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MBH

Reference Materials

MBH

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	Page
Index	Inside front cover
Introduction & Abbreviations.	1
Information - Definitions etc.	46
Conditions of Sale - Ordering procedure.	47
Conditions of Sale - Prices & payment terms including bank details.	48 - 49
Periodic Table	50
Notes -(for your convenience).	51 - 52

Please Note

This catalogue details only the current Reference Materials produced exclusively by MBH Analytical Ltd. Prices detailed herein are our March 2016 ex-works prices in £stg and are subject to change without notice.

Certified Reference Materials

		Pages
Section 1	Iron Base	4 - 11
Section 2	Nickel Base	12 - 15
Section 3	Copper Base	16 - 22
Section 4	Zinc Base	23 - 25
Section 5	Aluminium Base	26 - 30
Section 6	Magnesium Base	31 - 32
Section 7	Tin Base	33 - 34
Section 8	Lead Base	35 - 37
Section 9	Lead/Tin Solders	38 - 39
Section 10	Titanium Base	40

		Pages
Section 11	Cobalt Base	40
Section 13	Noble Metals	41
Section 16	Setting Up & Control Samples	42 - 43
Section 18	Gases in Metals	44
<u>Chippings</u>		45

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

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

Listing of new materials added in this catalogue. **2 - 3**

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

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

The format of the catalogue has followed the same conventions we use in our full Reference Materials catalogue. 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. It will be re-issued every 12 months.

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

The 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 the catalogue reference number you want listed it may have been changed, deleted or excluded because of its age or availability. It may not be produced by MBH but from another producer. Please enquire.

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

Information

Abbreviations

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

Form

C	Material is a Cast product
CC or (2xCC)	Material is Chill Cast product or (Double Chill Cast)
HIP	Material is Hot Isostatically Pressed powder
SC	Material is a Spray Cast product
W	Material is a Wrought product
R	Material has been cut from Rolled strip
** provisional values	This material is in production and is currently available for purchase and will be supplied with a provisional certificate. However the values presented are the result of an incomplete analysis programme. The final certified values are expected to be available within ~8 months, but may differ slightly. Please enquire .
Sold Out	Materials where data is struck through (for example 14X-MN2-Q etc.) and indicated as 'sold out' will be remade later; please enquire. Material listed in previous editions but now no longer listed herein should be considered no longer available and are not likely to be remade.

Listing of New Materials Added to this Catalogue (1).

January 2016

Blocks / Discs

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 **	3.21	1.70	0.022	0.039	0.540	5.15	8.95	0.151	0.051	0.125	0.061	0.054	0.35	0.075	0.027	0.003	** provisional values	40 x 15	CC	
1.2.2 Residuals in Mild Steel		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Sn	Al	V	As	Zn	N	Size (mm) Ø x H	Form			
CRM	12X 15240 A **	0.200	0.200	0.0205	0.0155	1.500	0.075	0.104	0.0165	0.200	0.0151	0.019	0.0019	0.0105	0.0016	0.0068	** provisional values	40 x 20	W		
1.2.3 Low Alloy Steel		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Sn	Al	V	Ti	As	Zn	Pb	N	Size (mm) Ø x H	Form	
CRM	12X 21590 A **	0.137	0.211	0.0057	0.0124	0.455	0.141	2.11	0.935	0.281	0.0190	0.0195	0.0031	0.0011	0.0092	0.0045	0.0129	** provisional values	40 x 15	W
CRM	12X 41450 A **	0.447	0.261	0.0032	0.0094	1.01	0.187	1.195	0.343	0.131	0.0088	0.0217	0.0385	0.0052	0.0081	** provisional values	38 x 15	W
CRM	12X 46150 A **	0.161	0.240	0.0071	0.0159	0.471	1.60	0.0349	0.241	0.0155	0.0012	0.0118	0.0019	0.0015	0.0066	0.0011	0.0084	** provisional values	45 x 15	W
CRM	12X 4330V A **	0.325	0.304	0.0029	0.0061	0.856	1.980	0.921	0.471	0.095	0.0075	0.0305	0.0505	0.0056	0.0078	** provisional values	45 x 15	W
CRM	12X 835M30 A **	0.275	0.200	0.0160	0.0071	0.454	3.96	1.12	0.213	0.193	0.0100	0.0038	0.0028	0.0010	0.0066	0.0087	** provisional values	45 x 15	W
1.3.2 Austenitic Stainless Steels		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Al	Co	Nb	N	V	Ti	W	Size (mm) Ø x H	Form		
CRM	13X 31635 A **	0.0255	0.485	0.0305	0.0350	1.810	10.77	16.85	2.09	0.402	0.0050	0.195	0.010	0.019	0.058	0.151	0.030	** provisional values	40 x 15	W	
1.3.4 Ferritic & Martensitic Stainless Steels		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Ti	V	Co	Nb	N	Size (mm) Ø x H	Form				
CRM	13X 41500 A **	0.038	0.400	0.0105	0.0205	0.595	3.51	12.95	0.500	0.130	0.0011	0.089	0.100	0.041	0.051	** provisional values	40 x 15	W			
1.3.5 Special Stainless Steels		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	V	W	Co	Nb	N	Size (mm) Ø x H	Form				
CRM	13X 14216 P **	0.0425	1.570	0.0070	0.0050	0.664	12.00	23.55	0.205	0.228	0.072	2.24	0.248	0.247	0.0155	** provisional values	40 x 15	concast			
1.3.6 Precipitation Hardening Steels		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Ti	Al	V	Co	Nb	B	N	Size (mm) Ø x H	Form		
CRM	13X PH2 M **	0.060	0.500	0.042	0.020	1.185	3.57	16.88	1.01	4.04	0.048	0.041	0.103	0.094	0.143	0.0050	0.051	** provisional values	40 x 15	W	
CRM	13X PH4 N **	0.040	0.740	0.016	0.029	0.790	4.00	14.85	0.248	5.24	0.100	0.095	0.502	0.597	0.303	0.0035	0.078	** provisional values	40 x 15	W	
CRM	13X PH7 F **	0.120	1.41	0.0057	0.028	1.49	5.40	13.05	2.53	0.765	0.020	0.011	0.045	0.049	0.245	....	0.044	** provisional values	40 x 15	W

Continued on next page

Listing of New Materials Added to this Catalogue (2).

January 2016

Blocks / Discs

1.3.7 High Nitrogen Stainless Steels																		Size (mm)	Form		
	C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Al	V	W	Co	Nb	B	N		Ø x H			
CRM	13X 31726 A **	0.012	0.41	0.001	0.021	1.86	13.45	17.7	4.55	0.205	0.022	0.044	0.038	0.050	0.010	0.140	317 LMN	UNS S31726	40 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
**provisional values																					
1.4.11 High-Ni Calibration Series																		Size (mm)	Form		
	C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Al	Co	Ti	Mg	N				Ø x H			
CRM	14X FeNi6 A **	0.101	0.075	0.028	0.015	0.330	6.07	0.072	0.027	0.025	0.0055	** provisional values			40 x 15	W	
CRM	14X FeNi 8 A **	0.097	0.099	0.028	0.015	0.331	8.10	0.250	0.029	0.030	0.0065	** provisional values			40 x 15	W	
CRM	14X FeNi10 A **	0.095	0.061	0.028	0.015	0.272	10.10	0.070	0.027	0.025	0.0053	** provisional values			40 x 15	W	
CRM	14X 94100 A **	0.0054	0.105	0.0025	0.0049	0.441	41.1	0.0259	0.0051	0.0628	0.0200	0.0012	0.0021	0.0016	** provisional values		UNS K94100	40 x 15	W	
3.1.3 Naval Brass																		Size (mm)	Form		
	Sn	Pb	Zn	Fe	Ni	Al	Si	As	Mn	Sb	P	Ag	Cu				Ø x H				
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		
3.1.7 Leaded Brass																		Size (mm)	Form		
	Pb	Sn	Zn	Fe	Ni	Mn	Al	Si	As	Bi	Sb	P	Ag	Co	Cu				Ø x H		
CRM	31X 7835.10 A **	1.43	0.238	34.3	0.405	0.160	0.032	0.645	0.011	0.063	0.020	0.021	0.041	0.020	62.6	**provisional values			40 x 15	CC
CRM	31X 7835.11 A **	1.70	0.152	31.0	0.190	0.102	0.010	0.910	0.010	0.140	0.012	0.013	0.024	0.007	65.8	**provisional values			40 x 15	CC
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
4.1.2 Galvanising Alloys																		Size (mm)	Form		
	Pb	Mg	Al	Cd	Fe	Sn	Cu	Ni	Mn	Bi	Sb	Co	Sr				Ø x H				
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			
8.3 Lead with Impurities																		Size (mm)	Form		
	Sn	Ag	Zn	Cd	Al	Li	Na	Mg	Ca	Ba							Ø x H				
	83X PR9-1 A	0.054	0.003	0.0007	0.0004	0.0001	0.004	0.015	0.006	0.096	0.033	these are not CRMs						40 x 13	C		
	83X PR9-2 A	0.015	0.003	0.0002	0.0004	0.0001	0.002	0.007	0.002	0.046	0.015							40 x 13	C		

1. Iron Base

Irons

Updated: 10th January 2016

Blocks / Discs

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 **	3.17	2.21	0.041	1.51	1.000	1.51	0.035	0.046	0.035	0.40	0.050	0.035	** provisional values	40 x 15	CC								
CRM	11X HPC3 J	3.38	1.63	0.0473	2.01	1.287	1.48	0.120	.....	.....	2.18	.....	.....		40 x 15	CC								
CRM	11X HPC5 A	3.68	1.175	0.223	0.246	1.028	1.42	.....	.....	.....	.....	.....	.....		40 x 17	CC								
1.1.4 Spheroidal Graphite		C	Si	S	P	Mn	Ni	Cr	Cu	Al	Ti	Mg	As	Zn	Size (mm) Ø x H	Form								
CRM	11X SG1 A	3.53	2.96	0.0095	0.0363	0.278	0.042	0.0299	0.0194	0.0187	0.0150	0.040	0.0021	0.041	Note: Both these products contain free carbon	40 x 15	concast							
CRM	11X SG2 A	3.48	3.03	0.0075	0.0353	0.297	0.0263	0.0304	0.0245	0.0238	0.0146	0.055	0.0022	0.040		40 x 15	concast							
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	Size (mm) Ø x H	Form
CRM	11X C1 Q	2.82	1.40	0.0349	0.092	1.341	0.556	0.335	0.062	0.154	0.0248	0.069	0.196	0.1036	0.091	0.0407	.....	0.0105	0.055	0.0093	0.005	0.0051	** provisional values	
CRM	11X C2 U **	3.38	1.10	0.098	0.27	1.20	1.7	0.87	0.115	0.11	0.048	0.05	0.09	0.32	0.025	0.22	0.06	0.03	0.11	0.005	0.02	(0.001)	** provisional values	
CRM	11X C3 AB	3.408	0.849	0.201	0.451	0.447	3.20	2.02	0.216	0.295	0.209	0.0090	0.040	0.692	(0.19)	0.241	0.0520	0.098	0.245	0.0144	0.0193	0.0386		
CRM	11X C4 R	1.86	2.92	0.098	0.108	0.493	2.02	1.531	0.101	0.345	0.0102	0.040	0.080	0.0208	0.0373	0.0316	0.120	0.0050	0.015	0.0144	0.021	0.0083		
CRM	11X C5 W	2.52	2.09	0.096	0.080	0.846	1.595	1.111	0.471	1.80	0.0371	0.0484	0.054	0.089	0.0403	0.0558	0.0297	0.0199	0.0265	0.0108	0.005	0.019		continued
CRM	11X C7 P **	3.2	0.62	0.005	0.06	2.21	0.035	0.70	0.045	0.08	0.01	0.025	0.05	0.007	0.02	0.007	0.06	0.01	0.006	.....	.....	0.012	** provisional values	
CRM	11X C8 U	2.50	1.38	0.154	0.831	0.424	0.175	0.360	0.128	0.259	0.080	(0.10)	0.071	0.0452	0.031	0.081	0.013	0.077	0.0631	0.0164	0.0280	0.0051		
CRM	11X C9 D **	3.25	1.48	0.026	0.071	1.88	2.80	1.20	0.155	0.61	0.041	0.053	0.063	0.360	0.077	0.131	0.300	0.069	0.150	.....	.....	0.009	** provisional values	
CRM	11X C10 C	3.48	2.10	0.050	0.103	0.696	2.673	0.302	0.335	1.54	0.0458	0.104	0.0709	0.0589	.....	.....	0.327	0.0200	0.0095	.....	.....	.....
Continuation from above		Pb	B	Zr	Te	Ag	N	Size (mm) Ø x H	Form															
	11X C1 Q	0.0107	0.054	0.0072	.....	.....	0.0095		40 x 15	CC														
	11X C2 U **	0.02	0.022	.....	.....	.....	0.01	** provisional values	40 x 15	CC														
	11X C3 AB	0.022	0.0054	.....	.....	.....	0.0095		40 x 15	CC														
	11X C4 R	0.019	0.0086	0.0031	.....	0.008	0.0078		40 x 15	CC														
	11X C5 W	0.0295	0.011	0.0050	0.0010	.....	0.0171		40 x 15	CC														
	11X C7 P **	0.011	0.010	(0.003)	.....	.....	0.016	** provisional values	40 x 15	CC														
	11X C8 U	0.0057	0.0330	0.0040	0.0043	0.008	0.0032		40 x 15	CC														
	11X C9 D **	0.0052	0.0047	.....	0.010	.....	.....	** provisional values	40 x 15	CC														
	11X C10 C	0.0050	.....	.....	.....	.....	0.0096		40 x 15	CC														
1.1.8 Abrasion Resistant		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Al	Ti	V	Co	W	Nb	Pb	Size (mm) Ø x H	Form					
CRM	11X AR5 K **	3.21	1.70	0.022	0.039	0.540	5.15	8.95	0.151	0.051	0.125	0.061	0.054	0.35	0.075	0.027	0.003	** provisional values	40 x 15	CC				

1. Iron Base

Irons

Updated: 10th January 2016

Blocks / Discs

1.1.9 Corrosion Resistant																Size (mm)	Form		
		C	Si	S	P	Mn	Ni	Cr	Cu							Ø x H			
CRM	11X S/1 Cr3 J	2.91	1.07	0.023	0.072	0.861	14.53	1.61	9.01							40 x 15	CC		
CRM	11X S/1 Cr5 G	2.58	1.494	0.033	0.114	1.315	17.45	3.74	3.90							40 x 10	CC		
	11X S/2Cr1 E	2.83	2.85	0.011	0.31	1.68	16.5	2.48	0.02							40 x 15	CC		
	11X S/2Cr4 D	2.82	2.59	0.010	0.049	0.97	20.7	1.10	0.24							40 x 15	CC		
	11X S/3Cr1 D	2.61	2.52	0.011	0.046	0.70	31.7	0.15	0.19							40 x 15	CC		
	11X S/3Cr2 C	2.30	2.59	0.010	0.045	0.85	31.0	2.62	0.21							40 x 15	CC		
	11X S/3Cr3 B	2.49	2.44	0.050	0.053	0.66	29.4	4.06	0.23							40 x 15	CC		
																Size (mm)	Form		
		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Co	Sn	Al	Ti	V	Pb	Nb	Ø x H	
	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.																			
CRM	11X 0331.1 J**	2.82	2.48	0.14	0.069	1.65	12.43	0.60	0.121	7.56	0.112	0.045	0.122	0.110	....	0.034	0.150	40 x 13	CC
CRM	11X 0331.2 K**	2.65	2.32	0.135	0.050	1.26	14.25	1.02	0.065	6.40	0.163	0.022	0.195	0.150	0.016	0.021	0.110	40 X 13	CC
CRM	11X 0331.3 G	2.27	1.79	0.049	0.0339	0.613	17.23	2.014	0.0518	6.02	0.108	0.0127	(0.116)	0.085	0.029	0.0247	....	40 X 13	CC
CRM	11X 0331.5 C	2.73	2.93	0.217	0.164	0.893	14.52	0.582	0.117	7.74	....	0.121	0.018	....	....	0.0056	....	40 X 13	CC
1.1.11 With Chromium																Size (mm)	Form		
		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Sn	V	W	Co	Nb	Ti	Pb	Ø x H	
CRM	11X 15294 U	3.16	0.374	0.051	0.081	0.590	1.28	27.53	0.755	0.220	0.0633	0.144	0.35	0.237	....	....	0.014	40 x 15	CC
CRM	11X 15295 Q	2.430	1.032	0.081	0.078	1.126	0.331	25.64	0.486	0.259	0.0455	(0.169)	0.219	0.494	....	....	0.0093	40 x 15	CC
CRM	11X 15309 S**	3.06	1.39	0.085	0.041	1.51	0.93	23.25	0.250	0.515	....	0.058	0.015	0.032	0.021	0.016	....	40 x 15	CC
CRM	11X 15310 A	2.71	0.892	0.0278	0.051	1.45	5.66	21.22	0.980	2.64	....	0.071	0.137	0.0709	....	....	....	40 x 15	CC

1. Iron Base

Low Alloy Steels

Updated: 7th January 2016

Blocks / Discs

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	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 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 **	0.137	0.211	0.0057	0.0124	0.455	0.141	2.11	0.935	0.281	0.0190	0.0195	0.0031	0.0011	0.0092	0.0045	0.0129	** provisional values	40 x 15	W
CRM	12X 32550 A	0.257	1.59	0.0054	0.0061	1.350	1.750	0.377	0.417	0.108	0.0206	0.0178	0.0222	....	....	0.0054	....	....	0.0101	38 x 15	W
CRM	12X 41300 A	0.319	0.183	0.0156	0.0082	0.551	0.084	0.996	0.217	0.131	0.0060	0.027	....	....	....	0.0043	0.0012	....	0.0095	38 x 15	W
CRM	12X 41400 A	0.418	0.221	0.0210	0.0138	0.795	0.127	1.003	0.211	0.238	0.0181	0.0195	....	....	....	0.0088	....	....	0.0101	38 x 20	W
CRM	12X 41450 A **	0.447	0.261	0.0032	0.0094	1.01	0.187	1.195	0.343	0.131	0.0088	0.0217	0.0385	0.0052	0.0081	** provisional values	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 **	0.161	0.240	0.0071	0.0159	0.471	1.60	0.0349	0.241	0.0155	0.0012	0.0118	0.0019	0.0015	0.0066	0.0011	0.0084	** provisional values	45 x 15	W
CRM	12X 52986 A	1.023	0.246	0.0011	0.0049	0.372	0.0411	1.418	0.0169	0.077	0.0063	0.0258	0.0615	....	....	(0.002)	....	....	(0.002)	38 x 15	W
CRM	12X 61500 A	0.530	0.240	0.0102	0.0104	0.912	0.0976	1.023	0.0195	0.157	0.0114	(0.007)	0.110	....	....	0.0067	0.0055	....	....	38 x 15	W
CRM	12X 86200 A	0.198	0.299	0.0104	0.0110	0.849	0.598	0.602	0.224	0.213	0.0100	0.0305	0.0045	....	....	0.0051	....	....	0.0091	38 x 15	W
CRM	12X 93106 A	0.122	0.206	0.0103	0.0071	0.605	3.255	1.107	0.0879	0.199	0.0094	0.0246	0.0030	....	....	0.0050	....	....	0.0098	38 x 15	W
CRM	12X 24065 A	0.370	0.218	0.0044	0.0129	0.502	0.271	1.412	0.1716	0.216	0.0120	1.035	0.0040	....	0.0028	0.0074	0.0033	....	0.0076	40 x 15	W
CRM	12X 4330V A **	0.325	0.304	0.0029	0.0061	0.856	1.980	0.921	0.471	0.095	0.0075	0.0305	0.0505	0.0056	0.0078	** provisional values	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 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	0.200	0.0160	0.0071	0.454	3.96	1.12	0.213	0.193	0.0100	0.0038	0.0028	0.0010	0.0066	0.0087	** provisional values	45 x 15	W
CRM	12X 19MNV56 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. Iron Base

