .	. . . .	1.32	0.014	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	0.029		55 x 4	CC
	517 GO LF37	0.009	. . . .	0.05	0.15	. . . .	. . . .	2.03	0.008	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	0.044		55 x 4	CC
	517 GO LF39	0.006	. . . .	0.02	0.05	. . . .	. . . .	3.25	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	0.065		55 x 4	CC
	517 GO LF40	0.004	. . . .	0.16	0.09	. . . .	. . . .	4.47	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	0.036		55 x 4	CC
	517 GO LF41	0.024	. . . .	0.02	. . . .	. . . .	. . . .	5.55	0.025	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	0.055		55 x 4	CC

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		40x13 or 45x15	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		40x13 or 45x15	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		40x13 or 45x15	C

6.4 Mg/Al

		Al	Zn	Mn	Cu	Si	Fe	Ni	Sn	Pb	Be	Ce	La	Nd	Typical alloy type			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	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	Hg		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 MGA11 B	3.63	1.59	0.047	0.0496	(0.024)	0.0048	0.0134	0.093	0.0183	0.0022	(0.09)	(0.0002)	(0.0005)	(0.0005)	0.0014	0.006		40x15	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 B	9.72	0.543	(0.13)	0.0153	0.028	0.0083	0.0011	0.0026	0.0020	0.0030	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 F	0.0032	0.0102	0.0203	0.0256	0.0016	(0.002)	0.0109	0.0126	0.0058	(0.002)	0.0165	....	0.0016	0.0104	0.0022	0.0010	0.004	0.0014	....	0.011	0.0178	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 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)~~	~~....~~	Sold Out	~~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 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

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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 F	0.016	0.042	0.038	0.0050	4.12	0.020	0.0046	0.0068	0.195	0.0011	0.160	(0.001)	0.0024	....	....	....	0.0052	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 C**	0.0145	0.0298	0.0806	0.057	0.797	0.0038	0.0039	0.0015	0.0336	. . . .	3.50	0.005	0.0084	0.0016	. . . .	0.0025	0.0054	0.014	. . . .		40 x 15	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	. . . .	Undersize - Last pcs.	~~40 x 15~~	C
CRM	**74X CA4 D**	0.0030	0.0512	0.0612	0.081	0.552	0.0040	0.0025	0.0051	0.0588	. . . .	3.07	. . . .	0.009	0.0020	. . . .	0.0005	0.0075	. . . .	0.0010		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	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 PA3.5 E	3.49	. . . .	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 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
	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	0.0417	0.0888	0.144	0.0694	0.0011	0.0029	. . . .	(0.0007)	0.0462	0.0093	0.0116	0.0039	0.0166	0.0036	0.0033	(0.004)	0.0008	. . . .	. . . .	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 H	(0.0006)	0.00067	0.00813	0.00061	(0.0001)	0.00045	. . . .	(0.00015)	0.00078	(0.00014	0.00016	0.00059	(0.0002)	. . . .	(0.0002)	. . . .	(<0.0005)	. . . .	. . . .	40 x 15	C
CRM	*83X PR7 C* **	*0.22*	*0.78*	*0.49*	*0.15*	*0.052*	*0.29*	. . . .	. . . .	*0.46*	*0.58*	*0.0025*	*0.009*	*0.006*	. . . .	. . . .	. . . .	. . . .	*0.004*	. . . .	*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

