

## 金属標準試料 リスト

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価格についてはオープン価格で行っておりますので、お手数でもお問合せ下さい。

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**BAS (Bureau of Analysed Samples Ltd.)**

**BASの目次についてはP.18 ご参照ください。**

**101.1 Plain Carbon Steels (chip form)**

These SRMs are for checking chemical methods of analysis. They consist of steel alloys selected to provide a wide range of analytical values for elements. They are furnished in 150-g units (unless otherwise noted) as chips usually sized between 0.4 mm to 1.2 mm, prepared from selected portions of commercial ingots.

価格についてはお問合せ下さい。

SRM	品名	C	Mn	P	S	Si	Cu	Ni	Cr	V	Mo	Co	Ti	Sn	Al (total)	N
8j	Bessemer Steel (Simulated), 0.1% Carbon	0.081	0.505	0.095	0.077	0.058	0.02	0.113	0.047	0.015	0.038					
11h	Basic Open-Hearth Steel, 0.2% Carbon	0.2	0.51	0.01	0.026	0.211	0.061	0.028	0.025	0.001			0.004			
12h	Basic Open-Hearth Steel, 0.4% Carbon	0.407	0.842	0.018	0.027	0.235	0.073	0.032	0.074	0.003	0.006				(0.038)	0.006
13g	0.6% Carbon Steel	0.613	0.853	0.006	0.031	0.355	0.066	0.061	0.05	0.001					0.048	
14g	Carbon Steel (AISI 1078)	0.735	0.456	0.006	0.019	0.232	0.047	0.03	0.081	0.0008	0.011				0.025	
15h	Basic Open-Hearth Steel, 0.1% Carbon	0.076	0.373	0.005	0.019	0.008	0.013	0.017	0.018	<0.001	0.009				0.061	
16f	Basic Open-Hearth Steel, 1.1% Carbon	0.97	0.404	0.014	0.026	0.214	0.006	0.008	0.02	0.002	0.003	0.003				
19h	Basic Electric Steel, 0.2% Carbon	0.215	0.393	0.016	0.022	0.211	0.466	0.248	0.0173	0.003	0.038				0.002	
20g	AISI 1045 Steel	0.462	0.665	0.012	0.028	0.305	0.034	0.034	0.036	0.002	0.008				0.04	
152a	Basic Open-Hearth Steel, 0.5% Carbon (Tin bearing)	0.486	0.717	0.012	0.03	0.202	0.023	0.056	0.046	0.001	0.036			0.032		
178	0.4C Basic Oxygen Furnace Steel	0.395	0.824	0.012	0.014	0.163	0.032	0.01	0.016	0.001	0.003					
337a	Basic Open-Hearth Steel, 1% Carbon (C 368 Steel (AISI 1211))	0.969			0.024											
		0.089	0.82	0.084	0.132	0.007	0.01	0.008	0.03	0.001	0.003					0.01

Values in parentheses are not certified and are given for information only.

Steel SRMs described here are furnished in various forms. The 600 series is for microchemical methods of analysis, such as electron probe microanalysis and laser probe analysis. The 1100, 1200, and 1700 series are for optical emission and x-ray spectrometric methods of analysis. These materials have been prepared to ensure high homogeneity.

**Nominal Sizes for Solid Steel SRMs:**

600 Series: 3.2 mm diameter and 51 mm long.

1100 and 1200 Series: 31 mm diameter and 19 mm thick.

1700 Series: 34mm diameter and 19 mm thick.

A "C" preceding the SRM number indicates a chill cast sample; 31 mm diameter and 19 mm thick.