Stainless Steels

Updated: 10th December 2016

Blocks / Discs

1.3.2 Austenitic Stainless Steels																						Size (mm)	Form			
		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Sn	Al	Co	Nb	N	B	Ta	V	Sb	Ti	W	Zr	Ca	Ø x H		
CRM	13X 17001 B	0.114	0.34	0.016	0.080	1.73	6.05	14.89	0.12	0.037	0.030	0.01	0.15	0.76	0.040	0.008	....	....	....	....	....	....	....	....	40 x 15	C
	13X 17002 D	0.117	0.664	0.050	0.056	1.38	7.84	17.62	0.222	0.085	(0.0024)	(0.0046)	0.103	0.487	0.047	....	....	....	....	....	....	....	....	....	40 x 15	W
	13X 17003 A	0.10	0.78	0.035	0.037	0.85	11.90	11.89	0.27	0.08	....	....	0.07	0.34	....	....	....	....	....	....	....	....	....	....	40 x 15	C
	13X 17004 A	0.06	1.32	0.048	0.024	0.62	16.06	21.78	0.31	0.11	....	....	0.05	0.23	....	....	....	....	....	....	....	....	....	....	40 x 15	C
CRM	13X 17005 D	0.107	1.500	0.057	0.0209	0.349	20.84	24.72	0.699	0.1076	....	....	0.0510	0.191	0.064	0.0028	0.049	....	....	....	....	....	....	....	40 x 15	CC
CRM	13X 30300 A	0.041	0.424	0.312	0.0199	1.84	8.55	17.59	0.333	0.0252	....	....	0.0259	....	0.0350	0.0035	....	0.092	....	....	....	....	....	....	40 x 15	W
CRM	13X 30403 A	0.0201	0.284	0.0248	0.0297	1.488	7.92	18.25	0.192	0.217	....	....	0.101	(0.019)	0.081	....	....	0.113	....	....	0.018	....	....	....	40 x 15	W
CRM	13X 30908 A	0.0560	0.320	0.0011	0.0267	1.638	12.05	22.51	0.221	0.269	....	0.0035	0.120	0.0142	0.0652	0.0027	....	0.128	....	....	....	....	....	....	38 x 15	W
CRM	13X 32100 A	0.0463	0.498	0.0011	0.0298	1.52	9.32	17.39	0.282	0.415	0.0115	0.0247	0.105	0.0191	0.0115	0.0025	....	0.106	....	0.376	0.021	....	....	....	38 x 15	W
CRM	13X 34700 A	0.016	0.480	(0.0005)	0.0276	1.283	9.32	17.22	0.392	0.165	0.0053	0.025	0.132	0.329	0.0163	0.0007	....	0.123	....	....	0.144	....	....	....	38 x 15	W
CRM	13X 18001 B	0.207	0.203	0.0786	0.0090	0.463	6.13	15.92	0.816	0.149	....	0.0157	0.0231	0.612	0.0347	....	....	0.0996	....	....	....	....	....	....	40 x 15	W
CRM	13X 18002 D	0.159	0.352	0.0487	0.0245	0.722	7.92	17.77	0.209	0.116	....	0.0617	0.0514	1.531	0.072	....	....	0.0542	....	....	....	....	....	....	40 x 15	W
CRM	13X 18003 C	0.113	0.805	0.0245	0.0545	1.000	10.08	19.56	0.401	0.0433	....	0.0292	0.100	1.042	0.090	....	....	0.0750	....	....	....	....	....	....	40 x 15	W
CRM	13X 18004 B	0.099	1.21	0.0191	0.068	1.400	12.67	21.57	0.601	0.050	....	0.0111	0.211	0.749	0.061	....	....	0.161	....	....	....	....	....	....	40 x 15	W
CRM	13X 19001 B	0.055	1.20	0.0174	0.0151	0.460	5.10	15.07	1.51	0.202	....	....	0.025	0.032	0.070	....	(0.019)	0.083	....	....	....	....	....	....	40 x 15	W
CRM	13X 19003 C **	0.045	0.495	0.045	0.038	1.12	12.42	18.9	2.49	0.16	....	....	0.108	0.120	0.081	....	....	0.048	....	....	....	....	....	....	40 x 15	W
	13X 19004 B	0.066	0.36	0.014	0.069	1.96	17.9	22.8	3.62	0.022	....	....	....	0.18	....	....	....	....	....	....	....	....	....	....	40 x 15	C
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 V	0.069	0.661	0.0146	0.0281	0.833	9.27	18.54	2.309	0.070	....	0.072	0.1018	0.193	0.069	....	0.021	0.093	....	0.19	....	....	....	....	40 x 15	CC
CRM	13X 12535 BE **	0.225	1.41	0.060	0.040	0.345	14.80	16.84	4.07	0.130	0.019	0.195	0.147	....	0.030	0.0050	0.020	0.252	....	0.640	....	....	....	....	40 x 15	CC
CRM	13X 12536 S	0.149	0.865	0.136	0.052	0.406	12.07	15.30	2.54	0.065	0.018	0.049	0.298	....	0.062	0.0274	0.091	....	....	0.105	....	....	....	....	40 x 15	CC
CRM	13X 12537 T **	0.090	1.15	0.020	0.041	1.10	10.68	20.5	3.02	0.245	0.041	0.060	0.155	....	0.050	0.0030	0.018	0.092	....	0.275	....	....	....	....	40 x 15	CC
CRM	13X 31603 A	0.0242	0.332	0.0246	0.0284	1.78	10.17	16.83	1.98	0.322	0.0045	0.0098	0.0571	0.0078	0.080	0.0011	....	0.093	....	....	0.0444	....	....	....	40 x 15	W
CRM	13X 31603 B	0.0167	0.325	0.0210	0.0262	1.898	10.07	16.89	2.04	0.350	0.0057	0.009	0.133	0.0099	0.082	....	....	0.101	....	(0.001)	0.063	....	0.0022	....	32 x 20	W
CRM	13X 31635 A **	0.0255	0.485	0.0305	0.0350	1.810	10.77	16.95	2.09	0.402	....	0.0050	0.195	0.010	0.019	....	....	0.058	....	0.151	0.030	....	....	....	40 x 15	W
CRM	13X 12853 K	0.109	1.057	0.025	0.0216	0.838	12.09	17.15	2.73	0.587	....	....	0.285	....	....	0.0051	0.013	....	0.0203	0.0028	0.095	0.015	....	....	40 x 15	CC
CRM	13X 12854 L	0.053	1.308	0.0278	0.024	1.300	11.60	15.77	2.50	0.306	....	....	0.33	0.689	0.0550	0.0076	(0.06)	....	....	0.065	0.16	....	....	....	40 x 15	CC
CRM	13X 12855 M	0.182	1.10	0.0233	0.0240	1.162	10.80	17.13	2.86	0.446	....	....	0.226	....	....	0.0099	0.050	....	0.210	0.061	0.201	....	....	....	40 x 15	CC

** provisional values

1. Iron Base

Stainless Steels

Updated: 10th January 2016

Blocks / Discs

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 14933 R	0.008	0.05	0.014	0.023	0.17	16.8	0.022	3.83	<0.005	0.029	11.4	....	40 x 15	C										
CRM	13X 14934 Q	0.0254	0.502	0.0288	0.024	0.254	17.60	0.388	4.22	0.15	0.694	9.03	0.006	40 x 15	CC										
CRM	13X 14935 T	0.0105	0.441	0.055	0.036	0.494	18.96	0.745	5.61	(0.007)	0.106	7.17	0.0102	40 x 15	CC										
1.3.4 Ferritic & Martensitic Stainless Steels		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Sn	Al	Ti	V	As	Co	Nb	W	B	Sb	Pb	Ca	N	Size (mm) Ø x H	Form
CRM	13X 12547 M **	0.238	0.35	0.074	0.044	1.18	1.50	17.60	1.00	0.50	0.030	....	....	0.103	....	0.300	0.335	....	....	....	....	....	0.100	40 x 15	W
CRM	13X 12548 M	0.189	0.421	0.218	0.0260	0.576	1.08	12.98	1.33	0.228	....	....	....	....	....	0.352	0.585	0.033	....	0.022	....	....	0.0508	40 x 15	CC
CRM	13X 12549 L **	0.102	0.340	0.125	0.0052	0.352	1.20	12.00	1.29	0.492	....	....	....	0.0155	....	0.492	0.190	....	....	....	....	....	0.040	40 x 15	concast
		** provisional values																							
CRM	13X 14775 R	0.05	0.63	0.054	0.053	1.37	1.75	17.7	0.47	0.21	....	....	....	....	....	0.15	0.75	....	....	....	....	....	....	40 x 15	C
CRM	13X 15023 V	0.118	0.311	0.008	0.014	1.352	0.850	10.96	1.052	(0.052)	....	0.14	....	0.0252	....	0.0555	1.53	0.018	....	....	0.0104	....	0.0409	40 x 15	CC
CRM	13X 15024 X **	0.170	0.76	0.029	0.028	0.600	2.97	14.70	0.29	0.34	....	0.005	....	0.152	....	0.103	0.095	0.036	** provisional values			....	0.015	40 x 15	W
CRM	13X 15035 U	0.115	0.636	0.0456	0.0415	0.674	2.38	14.00	0.399	0.204	....	(0.093)	....	0.160	....	0.199	0.500	0.048	....	....	....	....	0.0584	40 x 15	CC
CRM	13X 15059 P	0.084	0.495	0.0133	0.0130	0.995	1.584	15.85	0.600	0.105	(0.02)	....	0.038	0.070	....	0.266	0.430	0.081	....	....	....	....	0.113	40 x 15	CC
CRM	13X 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 **	0.038	0.400	0.0105	0.0205	0.595	3.51	12.95	0.500	0.130	....	....	0.0011	0.089	....	0.100	0.041	....	** provisional values			....	0.051	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 42000 A	0.208	0.496	0.0253	0.0241	0.679	0.295	12.56	0.0398	0.202	0.0073	....	....	0.046	....	0.0161	....	....	0.0013	....	....	....	0.0273	38 x 15	W
CRM	13X 43100 A	0.166	0.535	0.0050	0.0199	0.378	2.10	16.39	0.0768	0.134	0.004	....	....	0.0577	....	0.0239	0.006	0.004	....	....	....	....	0.075	38 x 15	W
CRM	13X 44004 A	1.052	0.363	0.0178	0.0214	0.346	0.207	16.74	0.462	0.0548	....	0.0305	....	0.076	....	0.0188	....	0.030	....	....	....	....	0.0247	40 x 15	W
CRM	13X 8110L D	0.750	0.812	0.068	0.052	0.446	4.62	12.30	2.81	0.344	....	(0.071)	0.0108	0.211	0.074	0.31	....	....	0.989	....	....	....	0.0286	40 x 15	CC
1.3.5 Special Stainless Steels		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Al	Ti	V	W	Co	Nb	Ta	B	N	Size (mm) Ø x H	Form				
CRM	13X 12538 J	0.04	0.64	....	....	0.78	6.07	23.72	1.53	....	....	....	....	....	....	....	....	....	....	....	....	....	....	40 x 15	C
CRM	13X 12540 M	0.131	0.805	0.0512	0.051	0.800	4.975	27.44	0.993	0.181	....	....	0.210	0.097	0.109	0.107	....	....	0.054	....	....	....	....	40 x 15	CC
CRM	13X 14207 K	0.147	1.52	0.052	0.0213	0.901	12.60	19.83	0.299	0.248	....	....	....	3.18	0.033	0.245	(0.064)	....	0.097	....	....	....	....	40 x 15	CC
CRM	13X 14211 Q	0.064	1.64	0.0146	0.0157	0.766	12.55	25.70	0.325	0.161	(0.11)	0.220	....	3.24	0.071	0.161	....	....	....	....	....	....	....	40 x 15	CC
CRM	13X 14212 R	0.104	2.02	0.025	0.0290	1.29	8.79	20.86	0.570	1.184	0.12	0.15	0.134	2.01	0.252	0.980	....	....	0.156	....	....	....	....	40 x 15	CC
CRM	13X 14215 L **	0.137	0.59	0.007	0.005	1.10	15.8	23.0	0.005	0.012	....	....	0.048	3.04	0.007	0.02	....	....	....	** provisional values			....	40 x 15	concast
CRM	13X 14216 P **	0.0425	1.570	0.0070	0.0050	0.664	12.00	23.55	0.205	0.228	....	....	0.072	2.24	0.248	0.247	....	....	0.0155	** provisional values			....	40 x 15	concast
CRM	13X 14219 K **	0.102	1.51	0.046	0.040	0.475	12.55	21.6	0.170	0.135	....	....	0.020	4.18	0.050	0.14	....	....	....	** provisional values			....	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	....	....	0.0044	0.0040	....	....	UNS S66286	....	38 x 15	W
		** provisional values																							

1. Iron Base

Stainless Steels

Updated: 10th January 2016

Blocks / Discs

1.3.6 Precipitation Hardening Steels		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Ti	Al	V	Co	Nb	W	B	N	Size (mm) Ø x H	Form		
CRM	13X PH2 M **	0.060	0.500	0.042	0.020	1.185	3.57	16.88	1.01	4.04	0.048	0.041	0.103	0.094	0.143	....	0.0050	0.051	** provisional values	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 **	0.040	0.740	0.016	0.029	0.790	4.00	14.85	0.248	5.24	0.100	0.095	0.502	0.597	0.303	....	0.0035	0.078	** provisional values	40 x 15	W
CRM	13X PH7 F **	0.120	1.41	0.0057	0.028	1.49	5.40	13.05	2.53	0.765	0.020	0.011	0.045	0.049	0.245	....	....	0.044	** provisional values	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
1.3.7 High Nitrogen Stainless Steels		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Al	V	W	Co	Nb	B	N	Size (mm) Ø x H	Form			
CRM	13X NSA1 E	0.07	0.41	....	....	0.42	7.9(6)	20.3	2.47	....	....	....	....	....	....	....	0.040			40 x 15	C
CRM	13X NSA2 H	0.132	0.739	0.0278	0.0252	1.014	10.08	17.82	2.013	0.259	....	0.139	....	....	0.155	....	0.131			40 x 15	CC
	13X NSA3 J	0.16	0.57	....	....	1.07	12.0	16.1	2.8	....	....	....	....	....	....	....	0.20			40 x 15	W
CRM	13X NSA4 B **	0.115	0.517	0.010	0.030	5.55	17.7	23.75	4.4	0.60	0.003	....	....	....	0.165	....	0.46	** provisional values		40 x 15	CC
CRM	13X NSA5 A	0.063	0.281	0.0212	(0.010)	4.27	9.52	20.73	2.32	0.098	(0.012)	....	....	....	0.574	....	0.340			40 x 17	CC
CRM	13X NSA6 B	0.0467	0.64	0.0113	0.060	1.607	31.13	26.14	7.03	1.52	(0.08)	....	....	....	0.149	....	0.245			40 x 15	CC
CRM	13X NSA7 A	0.0209	0.359	0.0009	0.022	0.951	5.67	25.91	3.25	1.42	(0.009)	....	....	....	0.015	....	0.247	UNS S32550		42 x 15	W
CRM	13X NSA8 A	0.0240	(0.40)	0.0008	0.0216	0.656	6.29	25.93	3.60	0.903	....	0.060	0.586	0.0374	(0.004)	....	0.239	UNS S32760		44 x 15	W
CRM	13X NSA9 A	0.019	0.469	(0.0007)	0.0248	1.592	5.44	22.57	3.11	0.240	....	0.068	0.024	0.072	0.012	....	0.156	UNS S31803		40 x 15	W
CRM	13X NSA10 A	0.016	0.375	0.0006	0.0207	5.23	12.96	20.69	2.636	0.175	....	0.151	0.061	0.142	(0.0029)	....	0.343	UNS S20910		38 x 15	W
CRM	13X NSA11 A	0.0159	0.275	<0.001	0.0186	0.640	23.89	20.19	6.16	0.187	(0.02)	0.0513	0.038	0.0981	0.150	....	0.203	UNS N08367		38 x 15	W
CRM	13X NSA12 A	0.0192	0.492	0.0007	0.0267	1.272	24.84	19.63	4.20	1.485	0.0169	0.0660	0.047	0.090	0.0088	0.0020	0.0662	UNS N08904		40 x 15	W	
CRM	13X 21800 A	0.0765	4.03	0.0011	0.032	8.00	8.32	16.81	0.325	0.431	0.012	0.0619	....	0.0943	0.007	(0.001)	0.125	Nitronic 60/UNS S21800		38 x 15	W
CRM	13X 31254 A	0.0185	0.400	0.0011	0.0191	0.590	18.34	20.11	6.13	0.575	0.0134	0.0595	0.017	0.125	....	0.0025	0.205	254SMO/UNS S31254		40 x 15	W
CRM	13X 31726 A **	0.012	0.41	0.001	0.021	1.86	13.45	17.7	4.55	0.205	0.022	0.044	0.038	0.050	0.010	0.140	** provisional values	317LMN/UNS S31726		40 x 15	W
CRM	13X 32101 A	0.0325	0.777	(0.0004)	0.0194	4.913	1.476	21.12	0.0970	0.295	0.0122	0.0830	....	0.0347	0.0070	0.0014	0.241	UNS S32101		38 x 15	W
CRM	13X 32900 A	0.0251	0.556	0.0269	0.0276	1.478	5.57	24.91	1.310	0.354	0.007	0.0938	0.017	0.0724	....	0.0028	0.097	UNS S32900		40 x 15	W
	13X NSB1 D	0.17	0.58	....	....	0.44	10.0	19.1	0.11	....	....	....	....	....	....	....	0.04			40 x 15	W
	13X NSB2 D	0.06	0.66	....	....	0.62	11.1	18.2	0.21	....	....	....	....	....	....	....	0.095			40 x 15	W
CRM	13X NSB3 G	0.121	0.471	....	....	0.632	9.26	15.22	0.630	....	....	....	....	....	....	....	0.198			42 x 15	W
CRM	13X NSC1 P	0.316	0.788	0.0097	....	6.53	5.06	18.76	0.196	0.391	....	0.501	0.100	....	1.499	....	0.0877			40 x 15	CC
CRM	13X NSC2 P	0.560	0.997	0.0117	....	8.70	4.20	21.98	0.850	1.026	....	0.321	0.062	....	2.21	....	0.341			40 x 15	CC
CRM	13X NSC3 Z **	0.89	1.25	0.011	....	10.3	2.90	22.9	0.065	0.10	0.12	0.115	....	....	2.9	....	0.53	** provisional values		40 x 15	CC
CRM	13X NSC4 F **	0.525	1.52	0.007	....	8.0	7.1	32.5	1.35	0.16	0.12	0.22	0.21	0.22	2.40	....	0.955	** provisional values		40 x 15	CC
CRM	13X NSC5 B	0.558	1.19	0.0155	....	2.22	4.34	22.10	(0.01)	0.787	0.21	0.0461	....	....	2.38	....	0.296			40 x 15	CC
CRM	13X NSC6 A	0.0266	0.523	0.0055	0.0049	8.85	6.52	20.47	(0.002)	0.0064	(0.009)	0.0052	....	....	....	....	0.235			40 x 13	HIP
CRM	13X NSC7 A	0.410	0.803	0.0091	0.0155	3.80	7.41	23.63	0.448	0.144	(0.1)	0.123	0.052	0.308	0.509	....	0.337			40 x 15	CC