** provisional values

8.4 Battery Alloys (Pb/Sn/Ca)

		Sn	Sb	Bi	Cu	As	Ag	Zn	Cd	Al	Ca	Ni	Te	Mg	In	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 BA1 L**	0.993	0.00062	0.0125	0.00071	(<0.001)	0.0092	0.0064	0.00223	0.0317	0.1090	0.00009	(<0.001)	0.00094	. . . .	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**	0.324	(0.006)	0.0351	0.0061	<0.001	0.0062	0.0032	0.0047	0.0043	0.0212	. . . .	. . . .	. . . .	. . . .	40 x 15	C
CRM	***84X BA4 D*** **	*0.006*	*0.013*	*0.015*	*0.027*	*<0.001*	*0.017*	*0.0035*	*0.013*	*. . . .*	*<0.001*	*<0.001*	*0.039*	*. . . .*	*0.003*	*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	0.00043	0.0359	0.136	0.0002	(0.00024)	. . . .	. . . .	40 x 15	C
CRM	***84X BA8 E*** **	*0.29*	*0.002*	*0.014*	*0.0008*	*. . . .*	*0.003*	*0.0018*	*0.0005*	*0.0034*	*0.117*	*<0.001*	*. . . .*	*0.0005*	*. . . .*	*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

** provisional values

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 C**	1.460	0.0029	0.0146	0.0014	. . . .	0.0051	0.0032	0.0012	0.0158	0.0647	. . . .	. . . .	. . . .	. . . .	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 C*** **	*0.19*	*0.002*	*0.021*	*. . . .*	*. . . .*	*0.0031*	*0.0020*	*0.0002*	*0.042*	*1.015*	*. . . .*	*. . . .*	*0.0033*	*. . . .*	*38 x 15*	*C*

** provisional values

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 K*** **	*0.145*	*2.26*	*0.022*	*0.029*	*0.27*	*0.0045*	*0.001*	*0.0022*	*0.002*	*0.005*	*0.038*	*0.009*	*. . . .*	*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**	0.207	4.69	0.0267	0.0361	0.221	0.0038	0.0009	0.0011	0.0018	0.0007	0.0077	0.0056	. . . .	40 x 15	C
CRM	***85X PSb5 G*** **	*0.29*	*4.65*	*0.012*	*0.051*	*0.25*	*0.0030*	*0.0002*	*0.0005*	*0.0008*	*0.0015*	*0.014*	*0.009*	*. . . .*	*40 x 15*	*C*
CRM	**85X PSb6 A**	0.065	6.51	0.0270	0.0651	0.111	0.0459	. . . .	0.0046	0.0021	0.0108	0.0018	. . . .	. . . .	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

** provisional values

CRM	***85X PSb24 A*** **	*0.235*	*2.37*	*0.011*	*0.027*	*0.14*	*0.0012*	*. . . .*	*. . . .*	*. . . .*	*. . . .*	*0.027*	*0.0004*	*. . . .*	*40 x 15*	*C*
CRM	***85X PSb28 A*** **	*0.065*	*2.78*	*0.011*	*0.010*	*0.24*	*0.0014*	*. . . .*	*. . . .*	*. . . .*	*. . . .*	*0.010*	*0.0015*	*. . . .*	*40 x 15*	*C*
CRM	***85X PSb33 A*** **	*0.21*	*3.25*	*0.011*	*0.036*	*0.14*	*0.0014*	*. . . .*	*. . . .*	*. . . .*	*. . . .*	*0.021*	*0.0008*	*. . . .*	*40 x 15*	*C*
CRM	***85X PSb60 A*** **	*0.025*	*5.90*	*0.009*	*0.040*	*0.078*	*0.0011*	*. . . .*	*. . . .*	*. . . .*	*. . . .*	*0.008*	*0.003*	*. . . .*	*40 x 15*	*C*