価格についてはお問合せ下さい。

**101.8 Low Alloy Steels (disk and rod forms): 1/2**

SRM	品名	C	Mn	P	S	Si	As	Sn	Al (total)	B	Pb	Ag	Ge	O	N	H	Nb	Se	Ta	Zr	Cu	Ni	Cr	V	Mo	
	661 AISI 4340	0.392	0.66	0.015	0.015	0.223	0.017	0.011	0.021	0.0005	2.5E-05	0.0004	[0.006]	(0.0009)	(0.0037)	<0.0005]	0.022	0.004	0.02	0.009	0.042	1.99	0.69	0.011	0.19	
	663 Cr-V (mod.)	0.57	1.5	0.029	0.0055	0.74	0.01	(0.095)	0.024	0.0009	0.0022	(0.0038)	[0.010]	(0.0007)	(0.0041)	<0.0005]	0.049	[0.0001]	(0.053)	0.05	0.098	0.32	1.31	0.31	0.3	
	664 High Carbon (mod.)	0.871	0.258	0.010	0.025	0.066	0.052	[0.005]	(0.008)	0.011	0.024	(0.00002)	[0.003]	[0.0017]	[0.003]	<0.0005]	0.157	[0.0003]	0.11	0.069	0.250	0.142	0.066	0.106	0.49	
	1134 High Silicon	0.026	0.277	0.028	0.009	2.89		0.003	0.329												0.070	0.038	0.019		0.008	
	1135 High Silicon	0.027	0.094	0.006	0.026	3.19		0.004	0.0028												0.056	0.05	0.022	<0.01	0.014	
	1218 High Silicon, Low Carbon & Sulfur	0.0029	0.014	(0.002)	0.0011	(3.2)			0.005											(0.002)	0.003	(0.002)	0.006	<(0.001)	(0.003)	
C1221	Resulfurized/Rephosphorized AISI 1211 (mod)	0.020	0.102	0.090	0.112	0.876			0.111											(0.0017)	0.041	0.067	0.049	(0.0007)	0.038	
	1222 Cr-Ni-Mo (AISI 8640)	0.43	0.78	0.013	0.022	0.24			(0.038)						(0.007)		(0.002)			(0.001)	0.097	0.51	0.48	0.005	0.18	
	1224 Carbon (AISI 1078)	0.75	0.41	0.009	0.039	0.173			0.060												0.072	0.054	0.071	0.002	0.013	
	1225 Low Alloy (AISI 4130)	0.274	0.48	0.007	0.014	0.221																0.018	0.91	0.004	0.166	
	1226 Low Alloy	0.085	0.274	0.0022	0.0044	0.231		(0.003)	0.054		(0.0001)						(0.005)			(0.010)	0.125	5.42	0.467	0.0018	0.446	
	1227 Basic Open Hearth, 1% C	0.97	0.402	0.014	0.026	0.215			(0.028)											(0.0006)	0.006	0.007	0.019	0.002	0.003	
	1228 0.1% C	0.072	0.365	0.004	0.018	0.007			0.061												0.012	0.018	0.016	<0.001	0.009	
	1254 Low Alloy (Calcium only)	<b>Ca</b> <b>0.0053</b>																								
1261a	AISI 4340	0.391	0.67	0.016	0.015	0.228	0.017	0.010	0.021		0.000025	0.0004	[0.006]	(0.0009)	(0.0037)	<0.0005]	0.022	0.004	0.021	0.009	0.042	2	0.693	0.011	0.19	
1262b	AISI 94B17	0.160	1.05	0.044	0.037	0.40	0.096	0.016	0.081	0.0025	0.0004	0.0011	[0.002]	(0.0011)	(0.004)	<0.0005]	0.30	(0.0012)	0.2	0.22	0.51	0.59	0.3	0.041	0.07	
1263a	Cr-V (mod.)	0.57	1.50	0.029	0.0055	0.74	0.010	0.104	0.24		0.0022	0.0037	[0.010]	(0.00066)	(0.0041)	<0.0005]	0.049	(0.00016)	(0.053)	0.050	0.098	0.32	1.31	0.31	0.03	
1264a	High Carbon (mod.)	0.871	0.258	0.010	0.025	0.066	0.052	(0.008)	(0.0080)	(0.011)	0.024	0.000002)	[0.003]	(0.0010)	(0.0032)	<0.0005]	0.157	(0.00021)	0.11	0.069	0.250	0.142	0.066	0.106	0.49	
1265a	Electrolytic Iron	0.0067	0.0057	0.0011	0.0055	0.0080	(0.0002)	<2	(0.0007)	0.00013	0.000015	<0.2	<50	<70	<20	<5					0.0058	0.041	0.0072	0.0006	0.005	
	1269 Line Pipe (AISI 1526 mod.)	0.298	1.35	0.012	0.0061	0.189	(0.006)	(0.039)	0.016	<(0.0001)	0.005	(0.0002)									0.095	0.108	0.201	0.004	0.036	
	1270 Cr-Mo Low Alloy, A336 (F-22)	0.077	0.626	0.0065	0.0065	0.247	(0.02)	(0.02)	(0.005)	(0.0033)	(0.0016)	(0.0001)									0.114	0.174	2.34	0.013	0.956	
	1271 Ni-Cr-Cu-Mo (HSLA 100)	0.064	0.73	0.005	0.0013	0.334			0.02								0.025				1.48	3.34	0.552	0.003	0.543	
C1285	Low Alloy (A242 mod.)	0.058	0.332	0.072	0.020	0.36	(0.022)	0.35	(0.12)											(0.02)	0.37	1.17	0.8	0.15	0.164	
	1286 Low Alloy (HY 80)	0.196	0.152	0.008	0.017	0.130	0.019	0.012	0.109	(0.006)	(0.0002)						(0.012)			(0.021)	0.043	2.81	1.53	0.0057	0.334	
	1755 Nitrogen in Low Alloy Steel														118.4		(0.012)		(0.021)	0.043	2.81	1.53	0.0057	0.334		
	1761 Low Alloy Steel	1.03	0.678	0.040	0.035	0.18	0.011	(0.05)	0.06	0.0020					0.0044		0.02		0.05	0.01	0.30	1.99	0.22	0.053	0.103	
	1762 Low Alloy Steel	0.337	2.00	0.034	0.030	0.35	0.018	0.046	0.069	0.0049					0.0022		0.07		0.02	0.03	0.120	1.15	0.92	0.2	0.35	
	1763 Low Alloy Steel	0.203	1.58	0.012	0.023	0.63	0.055	0.011	0.043	0.0054					0.0044		0.10		0.01	0.04	0.043	0.51	0.5	0.3	0.5	
	1764 Low Alloy Steel	0.592	1.21	0.020	0.012	0.057	0.010	(0.02)	0.009	0.0010					0.0023		0.042		0.029	0.0015	0.51	0.202	1.48	0.106	0.2	
	1765 Low Alloy Steel	0.006	0.144	0.0052	0.0038	(0.004)	0.0010	0.002	(0.006)	0.0009	0.0003	0.0002			0.0010		0.0004	(0.0035)	(0.004)	(0.0002)	0.0013	0.154	0.051	0.004	0.005	
	1766 Low Alloy Steel	0.015	0.067	0.002	0.0024	0.010	0.0035	0.0010	0.012	0.00012	0.003	0.0005			0.0033		0.005	(0.0035)	(0.006)	(0.0004)	0.015	0.021	0.024	0.009	0.0035	
	1767 Low Alloy Steel	0.052	0.022	0.0031	0.0090	0.026	0.0005	0.006	0.004	0.0010	(0.0001)	0.0008			0.0008		0.010		(0.002)	(0.004)	0.0014	0.002	0.0015	0.033	0.02	
	1768 High-Purity Iron	0.001	0.0014	0.0013	0.0003	<(10.0)	<(1.0)*	<(1.0)*	0.0024	<(2.0)*	<(1.0)*				0.036	0.002	<b>Cd</b> <b>&lt;(1.0)*</b>	<(5.0)*	<(1.0)*	<(1.0)*	<(1.0)*	0.0006	0.0014	<(2.0)*	<(1.0)*	<(3.0)*