1. Iron Base

Special Steels

Updated: 10th January 2016

Blocks / Discs

1.4.2 Tool Steels		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Sn	Al	V	W	As	Co	Nb	N	Pb	Alloy Type	Size (mm) Ø x H	Form
CRM	14X HS1 C	0.718	0.22	0.020	0.018	0.29	0.27	4.00	0.37	0.069	(0.035)	1.05	17.0	0.25	0.023	T-1	40 x 15	W
CRM	14X HS3 L	0.855	0.348	0.046	0.035	0.624	0.706	5.25	1.24	0.200	0.288	1.79	17.93	0.044	10.64	0.087	0.040	T-5/6	40 x 17	EG
CRM	14X HS9 A	2.14	0.406	0.0126	0.0222	0.259	0.239	12.40	1.11	0.039	(0.022)	4.06	0.011	0.037	(0.011)	0.032	D-7	42 x 15	HIP
CRM	14X HS10 A	1.710	0.660	0.0099	0.0135	0.134	0.146	14.83	1.679	0.0605	1.142	1.75	0.0866	(0.001)	48 x 13	HIP
CRM	14X HS11 A	1.739	0.794	0.0107	0.0133	0.237	0.188	19.34	1.52	0.0562	1.032	2.24	0.074	(0.002)	48 x 13	HIP
CRM	14X 72305 A	1.085	0.206	0.0028	0.0128	0.349	0.089	0.425	0.0231	0.149	0.0101	0.0049	0.0045	0.0068	W-5	40 x 15	W
	14X 14946 D	0.85	0.46	0.048	0.051	0.53	1.06	5.06	0.21	0.25	1.03	16.9(7)	0.44	T-1	40 x 15	C
1.4.5 High Manganese Steels		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Sn	Al	V	Nb	Ti	Ta	N	Size (mm) Ø x H	Form			
CRM	14X MN1 AJ	0.479	0.528	0.0042	0.0229	19.46	0.352	1.434	0.510	0.0603	0.0050	0.205	0.0191	0.149	0.067	0.012	0.048	40 x 15	CC			
CRM	14X MN2 R	0.701	1.48	0.0098	0.0198	9.65	0.530	0.355	1.546	0.081	0.061	0.120	0.121	0.294	0.179	....	0.0125	40 x 15	CC		
CRM	14X MN3 S	0.958	1.05	0.017	0.049	11.44	1.044	0.643	0.307	0.229	0.0210	(0.17)	0.0481	0.251	0.350	....	0.0211	40 x 15	CC		
CRM	14X MN4 AB	1.15	1.07	0.0265	0.0385	12.70	1.001	2.041	0.772	0.232	0.0134	(0.008)	0.0294	0.102	0.0103	0.0178	0.0388	40 x 15	CC			
CRM	14X MN5 T	1.377	1.59	0.0110	0.0270	8.55	1.372	3.31	1.91	0.421	0.0129	(0.26)	0.0397	0.021	(1.00)	0.005	0.0155	40 x 15	CC			
1.4.8 Free Machining & Resulfurised Steels		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Sn	Al	V	Co	As	Pb	N	Size (mm) Ø x H	Form			
CRM	14X MSFM1 L **	0.14	0.41	0.41	0.07	1.15	0.16	0.90	0.27	0.11	0.030	0.085	0.017	0.053	0.028	** provisional values	40 x 15	CC		
CRM	14X MSFM2 K **	0.27	0.35	0.25	0.05	1.60	0.22	0.97	0.35	0.16	0.025	0.12	0.035	0.102	0.030	** provisional values	40 x 15	CC		
CRM	14X MSFM3 G **	0.45	0.30	0.15	0.03	1.85	0.17	0.46	0.38	0.21	0.038	0.16	0.020	0.05	0.022	** provisional values	40 x 15	CC		
CRM	14X MSFM4 A	0.226	0.469	0.224	0.0386	1.141	6.22	1.69	0.974	0.429	0.0141	(0.007)	0.0151	0.0253	....	....	0.0220	40 x 15	CC	
CRM	14X 11170 A	0.154	0.151	0.120	0.0133	1.129	0.0877	0.1126	0.0317	0.1101	0.0110	0.0023	....	....	0.0044	0.0011	0.0112	38 x 15	W	
CRM	14X 11390 A	0.419	0.198	0.191	0.0342	1.040	0.0239	0.0609	0.0067	0.0395	0.0022	0.0026	....	....	0.0028	....	0.0042	38 x 15	W
CRM	14X 12144 A	0.0800	0.0093	0.325	0.0630	1.227	0.0162	0.0807	0.0089	0.0106	....	0.0034	....	....	0.0022	0.328	0.0066	38 x 15	W
CRM	14X 12130 A	0.0871	0.022	0.305	0.061	1.219	0.0345	0.0505	0.0102	0.0201	0.0054	0.0024	....	....	0.0016	....	0.0097	38 x 15	W
CRM	14X 606M36T A	0.378	0.167	0.196	0.0159	1.574	0.0931	0.163	0.272	0.179	0.0103	0.0071	....	....	0.0085	....	0.0096	38 x 15	W
1.4.11 High-Ni Calibration Series		C	Si	S	P	Mn	Ni	Cr	Mo	Cu	Al	Co	Ti	Mg	N	Size (mm) Ø x H	Form					
CRM	14X FeNi6 A **	0.101	0.075	0.028	0.015	0.330	6.07	0.072	....	0.027	0.025	....	....	....	0.0055	** provisional values	40 x 15	W	
CRM	14X FeNi 8 A **	0.097	0.099	0.028	0.015	0.331	8.10	0.250	....	0.029	0.030	....	....	....	0.0065	** provisional values	40 x 15	W	
CRM	14X FeNi10 A **	0.095	0.061	0.028	0.015	0.272	10.10	0.070	....	0.027	0.025	....	....	....	0.0053	** provisional values	40 x 15	W	
CRM	14X FeNi20 B	0.0137	1.12	0.0089	0.010	0.0284	20.06	0.102	....	0.074	0.018	0.994	....	....	....	....	40 x 15	CC	
CRM	14X FeNi25 B	0.0084	0.019	0.58	0.011	0.0121	25.10	0.0334	....	0.035	0.103	0.746	....	....	....	....	40 x 15	CC	
CRM	14X FeNi35 C	0.082	0.309	0.140	0.030	0.174	34.52	0.1006	....	0.355	0.004	0.343	....	....	....	....	40 x 15	CC	
CRM	14X FeNi40 B	0.0450	0.030	(1.09)	0.0185	0.081	40.57	0.0446	....	0.0517	1.18	0.858	....	....	....	....	40 x 15	CC	
CRM	14X FeNi45 B	0.0045	0.567	0.038	0.0416	0.0149	45.20	0.048	....	0.078	0.552	0.654	....	....	....	....	40 x 15	CC	
CRM	14X FeNi50 B	0.0488	0.203	0.243	0.0259	0.115	50.09	0.093	....	0.105	0.052	0.499	....	....	....	....	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 **	0.0054	0.105	0.0025	0.0049	0.441	41.1	0.0259	0.0051	0.0628	....	0.0200	0.0012	0.0021	0.0016	** provisional values	UNS K94100	40 x 15	W		

2. Nickel Base

Updated: 20th December 2015

Blocks / Discs

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

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

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

CRM																Size (mm)		Form
	C	Si	Mn	Cu	Fe	Cr	Mo	Co	Ti	Al	Mg	S	P	B	Ø	x	H	
22X 1051 D	0.166	0.58	0.206	0.115	0.575	15.95	4.50	18.98	1.078	4.35	0.0186	0.0015	0.0040	0.0009	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)											Size (mm)		Form	
	C	Si	Mn	Cu	Cr	Mo	Co	Ti	Al	Ni	Ø	x	H	
23X 8004 E	0.06	0.53	0.70	0.30	19.72	0.33	0.53	0.34	0.31	31.8	40	x	15	c

2. Nickel Base

Updated: 20th December 2015

Blocks / Discs

2.3 Fe/Ni/Cr (Incoloy Type) continued											Size (mm)		Form								
	C	Si	Mn	Cu	Cr	Mo	Co	Ti	Al	Ni	Ø x H										
23X DS2 E	0.06	2.07	1.00	0.30	17.81	0.30	0.48	0.17	0.04	37.4	40 x 15		C								
23X DS4 E	0.06	2.01	1.02	0.30	16.83	0.29	0.48	0.20	0.037	37.15	40 x 15		C								
23X DS5 E	0.080	1.98	1.04	0.30	18.64	0.30	0.50	0.17	0.083	36.57	40 x 15		C								
2.4 Ni/Cr/Co/Mo											Size (mm)		Form								
	Si	Mn	Cu	Fe	Cr	Mo	Co	Ti	Al		Ø x H										
24X 14939 E	0.42	0.63	0.52	0.57	21.0	6.62	19.58	1.88	0.76		40 x 15		C								
2.4.1 Waspalloy, 720-types											Size (mm)		Form								
	C	Si	Mn	Cu	Fe	Cr	Mo	Co	Ti	Al	S	P	Ni	B	W	Zr	Nb	N	Ø x H		
CRM 24X 07001 B	0.0357	0.064	0.0311	0.0115	0.997	19.52	4.29	13.31	3.01	1.384	(0.0007)	0.0033	57.2	0.0060	0.0563	0.0314	32 x 20		W
CRM 24X 7201 A	0.0326	0.039	0.0022	0.09	15.99	3.01	14.79	5.11	2.47	0.0027	0.0030	57.09	0.0246	1.29	0.0432	0.0043	40 x 13		HIP
2.5 Ni/Cr/Nb/Mo											Size (mm)		Form								
	Si	Mn	Cu	Fe	Cr	Mo	Co	W	Nb		Ø x H										
25X 10221 F	0.45	0.28	0.11	0.62	20.0	6.57	0.26	2.23	7.43		40 x 15		C								
25X 10235 E	0.56	0.53	0.26	1.26	19.87	5.85	0.53	3.14	7.25		40 x 15		C								
2.6 Ni/Cr/Mo											Size (mm)		Form								
	Si	Mn	Cu	Fe	Cr	Mo	Co	Ti	Al		Ø x H										
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											Size (mm)		Form								
	Si	Mn	Cu	Fe	Cr	Mo	Co	Ti	Al		Ø x H										
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. Nickel Base

Updated: 10th January 2016

Blocks / Discs

2.8 Ni/Cr/Fe (Inconel Type)																		Size (mm)	Form			
		C	Si	Mn	Cu	Fe	Cr	Mo	Co	Ti	Al	Mg	S	P	Nb	Ta	B	Ni	N	Ø x H		
	28X 6001 G	....	0.95	0.12	0.83	6.33	16.38	....	1.02	0.58	0.02	0.01	....	....	....	....	....	....	....	....	40 x 15	C
	28X 6002 F	....	0.25	0.65	0.02	8.24	16.23	....	0.22	0.12	0.18	0.004	....	....	....	....	....	....	....	....	40 x 15	C
	28X 6003 E	....	0.74	0.47	0.42	7.1	15.56	....	0.62	0.22	0.025	0.01	....	....	....	....	....	....	....	....	40 x 15	C
	28X 6004 E	....	0.65	0.38	0.42	7.17	16.21	....	0.77	0.27	0.05	0.008	....	....	....	....	....	....	....	....	40 x 15	C
	28X 6005 E	....	0.60	0.39	0.39	6.98	16.93	....	0.62	0.28	0.06	0.002	....	....	....	....	....	....	....	....	40 x 15	C
	28X X7504 D	0.03	0.39	1.09	0.22	6.42	14.22	0.46	....	2.59	0.70	....	....	....	0.95	....	....	....	....	....	40 x 15	C
CRM	28X 6251 M **	0.002	0.25	0.070	0.060	4.20	20.2	9.7	0.007	0.01	0.008	....	0.001	0.002	2.55	0.01	0.004	[bal]	....	** provisional values	40 x 15	concast
CRM	28X 6252 N	0.093	0.605	0.323	0.161	4.51	21.48	9.01	0.215	0.072	(0.06)	....	0.0145	0.0106	3.60	0.017	....	60.00	0.0796		40 x 15	CC
CRM	28X 6253 R	0.129	1.15	0.498	0.298	5.52	21.96	8.98	0.420	(0.08)	(0.13)	....	0.0143	0.0211	4.31	0.041	....	56.25	0.083		40 x 15	CC
CRM	28X 6254 M	0.047	(0.79)	0.457	0.044	3.33	22.71	8.92	0.195	(0.15)	(0.01)	....	0.0160	0.0097	3.60	....	0.005	59.55	0.0364		40 x 15	CC
CRM	28X 6255 M **	0.034	0.45	0.204	0.064	2.05	19.7	8.4	0.17	0.35	0.34	....	0.008	0.011	4.00	0.09	0.009	[bal]	....	** provisional values	40 x 15	concast
CRM	28X 6256 A	0.0173	0.041	0.0004	0.018	(0.034)	21.29	8.81	....	0.266	0.301	....	(0.002)	0.0033	3.75	....	....	65.4	0.007		40 x 13	HIP
CRM	28X 06625 A	0.020	0.273	0.090	0.0288	0.917	21.94	9.15	0.031	0.238	0.184	....	0.0037	(0.002)	3.52	....	0.0009	63.49	0.0219		40 x 15	W
CRM	28X 7181 J	0.0198	0.811	0.150	0.042	18.98	18.42	3.25	(0.014)	0.125	0.070	....	0.0089	0.0146	4.88	....	0.0021	53.10	0.038		40 x 15	CC
CRM	28X 7182 N	0.0840	0.706	0.417	0.125	18.04	19.22	2.59	0.515	0.691	(0.31)	....	0.0125	0.0110	4.54	0.025	0.0042	52.6	0.064		40 x 15	CC
CRM	28X 7183 U	0.104	0.903	0.534	0.321	15.48	18.38	3.66	0.986	0.959	0.499	....	0.0217	0.0213	5.66	....	0.0114	(52.3)	0.0420		40 x 15	CC
CRM	28X 7184 K	0.085	0.403	0.215	0.123	18.22	16.91	3.07	0.44	0.633	0.620	....	0.0158	0.0103	5.07	0.077	0.0052	54.16	0.084		40 x 15	CC
CRM	28X 7185 K	0.060	0.882	0.286	0.203	18.44	20.77	2.71	0.220	0.281	0.359	....	0.0089	0.0189	4.61	0.115	0.0107	50.67	0.172		40 x 15	CC
CRM	28X 7186 J	0.043	0.358	0.398	0.190	16.51	16.13	3.24	0.579	1.04	0.70	....	0.0264	0.020	5.75	....	0.0097	55.06	0.064		40 x 15	CC
CRM	28X 07718 A	0.026	0.076	0.055	0.038	19.55	18.62	3.01	0.172	0.945	0.544	....	0.0015	0.0063	5.05	....	0.0034	51.99	0.0056		38 x 15	W
2.10 Ni/Co/Cr/Al/Ti																		Size (mm)	Form			
		C	Si	Mn	Cu	Fe	Cr	Mo	Co	Ti	Al	Zr	V							Ø x H		
	210X 11979 G	0.025	0.30	0.13	0.07	0.56	8.07	3.28	14.32	5.22	3.76	0.04	0.82							40 x 15	C	

2. Nickel Base

Updated: 10th January 2016

Blocks / Discs

2.12 Ni/Cu (Monel Type)		C	Si	Mn	Cu	Fe	Cr	Mo	Co	Ti	Al	Mg	S	P	Nb	Pb	Sn	Zn	Cd	Be	Bi	Se	Ni	Size (mm) Ø x H	Form
CRM	212X 4001 P	0.0130	1.48	2.95	28.92	0.503	0.0795	....	0.111	(0.094)	0.0396	0.0016	0.0206	0.0198	0.100	0.0703	0.053	....	....	....	....	....	65.49	40 x 15	CC
CRM	212X 4002 L	0.0369	0.090	1.68	32.41	1.022	0.084	....	0.064	0.0421	0.081	0.0222	0.0019	....	0.0318	0.0373	....	....	....	....	....	....	64.33	40 x 15	CC
CRM	212X 4003 K	0.036	0.245	1.105	30.13	2.63	0.097	0.0317	0.0286	0.0201	0.010	0.050	0.0257	0.0059	0.150	0.053	....	....	....	....	....	....	(65.3)	40 x 15	CC
CRM	212X 4004 M	0.081	0.557	0.953	29.0	3.68	0.822	0.197	0.0758	0.652	0.71	....	0.0110	0.0400	0.949	0.0206	0.0596	....	0.0010	....	....	....	62.1	40 x 15	CC
CRM	212X 4005 F	0.0529	2.55	1.784	21.53	1.503	0.152	0.094	0.170	0.792	1.29	0.0168	0.0193	0.016	0.30	0.0212	....	....	....	....	....	....	(69.6)	40 x 15	CC
CRM	212X 4006 H	0.065	3.94	0.907	24.56	2.29	0.123	....	0.0327	1.507	3.99	0.041	0.0256	....	0.497	0.0310	0.0290	0.0708	....	....	....	....	61.96	40 x 15	CC
CRM	212X 4007 A	0.0219	2.19	0.955	29.39	4.89	....	....	....	....	....	....	0.0063	0.015	2.30	0.022	0.0207	0.0183	0.0125	0.0040	0.0490	0.023	63.05	sold out	CC
		C	Si	Mn	Cu	Fe	Cr	Mo	Co	Ti	Al	Mg	S	P	Nb	Zr	Pb	B	N	Ni	Size (mm) Ø x H	Form			
CRM	212X NA2 G	0.07	2.50	1.06	29.8	1.53	....	....	....	....	....	0.008	0.023	0.019	....	....	0.02	....	....	....	....	....	....	40 x 15	C
CRM	212X NA4 A	0.098	3.83	1.082	29.34	2.26	0.120	0.026	0.046	0.037	0.012	0.0014	0.004	0.0053	(0.51)	....	0.018	....	....	....	....	....	62.8	40 x 13	CC
CRM	212X 04400 A	0.157	0.253	1.027	32.47	2.065	0.166	0.0307	0.0432	0.0193	0.030	0.053	(0.002)	0.0033	....	....	....	0.0019	0.0005	....	....	....	63.69	40 x 15	W
CRM	212X 05500 A	0.135	0.167	0.634	29.91	1.162	0.073	....	(0.009)	0.632	3.00	0.0098	0.0010	0.0031	....	0.0343	....	0.0015	0.0010	....	....	....	64.3	38 x 15	W
2.15 Ni/Co/Cr/Fe/Mo (Hastelloy Type)		C	Si	Mn	Cu	Fe	Cr	Mo	Co	Ti	Al	S	P	B	Nb	V	W	Mg	Zr	N	Ni	Size (mm) Ø x H	Form		
CRM	215X HB1 P	0.0422	0.150	0.697	0.0718	5.78	1.090	33.04	0.252	....	....	0.0506	0.0056	....	0.203	0.504	....	....	....	0.0156	58.00	....	....	40 x 15	CC
CRM	215X HB2 G	0.049	0.390	0.800	0.0526	4.20	0.689	31.84	0.584	0.13	0.19	0.0196	0.0084	....	0.248	0.480	....	....	....	0.0108	60.2	....	....	40 x 15	CC
CRM	215X HB3 H	0.069	0.799	0.61	0.134	6.32	2.35	27.17	1.03	0.21	0.23	0.0156	0.0197	....	0.699	0.287	....	....	....	0.0271	(60.1)	....	....	40 x 15	CC
CRM	215X HB4 F	0.079	1.02	0.666	(0.024)	7.02	0.414	27.59	1.71	....	....	0.013	0.036	....	....	0.115	(0.028)	....	....	0.0028	61.24	Sold out	....	40 x 15	CC
CRM	215X HB5 L	0.151	1.05	0.335	0.268	3.45	0.123	26.1	2.49	0.192	0.49	0.0113	0.038	0.003	....	0.136	....	....	....	0.006	65.3	....	....	40 x 15	CC
CRM	215X HC1 L	0.045	(0.20)	1.19	0.046	2.60	15.42	20.94	2.60	0.264	0.72	0.0086	0.007	....	....	0.090	2.66	....	....	0.059	....	....	....	40 x 15	CC
CRM	215X HC2 J	0.090	0.79	1.036	....	4.02	16.19	19.28	1.72	(0.078)	(0.01)	0.024	0.012	(0.006)	....	0.362	3.92	....	....	0.092	52.09	Sold out	....	40 x 15	CC
CRM	215X HC3 L	0.102	1.21	0.698	0.254	5.02	17.48	18.00	0.903	0.087	0.048	0.0245	0.0102	0.0093	....	0.404	4.42	....	....	0.063	....	....	....	40 x 15	CC
CRM	215X HC4 K	0.151	0.76	0.550	0.466	5.80	17.92	17.39	0.667	(0.094)	0.074	0.0246	0.029	....	....	0.492	4.93	....	....	0.0605	50.8	....	....	40 x 15	CC
CRM	215X HC5 U	0.132	1.08	0.290	0.486	6.43	19.00	16.52	0.204	0.0416	(0.15)	0.022	0.029	0.0048	....	0.590	5.45	....	....	0.082	....	Sold out	....	40 x 15	CC
CRM	215X HC6 A	0.005	(0.048)	0.099	....	5.00	15.67	16.14	1.16	0.003	0.066	0.0021	....	....	....	0.012	3.22	....	....	0.0034	58.45	....	....	40 x 13	HIP
CRM	215X 10276 A	0.008	0.029	0.498	0.0423	5.79	15.56	15.96	0.182	0.0186	0.203	(0.001)	0.0027	....	0.031	0.196	3.59	0.0090	0.009	0.0099	57.81	....	....	38 x 15	W
2.19 Various Nickel Alloys		C	Si	Mn	Cu	Fe	Cr	Mo	Co	Ti	Al	S	P	Ta	V	W	Nb	Zr	B	Mg	Ni	N	Size (mm) Ø x H	Form	
CRM	219X 20500 C **	0.022	1.25	0.30	0.008	1.52	51.0	0.005	0.010	....	....	0.014	0.005	....	....	0.01	0.01	....	....	....	[bal]	0.200	....	40 x 15	CC
CRM	219X 1867 D	0.092	0.187	0.131	0.308	0.244	7.78	6.00	9.80	1.355	6.05	0.0055	0.0054	4.05	....	0.066	0.052	0.273	0.0152	....	63.81	....	....	40 x 15	CC
CRM	219X 08825 A	0.015	0.232	0.499	1.87	31.82	21.94	3.01	0.0646	1.192	0.149	(0.001)	0.0189	....	0.038	....	(0.007)	0.0021	0.0028	(0.003)	39.12	....	....	40 x 15	W
CRM	219X 20004 A	0.224	0.916	14.07	0.319	9.48	13.63	0.104	(0.104)	0.52	....	0.0028	0.0147	0.077	....	....	1.53	....	....	....	59.1	....	....	40 x 15	CC
CRM	219X 86182 A	0.148	0.807	7.68	0.150	7.88	15.88	0.078	0.047	0.421	....	0.0034	0.0098	0.031	....	....	2.17	....	....	....	64.7	....	....	40 x 15	CC