** provisional values

8.5 Various Lead Alloys

		Sn	Sb	Bi	Cu	As	Ag	Fe	Zn	Cd	In	Ni	Te	Se	Au	Tl	S	Hg	Co	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 C**	0.115	1.89	0.0138	0.013	0.0918	0.0093	0.0010	(0.0004)	2.01	. . . .	0.0007	0.0035	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	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 CADL B**	0.0182	2.00	0.0489	0.0384	0.102	0.0132	0.0008	(0.011)	1.22	. . . .	0.0002	<0.001	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	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**	0.237	1.532	0.0182	0.0366	0.125	0.0046	<0.001	0.0002	0.0003	. . . .	0.0005		0.0253	. . . .	. . . .	0.0028	. . . .	. . . .	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 0494Pb1 A**	0.051	0.95	0.0017	0.012	0.049	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	0.004	. . . .	. . . .	. . . .	. . . .	. . . .	40 x 15	C
CRM	**85X 9494Pb2 C**	0.124	1.928	0.0387	0.0279	0.102	0.0279	<0.001	. . . .	. . . .	. . . .	. . . .	0.0038	0.0272	. . . .	. . . .	0.0052	. . . .	. . . .	40 x 15	C
CRM	**85X 0494Pb3 D**	0.221	2.99	0.126	0.0974	0.245	0.0186	0.0005	. . . .	. . . .	. . . .	. . . .	0.0155	0.049	. . . .	. . . .	0.0185	. . . .	. . . .	40 x 15	C
CRM	**85X 0616Pb1 D**	(0.002)	1.539	0.0365	0.0158	0.0600	0.0089	. . . .	(0.001)	0.0018	. . . .	0.0007	0.0082	0.0047	. . . .	. . . .	. . . .	(0.001)	. . . .	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 C *****	*6.5*	*8.9*	*0.06*	*0.14*	*0.52*	*0.02*	*0.001*	*0.001*	*0.21*	*0.016*	*0.001*	. . . .	*0.003*	*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 C**	10.22	16.18	0.119	0.113	0.202	0.0279	0.0012	0.0156	0.0575	0.0194	0.0005	. . . .	0.0071	40 x 15	C

*** provisional values*

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 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~~	~~0.018~~	~~0.0084~~	~~0.0202~~	~~0.0094~~	~~0.0097~~	~~(0.0024)~~	~~<0.0005~~	~~0.0097~~	~~0.0048~~	~~0.0018~~	~~. . . .~~	~~0.0034~~	~~0.0148~~	~~. . . .~~	~~0.004~~	Sold Out	~~40 x 15~~	~~C~~
CRM	**91X S63PR0 C**	60.02	0.0245	0.0101	0.0245	0.0170	0.0201	0.0016	(0.0004)	0.0124	0.0098	0.0039	. . . .	(0.0005)	(0.0004)	. . . .	0.0082		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. Other Solders

Note: All these listed below are RMs not CRMs

Updated: 4th April 2019

Blocks / Discs

9.5 Fusible Alloys	Sn	Sb	Bi	Cu	As	Ag	Fe	Zn	Cd	In	Al	Pb	Co	Ni	Au	Nominal Melting Temperature °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 10	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 B	50.0	....	49.8	....	....	....	0.03	0.003	0.022	....	....	....	....	0.025	....	....	40 x 15	C
95X BIS50P2 B	50.3	....	49.6	....	0.005	0.090	0.01	....	....	....	(0.001)	....	....	....	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 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

11. Cobalt Base

Updated: 4th April 2019

Blocks / Discs

	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**	0.190	0.201	0.0197	0.0043	1.008	0.151	31.00	0.051	0.763	7.96	(0.13)	0.099	0.203	(0.014)	0.0045	0.0284	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

13.1 Silver with Impurities

All Elements ppm

	Cu	Pb	Bi	Zn	As	Sb	Se	Au	Sn	Pt	Pd	Fe	Te	Mn	Cd	Ni	Si	Ga	Al	Size (mm) Ø x H	Form
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

	Bi	Se	Fe	Cu	Cr	Si	Al	Size (mm) Ø x H	Form
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 %

	Ag	Cu	Zn	Size (mm) Ø x H	Form
132X AGB75 C	75.11	24.53	....	36 x 10	C
132X AGB85 C	84.87	15.09	....	36 x 10	C
132X AGB87 B	87.13	12.67	....	36 x 10	C
132X AGB90 B	89.73	10.24	....	36 x 10	C
132X AGB93 B	92.70	7.27	....	36 x 10	C
132X AGB100 C	99.94	0.0090	....	36 x 10	C