## 101.8 Low Alloy Steels (disk and rod forms): 2/2

SRM	品名	W	Co	Ti	Au	Ce	Hf	La	Nd	Pr	Fe	Sb	Bi	Ca	Mg	Te	Zn
	661 AISI 4340	0.017	0.032	0.02	(<0.0005)	0.013	[0.00002]	0.0004	0.0003	(0.00014)	(95.6)	0.0042	0.0004	(<0.0001)	(0.0001)	0.0006	(0.0001)
	663 Cr-V (mod.)	0.046	0.048	0.05	0.0005	(0.0016)	[0.0015]	0.0006	(0.0007)	(0.00018)	(94.4)	0.002	(0.0008)	(<0.0001)	(0.0005)	(0.0022)	(0.0004)
	664 High Carbon (mod.)	0.102	0.15	0.23	0.0001	(0.00025)	[0.005]	0.00007	(0.00012)	(0.00003)	(96.7)	(0.035)	(0.0009)	(<0.0001)	(0.0001)	[0.0002]	[0.001]
	1134 High Silicon																
	1135 High Silicon																
	1218 High Silicon, Low Carbon & Sulfur		(0.002)	(0.004)													
C1221	Resulfurized/Rephosphorized AISI 1211 (mod.)		(0.01)	(0.0014)													
	1222 Cr-Ni-Mo (AISI 8640)		(0.016)	(0.002)													
	1224 Carbon (AISI 1078)																
	1225 Low Alloy (AISI 4130)																
	1226 Low Alloy	(0.005)	0.029	0.0021													
	1227 Basic Open Hearth, 1% C	0.003	(0.0008)														
	1228 0.1% C																
	1254 Low Alloy (Calcium only)																
1261a	AISI 4340	0.017	0.032	0.02	(<0.00005)	0.0014	(0.0002)	0.0004	0.00029	(0.00014)	(95.6)	0.0042	0.0004	0.00002	0.00018	0.0006	(0.0001)
1262b	AISI 94B17	0.02	0.57	0.1	(0.00005)	0.0019	(0.0003)	(0.0004)	0.0006	(0.00012)	(95.3)	0.012	(0.002)	(0.0001)	0.0006	(0.001)	(0.0005)
1263a	Cr-V (mod.)	0.046	0.048	0.05	0.0005	0.0014	(0.0005)	0.0006	0.00060	(0.00018)	(94.4)	0.002	(0.0008)	0.00013	0.00049	0.0009	(0.0004)
1264a	High Carbon (mod.)	0.102	0.15	0.24	0.0001	0.00022	(0.0013)	0.00007	0.00007	(0.00003)	(96.7)	0.034	(0.0009)	0.00004	0.00015	0.00018	[0.001]
1265a	Electrolytic Iron	<1	0.007	(0.0001)							99.9						<3
	1269 Line Pipe (AISI 1526 mod.)	(0.001)	(0.014)	(0.009)													
	1270 Cr-Mo Low Alloy, A336 (F-22)	(0.003)	0.038	(0.003)													
	1271 Ni-Cr-Cu-Mo (HSLA 100)																
C1285	Low Alloy (A242 mod.)	(0.03)	0.036	<b>Ce</b> (0.0021)								(0.04)					
	1286 Low Alloy (HY 80)	(0.13)	0.116	0.04													
	1755 Nitrogen in Low Alloy Steel	(0.13)	0.116	0.04													
	1761 Low Alloy Steel	(0.02)	(0.028)	0.18													
	1762 Low Alloy Steel	(0.01)	0.062	0.095													
	1763 Low Alloy Steel	(0.03)	0.095	0.31													
	1764 Low Alloy Steel	(<0.01)	(0.01)	0.028						(95.2)							
	1765 Low Alloy Steel		0.0012	0.0055								0.0010	(<0.0001)		(<0.0001)	(0.003)	
	1766 Low Alloy Steel	(0.001)	0.002	0.0005		(0.002)						0.0005	(<0.0001)		(<0.0005)	(0.003)	
	1767 Low Alloy Steel		0.005	0.011									(<0.0001)	(0.0003)	(<0.0001)	(0.0003)	
	1768 High-Purity Iron	(<2.0)*	0.0025	(<10.0)*								(<1.0)*	(<4.0)*	(<1.0)*	(<6.0)*	(<1.0)*	(<1.0)*