** provisional values

3. Copper Base

Updated: 10th January 2016

Blocks / Discs

3.1 Brass - Cu/Zn Binaries		Sn	Pb	Zn	Fe	Ni	Al	Si	As	Mn	Bi	Sb	Cr	Co	P	Se	S	B	Cd	Cu	Size (mm)	Form	
																					Ø x H		
CRM	31X B1 P	0.0196	0.0126	44.04	0.0319	0.0078	0.015	0.006	0.0047	0.0141	0.0102	0.0073	0.0020	....	0.0176	....	....	0.0017	0.0013	55.75	40 x 15	CC
CRM	31X B2 M	0.0113	0.0103	39.50	0.0146	0.0121	(0.001)	0.0047	0.0049	0.0147	0.0105	0.0111	....	0.0032	0.0121	....	....	0.0008	0.0029	60.42	40 x 15	CC
CRM	31X B3 L	0.0149	0.0194	34.95	0.0541	0.0431	0.287	0.0126	0.0144	0.0072	0.0098	0.0159	0.0022	0.0212	....	....	....	0.0021	0.0108	64.57	40 x 15	CC
CRM	31X B4 M	0.053	0.045	28.97	0.111	0.0649	0.0011	(0.002)	0.0516	0.0011	0.0103	0.0118	0.0038	0.0263	0.0302	....	0.0114	....	0.0236	70.60	40 x 15	CC
CRM	31X B5 K	0.045	0.021	23.60	0.056	0.0085	(0.001)	(0.001)	0.0054	0.0006	0.0061	0.0057	0.0002	0.0062	....	....	....	0.0002	0.00050	76.22	40 x 15	CC
CRM	31X B6 K	0.0029	0.0122	19.93	0.0097	0.0066	0.0010	0.015	0.0009	0.0039	0.0010	0.0011	<0.0005	0.0063	....	....	....	0.0023	0.0037	79.90	40 x 15	CC
CRM	31X B7 L **	0.093	0.041	15.2	0.095	0.035	0.05	0.01	0.005	0.008	0.060	0.015	0.005	0.001	0.003	(bal)	** provisional values	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 L	0.0245	0.0549	3.83	0.0168	0.0129	(0.0005)	0.0036	0.0053	0.0017	0.0068	0.0075	....	....	....	0.0029	....	(0.0003)	....	96.05	40 x 17	CC
3.1.1 Alloyed Brass		Sn	Pb	Zn	Fe	Ni	Al	Si	As	Mn	Bi	Sb	P	S	B	Co	Cr	Cd	Ag	Cu	Size (mm)	Form	
																					Ø x H		
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 **	0.011	1.01	39.1	0.021	0.0215	0.0193	0.0185	0.0205	0.0205	0.019	0.0205	0.021	0.0015	0.016	0.026	0.015	(bal)	** provisional values	40 x 15	CC
CRM	31X B19 Q	0.0278	2.43	39.08	0.0143	0.0141	0.053	0.0248	0.0092	0.0150	0.0115	0.0095	0.047	(0.002)	....	....	....	....	....	58.23	40 x 15	CC
CRM	31X B20 N	0.0244	4.43	37.03	0.024	0.021	0.0025	(0.005)	0.0028	0.0005	0.0025	0.0039	0.0230	(0.004)	....	....	....	....	....	58.53	42 x 17	CC
CRM	31X B21 E **	0.100	0.115	29.60	0.1255	0.118	0.0245	0.0598	0.0911	0.0601	0.104	0.1035	0.126	0.002	69.30	** provisional values	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	42 x 17	CC
CRM	31X B26 F **	1.46	0.92	30.1	0.650	1.40	1.000	0.251	0.126	0.408	0.107	0.099	0.059	0.120	0.0150	0.055	63.0	** provisional values	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	42 x 18	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)	Form		
																					Ø x H		
CRM	31X TB1 K **	0.135	0.205	35.5	0.19	0.065	0.51	0.08	0.11	0.28	0.04	0.105	....	0.05	0.012	0.0006	....	0.052	(bal)	** provisional values	40 x 15	CC
CRM	31X TB2 H	0.106	0.0982	36.47	0.087	0.111	0.0876	0.031	0.111	0.204	0.0404	0.0533	0.0112	0.0864	0.0014	0.0014	....	....	....	62.54	40 x 15	CC
CRM	31X TB3 K	0.089	0.169	37.92	0.0282	0.0637	0.0045	0.016	0.0454	0.0244	0.0030	0.0222	....	....	0.0043	(0.0005)	....	....	....	61.58	40 x 17	CC
CRM	31X TB4 G **	0.0200	0.0243	33.65	0.0340	0.0131	0.0042	0.0203	0.0106	0.0013	0.0057	0.009	0.0066	0.0032	<0.0005	0.0033	66.05	** provisional values	40 x 15	CC
CRM	31X TB5 A	0.107	0.576	40.63	0.178	0.079	0.0458	0.122	0.349	0.445	0.314	0.174	(0.20)	0.0229	0.501	....	....	0.213	....	55.84	40 x 15	CC

3. Copper Base

Updated: 10th January 2016

Blocks / Discs

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

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

3.1.6 Bismuth Brass		Bi	Sn	Pb	Zn	Fe	Ni	Al	Si	As	Mn	Co	Sb	P	S	Se	Cd	B	Cu	Size (mm) Form Ø x H
CRM	31X BIB1 D	1.87	0.463	0.157	37.20	0.053	0.255	0.124	0.169	0.0303	0.0273	....	0.0106	0.0451	(0.001)	0.0031	0.0100	....	59.57	40 x 15 CC
CRM	31X BIB2 D	0.998	1.177	0.151	33.43	0.228	0.467	0.403	0.148	0.0202	....	0.055	0.0780	0.0304	0.0011	0.0052	0.0093	....	62.84	40 x 15 CC
CRM	31X BIB3 C	4.04	0.198	0.181	31.83	0.0510	0.127	0.154	0.0516	0.0476	....	0.0032	0.0321	0.0626	0.0018	0.0047	0.0014	....	63.18	40 x 15 CC
CRM	31X BIB4 B	0.897	0.512	0.093	36.26	0.153	0.205	0.391	0.0475	....	....	0.0317	0.0059	0.0144	0.0011	0.0073	0.0014	0.0011	61.32	40 x 15 CC

3.1.7 Lead Brass		Pb	Sn	Zn	Fe	Ni	Mn	Al	Si	As	Bi	Sb	P	S	Co	Ag	Se	Cd	B	Cu	Size (mm) Form Ø x H	
CRM	31X 7835.1 T **	2.70	0.35	34.0	0.150	0.125	0.010	0.005	0.006	0.008	0.008	0.010	0.002	0.005	0.002	[bal]	**provisional values	40 x 15 CC
CRM	31X 7835.2 K	2.07	0.152	32.94	0.0309	0.0462	....	0.060	0.0193	0.0280	0.0099	0.0358	0.0226	....	0.0290	0.0102	....	0.0020	0.0023	64.49	40 x 15 CC
CRM	31X 7835.3 J **	1.50	0.105	36.0	0.245	0.292	0.145	0.008	0.103	0.029	0.095	0.030	0.005	0.017	0.0035	[bal]	**provisional values	40 x 15 CC
CRM	31X 7835.4 J	1.049	0.070	30.36	0.0350	0.477	....	0.525	....	0.142	0.0169	0.068	0.121	....	0.0027	....	....	0.0088	0.0021	67.13	40 x 15 CC
CRM	31X 7835.5 A	1.64	0.116	6.23	0.126	0.249	....	0.078	....	0.104	....	0.114	0.018	....	....	....	....	....	....	91.25	40 x 15 CC
CRM	31X 7835.6 C **	1.415	0.548	36.62	0.0210	0.0205	0.571	0.0215	0.0152	0.0041	0.0255	0.0020	0.0047	0.0046	0.0009	0.0017	0.0045	60.70	**provisional values	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 A	3.15	0.516	24.83	0.100	0.158	0.093	....	....	0.143	0.112	0.115	0.122	....	0.313	0.463	....	0.087	....	69.93	40 x 15 CC
CRM	31X 7835.9 A	1.024	1.48	14.34	0.408	0.100	0.0009	0.092	....	0.107	0.81	0.445	0.0390	0.0161	0.0813	2.12	0.34	0.0673	....	78.48	40 x 15 CC
CRM	31X 7835.10 A **	1.43	0.238	34.3	0.405	0.160	0.032	0.645	0.011	0.063	0.020	0.021	0.041	0.020	62.6	**provisional values	40 x 15 CC
CRM	31X 7835.11 A **	1.70	0.152	31.0	0.190	0.102	0.010	0.910	0.010	0.140	0.012	0.013	0.024	0.007	65.8	**provisional values	40 x 15 CC
CRM	31X CZ114 A	1.219	0.511	38.25	0.740	0.0183	1.475	0.714	(0.006)	....	0.0107	(0.003)	0.0018	....	....	....	....	....	....	57.10	38 x 15 W
CRM	31X CZ115 A	1.169	0.729	39.20	0.601	0.0143	1.095	0.0007	(<0.005)	0.0008	....	0.0020	0.0091	....	....	0.0041	....	....	....	57.19	41 x 15 W
CRM	31X CZ121 A	3.01	0.1940	38.57	0.167	0.1028	0.0052	0.0034	(0.003)	0.0299	0.0046	0.0050	0.0028	....	....	0.0060	....	....	....	57.84	41 x 15 W

See also Section 3.1.1 products 31X B18 - B20

3. Copper Base

Updated: 30th December 2015

Blocks / Discs

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) Form Ø x H
CRM	31X MNB1 C	0.188	0.105	1.44	29.37	0.268	0.053	0.599	0.128	....	....	....	....	....	....	....	....	....	67.77	40 x 15 CC
CRM	31X MNB2 D	2.05	0.289	0.983	31.30	0.548	0.118	0.272	0.579	0.0201	....	0.0177	0.0246	....	0.0086	0.041	....	....	63.75	40 x 15 CC
CRM	31X MNB3 E	3.08	0.459	0.504	25.97	1.15	0.348	0.584	1.53	0.0179	....	0.0056	0.0259	....	0.0556	0.0162	....	....	66.18	40 x 15 CC
CRM	31X MNB4 F	2.97	0.547	0.221	25.59	1.728	0.347	3.91	0.103	0.0125	....	0.0189	0.0274	....	0.0312	0.0131	....	....	64.62	40 x 15 CC
CRM	31X MNB5 Q	0.137	1.60	0.243	37.12	0.013	0.996	2.96	0.44	0.0100	....	0.0118	(0.008)	....	0.0155	0.0063	0.19	....	56.18	40 x 15 CC
CRM	31X MNB5 R	0.175	1.228	0.157	37.11	0.898	1.32	3.24	0.528	0.0021	....	(0.006)	0.0399	....	0.066	0.0195	0.0116	....	55.14	40 x 15 CC
CRM	31X MNB6 C	0.871	0.0310	0.016	28.53	0.0697	0.261	0.0148	0.0196	0.0107	....	0.0128	0.0226	....	0.0107	0.0509	....	....	70.01	40 x 15 CC
CRM	31X MNB11 A	11.99	0.161	1.610	22.85	0.337	4.46	1.19	0.071	0.0010	0.0021	0.0051	0.0186	(0.0007)	0.0046	....	0.0046	(0.009)	57.36	40 x 15 CC
CRM	31X MNB12 B	18.37	0.194	1.96	21.76	0.313	0.497	0.70	0.0487	0.0077	0.0204	0.0072	0.0521	(0.0006)	0.0040	....	0.0013	0.0125	56.03	40 x 15 CC
3.1.9 Silicon Brass		Sn	Pb	Zn	Fe	Ni	Al	Si	As	Mn	Sb	P	Co	Cd	Cu	Size (mm) Form Ø x H				
CRM	31X WSB6 E	0.071	0.225	0.450	0.088	0.1114	0.0311	3.60	0.0048	0.900	0.0022	0.0206	0.0079	0.0004	94.47	40 x 15 CC				
3.2.1 Phosphor-Bronze		Sn	Pb	Zn	Fe	Ni	Al	Si	As	Mn	Bi	Sb	P	S	Co	Mg	C	Ag	Cu	Size (mm) Form Ø x H
CRM	32X PB10 P	12.37	0.0182	0.256	0.0043	0.0130	(0.002)	(0.001)	0.0126	<0.001	0.034	0.0134	0.0030	0.0144	0.0062	....	....	....	87.14	40 x 15 CC
CRM	32X PB11 G	3.306	0.995	1.71	0.399	0.898	0.081	0.123	0.198	0.132	0.0310	0.584	0.946	0.0148	0.090	0.0091	....	....	90.44	40 x 15 CC
CRM	32X PB12 F	5.03	0.0436	0.130	0.053	0.205	(0.001)	(0.002)	0.0512	0.0014	0.0647	0.1822	0.076	0.0108	0.0150	....	....	0.0155	94.16	40 x 15 CC
CRM	32X PB13 E	6.55	0.109	0.301	0.0549	0.0953	0.0251	0.053	0.0391	0.0440	0.0224	0.092	0.089	....	0.0088	....	....	0.0205	92.48	40 x 15 CC
CRM	32X PB14 D	9.00	0.048	0.038	0.0056	0.144	(0.0009)	(0.0025)	0.0331	(0.0002)	0.224	0.055	(0.008)	0.065	0.0013	0.0003	....	....	90.26	40 x 17 CC
CRM	32X PB15 A	2.21	0.174	0.76	0.116	0.212	0.045	0.043	0.123	0.0125	....	0.026	0.0873	....	0.0509	0.0275	....	....	96.07	40 x 15 CC
CRM	32X PB20 A	4.55	0.0045	0.007	0.0013	0.0090	<0.001	0.0046	0.0011	(0.007)	....	0.0012	0.196	0.0030	....	....	(0.0014)	....	95.22	38 x 17 W
CRM	32X PB23 A	7.56	0.0042	0.0020	(0.0005)	0.0033	(0.0004)	0.0016	0.0011	(0.0006)	....	0.0025	0.319	0.0015	....	....	0.004	....	92.04	49 x 17 W
CRM	32X 51000 A	4.86	0.0031	0.0112	0.0025	0.0083	(0.001)	....	....	....	....	....	0.300	0.0021	....	....	....	0.0024	94.84	38 x 15 W
CRM	32X 52100 A	7.72	0.0031	0.0028	(0.001)	0.0110	0.0008	....	0.0009	....	0.0019	....	0.147	0.0007	....	....	....	0.0011	92.08	38 x 15 W
3.2.2 Lead Bronze		Sn	Pb	Zn	Fe	Ni	Al	Si	As	Mn	Bi	Sb	P	S	Co	Cd	Ag	Cu	Size (mm) Form Ø x H	
CRM	32X LB10 F	8.26	12.46	0.426	0.0045	0.695	0.0188	0.008	0.146	....	0.0563	0.557	0.0063	0.010	0.0395	....	0.0459	77.23	40 x 15 CC	
CRM	32X LB11 D	10.87	10.17	0.124	0.0025	0.565	0.0022	(0.002)	0.0315	(0.0003)	0.0338	0.111	0.007	0.053	0.0202	....	0.118	77.97	40 x 15 CC	
CRM	32X LB12 D	9.52	9.06	0.584	0.0223	0.433	(0.001)	<0.001	0.0897	....	0.0231	0.442	0.383	0.094	0.0751	....	....	79.27	40 x 15 CC	
CRM	32X LB13 C	5.80	7.59	0.520	0.0160	0.828	0.0011	(0.0035)	0.131	0.0005	0.0721	0.0186	0.0161	0.115	0.0293	....	0.0063	84.87	40 x 17 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 E	4.51	21.42	0.064	0.0012	0.123	(0.001)	0.0008	0.0273	....	(0.13)	0.127	0.0035	0.032	0.0051	....	0.0217	73.60	40 x 15 CC	
CRM	32X LB16 A	5.55	18.78	0.458	0.0040	0.793	(0.001)	....	....	....	0.0119	(0.001)	(0.002)	0.0012	....	....	0.0016	74.42	32 x 17 W	
CRM	32X LB17 A	5.97	9.83	0.634	0.488	0.465	0.388	....	1.51	0.296	0.220	4.10	0.051	....	0.0083	0.151	0.911	74.83	40 x 15 CC	
CRM	32X 93700 A	9.95	8.38	0.78	0.0011	0.307	....	....	....	....	....	0.0051	(0.0015)	0.0017	0.0004	....	....	80.43	42 x 15 W	

3. Copper Base

Updated: 10th January 2016

Blocks / Discs

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	....	....	....	....	....	....	81.85	42 x 18	CC
CRM	32X ALB2 L **	0.082	0.068	0.675	4.62	4.52	10.50	0.200	0.006	0.402	0.03	0.051	0.199	0.008	0.068	....	0.019	....	....	....	78.5	40 x 15	CC
CRM	32X ALB3 S **	0.123	0.120	1.31	3.71	3.50	10.45	0.155	0.021	0.242	0.035	0.040	0.076	0.065	0.020	....	0.028	....	....	....	79.9	40 x 15	CC
CRM	32X ALB4 H	0.085	0.120	0.264	3.55	7.03	7.87	0.252	0.0130	1.028	0.036	0.022	....	0.153	....	....	....	....	....	....	79.61	42 x 18	CC
CRM	32X ALB5 K **	0.028	0.053	0.80	2.17	3.92	7.25	0.105	....	1.43	0.05	0.19	0.061	0.18	0.185	....	....	....	....	....	[bal]	40 x 15	CC
CRM	32X ALB6 K	0.120	0.0749	0.126	2.71	5.42	9.69	0.073	0.0116	0.787	(0.006)	....	0.139	0.0104	....	....	0.0082	....	....	....	80.77	40 x 15	CC
CRM	32X ALB7 C	0.30	0.029	0.527	4.82	4.96	4.01	0.399	0.056	0.383	0.057	0.061	....	0.0039	....	....	....	....	....	....	84.40	42 x 18	CC
CRM	32X ALB8 E	0.312	0.071	0.352	5.54	6.68	6.38	0.603	0.145	1.562	0.171	0.36	0.554	0.015	....	0.024	0.0099	....	....	....	77.17	40 x 15	CC
CRM	32X ALB9 B	0.061	0.377	1.17	3.13	1.21	13.86	0.282	0.0275	0.090	(0.054)	(0.064)	0.0259	0.205	....	....	0.042	....	....	....	79.24	42 x 18	CC
CRM	32X ALB10 B **	0.19	0.16	0.95	3.70	7.25	12.0	0.16	0.018	1.65	0.05	0.015	0.097	0.012	....	....	0.015	....	....	....	[bal]	40 x 15	CC
CRM	32X ALB11 A	0.0289	0.118	0.576	3.81	4.33	8.80	0.069	....	1.13	0.045	....	0.089	0.075	....	0.093	....	0.120	0.006	0.0194	80.58	40 x 15	CC
CRM	32X ALB11 B	0.0062	0.0316	0.508	3.99	4.44	8.85	0.015	....	1.290	0.0249	....	0.0180	0.072	....	0.203	....	0.082	0.007	0.064	80.38	40 x 15	CC

** 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 CA1 A	0.0180	0.007	0.162	4.63	4.94	9.79	0.090	0.296	0.003	0.0049	....	0.0003	0.0012	(0.007)	80.03	42 x 18	W
CRM	32X CA7 A	0.0172	(0.004)	0.006	2.09	0.234	9.37	0.017	0.151	....	0.0028	....	0.0004	0.0009	0.0028	88.06	42 x 18	W
CRM	32X CA12 A	0.0157	(0.0017)	0.0405	0.657	0.088	6.14	2.57	0.0290	....	....	....	0.0005	0.0010	(0.002)	90.48	42 x 18	W
CRM	32X CA23 A	0.0164	(0.0026)	0.031	3.63	4.71	9.19	0.026	1.298	0.0011	0.0018	....	0.0003	0.0008	(0.0050)	81.05	50 x 18	W
CRM	32X CA31 A	0.0037	(0.0024)	0.041	4.06	4.28	8.95	0.036	0.336	(0.003)	0.0026	....	0.0008	0.0008	0.006	82.24	42 x 18	W

3.2.4 Bismuth Bronze (Sebiloy Type)		Sn	Pb	Zn	Fe	Ni	As	Bi	Sb	P	S	Co	Al	Se	In	Ag	Cd	Cu	Size (mm) Ø x H	Form
CRM	32X SEB1 D	4.26	0.197	7.81	0.071	0.102	0.0402	4.25	0.305	0.0021	0.0052	0.0478	....	0.812	....	....	0.0033	81.88	40 x 15	CC
CRM	32X SEB2 D	6.96	0.104	1.40	0.074	0.0449	0.0160	4.57	0.0222	0.036	0.030	0.0133	....	0.044	0.074	0.0443	0.0255	86.56	40 x 15	CC
CRM	32X SEB3 E	2.96	0.296	0.887	0.0113	1.214	0.0325	6.47	0.108	0.0139	0.0180	0.0491	....	1.30	....	....	0.0095	86.47	40 x 15	CC
CRM	32X SEB4 E	10.05	0.0357	7.02	0.093	0.0199	0.0065	2.48	0.0343	0.0043	....	0.308	0.0007	0.119	....	....	0.0017	79.82	40 x 15	CC
CRM	32X SEB5 C	5.18	0.268	5.30	0.0430	0.317	....	1.056	0.0334	0.072	0.050	0.0156	(0.001)	0.471	....	....	0.0051	87.21	40 x 15	CC
CRM	32X SEB6 C	7.14	0.0463	4.55	0.151	0.860	0.083	0.615	0.235	0.0118	....	0.231	....	0.322	....	....	0.0036	85.66	40 x 17	CC
CRM	32X SEB7 A	3.20	0.343	4.42	0.074	1.165	0.038	3.58	0.262	0.0206	0.067	0.119	....	1.19	....	....	0.0074	85.46	42 x 17	CC

3. Copper Base

Updated: 30th December 2015

Blocks / Discs

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 Form Ø x H)	
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 A	18.80	1.059	0.342	0.060	0.556	0.034	(0.004)	0.0468	0.0065	....	0.151	....	0.102	....	....	....	0.988	0.040	77.88	42 x 18	CC
CRM	32X SN5 B **	15.87	0.861	0.603	1.015	0.662	0.219	....	0.0552	0.531	0.0248	0.129	0.121	0.701	0.129	0.0103	0.0950	....	....	78.90	40 x 15	CC
CRM	32X SN6 A	7.31	1.559	1.17	0.099	0.203	0.0313	....	0.764	0.0024	0.0074	0.655	0.158	0.323	0.0903	0.0073	1.159	....	0.018	86.39	40 x 15	CC
CRM	32X SN7 A	12.60	2.60	1.96	(0.06)	0.175	0.052	....	1.071	0.0010	....	0.443	0.052	0.263	0.0385	0.0005	0.305	0.056	....	80.30	40 x 15	CC
CRM	32X CSN1 A	0.306	....	0.0039	0.0020	....	....	....	....	....	....	....	....	....	....	....	....	0.0007	....	....	20 x 22	W