C = Samples cast

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

R = Samples prepared from rolled strip

13.3 Silver Alloys

These Elements in %

	Au	Cu	Pb	Zn	Sn	Bi	Sb	Fe
133X AGA1 A	1.48	19.95	0.207	0.211	0.291	0.194	0.050	0.039
133X AGA2 A	0.507	10.00	1.02	0.502	0.520	0.113	0.192	0.027
133X AGA3 A	0.258	4.91	1.89	0.816	0.921	0.048	0.459	(0.015)
133X AGQ1 C	0.251	2.532	0.245	....	....	....	....	....
133X AGQ2 C	0.978	5.808	0.469	....	....	....	....	....
133X AGQ3 C	1.975	9.612	0.921	....	....	....	....	....

These Elements in ppm

	Al	As	Cd	Co	Mn	Ni	Pd	Pt	Se	Te	Ge	In	Size (mm) Ø x H	Form
133X AGA1 A	96	255	165	406	61	118	54	67	169	271	107	37	25 x 3	R
133X AGA2 A	19	144	113	163	115	264	76	114	78	98	47	65	25 x 3	R
133X AGA3 A	(20)	80	42	50	98	450	156	256	44	54	45	134	25 x 3	R
133X AGQ1 C	....	....	....	....	....	....	....	....	....	....	....	....	25 x 3	R
133X AGQ2 C	....	....	....	....	....	....	....	....	....	....	....	....	25 x 3	R
133X AGQ3 C	....	....	....	....	....	....	....	....	....	....	....	....	25 x 3	R

R = Samples prepared from rolled strip

16. Setting Up Samples

Blocks / Discs

Updated: 4th April 2019

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 20	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 20	C

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

16.8 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 20	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 30	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

16.9.1 Zinc

	Ag	Cd	Fe	Mn	Sb	Ti	Al	Cr	In	Ni	Si	Tl	Bi	Cu	Mg	Pb	Sn	Size (mm) Ø x H	Form
169X ZNSUS1	0.04	0.30	0.05	0.001	0.20	0.001	0.35	0.001	0.25	0.06	0.003	0.06	0.005	0.35	0.002	0.60	0.30	50 x 20	C

16.11 Tin

	As	Bi	Sb	Pb	Cu	Fe	Cd	Zn	Ni	Al	Ag	Co	In	Au	Se	Te	Tl	Ge	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	1.9	2.4	11	0.35	11	(0.06)	0.02	(0.001)	0.09	<0.001	0.15	0.01	0.05	0.005	0.005	0.005	0.025	0.002	50 x 20	C

18. Gases in Metals

Updated: 4th April 2019

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

Chippings

January 2019

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 composition, 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 not 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.

Conditions of Sale & Ordering procedure.

January 2019

General Conditions

All materials are subject to our Standard Terms and Conditions for the Supply of Laboratory Quality Products and Services. Copies available upon request.

1 All items listed in this catalogue or otherwise offered for sale are subject to availability and any delivery dates that may be quoted are conditional on supplies. We are unable to accept liability for delay and if any item becomes unavailable during the life of a catalogue we will advise on suitable alternatives where appropriate.

2 Unless credit facilities have been agreed with us (in which case payment is due on a net monthly basis), payment for items is due either against a Pro Forma invoice at the time of ordering or by Confirmed Irrevocable Letter of Credit through a British Clearing Bank payable on presentation of invoice and despatch documents.

3 The payment procedures and terms are detailed within the MBH catalogue must be complied with. If not followed correctly further charges will apply.

4 We draw the attention of all customers to the notes in our catalogue relating to definitions, analyses and calibration procedures.