Values in parentheses are not certified and are given for information only.

101.2 Low Alloy Steels (chip form) [150 g units (unless otherwise noted)]

価格についてはお問合せ下さい。

Elemental Composition (mass fraction, in %)

SRM	品名	C	Mn	P	S	Si	Cu	Ni	Cr	V	Mo	Sn	Al (total)	N
					Grav	Comb								
30f	Chromium-Vanadium, SAE 6150 (Cr-V)	0.490	0.79	0.011		0.009	0.283	0.074	0.070	0.945	0.182			0.010
32e	Nickel-Chromium Steel, SAE 3140 (Ni-Cr)	0.409	0.798	0.008	0.022	0.021	0.278	0.127	1.19	0.678	0.002	0.023	(0.011)	0.009
33e	Nickel Steel, SAE 4820 (Ni-Mo)	0.186	0.525	0.005		0.009	0.262	0.070	3.36	0.068	(0.001)	0.224	(0.002)	0.030
36b	Chromium-Molybdenum Steel (Cr-Mo)	0.114	0.404	0.007		0.019	0.258	0.179	0.203	2.18	0.004	0.996		
72g	Low Alloy Steel, AISI 4130	0.278	0.492	0.009		0.014	0.223	0.011	0.016	0.905	0.003	0.170	(0.041)	(0.008)
100b	Manganese Steel, SAE 340	0.397	1.89	0.023	0.029	0.028	0.210	0.064	0.030	0.063	0.003	0.237		0.004
106b	Chromium-Molybdenum-Aluminum (Nitalloy™ G)	0.326	0.506	0.008	0.016	0.017	0.274	0.117	0.217	1.18	0.003	0.199	1.07	
125b	High Silicon Steel, Calcium-Bearing	0.028	0.278	0.029		0.008	2.89	0.071	0.038	0.019		0.008	0.003	0.329
129c	High Sulfur Steel, SAE 112	0.125	0.769	0.076		0.245	0.020	0.013	0.251	0.014	0.012	0.002		<b>Ca 0.0051</b>
131f	Low Carbon Silicon Steel	0.0035				0.00043								
						4*								
139b	Chromium-Nickel-Molybdenum Steel, AISI 8640	0.403	0.778	0.013		0.019	0.242	0.097	0.510	0.488	0.004	0.182		0.007
155	Chromium-Tungsten Steel	0.905	1.24	0.015	0.010	0.011	0.322	0.083	0.100	0.485	0.014	0.039		<b>W 0.517</b>
163	Chromium Steel	0.933	0.897	0.007		0.027	0.488	0.087	0.081	0.982		0.029		0.007
179	High Silicon Steel	0.027	0.094	0.006		0.026	3.19	0.056	0.050	0.022	<0.01	0.014	0.004	0.0028
291	Chromium-Molybdenum Steel, ASTM A213	0.177	0.550	0.008		0.020	0.230	0.047	0.065	1.33		0.538		0.002
293	Chromium-Nickel-Molybdenum Steel, AISI 8620	0.222	0.960	0.018		0.022	0.300	0.032	0.480	0.510	0.004	0.204		0.039
2171	Low Alloy Steel (Nickel-Chromium- Copper-Molybdenum), HSLA 100	0.066	0.73	0.006		0.0012	0.338	1.47	3.35	0.550	0.003	0.546		0.019
														<b>Nb 0.024</b>

Values in parentheses are not certified and are given for information only.

\*Values determined by isotope dilution mass spectrometric (IDMS) analysis.