** provisional values

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 Form Ø x H)	
CRM	33X GM4 AC	2.57	5.21	5.78	0.024	1.510	(0.001)	0.0011	0.0205	0.0007	0.0132	0.0101	0.0022	0.107	....	....	0.0195	0.0108	....	84.79	40 x 15	CC
CRM	33X GM5 N **	5.185	4.805	4.188	0.196	0.798	0.070	0.070	0.0400	....	0.0505	0.0650	0.0095	0.062	....	....	0.0205	0.0478	0.0110	84.55	40 x 15	CC
CRM	33X GM6 K	6.58	3.94	1.409	0.0256	0.890	0.0012	(0.001)	0.158	0.0022	0.0359	0.259	0.0041	0.090	....	....	0.0100	0.0148	....	86.51	40 x 15	CC
CRM	33X GM7 J	9.61	1.119	2.72	0.050	0.511	0.0110	(0.003)	0.103	0.0088	0.119	0.1092	0.082	0.064	....	....	0.095	0.050	....	85.40	40 x 15	CC
CRM	33X GM8 G	4.03	6.21	5.71	0.033	0.1491	....	....	0.0114	....	0.062	0.0237	0.0062	0.0083	....	....	0.0222	0.0108	....	83.64	40 x 15	CC
CRM	33X GM20 A	4.07	0.106	3.87	0.570	0.999	(0.001)	....	0.196	0.219	0.031	2.004	0.063	....	....	0.015	0.0382	0.141	0.0229	87.58	40 x 15	CC
CRM	33X GM21 A	4.55	6.99	5.05	0.751	0.129	0.255	0.0156	0.464	....	0.452	1.049	0.050	0.080	0.194	....	....	0.694	0.255	78.90	40 x 15	CC
CRM	33X GM24 A	3.85	3.35	3.67	0.0083	0.0087	....	0.0028	0.0010	<0.0005	0.0009	0.0012	0.190	0.003	....	(0.0013)	....	0.0046	....	88.88	44 x 17	W
CRM	33X GM29 A	6.12	0.050	4.23	0.0102	0.0289	....	0.0027	0.0017	(0.0005)	0.0019	0.0015	0.138	0.0024	....	(0.0004)	....	0.0026	....	89.36	33 x 19	W
CRM	33X RB1 A	2.137	5.02	7.95	0.928	0.0539	0.0048	0.063	0.0030	0.0167	0.0029	0.432	0.020	0.0044	....	0.0013	....	0.0174	....	83.24	42 x 17	CC
CRM	33X RB2 A	3.19	3.85	9.14	0.493	0.255	0.0352	0.0116	0.0211	0.0028	0.101	0.019	0.0208	0.078	....	0.0017	....	0.0029	....	82.67	42 x 17	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

** provisional values

3.4 Nickel Silver		Sn	Pb	Zn	Fe	Ni	Al	Si	Mn	P	S	Co	Cr	Ag	Mg	C	Cu	Size (mm Form Ø x H)	
CRM	34X NS1 F	0.0110	0.0141	33.41	0.064	7.81	(0.003)	(0.002)	0.0009	0.0140	(0.0004)	0.052	0.0003	0.069	0.0020	(0.0018)	58.63	42 x 18	CC
CRM	34X NS2 F	0.019	0.063	25.31	0.085	13.39	....	(0.003)	0.0013	0.0091	(0.020)	0.0118	(0.001)	0.0026	<0.0005	....	61.09	42 x 17	CC
CRM	34X NS3 F	0.056	0.178	19.96	0.285	14.96	<0.001	(0.002)	0.0377	0.0295	0.0028	0.0922	....	0.100	<0.001	....	64.16	40 x 15	CC
CRM	34X NS4 F	0.0301	0.071	17.09	0.449	16.61	0.0454	0.102	0.304	0.0570	0.0110	0.152	....	0.0324	0.0009	....	64.97	40 x 15	CC
CRM	34X NS5 G	0.142	0.896	23.87	0.247	16.55	0.085	0.122	0.1103	0.104	....	0.211	....	0.0096	....	....	57.53	40 x 15	CC
CRM	34X 79830 A	0.1158	2.033	41.80	0.079	9.76	0.0012	....	0.311	0.0047	(0.001)	(0.001)	....	0.0028	....	(0.005)	45.88	38 x 15	W

3. Copper Base

Updated: 10th January 2016

Blocks / Discs

3.6.1 Cupro Nickel		Sn	Pb	Zn	Fe	Ni	Al	Si	Mn	Bi	P	S	Co	Cr	Mg	B	C	Ti	Nb	Zr	Be	Cu	Size (mm) Ø x H	Form
CRM	36X CN1 P	0.227	0.035	0.351	1.856	9.27	0.055	0.104	1.77	....	0.0574	0.0071	0.114	0.156	0.0321	....	0.0106	....	0.0236	....	....	(85.9)	40 x 15	CC
CRM	36X CN2 J	0.061	0.048	0.0358	1.70	15.47	0.005	0.044	1.26	0.0045	0.015	0.035	0.264	0.240	0.0006	....	0.004	0.0102	(0.032)	....	....	80.78	40 x 17	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 **	0.009	0.021	0.157	0.550	25.6	0.04	0.45	0.55	0.009	0.011	0.007	0.030	0.029	0.008	....	(0.005)	....	0.49	....	....	[bal]	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 H	....	0.033	0.388	0.792	31.21	0.063	0.154	0.458	0.0331	0.0104	0.0051	0.0590	2.65	....	....	0.0072	0.057	0.196	0.049	....	63.80	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 17	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 **	0.035	0.07	(0.5)	1.30	26.0	0.01	0.39	1.00	0.02	0.04	0.006	0.075	2.10	....	(0.002)	(0.005)	0.10	1.35	0.10	....	[bal]	40 x 15	CC
CRM	36X CN10 B	0.0164	0.013	0.058	4.76	28.35	1.346	0.906	0.552	....	(0.009)	0.030	0.122	1.498	....	(0.012)	0.0107	0.227	0.450	0.080	....	61.63	40 x 15	CC
		** provisional values																						
CRM	36X CN11 A	(0.002)	(0.003)	(0.006)	0.992	14.96	1.457	0.083	4.34	....	(0.002)	0.0012	0.0049	0.380	0.0241	....	(0.001)	....	0.124	....	....	77.56	40 x 15	W
CRM	36X CN12 A	(0.001)	0.0037	0.157	0.105	13.05	2.41	0.040	0.402	....	0.0011	....	0.0056	....	0.072	0.0055	0.0101	....	0.0010	....	....	83.79	40 x 15	W
CRM	36X CN13 A	(0.001)	(0.001)	0.0017	0.870	14.52	2.65	0.012	0.442	....	0.0011	(0.002)	(0.001)	....	0.0039	(0.002)	(0.003)	....	....	....	....	81.46	38 x 15	W
CRM	36X 70600 A	0.0090	0.0086	0.115	1.619	10.65	(0.001)	....	0.759	....	0.0062	0.0136	0.0087	....	....	....	(0.002)	....	....	....	....	86.70	40 x 15	W
CRM	36X 71500 A	0.0113	0.0114	0.150	0.888	31.24	(0.001)	....	0.850	....	0.0074	0.0454	0.0163	....	....	0.0049	0.0240	....	....	....	....	66.74	40 x 15	W
		Sn	Pb	Zn	Fe	Ni	Al	Mn	P	Co	Cr	As	Ag	Cd	C	Cu							Size (mm) Ø x H	Form
CRM	36X CN21 A	0.038	0.051	0.0203	0.0316	5.50	1.95	0.0391	0.053	0.0079	0.0050	0.0067	0.0064	0.0021	....	92.17							40 x 17	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 17	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 17	CC
																						Size (mm) W x D x H	Form	
CRM	36X CN24 A	(0.002)	0.0056	8.00	0.127	15.41	(0.001)	23.60	0.0037	0.0096	0.0065	(0.001)	0.0466	....	0.0436	52.56	Block	38 x 13 x 13	concast					
3.6.1a Cu/Ni/Sn (Spinodal Alloy)		Sn	Ni	Cu	Zn	Fe	Al	Si	Mn	Bi	Sb	P	S	Ag	Pb	Mg	Co	B	Ti	Nb			Size (mm) Ø x H	Form
CRM	36X SP1 A	5.75	8.33	84.90	0.344	0.45	0.0020	0.004	0.084	0.0039	0.0177	(0.003)	0.005	0.005	0.0115	....	0.057	0.0007	(0.0004)	(0.031)			40 x 15	CC
CRM	36X SP2 A	8.92	15.72	74.91	0.029	(0.09)	0.0003	(0.0023)	0.0019	(0.0027)	0.006	(0.0006)	0.0030	0.0181	0.026	0.0002	0.119	0.0005	(0.0008)	....			40 x 15	CC

3. Copper Base

Updated: 30th December 2015

Blocks / Discs

3.6.4 Cu/Be/Co		Sn	Pb	Zn	Fe	Ni	Al	Si	Mn	Co	P	Cr	Mg	Be	Cu	Size (mm) Ø x H	Form								
CRM	36X CBC3 D	0.0021	0.0025	0.004	0.046	0.007	0.019	0.039	....	0.209	....	....	0.0040	1.840	97.77	40 x 15	W								
CRM	36X CBC4 E	0.002	0.329	0.003	0.0274	0.0080	0.0258	0.048	....	0.215	0.0027	....	0.0035	1.869	97.47	40 x 15	W								
CRM	36X CBC5 A	0.04	0.009	0.038	0.028	1.69	0.024	0.036	(0.004)	0.14	....	0.006	....	0.32	97.6	40 x 15	W								
sold out																									
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 A	0.0140	0.0021	0.0395	0.0779	2.54	0.0013	0.594	0.0148	0.0035	....	0.0028	0.531	....	....	....	<0.005	96.23	46 X 17	W					
3.7.1 Various Copper Alloys		Sn	Pb	Zn	Fe	Ni	Al	Si	Mn	P	S	Cr	Co	C	Cu	Size (mm) Ø x H	Form								
CRM	37X 218 A	0.015	0.0025	0.027	0.074	2.52	0.0022	0.58	0.083	0.0014	0.007	0.032	0.0013	0.0022	96.57	38 x 17	W								
CRM	37X 218 B	0.0032	0.0014	0.0054	0.0209	1.892	0.0018	0.564	0.0022	....	....	0.176	....	....	97.29	38 x 15	W								
CRM	37X 65500 A	0.0426	0.0034	0.0353	0.035	0.0059	0.0028	3.13	0.960	0.0046	0.0010	0.0029	....	(0.004)	95.75	38 x 15	W								
3.8 Residuals in Pure Copper - Wire		All Elements ppm															Size (mm) Ø x H	Form							
		Sn	Pb	Zn	Fe	Ni	Ag	As	Mn	Bi	Sb	Cr	Si	P	Cd	Te	Se	S	O						
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																		Size (mm) Ø x H	Form				
		Sn	Pb	Zn	Fe	Ni	Al	As	Mn	Bi	Sb	P	S	Co	Cr	Cd	Ag	Au	Se	Te	In	Mg	Ge		
CRM	39X 17866 AG	1710	280	470	(20)	608	(10)	547	17	128	65	16	520	325	....	52	77	24	72	224	364	....	....	40 x 15	CC
CRM	39X 17867 AD	1150	196	325	....	410	....	387	....	153	143	15	410	194	....	110	79	75	67	78	130	41	62	40 x 15	CC
CRM	39X 17868 AG	1030	1040	1970	1100	222	72	226	123	308	300	510	220	248	....	130	249	101	133	206	76	85	....	40 x 15	CC
CRM	39X 17869 AF	440	880	820	79	102	136	99	23	450	400	163	90	36	....	201	376	53	243	319	37	10	....	40 x 15	CC
CRM	39X 17870 AG	31	447	1290	(400)	62	12	33	....	470	478	12	26	17	....	305	468	9	261	11	78	....	76	40 x 15	CC
CRM	39X 17871 C	48	65	27	(6)	344	11	207	....	530	124	....	54	9	....	58	219	37	287	82	47	....	<10	40 x 15	CC
CRM	39X 27866 A	448	54	287	30	487	....	383	....	47	52	147	469	308	12	139	57	16	28	32	437	....	29	38 x 20	W
CRM	39X 27869 A	106	225	65	30	190	....	98	....	376	362	119	112	36	(2)	28	349	80	127	153	90	....	123	38 x 20	W
		All Elements %																		Size (mm) Ø x H	Form				
		Sn	Pb	Zn	Fe	Ni	Al	As	Mn	Bi	Sb	P	S	Co	Cr	Cd	Ag	Au	Se	Te	In				
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**	0.025	0.059	0.015	0.0049	0.0281	....	0.0200	0.0005	0.0250	0.0200	0.0010	0.0095	0.0004	0.0003	0.0022	0.029	....	0.0145	0.0140	0.0038			40 x 15	CC

** provisional values

4. Zinc Base

Updated: 30th December 2015 Blocks / Discs

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

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

4.1.2 Galvanising Alloys		All elements ppm																Size (mm) Form			
		Pb	Mg	Al	Cd	Fe	Sn	Cu	Ni	Mn	Bi	Sb	As	Cr	Co	V	Sr	Ø x H			
CRM	41X GLV1 D	0.0224	0.0008	0.202	0.0100	0.021	0.0134	0.0169	0.0019	....	0.0040	0.0010	0.0002	....	0.0003	....	....	....	....	50 x 20	C
CRM	41X GLV2 B	0.259	0.0006	0.111	0.0037	0.143	0.0148	0.0050	0.0145	(0.033)	0.0172	0.0071	0.0035	0.014	0.0024	....	....	....	....	50 x 20	C
CRM	41X GLV3 B	0.0091	0.00145	0.334	0.0188	0.0031	0.0060	0.0260	0.0300	0.0111	0.0016	0.058	(0.0007)	0.00084	0.00150	....	....	....	....	50 x 20	C
CRM	41X GLV4 C	0.0062	0.0034	0.514	0.0006	0.0028	0.0024	0.0321	0.0441	0.0089	0.0061	0.0287	(0.0003)	0.0007	0.0037	....	....	....	....	50 x 20	C
CRM	41X GLV4 D	0.0058	0.0025	0.503	0.0013	0.008	0.0035	0.0246	0.0078	0.164	0.0047	0.0235	0.0002	0.0010	0.0061	....	....	....	....	50 x 20	C
CRM	41X GLV5 B	0.0166	0.0014	0.0139	0.0136	0.0443	0.0172	0.0103	0.0025	....	0.0098	0.148	0.00044	....	0.0011	....	....	....	....	50 x 20	C
CRM	41X GLV6 A	0.120	....	0.474	0.0053	0.0047	0.0152	0.039	0.0008	0.0013	0.0248	0.0112	0.0014	0.0029	0.0047	<0.0005	....	....	....	50 x 20	C
CRM	41X GLV7 A	0.082	....	0.399	0.00056	0.0031	(0.0006)	0.023	0.0060	0.0025	0.0108	0.0031	0.0016	0.0010	(0.0001)	<0.0001	....	....	....	50 x 20	C
CRM	41X GLV8 B	0.0039	0.0009	0.258	0.0004	0.0080	0.0005	0.0111	0.0023	0.0035	0.0006	0.0062	....	(0.0001)	....	....	....	....	....	50 x 20	C
CRM	41X GLV9 A	0.0043	0.0014	0.547	0.0028	0.0039	0.0028	0.0037	0.0009	0.0027	0.0019	0.0048	....	....	0.0005	....	....	....	....	50 x 20	C
CRM	41X GLV10 A	0.0066	0.0040	0.969	0.0030	0.0051	0.0062	0.0073	0.0022	0.0062	0.0031	0.0009	....	....	0.0002	....	....	....	....	50 x 20	C
CRM	41X GLV11 A	0.0057	0.0009	0.463	0.0010	0.0027	0.0009	0.0017	0.0008	0.0008	0.0009	0.168	....	....	(0.0001)	....	(0.0004)	....	....	50 x 20	C

4. Zinc Base

Updated: 1st January 2016

Blocks / Discs

4.1.3 Zn/Mn, Zn/Mg, Zn/Ni & Zn/Sb Binaries													Size (mm)		Form
	Pb	Al	Cd	Fe	Cu	Ni	Mn	Mg	Sb	Sn	Bi	Ø x H			
CRM	41X ZMn1 A	(0.0026)	(0.0001)	(0.0002)	(0.0025)	(0.0005)	(0.0009)	1.07	....	....	....	....	50 x 20	C
	41X ZMg1 A	....	....	....	....	....	....	1.13	....	....	....	....	40 x 15	C
	41X ZMg3 A	....	....	....	....	....	....	2.80	....	....	....	....	40 x 15	C
CRM	41X ZNiBi A	0.0187	0.050	0.0020	0.0133	0.0132	2.02	....	....	....	0.154	0.502	50 x 20	C
CRM	41X ZNi2 A	0.0172	0.0135	0.0010	0.0061	0.0056	1.97	....	....	....	0.141	0.0050	50 x 20	C
	41X ZSb1 A	....	....	....	....	....	....	....	1.03	....	....	....	40 x 15	C
	41X ZSb4 A	....	....	....	....	....	....	....	3.78	....	....	....	40 x 15	C
	41X ZSb8 A	....	....	....	....	....	....	....	7.68	....	....	....	40 x 15	C

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

4. Zinc Base

Updated: 1st January 2016

Blocks / Discs

4.3 Zn/Al/Cu		Pb	Mg	Al	Cd	Fe	Sn	Cu	Ni	Mn	Bi	Sb	Ti	Cr	Si	Be	Ag	Sr	Size (mm) Ø x H	Form	
CRM	43X Z1 K	0.0038	0.0256	4.50	0.0014	0.0070	0.0019	0.717	0.0010	0.0014	0.0015	0.0007	....	0.0007	....	....	....	....	50 x 20	C
CRM	43X Z2 M	0.0106	0.0828	3.89	0.0053	0.0081	0.0099	1.004	0.0024	0.0086	0.0022	0.0068	0.0008	0.0063	0.011	....	....	....	50 x 20	C
CRM	43X Z2 N	0.0125	0.0885	4.02	0.0080	0.0023	0.0052	1.049	0.0022	0.099	0.0027	0.0062	0.0008	0.0011	(0.001)	....	....	....	50 x 20	C
CRM	43X Z3 M	0.0077	0.114	3.40	0.0109	(0.042)	0.0058	1.499	0.0062	0.0013	0.0092	0.0029	....	0.0046	....	....	....	....	50 x 20	C
CRM	43X Z4 C	0.0062	0.0480	4.79	0.0033	0.0017	0.0030	2.69	0.0258	0.0153	0.0113	(0.002)	0.0017	0.0030	(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)	4.81	0.00033	0.00021	....	....	....	0.00024	....	....	....	....	50 x 20	C
CRM	43X Z9 A	0.0078	0.0472	3.17	0.0034	0.073	0.0020	4.82	0.0027	0.0108	0.0033	0.0033	0.0012	0.0034	....	0.0010	....	....	50 x 20	C
CRM	43X Z10 A	0.0046	0.0403	3.99	0.0014	0.007	0.0012	2.97	0.0036	0.0050	....	....	....	0.0003	0.009	....	....	....	50 x 20	C
CRM	43X Z11 F	0.0202	0.0357	11.12	0.0175	0.015	0.0145	0.335	0.0014	0.0032	0.0046	0.0009	....	(0.0003)	0.0013	....	....	....	50 x 20	C
CRM	43X Z12 E	0.0041	0.0287	10.38	0.0045	0.037	0.0017	0.791	0.0033	0.0026	0.0021	0.0032	0.0050	0.0008	(0.002)	....	....	....	50 x 20	C
CRM	43X Z13 E	0.0086	0.0198	9.01	0.0072	0.0045	0.0056	1.113	0.0036	0.0025	0.0014	0.0020	....	0.0004	(0.001)	....	....	....	50 x 20	C
CRM	43X Z14 E	0.015	0.0133	8.05	0.0083	0.031	0.0054	1.13	0.0066	0.0050	0.0096	0.0089	0.0014	0.0047	0.016	....	....	....	50 x 20	C
CRM	43X Z15 C	0.0054	0.0024	7.36	0.0030	0.009	0.004	1.53	0.0019	0.0020	0.005	0.005	0.0020	0.0025	(0.011)	....	....	....	50 x 20	C
CRM	43X Z21 D	0.0087	0.0142	23.9	0.0010	0.0067	0.0007	2.68	0.0021	0.0022	....	....	....	....	0.0191	....	....	(0.0005)	50 x 20	C
CRM	43X Z22 D	0.0053	0.0099	27.4	0.0043	0.068	0.0020	2.11	0.0101	0.0057	....	....	0.0073	0.0010	0.019	....	....	....	50 x 20	C
CRM	43X Z23 E	0.0112	0.0242	30.7	0.0042	0.055	0.0115	3.22	0.0236	0.0090	....	....	0.0045	0.0147	0.077	....	....	....	50 x 20	C
		Pb	Mg	Al	Cd	Fe	Sn	Cu	Ni	Mn	Cr	Si	Ce	La			Size (mm) Ø x H	Form			
CRM	43X SC1 A	0.0150	0.740	3.75	0.0011	0.073	0.0082	1.903	0.0161	0.0201	0.0082	0.022	....	....			50 x 20	C		
CRM	43X SC2 A	0.0097	0.498	3.41	0.0018	0.046	0.0031	4.80	0.0096	0.0183	0.023	0.0133	....	....			50 x 20	C		
CRM	43X SC3 A	0.0066	0.257	3.14	0.0028	0.018	0.0078	3.03	0.0261	0.0337	0.0108	0.022	....	....			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			50 x 20	C		
CRM	43X GALF4 A	0.0122	0.0062	10.71	0.0108	0.074	0.0110	2.470	....	....	....	....	0.079	0.041			50 x 20	C		
CRM	43X GALF5 A	0.0084	0.0016	15.03	0.0080	(0.072)	0.0081	0.0114	....	....	....	....	0.0041	0.0019			50 x 20	C		
4.5 Zn/Al 'Galvalume'		Zn	Si	Fe	Cu	Ni	Sn	Pb	Mg	Ca	Ti	Li	Sr	Al			Size (mm) Ø x H	Form			
	45X ZnAl1 B	24.6	3.07	0.22	0.057	....	0.017	0.021	0.044	0.0021	0.016	0.0015	....	(bal)			55 x 6	CC		
	45X ZnAl3 B	45.2	0.606	0.047	0.0088	....	0.0034	0.0062	(0.0002)	0.0004	0.020	(0.0004)	....	(bal)			55 x 6	CC		
	45X ZnAl7 C	47.5	1.59	0.077	0.0050	0.0049	0.0096	0.010	0.0070	....	0.0049	....	(0.0004)	(bal)			55 x 6	CC		
	45X ZnAl7 D	43.6	1.56	0.170	0.0100	0.0032	(0.0005)	0.0042	0.0005	....	0.028	....	(0.007)	(bal)			55 x 6	CC		
Note these are not CRMs																					