5 a. It is the responsibility of the customer to decide on the suitability and fitness for purpose of all items purchased

b. Any items claimed to be defective must be returned to us (within 3 months of delivery) for examination and analysis. No claims can be entertained if this is not done.

c. We may, at our discretion, replace any item shown to be defective or refund the price paid. Our liability in respect of any such item will not in any circumstances exceed the amount paid for the item in question and no liability is accepted for consequential losses however arising.

6 These conditions shall apply to all contracts entered into by us to the exclusion of all other conditions and notwithstanding any items that may appear on any printed stationery of any customer. No variation of these conditions shall be effective unless confirmed by us in writing on or prior to formal acceptance by us of any order.

Ordering Procedure

Purchase Orders are accepted by e-mail, or post. Please ensure any subsequent confirmation of an order is appropriately marked so as to avoid duplication.

Send your order to:

MBH Analytical Ltd
Holland House
Queens Road
Barnet, Herts., EN5 4DJ
United Kingdom

Tel: ++44 (0)208 441 2024

Email: sales@mbh.co.uk

Orders placed shall include; Catalogue number, quantity required, description, price, agreed discount and confirmation of invoicing and delivery address. Unless specifically instructed all orders will be despatched by our chosen carrier, with due regard to speed, security and cost.

All orders will be acknowledged by either e-mail or post. Please check the acknowledgement upon receipt to ensure we have correctly understood your requirement.

Conditions of Sale - Prices, VAT and payment terms.

January 2019

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. Do note convert £stg prices directly into US4 or Euro€ as this will not equate with our currency prices and will lead to short payment. Should prices be required in US$ or Euro €, we will be pleased to submit our quotation priced 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 {if any}).

Payment may be made by any of the following methods.

- Visa Purchasing Card or major debit/credit/charge card (Visa or Mastercard). Card payments over £500.00 are subject to a small 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 their fee.

  Payment will be requested by our card processor via a link we will send to you. Please do not send your card details to MBH.

continues…….

Payment Terms

…. continued.

- Sterling (or stated currency) prepayment with your purchase order against our Proforma invoice by bankers draft or automated bank transfer.
- Irrevocable Letter of Credit through a London bank, payable at sight upon presentation of documents (minimum order value stg£4,000.00 applies).
- Established customers may apply to receive strictly Net Monthly Account terms, subject to satisfactory bank and trade references.

Our bank details for payments are:

Name of Banker: **National Westminster Bank plc. (Natwest Bank)**
Branch Address: **181 Darkes Lane**
POTTERS BAR
Herts EN6 1XT
United Kingdom

Account Name: **MBH Analytical Ltd**
Account No: **(£ Sterling) 13140922** **(IBAN)** GB10NWBK60174913140922 Please send payment in £ Sterling only
Please see the currency a/c details and IBAN references below for remittances in US Dollar or EURO.
Branch Sort Code: **60-17-49** BIC (Swift code): **NWBKGB2L**

For payments of invoices stated in **Euros** please remit to our Euro currency account stated below, and for invoices stated in **US Dollars** please use our US Dollar currency account stated below. Both accounts are held at the NATWEST bank detailed above.

Currency Account Numbers: **Euro 06848966** **(IBAN)** GB18NWBK60720506848966
(All other bank details remain as stated above.) **US Dollar 16500466** **(IBAN)** GB71NWBK60730116500466

Please ensure you send your payment to the correct currency account as currency losses may be incurred on your account when moving payment to the correct MBH a/c resulting in under payment preventing us proceeding with your order.

All payments should exclude any charges/fees from the payees bank or intermediary (or correspondent) bank.
Our bank must receive the full invoiced amount after deducting senders fees and before our own bank fees are applied.

Conditions of Sale

All materials sold are subject to our standard Terms & Conditions of Sale. Copy available upon request.

MBH Analytical Ltd.
Registered in England. Reg. No. 1875653. Registered Office; Holland House, Queens Road, Barnet, Herts., EN5 4DJ, United Kingdom.
VAT registration No. GB873 1047 32

Periodic Table of the Elements

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1 **H** Hydrogen 1.008																	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											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]

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