101.3 Special Low Alloy Steels (chip and pin forms) [150-g units (unless otherwise noted)] : 1/2

価格についてはお問合せ下さい。

SRM	品名	C	Mn	P	S	Si	Cu	Ni	Cr	V	Mo	W	Co	Ti	As	Sn	Al	Nb	Ta	Zr	N	Ca	B	Pb	Sb
		<b>Elemental Composition (mass fraction, in %)</b>																							
361	AISI 4340 Steel	0.383	0.66	0.014	0.0143	0.222	0.042	2.00	0.694	0.011	0.19	0.017	0.032	0.020	0.017	0.010	0.021	0.022	0.020	0.009	(0.0037)	0.00010		0.00002	0.00425
362	AISI 94B17 Steel (Modified)	0.160	1.04	0.041	0.0360	0.39	0.50	0.59	0.30	0.040	0.068	0.20	0.30	0.097	0.092	0.016	0.083	0.29	0.20	0.19	(0.0040)	0.00021	0.0025	0.00048	0.0134
363	Chromium-Vanadium Steel (Modified)	0.62	1.50	0.029	0.0068	0.74	0.10	0.30	1.31	0.31	0.028	0.046	0.048	0.050	0.010	0.104	0.24	0.049	(0.053)	0.049	(0.0041)	0.00022		0.00186	0.002
364	High Carbon Steel (Modified)	0.87	0.255	0.01	0.0250	0.065	0.249	0.144	0.063	0.105	0.49	0.10	0.15	0.24	0.052	0.008	(0.008)	0.157	0.11	0.068	(0.0032)	0.00003	0.0106	0.0230	0.034
2159	Low Alloy Steel, Carbon & Sulfur only (pin - 200 g)	0.016			0.0023																				
2160	Low Alloy Steel, Carbon & Sulfur only (pin - 200 g)	0.584			0.012																				
2165	Low Alloy Steel	0.0059	0.144	0.0052	0.0038	(0.004)	0.0013	0.155	0.050	0.0040	0.0055		0.0012	0.0051	0.0010	0.002	(0.006)	0.0004	(0.004)				(0.0009)	0.0003	0.0010
2166	Low Alloy Steel	0.015	0.066	0.0012	0.0023	0.010	0.015	0.022	0.024	0.009	0.0035		0.0022	0.0007	0.0035	0.0010	0.012	0.005	(0.011)	(0.0004)			(0.0004)	0.003	0.0005
2167	Low Alloy Steel	0.051	0.022	0.0031	0.0091	0.026	0.0014	0.002	0.0015	0.033	0.020		0.0050	0.010	0.0005	0.006	0.0045	0.0095	(0.002)	(0.004)			(0.001)	(<0.0001)	0.0020
2168	High-Purity Iron	0.0007	0.0006	0.0015	0.0010	(<5.0)*	0.0005	0.0012	0.0003	(<1.0)*	(<7.0)*	(<7.0)*	0.0006	(<3.0)*	(<1.0)*	(<1.0)*	(<5.0)*	(<5.0)*	(<1.0)*	(<5.0)*	0.0007	(<2.0)*	(<1.0)*	(<1.0)*	(<3.0)*

101.3 Special Low Alloy Steels (chip and pin forms) [150-g units (unless otherwise noted)] : 2/2

SRM	品名	Bi	Ag	Se	Te	Ce	La	Nd	Fe	Mg	Zn	Pr	Ge	O	H	Au	Hf	Sr	
		<b>Elemental Composition (mass fraction, in %)</b>																	
361	AISI 4340 Steel	(0.0004)	0.0004	(0.004)	(0.0006)	0.0040	(0.001)	0.00075	(95.6)	0.00026	(0.0001)	(0.0003)	[0.006]	(0.0009)	(<0.0005)	(<0.0005)	(0.0002)	(<0.0005)	
362	AISI 94B17 Steel (Modified)	(0.002)	0.0011	(0.0012)	(0.0005)	0.0019	(0.001)	0.00075	(95.3)	0.00068	(0.0001)	(0.0003)	[0.002]	(0.0010)	(<0.0007)	(<0.0005)	(0.0003)	(<0.0005)	
363	Chromium-Vanadium Steel (Modified)	(0.0008)	0.0037	(0.0001)	(0.0009)	0.0030	(0.002)	0.0012	(94.4)	0.00062	(0.0004)	(0.0004)	[0.010]	(0.0006)	(<0.0006)	0.0005	(0.0005)	(<0.0005)	
364	High Carbon Steel (Modified)	(0.009)	(0.00002)	(0.0002)	(0.0002)	0.00057	(0.0002)	0.00018	(96.7)	0.00016	[0.001]	(0.0001)	[0.003]	(0.0010)	(<0.0005)	0.0001	(0.0013)	(0.001)	
2159	Low Alloy Steel, Carbon & Sulfur only (pin - 200 g)																		
2160	Low Alloy Steel, Carbon & Sulfur only (pin - 200 g)																		
2165	Low Alloy Steel	(<0.0001)	0.0002	(0.0035)	(0.003)					(<0.0001)									
2166	Low Alloy Steel	(<0.0001)	0.0005	(0.0035)	(0.003)					(<0.0001)									
2167	Low Alloy Steel	(<0.0001)	0.0007		(0.0003)					(<0.0001)									
2168	High-Purity Iron	(<3.0)*		(<2.0)*	(<1.0)*					(<5.0)*	(<5.0)*			0.010	<b>Cd</b>			(<1.0)*	

Values in parentheses are not certified and are given for information only.  
 Values in brackets are approximate values from heat analysis and are given for information only.  
 \*Value is in mg/kg.