5. Aluminium Base

Updated: 1st January 2016

Blocks / Discs

5.5 Al/Si/Cu (continued)																					Size (mm)	Form		
		Cu	Mg	Si	Fe	Mn	Ni	Zn	Pb	Sn	Ti	Cr	Co	V	Be	Bi	Sb	Ag	Ca	P	Cd	Zr	Ø x H	
CRM	55X G02D5 A	0.406	0.331	10.03	0.557	0.391	0.0652	0.131	0.067	0.051	0.0180	0.760	0.0752	0.0129	0.0037	....	0.031	....	....	....	0.0182	....	50 x 15	C
CRM	55X G02D6 K	0.510	0.376	11.55	0.528	0.300	0.0511	0.577	0.0580	0.0355	0.055	0.366	0.0195	0.0182	0.0026	....	0.0150	....	....	....	0.0115	....	50 x 15	C
CRM	55X G02D7 N	1.35	0.332	9.79	0.950	0.502	0.192	0.786	0.311	0.158	0.195	0.0481	0.0419	0.0208	0.0012	....	0.0039	....	....	....	0.0022	....	50 x 13	C
CRM	55X G02D8 L	2.36	0.119	9.38	0.779	0.443	0.364	1.38	0.248	0.239	0.182	0.0704	0.0303	0.0438	0.0008	....	0.0245	....	....	....	0.0049	....	50 x 13	C
CRM	55X G02D8 M	2.481	0.1517	9.24	0.776	0.256	0.406	1.415	0.201	0.201	0.1535	0.0756	0.0107	0.0536	0.0008	....	0.0112	....	....	....	0.0029	....	65 x 30	HIP
CRM	55X G02D9 K	3.51	0.093	8.49	0.423	0.269	0.494	2.48	0.10	0.187	0.096	0.185	0.0074	0.0223	0.0035	0.033	0.049	....	....	....	0.0012	....	50 x 15	C
CRM	55X G02D10 L	4.59	0.0206	7.33	0.975	0.0524	0.645	2.77	0.022	0.138	0.0302	0.128	0.0544	0.0341	0.0389	....	0.0086	....	....	....	0.0012	....	50 x 15	C
CRM	55X G02DX A	2.33	0.118	9.58	0.773	0.247	0.206	1.030	0.029	0.0288	0.0410	0.0321	0.0108	0.0129	0.0020	0.020	....	0.0052	(0.001)	0.0053	0.0011	0.0103	65 x 30	HIP
CRM	55X G02DY A	3.67	0.309	11.31	0.591	0.107	0.109	0.153	0.0620	0.0747	0.0687	0.063	0.0195	0.0250	0.0012	0.0100	....	0.0102	(0.001)	0.0100	0.0032	0.0218	65 x 30	HIP
CRM	55X G04HX A	3.40	0.063	5.78	0.280	0.193	0.302	0.492	0.0125	0.0112	0.176	0.0165	0.0060	0.0183	0.0006	0.0058	0.0053	0.0030	0.0011	(0.002)	0.0048	0.0278	65 x 30	HIP
		Cu	Mg	Si	Fe	Mn	Ni	Zn	Pb	Sn	Ti	Cr	Co	V	Bi	Ca	Cd	Sr	Ga	Na	Li	P	Size (mm)	Form
																						Ø x H		
CRM	55X G04H2 D	3.21	0.360	5.22	0.349	0.203	0.0104	0.185	0.0159	0.0049	0.0553	0.0108	....	....	....	0.0010	....	0.0025	....	(0.0009)	....	(0.0020)	45 x 20	C
CRM	55X G04H3 N	3.67	0.173	5.56	0.643	0.362	0.0100	0.507	0.025	0.0047	0.109	0.0136	....	....	....	0.0010	....	0.0022	....	(0.0009)	....	0.0021	45 x 20	C
CRM	55X G04H6 E	5.56	0.151	3.30	0.83	0.028	0.77	0.199	0.221	0.181	0.126	0.126	0.0024	0.014	0.029	....	0.0039	....	....	....	0.019	....	40x15 or 50x20	C
CRM	55X G04H7 E	4.65	0.263	4.43	0.633	0.212	0.500	0.537	0.227	0.174	0.0476	0.035	0.030	0.0057	0.022	....	0.0073	....	....	....	0.0066	....	40x15 or 50x20	C
CRM	55X G04H8 J	2.86	0.126	4.96	0.529	0.255	0.197	0.998	0.128	0.0809	0.179	0.0301	0.0160	0.0214	0.007	....	0.0055	....	....	....	0.0033	....	50 x 15	C
CRM	55X G04H9 E	2.70	0.043	6.60	0.393	0.436	0.160	1.70	0.101	0.0563	0.117	0.0172	0.0114	0.0188	(0.0037)	....	0.0018	....	....	....	(0.0028)	....	50 x 15	C
CRM	55X G04H10 D	1.36	0.004	7.21	0.512	0.532	0.0232	2.26	(0.0074)	<0.01	0.0097	0.090	0.043	0.008	0.029	....	....	....	0.011	....	(0.001)	....	40x15 or 50x20	C
	55X G26H1 F	4.34	0.29	7.69	1.78	0.015	0.012	1.14	0.24	(0.008)	0.21	0.20	0.022	0.012	0.07	....	....	....	....	....	....	....	40x15 or 50x20	C
CRM	55X G26H2 F	4.14	1.49	9.36	0.71	0.52	0.41	0.64	0.111	0.110	0.120	0.083	0.052	0.011	0.035	....	(0.0024)	....	....	....	....	....	40x15 or 50x20	C
	55X G26H3 F	2.19	1.01	9.6	1.07	0.45	0.51	0.79	0.23	0.16	0.147	0.130	0.076	0.020	....	....	....	....	....	....	....	....	40x15 or 50x20	C
CRM	55X G26H4 D	3.72	1.64	10.37	0.511	0.165	0.909	0.286	0.120	0.234	0.304	0.0623	....	0.0189	(0.025)	....	....	....	....	....	....	....	40x15 or 50x20	C
CRM	55X G26H5 E	1.40	1.41	11.38	0.199	0.495	1.13	0.008	0.0108	0.035	0.018	0.0394	0.015	0.0169	0.0201	....	....	....	....	....	....	....	50 x 20	C
		Cu	Mg	Si	Fe	Mn	Ni	Zn	Pb	Sn	Ti	Cr	Co	V	Be	Sb	Cd	P	Bi	Ca	Size (mm)	Form		
																					Ø x H			
CRM	55X G28J1 Z	1.82	1.26	14.33	0.678	0.024	2.47	0.258	0.0036	0.182	0.104	0.319	0.119	0.0095	....	....	....	(0.0048)	....	....	....	....	40x13 or 50x17	C
CRM	55X G28J2 T	1.44	0.0902	15.04	0.516	0.231	1.63	0.292	0.058	0.136	0.065	0.088	0.0029	0.0221	(0.0002)	0.030	0.0023	....	....	....	....	....	50 x 20	C
	55X G28J3 U	1.45	1.30	21.6	0.43	0.33	1.47	0.30	0.07	0.11	0.07	0.09	....	....	....	....	....	....	....	....	....	....	40x13 or 50x17	C
CRM	55X G28J4 T	0.82	0.60	20.4	0.52	0.45	0.84	0.32	0.094	0.041	0.28	0.040	0.079	0.010	....	....	....	(0.002)	....	....	....	....	40x13 or 50x17	C
	55X G28J5 Y	0.69	0.73	27.6	0.26	0.67	0.43	0.015	0.18	0.03	0.24	0.009	....	....	....	....	....	<0.005	....	....	....	....	40 x 13	C
CRM	55X G28J6 A	(0.035)	(0.032)	27.15	(0.26)	(0.12)	<0.01	(0.052)	(0.008)	<0.002	(0.024)	(0.006)	....	....	....	(0.007)	(0.038)	....	....	....	....	....	65 x 30	SC
CRM	55X A30J1 H	5.75	1.03	14.6	1.07	0.132	0.014	0.233	0.135	0.006	0.194	0.031	0.091	0.0114	0.0043	....	....	(0.004)	0.015	....	....	....	40x13 or 50x17	C
CRM	55X A30J4 G	3.21	0.508	16.4	0.511	0.350	0.164	0.067	0.0257	0.0190	0.0231	0.0752	....	0.020	....	....	....	(0.003)	....	....	....	....	40x13 or 50x17	C
CRM	55X A30J5 A	4.51	0.722	17.08	0.727	0.213	0.209	0.693	0.084	0.0776	0.070	0.069	0.0396	....	0.0029	....	....	0.016	0.0100	0.0053	....	....	65 x 30	HIP

5. Aluminium Base

Updated: 1st January 2016

Blocks / Discs

5.6 Al/Cu		Cu	Mg	Si	Fe	Mn	Ni	Zn	Pb	Sn	Ti	Cr	Co	V	Be	Bi	Sb	Zr	Ag	Li	Ca	Size (mm) Ø x H	Form
CRM	56X G14H4 C	3.82	1.72	0.504	0.251	0.122	2.37	0.091	0.050	0.037	0.069	0.0309	0.0288	0.0252	....	....	....	....	....	....	....	50 x 20	C
CRM	56X G250J1 C	3.82	0.075	0.26	0.41	0.040	1.33	0.28	0.101	0.125	0.008	0.0067	0.008	0.102	<0.0005	....	(0.003)	(0.003)	....	....	....	40x15 or 50x20	C
CRM	56X G250J2 D	4.81	0.060	0.211	0.346	0.225	1.10	0.155	(0.0016)	(0.004)	0.210	0.063	0.195	0.018	....	....	0.324	0.247	....	....	....	40x15 or 50x20	C
CRM	56X G250J3 C	4.90	(0.001)	0.11	0.079	0.278	0.92	0.103	0.024	0.031	0.162	0.024	0.264	0.036	0.0014	....	0.35	0.275	....	....	....	40x13 or 50x18	C
CRM	56X G250J5 D	4.36	0.022	0.205	0.535	0.150	1.77	0.086	0.076	0.097	0.051	0.047	0.34	0.021	0.0022	....	0.076	0.22	....	....	....	40x15 or 50x20	C
CRM	56 X G2000J1 C	3.29	1.70	0.099	0.086	1.27	0.0046	0.864	0.022	0.099	0.0053	0.0007	0.00044	0.0097	....	0.008	....	0.293	0.0048	(0.0001)	....	40x15 or 50x20	C
CRM	56 X G2000J2 C	3.73	1.292	0.517	1.38	0.937	0.149	0.711	1.114	0.092	0.096	0.0200	0.056	0.170	0.0054	0.078	....	0.188	0.0446	0.0112	....	50 x 20	C
CRM	56 X G2000J3 C	4.78	1.018	0.773	0.382	0.589	0.091	0.114	0.375	0.0157	0.196	0.0573	0.108	0.0099	0.0039	0.152	....	0.0268	0.0105	0.0019	....	40x15 or 50x20	C
CRM	56 X G2000J4 C	5.02	0.505	1.33	0.705	0.271	0.089	0.0131	0.879	0.0092	0.135	0.053	0.0247	0.0132	....	0.0049	....	0.105	0.0122	0.0025	....	40x15 or 50x20	C
CRM	56 X G2000J5 C	5.52	0.39	0.321	0.98	0.007	0.204	0.368	0.69	<0.005	0.063	0.0078	0.077	0.027	0.0050	0.136	....	0.064	0.234	0.009	....	40x15 or 50x20	C
CRM	56X G2007 A	3.699	0.663	0.328	0.252	0.605	0.0087	0.386	0.889	0.0676	0.0236	0.0354	....	....	....	0.147	....	0.0020	....	....	0.0051	50 x 20	W
CRM	56X G2011 A	5.70	0.0102	0.089	0.632	0.0183	0.0044	0.0188	0.332	0.0037	0.0121	0.0031	....	....	....	0.527	....	....	....	....	....	50 x 20	W
CRM	56X G2014 A	4.41	0.453	0.611	0.243	0.572	0.0070	0.195	0.0110	(0.0047)	0.0244	0.0766	....	....	....	0.0013	....	0.135	....	....	....	50 x 20	W
CRM	56X G2024 A	4.34	1.509	0.122	0.178	0.658	0.0055	0.0446	0.0010	0.0010	0.0099	0.0389	....	0.0070	....	....	....	0.0053	....	....	....	50 x 20	W
CRM	56X G2618 A	2.45	1.625	0.175	1.057	0.0394	0.953	0.0139	0.0020	0.0007	0.069	0.0165	....	0.0162	....	....	....	0.0011	....	....	0.0020	50 x 20	W
5.6.1 Al/Cu/Ag		Cu	Mg	Si	Fe	Mn	Ni	Zn	Pb	Sn	Ti	Cr	Ag									Size (mm) Ø x H	Form
CRM	56X A201.1 A	4.49	0.198	0.193	0.089	0.310	0.0066	0.0113	0.0020	(0.0025)	0.132	0.0029	0.494									50 x 20	C
5.7 Al/Cu/Si		Cu	Mg	Si	Fe	Mn	Ni	Zn	Pb	Sn	Ti	Cr	Co	V	Be	Sb	Cd	Ga	Zr	B	Li	Size (mm) Ø x H	Form
CRM	57X G12H1 C	5.54	0.40	2.52	0.88	0.032	0.31	1.03	0.016	0.095	0.114	0.069	0.113	0.15	0.0019	....	0.012	....	0.07	....	0.008	40x15 or 50x20	C
CRM	57X G12H2 C	7.96	0.336	2.79	1.021	0.0900	0.309	0.999	0.12	0.202	0.0081	0.0148	0.0391	0.0027	....	....	0.0025	....	0.0111	(0.003)	....	50 x 15	C
CRM	57X G12H3 C	8.69	0.296	1.48	0.350	0.117	0.479	0.554	0.092	0.132	0.196	0.086	0.039	0.0126	0.0016	....	0.0055	....	(0.001)	....	....	50 x 20	C
CRM	57X G12H5 G	12.2	0.028	0.55	0.19	0.073	0.11	0.072	0.068	0.067	0.036	0.016	0.054	0.033	0.003	0.066	0.023	0.017	0.045	....	....	40x15 or 50x20	C
CRM	57X G12H6 A	8.28	0.292	1.63	0.85	0.223	0.387	6.74	0.110	0.108	0.108	0.054	0.0247	0.0143	(0.0003)	....	0.0028	....	0.0262	....	....	50 x 20	C
CRM	57X G12H7 A	4.75	0.020	1.21	0.369	0.0327	0.0380	0.384	0.030	0.0307	0.0565	0.0221	0.0483	0.0111	....	....	0.0002	....	0.0328	0.0093	....	50 x 20	C
	57X AlCu25 A	25.08	0.0012	5.78	0.42	0.0035	0.0017	5.89	....	0.0024	....	....	....	....	....	....	....	....	....	....	....	50 x 20	C
	57X AlCu28 A	27.78	0.0020	5.44	0.22	0.0032	0.0030	5.42	....	0.0023	....	....	....	....	....	....	....	....	....	....	....	50 x 20	C

5. Aluminium Base

Updated: 1st January 2016

Blocks / Discs

5.8 Al/Zn		Cu	Mg	Si	Fe	Mn	Ni	Zn	Pb	Sn	Ti	Cr	Co	Be	Zr	Cd	Sb	Li	Size (mm) Ø x H	Form				
CRM	58X G40H6 B	0.111	(0.003)	0.09	0.08	0.004	0.008	7.55	<0.002	<0.005	0.064	0.005	0.006	(0.002)	(0.004)	0.032	<0.0005	(0.004)	40x15 or 50x20	C				
CRM	58X G40H7 B	0.050	0.304	0.161	0.101	0.078	0.142	7.16	0.054	0.067	0.0045	0.0018	0.026	0.0012	0.0030	0.027	0.007	(0.0003)	40x15 or 50x20	C				
	58X G40H8 B	0.14	0.69	0.1	0.30	0.20	0.22	6.5	0.090	0.010	0.063	0.22	....	....	(0.004)	....	....	....	40x15 or 50x20	C				
CRM	58X G40H9 C	0.172	0.960	0.347	0.320	0.0372	0.062	4.83	0.190	0.068	0.279	0.241	0.0150	(0.0001)	0.157	....	....	....	50 x 20	C				
CRM	58X G40H10 C	0.188	1.25	0.224	0.361	0.269	0.097	4.66	0.044	0.042	0.187	0.468	0.050	(0.0003)	0.215	....	....	....	50 x 20	C				
5.9 Al/Zn/Mg/Cu		Cu	Mg	Si	Fe	Mn	Ni	Zn	Pb	Sn	Ti	Cr	Co	V	Bi	Cd	Ga	Zr	Be	As	Mo	B	Size (mm) Ø x H	Form
	59X G77J1 F	2.41	4.83	0.15	0.21	0.46	0.17	1.91	0.125	0.126	0.178	0.24	0.018	0.005	0.06	0.004	(0.013)	0.01	....	0.004	0.004	....	50 x 20	C
CRM	59X G77J2 E	2.37	3.04	0.206	0.293	0.239	0.527	3.25	0.127	0.0054	0.0156	0.0966	....	0.0153	....	0.0023	....	0.152	....	....	....	....	40x15 or 50x20	C
CRM	59X G77J3 F	1.30	2.53	0.647	0.70	0.246	0.402	4.72	0.108	0.122	0.148	0.150	0.032	0.0181	0.0297	0.0095	....	0.0144	....	....	....	....	50 x 20	C
CRM	59X G77J4 E	0.81	1.47	0.59	1.04	0.224	0.0037	5.30	0.073	0.219	0.119	0.071	....	0.0067	....	0.00054	....	0.080	....	....	....	....	40x15 or 50x20	C
CRM	59X G77J5 E	0.0203	0.851	0.562	1.37	0.0398	1.002	7.82	0.0194	0.0140	0.0255	0.0301	0.0373	0.052	....	0.0142	....	0.0194	0.0036	....	....	....	50 x 15	C
CRM	59X G77J6 B	1.08	2.60	0.094	0.293	0.0318	0.0248	12.02	0.0123	0.0267	0.020	0.0127	0.0087	0.0107	....	0.0015	....	0.261	0.0079	....	....	....	50 x 20	C
CRM	59X G7020 A	0.0320	1.313	0.049	0.178	0.200	0.0051	4.82	0.0018	0.0022	0.0261	0.192	....	0.0107	....	....	....	0.146	....	....	....	0.0025	50 x 20	W
CRM	59X G7022 A	0.631	2.69	0.126	0.120	0.127	0.0030	5.17	0.0019	0.0006	0.0160	0.140	....	....	....	....	....	0.0016	....	....	....	....	50 x 20	W
CRM	59X G7050 A	2.119	2.030	0.045	0.0745	0.0047	0.0041	6.18	0.0010	0.0010	0.0242	0.0097	....	0.0092	....	....	....	0.100	....	....	....	0.0011	50 x 20	W
CRM	59X G7068 A	1.676	2.70	0.051	0.117	0.0156	0.0056	7.96	0.0020	(0.001)	0.0419	0.0324	....	....	....	....	....	0.088	....	....	....	....	50 x 20	W
CRM	59X G7075 A	1.68	2.324	0.147	0.239	0.0757	0.0045	5.69	0.0177	0.0008	0.0615	0.196	....	....	....	....	0.0088	0.0008	....	....	....	....	50 x 20	W
5.11 Al/Mg		Cu	Mg	Si	Fe	Mn	Ni	Zn	Pb	Sn	Ti	Cr	Co	V	Be	Cd	Ga	Zr	B	Li	Mo	Size (mm) Ø x H	Form	
CRM	511X G05H1 H	0.32	2.02	0.42	0.79	0.012	0.125	0.47	0.023	0.178	0.204	0.242	....	0.053	(0.0002)	0.013	....	(0.002)	....	....	....	....	40x15 or 50x20	C
CRM	511X G05H2 H	0.188	3.58	0.299	0.641	0.124	0.157	0.372	0.049	0.0495	0.068	0.172	....	0.0248	0.0018	0.0023	....	0.0105	0.0083	....	....	....	50 x 15	C
	511X G05H3 H	0.093	3.97	0.21	0.41	0.40	0.090	0.092	0.107	0.096	0.25	0.095	....	....	0.0074	....	....	....	....	....	....	....	40x15 or 50x20	C
	511X G05H4 F	0.056	5.1	0.11	0.14	0.55	0.040	0.062	0.15	0.14	0.048	0.029	....	....	0.014	....	....	....	....	....	....	....	50 x 20	C
CRM	511X G05H5 F	0.071	9.22	0.141	0.129	1.110	0.0129	0.019	0.185	0.0089	0.0157	0.0113	....	0.041	0.0062	....	....	0.107	....	....	....	....	50 x 20	C
CRM	511X G10H4 C	0.163	10.24	0.244	0.193	0.228	0.117	0.117	0.080	0.075	0.155	0.083	....	....	0.0061	....	....	....	....	....	....	....	50 x 20	C
CRM	511X G10H5 B	0.0227	13.97	0.050	0.057	0.098	0.036	0.029	0.165	0.013	0.0052	0.0017	....	....	0.0274	....	....	....	....	0.0032	....	....	50 x 20	C
CRM	511X G3000B1 C	0.287	0.253	0.788	0.669	0.752	0.142	0.0347	0.145	0.163	0.0327	0.0972	....	0.054	....	....	0.051	....	....	....	....	....	40x15 or 50x20	C
CRM	511X G3000B2 B	0.20	0.68	0.23	0.335	0.81	0.063	0.098	0.137	0.105	0.111	0.200	0.007	<0.005	0.0017	(0.0007)	0.012	....	....	0.017	(0.059)	....	40x15 or 50x20	C
CRM	511X G3000B3 B	0.120	0.80	0.35	0.376	1.06	0.116	0.140	0.062	0.028	0.22	0.056	0.008	<0.005	0.005	(0.001)	0.014	....	....	....	(0.093)	....	40x15 or 50x20	C
CRM	511X G3000B4 C	0.086	1.267	0.130	0.440	0.916	0.0347	0.058	0.0285	0.0456	0.052	0.0121	....	0.0199	0.0140	....	0.0284	....	....	....	....	....	50 x 20	C