101.4 High Alloy Steels (chip form) [150-g units (unless otherwise noted)]

価格についてはお問合せ下さい。

Elemental Composition (mass fraction, in %)

SRM	品名	C	Mn	P	S	Si	Cu	Ni	Cr	V	Mo	Co	Ti	Al (total)	Nb	Ta	B	Fe
126c	High Nickel (36% Ni)	0.025	0.468	0.004	0.005	0.194	0.040	36.05	0.062	0.001	0.011	0.008						
344	Cr-Ni (Mo Precipitation Hardening)	0.069	0.57	0.018	0.019	0.395	0.106	7.28	14.95	0.040	2.40		0.076	1.16				
345a	Cr-Ni (Cu Precipitation Hardening)	0.040	0.79	0.024	0.012	0.61	3.39	4.27	15.52	0.080	0.43	0.099	<<0.01	<<0.01	0.27	<<0.01	<<0.001	<b>N 0.031</b>
346a	Valve Steel	0.502	9.16	0.031	0.002	0.219	0.375	3.43	21.08	0.096	0.237	(0.05)	<<0.001	(0.001)	(0.01)	<b>Sn (0.008)</b>	<<0.001	<b>N 0.442</b>
348a	High Temperature Alloy (A286) Ni-Cr	0.044	0.64	0.023	0.0007	0.43	0.14	24.2	14.8	0.23	1.18	0.15	2.12	0.24	(0.07)	<b>W (0.07)</b>	0.0055	(55.2)
862	High Temperature Alloy L605 (100 g)	0.120	1.59	0.002	0.0008	0.017	0.0010	9.74	20.0	0.005	<b>N 0.026</b>	51.5	<b>W 15.1</b>	<<0.01	<<0.005	<<0.01	<<0.0001	1.80
868	High Temperature Alloy Fe-Ni-Co (100 g)	0.022	0.052	<0.003	0.0025	0.097	0.022	37.78	0.077	0.077	0.014	16.1	1.48	0.99	2.99	0.003	0.0078	40.5

Values in parentheses are not certified and are given for information only.

101.6 Stainless Steels (chip form) [150-g units (unless otherwise noted)]

価格についてはお問合せ下さい。

Elemental Composition (mass fraction, in %)

SRM	品名	C	Mn	P	S	Si	Cu	Ni	Cr	V	Mo	Co	Ti	Nb	Ta	Pb	Se	N
73c	Cr (SAE 420)	0.310	0.330	0.018	0.036	0.181	0.080	0.246	12.82	0.030	0.091							0.037
101g	AISI 304 L (100 g)	0.0136	0.085	0.007	0.0078	1.08	0.029	10.00	18.46	0.041	0.004	0.09						
121d	Cr-Ni-Ti (AISI 321)	0.067	1.80	0.019	0.013	0.54	0.121	11.17	17.43		0.165	0.10	0.342					
123c	Cr-Ni-Nb (AISI 348)	0.056	1.75	0.024	0.014	0.59	0.103	11.34	17.40		0.22	0.12		0.65	<0.001			
133c	Cr-Mo	In Prep																
160b	Cr-Ni-Mo (AISI 316)	0.044	1.64	0.020	0.016	0.509	0.172	12.26	18.45	0.047	2.38	0.101				0.001		0.039
166c	Carbon Only (100 g)	0.0078																
339	Cr-Ni-Se (SAE 303Se)	0.052	0.738	0.129	0.013	0.654	0.199	8.89	17.42	0.058	0.248	0.096					0.247	
343a	Cr-Ni (AISI 431)	0.149	0.42	0.026	0.001	0.545	0.162	2.16	15.64	0.056	0.164	(0.04)	<<0.001	(0.01)	<b>Al (0.001)</b>	<<0.0001	<b>B (&lt;0.001)</b>	0.078
367	Cr-Ni (AISI 446)	0.093	0.315	0.018	0.016	0.58		0.29	24.19	0.08								0.168
893	Cr (SAE 405)	0.027	0.378	0.022	0.0003	0.326	0.261	0.192	13.55	0.080	0.023	0.020	(0.01)	<<0.0005	<<0.001	(0.0001)	<<0.0001	<b>Al (0.020)</b>
895	Cr-Mn (SAE 201)	0.066	7.09	0.038	0.0033	0.399	0.439	5.34	16.72	0.079	0.337	0.126	<<0.0004	<<0.009	<<0.001	(0.0001)	<<0.0001	<b>W (0.030)</b>

Values in parentheses are not certified and are given for information only.



101.10 Stainless Steels (disk form)  
価格についてはお問合せ下さい。

		Elemental Composition (mass fraction, in %)																		
SRM	品名	C	Mn	P	S	Si	Cu	Ni	Cr	V	Mo	Co	Ti	N	Al	Nb	Ta	W	Pb	Zr
C1151a	23Cr-7Ni	0.034	2.39	0.017	0.038	0.29	0.385	7.25	22.59	0.040	0.79	0.033		(0.21)	(0.003)	(0.015)	(0.004)			0.0039
C1152a	18Cr-11Ni	0.142	0.95	0.023	0.0064	0.64	0.097	10.86	17.76	0.033	0.44	0.22		(0.055)	(0.004)	(0.15)	(0.001)			0.0047
C1153a	17Cr-9Ni	0.225	0.544	0.030	0.019	1.00	0.226	8.76	16.70	0.176	0.24	0.127	(0.013)	(0.11)	(0.004)	(0.48)	(0.03)			0.006 (0.0001)
C1154a	19Cr-13Ni	0.100	1.44	0.06	0.051	0.53	0.44	13.08	19.31	0.135	0.068	0.38	(0.004)	(0.077)		(0.22)	(0.045)			0.017 (0.001)
1155	Cr-Ni-Mo (AISI 316)	0.046	1.63	0.020	0.018	0.502	0.169	12.18	18.45	0.047	2.38	0.101								0.001
1171	Cr-Ni-Ti (AISI 321)	0.067	1.80	0.018	0.013	0.54	0.121	11.2	17.4		0.165	0.10	0.34							
1172	Cr-Ni-Nb (AISI 348)	0.056	1.76	0.025	0.014	0.59	0.105	11.35	17.40		0.22	0.12				0.65	<0.001			
1219	Cr-Ni (AISI 431)	0.149	0.42	0.026	0.001	0.545	0.162	2.16	15.64	0.056	0.164	(0.04)	<<0.001	0.078	(0.001)	(0.01)	Sn (0.008)	(0.02)	<<0.0001	<<0.001
1223	Chromium Steel	0.127	1.08	0.018	0.329	0.327	0.081	0.232	12.64	0.068	0.053	<<0.0005		(0.05)	<<0.005		Sn (0.004)	<<0.0005		(0.0001)
C1287	High Alloy (AISI 310 mod.)	0.36	1.66	0.029	0.024	1.66	0.58	21.16	23.98	0.09	0.46	0.31	0.050	(0.034)	(0.06)	(0.07)	O (0.017)		0.008	(0.006)
C1288	High Alloy (A-743)	0.056	0.83	0.023	0.010	0.41	3.72	29.3	19.55	0.086	2.83	0.10	0.012	(0.028)	(0.0025)	(0.22)	C (0.029)	(0.2)	0.0041	(0.002)
1295	Cr (SAE 405)	0.027	0.387	0.022	0.0003	0.321	0.260	0.194	13.52	0.082	0.023	0.020	(0.01)	Sn (0.02)	(0.20)	<<0.0005	<<0.001	(0.002)	(0.0001)	As (0.006)
C1296	28Cr-3Mo (SAE 460)	0.038	0.256	0.024	0.013	0.66	0.056	0.373	27.90	0.134	3.43	0.026	0.23	Sn <0.01	0.035	0.20	<<0.001	<<0.01	<<0.001	As <0.01
1297	Cr-Ni-Mn (SAE 201)	0.066	7.11	0.038	0.0033	0.397	0.442	5.34	16.69	0.080	0.331	0.127	<<0.0004	Sn <0.010	(0.003)	<<0.009	<<0.001	(0.03)	<<0.0001	As (0.005)

Values in parentheses are not certified and are given for information only.

101.11 Specialty Steels (disk form)  
価格についてはお問合せ下さい。

		Elemental Composition (mass fraction, in %)												
SRM	品名	C	Mn	P	S	Si	Cu	Ni	Cr	V	Mo	W	Co	
1157	Tool (AISI M2)	0.836	0.34	0.011	0.004	0.18	0.088	0.228	4.36	1.82	4.86	6.28	0.028	
1158	High Nickel (Ni 36)	0.025	0.468	0.004	0.005	0.194	0.039	36.03	0.062	0.001	0.010		0.008	
1233	Valve Steel	0.502	9.16	0.031	0.002	0.219	0.375	3.43	21.08	0.096	0.237	(0.01)		
1772	Tool (S-7)	0.447	0.61	0.008	0.0031	0.264	0.083	0.105	3.10	0.236	1.38			

101.7 Tool Steels (chip form) [150-g units]  
価格についてはお問合せ下さい。

		Elemental Composition (mass fraction, in %)															
SRM	Type	C	Mn	P	S		Si	Cu	Ni	Cr	V	Mo	W	Co	Sn	As	N
						Grav	Comb										
50c	W-Cr-V	0.719	0.342	0.022	0.010	0.009	0.311	0.079	0.069	4.13	1.16	0.082	18.44		0.018	0.022	0.012
132b	Tool Steel (AISI M2)	0.864	0.341	0.012		0.004	0.185	0.088	0.230	4.38	1.83	4.90	6.28	0.029			
134a	Mo-W-Cr-V	0.808	0.218	0.018	0.007	0.007	0.323	0.101	0.088	3.67	1.25	8.35	2.00				
2172	S-7 Tool Steel	0.480	0.61	0.008		0.0031	0.263	0.083	1.04	3.11	0.234	1.37					

**101.14 Cast Steels, White Cast Irons, and Ductile Irons (disk form)**

These SRMs are for analysis of cast steels and cast irons by rapid instrumental methods.