5. Aluminium Base

Updated: 7th January 2016

Blocks / Discs

5.11 Al/Mg continued																Size (mm)	Form					
		Cu	Mg	Si	Fe	Mn	Ni	Zn	Pb	Sn	Ti	Cr	V	Zr	Bi	Ga	Ø x H					
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																Size (mm)	Form					
		Cu	Mg	Si	Fe	Mn	Ni	Zn	Pb	Sn	Ti	Cr	Bi	Zr	Be	Ø x H						
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 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																Size (mm)	Form					
		Cu	Mg	Si	Fe	Mn	Ni	Zn	Pb	Sn	Ti	Cr	Zr				Ø x H					
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				40x13	C				
5.17 Sacrificial Anode																Size (mm)	Form					
		Cu	Mg	Si	Fe	Mn	Ni	Zn	Pb	Sn	Ti	Cr	In	Ga	Cd	Ø x H						
CRM	517X LF1 A	0.0020	0.0097	0.248	0.101	0.0013	0.0010	3.71	(0.002)	(0.005)	0.0396	(0.001)	0.0187	0.0164	<0.0005	45 x 20		C				
5.18 Pressed Powder Alloys																Size (mm)	Form					
		Cu	Mg	Si	Fe	Mn	Ni	Zn	Pb	Sn	Ti	Cr	Co	V	Ca	Mo	Zr	Sr	B	P	Ø x H	
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. Magnesium Base

Updated: 7th January 2016

Blocks / Discs

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

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

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

6.5 Mg/Al/Zn		Al	Zn	Mn	Cu	Si	Fe	Ni	Sn	Pb	Be	Ca	Ag	Ce	La	Cd	Sr	Hg	Typical alloy type	Size (mm) Ø x H	Form
CRM	65X MGA1 J **	5.45	1.26	0.060	0.221	0.20	0.021	0.021	0.072	0.012	0.006	0.029	0.012	0.009	0.007	0.013	....	....	** unsuitable for use with glow-discharge systems	45 x 20	C
CRM	65X MGA5 A	8.00	0.411	0.401	0.0195	0.110	0.006	0.0201	0.0124	0.042	0.0013	(0.014)	0.0050	....	....	0.0035	0.0004	....		40x15 or 50x20	C
CRM	65X MGA11 A	3.63	1.59	0.044	0.0496	0.022	0.0048	0.0134	0.093	0.0190	0.0021	0.102	(0.0002)	(0.0005)	(0.0005)	0.0014	....	0.006		40x15 or 50x20	C
CRM	65X MGA12 A	5.68	3.18	0.198	0.266	0.0142	0.0053	0.0148	0.0021	0.010	(0.0036)	0.037	0.0128	0.0009	0.0007	0.0121	....	(0.016)		40x15 or 50x20	C
CRM	65X MGA13 A	7.45	0.925	0.092	0.125	0.022	(0.008)	0.0039	0.043	0.0085	(0.010)	0.0064	0.0074	0.0024	0.0021	0.0055	....	(0.033)		40x15 or 50x20	C
CRM	65X MGA14 B **	9.35	0.75	0.24	0.017	0.21	0.021	0.007	0.01	0.01	0.002	....	0.005	0.015	0.007	0.0014	....	0.035	** provisional values	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

Section 6.5 continues on following page.

6. Magnesium Base

Updated: 1st January 2016

Blocks / Discs

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

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

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

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

The rare-earths in the above product were added as Neodymium rich R.E, but breakdowns of the individual R.E. values are not available.

Samples marked ** may be unsuitable for use with glow discharge analysers.

7. Tin Base

Updated: 1st January 2016

Blocks / Discs

7.1 Tin with Impurities		As	Bi	Sb	Pb	Cu	Fe	Cd	Zn	Ni	Al	Ag	Cr	Co	In	Au	Te	Se	P	Ga	Ge	Hg	Size (mm) Ø x H	Form		
CRM	71X PB3 A	0.0022	0.0103	0.0024	2.77	0.0074	0.0008	0.0016	0.0011	40 x 15	C	
CRM	71X PB4 A	0.0045	(0.002)	0.0059	4.00	0.0014	0.0027	0.0063	0.0047	40 x 15	C	
CRM	71X SR0 C	0.0005	0.0029	0.0055	0.0457	0.0073	0.0040	0.0024	0.0053	0.0025	0.0414	0.0024	0.0004	0.0088	0.0012	0.0021	0.0006	0.0004	0.0054	0.0021	0.0099	40 x 15	C	
CRM	71X SR1 E	0.0102	0.0107	0.0156	0.0324	0.0111	(0.0021)	0.0104	0.0146	0.0041	(0.0016)	0.0212	0.0120	0.0014	0.0112	(0.0015)	0.0049	0.0142	40 x 15	C	
CRM	71X SR2 F	0.0070	0.0403	0.074	0.151	0.116	0.0133	0.0351	0.0058	0.0183	0.0022	0.0305	0.0031	0.0597	0.0077	0.0246	0.009	0.140	40 x 15	C	
CRM	71X SR3 F	0.097	0.123	0.128	0.306	0.121	0.0203	0.100	0.054	0.0371	(0.0014)	0.050	0.104	0.0145	0.070	0.0031	0.0339	0.115	40 x 15	C	
7.3 Tin White Metals (Pewter, Babbit)		As	Bi	Sb	Pb	Cu	Fe	Cd	Zn	Ni	Al	Ag	Co	In	S	P							Size (mm) Ø x H	Form		
CRM	73X SC1 A	0.008	0.084	1.48	0.067	2.02	0.0025	0.006	0.003	0.0041	0.0025	0.010	<0.001	0.008	<0.002	....							40 x 15	C	
CRM	73X SC2 B	0.0355	0.602	3.05	0.0457	1.028	0.0037	0.0282	(0.0007)	0.0156	....	0.0318	0.0217	0.0099	....	....							40 x 15	C
CRM	73X SC3 A	0.029	0.020	4.60	0.040	0.222	0.017	0.024	0.0014	0.0136	0.001	0.013	0.006	0.031	(0.002)	....							40 x 15	C	
CRM	73X SC4 B	0.0268	0.153	5.94	0.429	2.63	0.0014	0.0085	(0.001)	0.0130	(0.002)	0.0525	0.0020	0.0143	....	0.005							40 x 15	C	
CRM	73X SC5 A	0.013	0.43	7.03	0.136	0.57	0.004	0.008	0.001	0.0058	0.003	0.063	0.011	0.036	(0.001)	....							40 x 15	C	
CRM	73X SC6 A	0.204	0.115	0.092	0.100	5.17	0.007	0.0125	0.01	0.013	(0.003)	0.08	0.0050	0.058	(0.004)	....							40 x 15	C	
CRM	73X SC7 B	0.059	0.013	13.86	0.32	5.71	(0.043)	0.0019	0.0033	0.0160	(0.001)	0.0059	0.0143	0.0194	(0.001)	....							40 x 15	C	
CRM	73X SC8 B	0.11	0.0531	5.52	0.110	3.78	0.055	0.098	0.004	0.0351	(0.001)	0.0253	0.0267	0.0325	0.004	....							40 x 15	C	
CRM	73X SC9 B**	0.11	0.082	8.35	0.30	8.2	0.053	0.050	....	0.0084	0.0012	0.006	0.0053	0.006	....	....							40 x 15	C
CRM	73X SC11 C**	0.25	0.56	12.5	0.065	11.5	0.003	1.70	0.005	0.12	....	0.055	....	....	....	0.025							40 x 15	C
CRM	73X SC12 B	(0.034)	0.0301	7.50	0.091	6.03	0.024	0.758	0.0210	0.115	0.0015	0.842	0.0210	....	....	....							40 x 15	C
CRM	73X SC13 A	0.054	0.0188	4.21	0.259	4.19	0.053	0.0021	0.0126	....	(0.01)	....	....	....	....	(0.02)							40 x 15	C
7.4 Tin Lead-Free Solders		As	Bi	Sb	Pb	Cu	Fe	Cd	Zn	Ni	Al	Ag	P	Se	Au	Co	Ge	In							Size (mm) Ø x H	Form
CRM	74X AM F	0.0038	0.190	1.064	0.126	3.07	(0.001)	0.0061	(0.006)	0.0260	(0.001)	0.496	(0.002)	(0.001)	0.0082							40 x 15	C
CRM	74X E F	0.0092	0.0099	0.0168	0.0248	2.94	0.0008	0.0003	(0.005)	0.0069	(0.001)	0.667	(0.001)	0.0008	0.0074							40 x 15	C
CRM	74X HA G	0.0032	0.0639	2.10	0.077	0.629	0.0029	0.0018	2.73	0.0133	(0.002)	2.80	(0.001)	(0.001)	0.0090							40 x 15	C
CRM	74X HB G	0.045	0.038	4.81	0.056	4.49	0.0138	0.0103	(0.02)	1.22	(0.003)	0.086	(0.002)	0.0038	0.0179							40 x 15	C
CRM	74X HN E	0.010	0.122	0.037	0.0404	3.82	0.010	0.0057	(0.0009)	0.185	0.005	0.143	(0.002)	0.0016							40 x 15	C
CRM	74X TC F	0.024	0.106	0.124	0.183	4.99	0.0031	0.0150	0.004	0.0167	(0.001)	0.039	(0.002)	0.0473	0.0215							40 x 15	C
CRM	74X BZ1 A	0.0119	3.03	0.031	0.0238	0.026	0.011	0.0012	8.27	0.0097	0.0021	0.004							40 x 15	C
CRM	74X AB1 A	0.0280	0.997	0.0111	0.0353	0.0285	0.0435	0.0199	0.0036	3.58	0.0010	0.0032	0.0262							40 x 15	C
CRM	74X GE1 A	0.0339	0.662	0.0059	0.0289	0.065	0.052	0.046							38 x 13	C
CRM	74X GE2 A	0.0467	0.713	0.0086	0.031	0.068	0.079	0.479							38 x 13	C

** provisional values

** provisional values

7. Tin Base

Updated: 1st January 2016

Blocks / Discs

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

8. Lead Base

Updated: 2nd January 2016

Blocks / Discs

8.1 Binaries: Pb/Sb, Pb/As & Pb/Mg		Sb	As	Mg													Size (mm) Ø x H	Form					
CRM	81X PA0.5 C	0.481	....	....													40 x 15	C				
CRM	81X PA1.0 C	0.989	....	....													40 x 15	C				
CRM	81X PA2.0 D	1.996	....	....													40 x 15	C				
CRM	81X PA3.5 E	3.49	....	....													40 x 15	C				
CRM	81X PA7.0 D	7.02	....	....													40 x 15	C				
CRM	81X PA10.0 C	9.60	....	....													40 x 15	C				
CRM	81X PA12.5 D	12.72	....	....													40 x 15	C				
	81X PAs1 A	....	1.25	....													40 x 15	C				
	81X PMg1 A	....	....	1.15													40 x 15	C				
	81X PMg2 A	....	....	0.173													40 x 15	C				
	81X PMg3 A	....	....	0.023													40 x 15	C				
8.2 Pb/Ag		Sn	Sb	Bi	Cu	As	Ag	Zn	Cd	Fe	In	Al								Size (mm) Ø x H	Form		
CRM	82X PAg 1.5R E	0.036	0.386	0.065	0.27	0.005	1.55	(0.004)	....	....	....	....								40 x 15	C	
CRM	82X PAg 2.5R D	0.082	0.246	0.13	0.26	0.009	2.21	(0.0024)	....	....	....	....								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								40 x 15	C		
CRM	82X PAg 6.0R A	0.50	0.48	0.52	0.18	0.021	5.93	0.007	0.010	<0.001	0.008	<0.001								40 x 15	C		
	82X PAG0.7 A	....	....	....	....	....	0.733	....	....	....	....	....								40 x 15	C	
	82X PAG0.9 A	....	....	....	....	....	0.903	....	....	....	....	....								40 x 15	C	
8.3 Lead with Impurities		Sn	Sb	Bi	Cu	As	Ag	Fe	Zn	Cd	In	Ni	Te	Se	Au	Tl	Na	Hg	Pt	S	Size (mm) Ø x H	Form	
CRM	83X PR1 K	0.016	0.0100	0.0508	0.0465	0.0338	0.1029	....	(0.002)	0.074	0.0080	(0.0004)	0.0058	0.0008	0.0019	....	....	....	....	....	40 x 15	C
CRM	83X PR2 G	0.0948	0.0499	0.0404	0.0309	0.0233	0.055	....	0.0005	0.0020	0.0010	0.0006	0.0100	0.0005	0.0005	(0.0017)	0.0013	0.003	....	....	40 x 15	C
CRM	83X PR3 F	0.050	0.095	0.162	0.0551	0.0017	0.0033	....	(0.0011)	0.0479	0.0069	0.0142	0.0021	0.0104	0.0041	0.0125	0.0026	0.0103	....	....	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 F	(0.0001)	(0.0001)	0.0020	0.0002	(0.0002)	0.0011	(0.0002)	0.0002	(0.0001)	....	0.0001	(0.0001)	(0.0002)	....	....	....	(0.0003)	....	....	40 x 15	C
CRM	83X PR7 B	0.189	0.795	0.479	0.176	0.051	0.290	(0.0008)	(0.0006)	0.455	0.653	(0.0015)	0.0097	0.0052	....	....	....	....	0.0047	....	40 x 15	C
CRM	83X PR8 C	0.603	0.259	1.186	0.066	0.155	0.505	....	....	0.211	0.224	0.0020	0.0011	0.0064	0.0082	....	0.0073	0.089	....	....	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
		Sn	Ag	Zn	Cd	Al	Li	Na	Mg	Ca	Ba											Size (mm) Ø x H	Form
CRM	83X PR9 A	0.153	0.0049	0.0045	0.0007	0.0138	0.066	0.077	0.054	0.556	0.200											40 x 13	C
	83X PR9-1 A	0.054	0.003	0.0007	0.0004	0.0001	0.004	0.015	0.006	0.096	0.033											40 x 13	C
	83X PR9-2 A	0.015	0.003	0.0002	0.0004	0.0001	0.002	0.007	0.002	0.046	0.015											40 x 13	C
																	these are not CRMs						

8. Lead Base

Updated: 2nd January 2016

Blocks / Discs

8.4 Battery Alloys (Pb/Sn/Ca)		Sn	Sb	Bi	Cu	As	Ag	Zn	Cd	Al	Ca	Ni	Te	Size (mm) Ø x H	Form	
CRM	84X BA1 J	0.989	0.0011	0.0154	0.0016	(0.0007)	0.0102	0.0058	0.0017	0.0218	0.1001	(0.0005)	(0.0003)	40 x 15	C	
CRM	84X BA2 D	0.544	(0.003)	0.0230	(0.002)	0.0004	0.0044	0.0273	0.0040	0.0183	0.0756	(0.0004)	(0.0003)	40 x 15	C	
CRM	84X BA3 C	0.341	0.010	0.0411	0.006	(0.0006)	0.0082	(0.0055)	0.0044	0.0026	0.0163	(0.0004)	0.0004	40 x 15	C	
CRM	84X BA4 C	0.0480	0.0078	0.0260	0.0064	(0.003)	0.0020	0.0065	0.0092	0.0015	0.0014	(0.0004)	0.0205	40 x 15	C	
CRM	84X BA7 B	0.594	0.0022	0.0140	0.0020	(0.0004)	0.0015	0.0024	0.0004	0.0085	0.0391	(0.0003)	(0.0002)	40 x 15	C	
CRM	84X BA8 D	0.325	0.0043	0.0147	0.0008	0.0005	0.0035	0.0018	0.0004	0.0359	0.136	0.0002	(0.0002)	40 x 15	C	
CRM	84X BA9 C	2.94	(0.005)	0.0145	0.0021	(0.0005)	0.0023	0.0017	0.0011	0.0207	0.118	(0.0001)	(0.0003)	40 x 15	C	
CRM	84X BA11 A	1.304	0.0079	0.0165	0.0026	0.0005	0.0023	0.0005	0.0006	0.0125	0.0552	....	....	40 x 15	C
CRM	84X BA12 B	1.483	0.0007	0.0181	(0.001)	0.0005	0.0051	0.0025	0.0009	0.0148	0.0665	....	....	40 x 15	C
CRM	84X BA13 A	1.716	0.0010	0.0370	0.0007	0.0008	0.0075	0.0047	0.0014	0.0198	0.0738	....	....	40 x 15	C
CRM	84X BA14 A	0.959	(0.002)	0.0162	0.0016	(0.0004)	0.0103	0.0057	0.0015	0.0188	0.076	(0.0002)	(0.0002)	40 x 15	C	
CRM	84X BA15 A	0.941	0.0047	0.0140	0.0011	0.0005	0.0095	0.0062	0.0013	0.0161	0.0865	....	....	38 x 15	C
CRM	84X BA20 B	0.370	0.0038	0.0144	....	....	0.0295	0.0435	0.0051	0.065	0.368	....	....	38 x 15	C
CRM	84X BA21 B	0.162	0.0028	0.0173	....	....	0.0102	0.0155	0.0007	0.0125	0.553	....	....	40 x 15	C
CRM	84X BA22 B	0.128	0.0022	0.0138	....	....	0.0044	0.0053	0.0018	0.074	0.799	....	....	38 x 15	C
CRM	84X BA23 B	0.237	0.0061	0.0134	....	....	0.0024	0.0026	0.00012	0.0569	1.052	....	....	38 x 15	C
8.5 Various Lead Alloys		Sn	Sb	Bi	Cu	As	Ag	Zn	Cd	Ni	Te	Se	S	Co	Size (mm) Ø x H	Form
CRM	85X PSn2 C	2.06	0.0239	0.0154	0.0128	0.0048	0.0048	(0.0004)	0.0007	0.0003	0.0045	0.0042	(0.0009)	0.0004	40 x 15	C
CRM	85X PSb3 H	0.15	2.24	0.0191	0.0308	0.275	0.0046	0.0008	0.0029	0.0044	0.0053	0.0233	(0.001)	40 x 15	C
CRM	85X PSb5 B	0.94	4.87	0.0195	0.0346	0.197	0.0257	(0.0017)	0.0011	0.0011	0.0018	0.0020	(0.0040)	40 x 15	C
CRM	85X PSb5 C	0.040	4.46	0.0219	0.0238	0.135	0.0026	(0.0006)	0.0009	0.0013	0.0015	0.0020	0.030	40 x 15	C
CRM	85X PSb5 D	0.094	4.68	0.0204	0.0251	0.180	0.0023	(0.0020)	0.0013	0.0017	0.0018	0.0024	0.0075	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 PSb8 B	0.041	8.04	0.0178	0.0169	0.0352	0.0049	<0.001	0.0010	0.0016	0.0043	0.0022	0.005	40 x 15	C
CRM	85X PSb10 B	0.090	10.00	0.0410	0.169	0.127	0.0020	0.015	0.0018	0.0027	0.0037	0.0020	<0.001	40 x 15	C
CRM	85X PSb12 B	0.270	11.50	0.0310	0.330	0.071	0.0019	0.071	0.00053	0.0033	0.0056	0.0004	<0.001	40 x 15	C

8. Lead Base

Updated: 2nd January 2016

Blocks / Discs

8.5 Various Lead Alloys		Sn	Sb	Bi	Cu	As	Ag	Fe	Zn	Cd	In	Ni	Te	Se	Au	Tl	S	Hg	Co	Mn	Size (mm) Ø x H	Form
CRM	85X ANTH F	1.25	6.25	0.0196	0.0072	0.183	0.0070	(0.0004)	0.0005	0.0039	....	0.0045	0.0067	0.014	....	....	0.0026	....	0.0006	....	40 x 15	C
CRM	85X CADH B	0.096	1.85	0.0292	0.0260	0.201	0.0076	0.0005	0.044	2.09	....	0.0045	0.0121	0.0010	....	....	<0.0005	....	....	<0.0005	40 x 15	C
CRM	85X CADL A	0.010	1.54	0.0169	0.0093	0.0065	0.0076	(0.0006)	(0.0018)	1.69	....	(0.0005)	0.0030	(0.0011)	....	....	....	....	....	....	40 x 15	C
CRM	85X HRH H	0.851	1.107	0.0996	0.072	0.721	0.236	....	....	0.0066	....	0.0012	0.0024	0.0375	....	....	(0.0022)	....	....	....	40 x 15	C
CRM	85X SASH A	0.0130	1.54	0.0602	0.0245	0.683	0.0016	....	....	0.00024	....	0.0005	0.0006	....	....	....	(0.0005)	....	....	....	40 x 15	C
CRM	85X A16 A	0.0356	1.57	0.0165	0.0006	0.0503	0.0297	(0.0001)	0.0001	0.0001	....	0.0006	....	0.0218	....	....	(0.0003)	....	....	....	38 x 15	C
CRM	85X M2 A	0.071	1.847	0.0141	0.0281	0.259	0.0016	(0.0002)	(0.0001)	0.0003	....	0.0005	....	0.0247	....	....	(0.0008)	....	....	....	38 x 15	C
CRM	85X MS2X A	0.392	1.367	0.0188	0.0277	0.176	0.0043	(0.0001)	0.0003	0.0002	....	0.0004	....	0.0334	....	....	(0.0002)	....	....	....	38 x 15	C
CRM	85X N35 A	0.044	3.42	0.0130	0.0246	0.201	0.0011	(0.0001)	0.0001	0.00013	....	0.0006	....	0.0004	....	....	0.007	....	....	....	38 x 15	C
CRM	85X SB28 A	0.051	2.87	0.0140	0.0035	0.162	0.0025	(0.0002)	(0.0001)	(0.0001)	....	0.0012	....	0.0223	....	....	0.0010	....	....	....	38 x 15	C
CRM	85X SM31 A	0.0274	2.98	0.0114	0.0084	0.0581	0.0009	(0.0001)	0.0002	(0.0001)	....	0.0006	....	0.0183	....	....	0.0003	....	....	....	38 x 15	C
CRM	85X YUM A	0.0046	2.47	0.0137	0.0234	0.306	0.0018	....	(0.0002)	0.0002	....	0.0007	0.0005	0.0008	....	....	0.0062	....	....	....	40 x 15	C
CRM	85X 2.5LA A	0.068	2.48	0.0142	0.0372	0.334	0.0017	....	0.0002	(0.0002)	....	0.0005	0.0004	0.0006	....	....	(0.0006)	....	....	....	40 x 15	C
CRM	85X SSBC A	9.70	2.14	0.413	....	0.075	0.456	....	....	0.455	0.209	....	0.0037	0.0029	0.0079	0.0196	(0.0008)	....	....	....	40 x 15	C
CRM	85X SSCH A	2.64	5.52	0.0441	0.177	0.208	0.0134	(0.002)	0.0007	0.0040	....	0.010	0.0070	(0.015)	....	....	0.0035	....	....	....	40 x 15	C
CRM	85X 0494Pb1 A	0.051	0.95	0.0017	0.012	0.049	....	....	....	....	....	....	....	0.004	....	....	....	....	....	....	40 x 15	C
CRM	85X 0494Pb3 C	0.245	2.99	0.129	0.108	0.248	0.0212	(0.0003)	....	....	....	....	0.0145	0.036	....	....	0.007	....	....	....	40 x 15	C
CRM	85X 0616Pb1 C	0.0045	1.59	0.0333	0.0143	0.060	0.0071	....	0.0004	0.0016	....	0.0011	0.0065	0.0087	....	....	....	0.0010	....	....	40 x 15	C

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

9. Lead/Tin Solders

Updated: 2nd January 2016

Blocks / Discs

9.1 Tin / Lead Solders		Sn	Sb	Bi	Cu	As	Ag	Fe	Zn	Cd	In	Ni	Al	Te	Au	Se	Hg	Size (mm) Ø x H	Form
CRM	91X S10PR1 C	9.10	0.0278	0.0277	0.0097	0.0045	0.0078	(0.0016)	<0.001	0.0029	....	0.0006	....	....	....	....	....	40 x 15	C
CRM	91X S10P D	10.07	(0.002)	(0.006)	(0.001)	(0.001)	(0.001)	<0.001	<0.0001	<0.0001	<0.001	<0.001	<0.001	....	....	....	....	40 x 15	C
CRM	91X S30PR2 C	30.17	0.619	0.158	0.095	0.028	0.060	0.009	0.016	0.0060	....	0.0077	<0.0005	....	0.0017	....	....	40 x 15	C
CRM	91X S30PR3 C	30.88	0.269	0.294	0.102	0.0126	0.024	0.0016	(0.003)	0.0115	0.0085	0.0269	....	....	0.0063	....	....	40 x 15	C
CRM	91X S40PR2 D	40.68	0.596	0.154	0.085	0.010	0.086	0.0096	0.0275	0.0046	....	0.0050	....	....	....	....	....	40 x 15	C
CRM	91X S40P D	40.00	(0.002)	(0.005)	(0.001)	(0.007)	(0.001)	(0.001)	<0.0001	<0.0001	(0.002)	<0.001	<0.0005	....	....	....	....	40 x 15	C
CRM	91X S50PR4 B	53.06	0.132	0.114	1.184	0.0364	0.0704	0.0025	0.032	0.0123	0.0502	0.0171	(0.0006)	...	0.0355	0.003	....	40 x 15	C
CRM	91X S50P E	50.05	(0.002)	(0.005)	(0.002)	(0.006)	(0.001)	(0.001)	<0.0001	<0.0001	(0.003)	(0.001)	<0.0005	....	....	....	....	40 x 15	C
CRM	91X S62AG2 A	61.68	0.347	0.168	0.069	0.022	2.03	0.0065	0.0011	0.0016	....	(0.0016)	(0.0011)	....	0.0020	....	....	40 x 15	C
CRM	91X S63PR0 B	60.03	0.0182	0.0084	0.0202	0.0094	0.0097	(0.002)	<0.0005	0.0097	0.0048	0.0018	....	0.0034	0.0148	....	0.004	40 x 15	C
CRM	91X S63PR1 G	61.45	0.052	0.0588	0.214	0.0064	0.0061	(0.002)	(0.002)	0.0045	0.0308	0.0060	....	0.0047	0.0348	....	(0.015)	40 x 15	C
CRM	91X S63PR2 J	62.38	0.539	0.144	0.0733	0.0190	0.054	0.0129	0.004	0.0130	0.0154	0.0092	(0.0014)	0.0032	0.076	....	....	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 S63PR4 A	66.8	0.093	0.030	0.021	<0.002	0.030	<0.005	<0.001	0.021	0.014	<0.005	....	0.006	0.05	....	....	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: 2nd January 2016

Blocks / Discs

9.5 Fusible Alloys	Nominal Melting Temperature °C																Size (mm) Ø x H	Form
	Sn	Sb	Bi	Cu	As	Ag	Fe	Zn	Cd	In	Al	Pb	Co	Ni	Au			
95X 117 A	7.99	0.012	45.3	0.011	....	0.0047	....	0.0053	4.99	18.6	....	23.1	....	....	....	47	40 x 15	C
95X 136 A	12.05	0.023	48.7	0.0029	....	0.0057	....	0.030	0.0091	21.5	....	17.8	....	....	....	58	40 x 15	C
95X 158 A	13.5	0.057	50.2	0.048	....	0.002	....	0.044	9.6	0.006	....	27.0	....	....	....	70	40 x 15	C
95X 174 A	16.79	0.082	57.12	0.0029	....	0.0076	....	0.036	0.0089	26.2	....	0.081	....	....	....	79	40 x 15	C
95X 255 A	0.24	0.32	55.7	0.045	....	0.0019	....	0.035	0.0065	0.010	....	43.7	....	....	....	124	40 x 15	C
95X BIS40P1 B	42.3	0.092	57.4	0.0670	0.0101	0.035	(0.001)	....	0.0050	0.0164	....	0.043	....	....	....	138	40 x 15	C
95X BIS40P2 A	44.7	0.005	55.3	0.003	0.002	0.005	0.001	0.002	0.0008	0.005	0.002	0.020	0.001	0.002	0.0006	....	40 x 15	C
95X BIS40P3 A	38.2	0.020	60.0	0.10	(0.005)	0.29	0.014	0.001	0.005	1.01	0.034	0.106	0.016	0.032	0.009	....	40 x 15	C
95X BIS40P4 A	38.2	0.144	58.0	0.21	(0.007)	(0.70)	0.047	0.003	0.009	2.02	0.062	0.210	0.031	0.073	0.009	....	40 x 15	C
95X BIS50P1 A	50.0	....	49.8	....	....	....	0.051	0.006	0.022	....	....	....	....	0.025	....	....	40 x 15	C
95X BIS50P2 A	50.3	....	49.6	....	0.002	0.090	0.007	....	....	....	0.005	....	....	....	0.015	....	40 x 15	C
95X BIS50P3 A	48.6	....	49.8	....	0.073	1.50	0.003	0.002	0.015	....	....	....	....	....	0.0025	....	40 x 15	C
95X BIS70P1 A	69.1	....	29.6	....	0.025	1.10	0.010	....	....	0.040	<0.001	....	....	0.029	0.0004	....	40 x 15	C
95X BIS70P2 A	65.0	....	32.8	....	....	2.01	....	0.001	....	0.049	<0.001	....	....	....	....	....	40 x 15	C
95X CDS50P1 A	50.1	0.113	0.13	0.26	0.027	0.030	(0.0022)	0.007	18.1	0.092	<0.002	31.0	....	....	....	145	40 x 15	C
95X PBS40P1 A	42.6	0.016	13.8	0.025	0.005	0.011	(0.0006)	0.0010	0.0043	0.005	(0.0006)	(43.6)	....	....	....	....	40 x 15	C
95X SC34 A	34.05	....	....	....	....	....	....	....	(65.99)	....	....	....	....	....	....	....	40 x 15	C
95X SC36 A	36.09	....	....	....	....	....	....	....	(63.98)	....	....	....	....	....	....	....	40 x 15	C

10. Titanium Base

Updated: 2nd January 2016

Blocks / Discs

10.1 Various Ti Alloys																		Size (mm)	Form	
		Al	Sn	V	Mo	Nb	Zr	Cr	Fe	Ni	Cu	Si	Y	C	S	N	O	H	Ø x H	
CRM	101X Ti2 A	6.02	2.05	....	2.08	....	3.97	0.0054	0.053	0.0073	(0.003)	0.110	0.0002	0.016	....	0.0053	0.143	0.0076	40 x 13	HIP
CRM	101X Ti3 A	6.14	0.0215	4.00	0.0213	....	0.0152	0.0194	0.104	0.0303	0.0047	0.013	0.0101	0.0619	....	0.010	0.198	0.0034	40 x 13	HIP

Note: These products are available in other thicknesses on request

11. Cobalt Base

Updated: 13th January 2015

Blocks / Discs

11.1 Co/Cr/W (Alloy WI 52 Type)																		Size (mm)	Form	
		C	Si	S	P	Mn	Ni	Cr	W	Fe	Mo	Nb	Ta	Al	Cu	N	Pb	Sn	Ø x H	
	111X 12669 J	....	0.71	....	....	0.57	0.62	22.04	10.65	1.41	....	2.06	....	....	....	....	....	....	40 x 15	C
	111X 12671 J	....	0.51	....	....	0.61	0.88	20.5	11.8	1.45	....	1.95	....	....	....	....	....	....	40 x 15	C
CRM	111X 12673 A	(0.005)	0.82	0.022	0.010	0.52	1.69	19.0	9.75	1.70	0.086	2.35	0.06	<0.005	0.104	0.031	(0.003)	0.074	40 x 15	C

11.2 Co/Cr/Mo (Stellite 8 / BS 3531 Type)																Size (mm)	Form	
		C	Si	S	P	Mn	Ni	Cr	W	Fe	Mo	Al	Nb	Cu	B	N	Ø x H	
CRM	112X 14943 G	0.129	0.58	0.026	0.006	1.20	0.138	30.64	0.060	1.23	7.94	(0.024)	0.119	0.229	0.0059	0.056	40 x 15	CC

11.9 Various Cobalt Alloys																	Size (mm)	Form
		C	Si	S	P	Mn	Ni	Cr	W	Fe	Mo	Cu	Nb	Al	B	N	Ø x H	
CRM	119 X COB1 H **	0.053	0.55	0.008	0.02	0.52	22.5	24.5	12.0	15.2	0.40	0.06	0.40	0.09	....	0.093	40 x 15	CC
CRM	119X ST3 L	2.36	0.807	0.0260	....	0.887	2.15	29.9	12.6	3.42	0.163	0.032	....	....	0.127	0.053	40 x 15	CC

13. Noble Metals

Note: All these listed below are RMs not CRMs

Updated: 2nd January 2016

Discs

13.1 Silver with Impurities		All Elements ppm																		Size (mm)		Form		
	Cu	Pb	Bi	Zn	As	Sb	Se	Au	Sn	Pt	Pd	Fe	Te	Mn	Cd	Ni	Si	Ga	Al	Ø x H				
131X AGP1 B	815	420	523	502	145	485	299	521	505	505	332	57	435	404	377	276	....	....	....	25 x 3	R
131X AGP2 B	193	75	96	109	29	107	65	114	95	112	105	(20)	90	49	56	57	....	....	....	25 x 3	R
131X AGP3 B	66	12	12	34	6	21	16	26	22	23	16	(11)	18	3	6	12	....	....	....	25 x 3	R
131X AGP4 B	41	5	7	20	3	12	6	9	6	7	7	(23)	5	3	2	6	....	....	....	25 x 3	R
R = Samples prepared from rolled strip																								
131X PAg1 A	75	40	40	50	12	50	35	120	40	35	180	5	120	35	35	25	30	60	8	34 x 12	concast			
131X PAg2 A	400	12	12	40	8	12	10	20	10	10	180	7	15	10	5	9	4	15	2	34 x 12	concast			
13.1 Silver with Impurities		All Elements ppm																		Size (mm)		Form		
	Bi	Se	Fe	Cu	Cr	Si	Al															Ø x H		
131X AgSe1 A	304	162	23															40 x 10	C	
131X AgSe2 A	790	465	22	1333	37	39	43															40 x 10	C	
C = Samples cast																								
13.2 Silver Copper Alloys		All Elements %			Size (mm)		Form																	
	Ag	Cu	Zn				Ø x H																	
132X AGB75 C	75.11	24.53	....				40 x 10	C															
132X AGB85 C	84.87	15.09	....				40 x 10	C															
132X AGB87 B	87.13	12.67	....				40 x 10	C															
132X AGB90 B	89.73	10.24	....				40 x 10	C															
132X AGB93 B	92.70	7.27	....				40 x 10	C															
132X AGB100 C	99.94	0.0090	....				40 x 10	C															
C = Samples cast																								
132X 925Zn1 B	92.70	6.09	1.39				Unmounted	25 x 3**	R															
132X 925Zn3 B	92.64	4.53	2.88				Unmounted	25 x 3**	R															
**Also available mounted in 30mm dia. Bakelite holder																								
R = Samples prepared from rolled strip																								
13.3 Silver Alloys		These Elements in %								These Elements in ppm										Size (mm)		Form		
	Au	Cu	Pb	Zn	Sn	Bi	Sb	Fe	Al	As	Cd	Co	Mn	Ni	Pd	Pt	Se	Te	Ge	In	Ø x H			
133X AGA1 A	1.48	19.95	0.207	0.211	0.291	0.194	0.050	0.039	96	255	165	406	61	118	54	67	169	271	107	37	Unmounted	25 x 3	R	
133X AGA2 A	0.507	10.00	1.02	0.502	0.520	0.113	0.192	0.027	19	144	113	163	115	264	76	114	78	98	47	65	Unmounted	25 x 3	R	
133X AGA3 A	0.258	4.91	1.89	0.816	0.921	0.048	0.459	(0.015)	(20)	80	42	50	98	450	156	256	44	54	45	134	Unmounted	25 x 3	R	
133X AGQ1 C	0.251	2.532	0.245	Unmounted	25 x 3	R
133X AGQ2 C	0.978	5.808	0.469	Unmounted	25 x 3	R
133X AGQ3 C	1.975	9.612	0.921	Unmounted	25 x 3	R
R = Samples prepared from rolled strip																								

16. Setting Up Samples

Updated: 2nd January 2016

Blocks / Discs

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

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

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

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

16. Setting Up Samples

Updated: 2nd January 2016

Blocks / Discs

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.

16.8 Lead																		Size (mm)	Form
	Sn	Sb	Bi	Cu	As	Ag	Fe	Zn	Cd	In	Ni	Te	Se	Tl	Au	S	Hg	Ø x H	
168X PBSUS1	1.3	6.2	0.04	0.03	0.37	0.01	0.002	0.001	0.015	0.01	0.003	0.01	0.01	0.001	0.001	0.002	....	45 x 30	C
168X PBSUS5	0.9	0.35	0.35	0.06	0.35	0.2	<0.001	....	0.09	0.08	0.001	0.003	....	0.002	0.0005	0.0005	0.02	50 x 25	C
168X PBSUS6	0.15	0.12	0.22	0.10	0.025	0.04	<0.001	0.002	0.015	0.01	0.003	0.0005	0.003	0.03	0.001	0.0005	....	45 x 35	C
168X PBSUS7	0.1	7	0.05	0.05	0.7	0.01	....	(0.02)	0.005	0.002	....	0.02	0.01	0.01	0.005	0.001	....	50 x 20	C

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

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

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

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

18.1 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
CRM	18X H13 A	0.344	0.0080	0.0115	0.063	5% Cr, 1% V, 1.5% Mo, 1% Si	100

These materials are supplied in powder form - particle size approximately <200u

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

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

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

Please enquire to confirm availability, bottle quantity and price.

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

Definitions

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

Certified Reference Material	"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	"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	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 the following pages indicate 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.

General Conditions

All materials are subject to our general Conditions of Sale . The text is reproduced here for your convenience

- 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 We draw the attention of all customers to the notes in our catalogue relating to definitions, analyses and calibration procedures.
- 4 To the extent that the law may permit, the following condition stands in substitution for all conditions and warranties as to merchantability and fitness for purpose as implied by statute, common law or otherwise.
 - 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.
- 5 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.
- 6 Until such a time as we have received full payment, items supplied to customers shall remain our property notwithstanding delivery to the customer and we shall be entitled to enter upon the customer's premises to recover the property if the customer shall go into liquidation, or if a receiver is appointed .
- 7 This contract shall be governed by English Law and any disputes shall be referred to the exclusive jurisdiction of the English Courts.

Ordering Procedure

Orders are accepted by e-mail, fax 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	Tel: ++44 (0)208 441 2024
	Holland House	
	Queens Road	Fax: ++44 (0)208 449 0810
	Barnet, Herts., EN5 4DJ	
	United Kingdom	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.

Prices

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

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

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

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

Value Added Tax (VAT)

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

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Payment should be in the currency stated on the invoice and made to the corresponding currency account, free of all local/senders bank charges.

MBH will only accept our own bank's charges.

Payments must be sent for the full amount **after** deduction of all transmission fees (including senders fee & intermediary bank fees).

Payment may be made by any of the following methods.

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

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

continues.....

Conditions of Sale - Prices, VAT and payment terms (2).

January 2016

Payment Terms

.... continued.

- Sterling (or stated currency) prepayment with your 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 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 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 **US Dollar 16500466 (IBAN) GB71NWBK60730116500466**
remain as stated above.)

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.

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 Conditions of Sale. These are printed on pages 47 & 48.

MBH Analytical Ltd.

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VAT registration No. GB873 1047 32

Periodic Table of the Elements

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]

Notes

Notes



The full range of Reference Materials and Standards for Spectroscopic Analysis Techniques can be found within our two main catalogues for **Solids / Powders** and **Liquids / Glassware**



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