価格についてはお問合せ下さい。

Elemental Composition (mass fraction, in %)

SRM	Type	C	Mn	P	S	Si	Cu	Ni	Cr	V	Mo	Ti	As	Al	Co	Mg	Ce	La	B
C1137a	White Cast Iron	2.86	0.52	0.087	0.017	1.15	0.192	2.17	0.643	0.019	0.86	(0.04)		(0.007)	<b>Mg</b> <b>0.032</b>	<b>Ce 0.016</b>			
1138a	Cast Steel (No. 1)	0.118	0.35	0.035	0.056	0.25	0.09	0.10	0.13	0.020	0.05	(0.0012)	(<0.005)	(0.067)	<b>Fe</b> <b>(98.7)</b>				
1139a	Cast Steel (No. 2)	0.790	0.92	0.012	0.013	0.80	0.47	0.98	2.18	0.26	0.51	(0.004)	(<0.005)	(0.13)	<b>Fe</b> <b>(93.0)</b>				
C1145a	White Cast Iron	2.92	0.187	0.215	0.191	0.271	0.46	0.62	0.63	0.112	0.48	0.012	(0.02)	(0.04)	0.058				
C1173	Cast Steel 3	0.453	0.174	0.031	0.092	1.38	0.204	4.04	2.63	0.42	1.46	0.037	(0.02)	(0.005)	<b>Pb</b> <b>(0.0006)</b>	(0.064)			
1173	Ni-Cr-Mo-V Steel	0.423	0.19	0.033	0.092	1.28	0.204	4.06	2.70	0.42	1.50	(0.015)			<b>Nb</b> <b>(0.045)</b>	(0.064)			
C1290	High Alloy (HC-250+V)	3.04	0.66	0.030	0.013	0.971	0.065	0.917	30.5	0.442	(0.041)								
C1291	High Alloy (Ni-Hard, Type I)	2.67	1.14	0.028	0.032	1.34	0.26	4.34	2.78	0.031	0.32								
C1292	High Alloy (Ni-Hard, Type IV)	3.47	0.55	0.049	0.016	0.59	0.36	5.04	11.4	0.041	0.25								
C2423	Ductile Iron A	3.76	0.98	0.27	(0.0006)	1.67	1.55	0.146	0.322	0.048	0.155	0.10		(0.09)	(0.02)	0.058	0.036	0.011	(0.01)
C2423a	Ductile Iron B	3.66	0.91	0.246	(<0.001)	1.59	1.61	0.147	0.322	0.043	0.159	0.10		(0.08)	(0.02)	0.076	0.031	0.0042	(0.01)
C2424	Ductile Iron C	2.68	0.268	0.041	0.024	3.37	0.125	0.061	0.13	0.083	0.019	0.050		(<0.01)	(0.05)	0.006	0.0046	0.0011	(0.002)
C2424a	Ductile Iron D	2.76	0.207	0.034	0.016	3.30	0.099	0.045	0.15	0.081	0.019	0.045		(<0.01)	(0.05)	0.014	0.0053	0.0010	(0.001)

Values in parentheses are not certified and are given for information only.

**101.12 Steelmaking Alloys (powder form)**

These SRMs are for checking chemical methods of analysis for major constituents and selected minor elements. They are furnished as fine powders (usually <0.1 mm).

価格についてはお問合せ下さい。

Elemental Composition (mass fraction, in %)

SRM	Type	容量 (g)	C	Mn	P	S	Si	Cu	Ni	O	Cr	V	Mo	Ti	Al	Nb	Zr	Ca	Fe	B	As
57a	Silicon Metal	60	0.024	0.015	0.003	0.003	98.55	0.004	0.008	( 0.3)	0.024	0.013	<b>Pb &lt;0.001</b>	0.040	0.47		0.002	0.17	0.50	0.001	<0.001
58a	Ferrosilicon (73 % Si-Regular Grade)	75	0.014	0.16	0.009	<0.002	73.20	0.024	0.012	(0.20)	0.020	(0.002)	(0.01)	0.051	0.95	<b>Co &lt;0.001</b>	0.002	0.30	25.23	0.0010	(0.0020)
59a	Ferrosilicon	50	0.046	0.75	0.016	0.002	48.10	0.052	0.033		0.080				0.35			0.042	50.05	0.058	
64c	Ferrochromium, High Carbon	100	4.68	0.16	0.020	0.067	1.22	0.005	0.43		68.00	0.15		0.02		<b>Co 0.05</b>		N 0.045	24.98		
68c	Ferromanganese, High Carbon	100	6.72	80.04	0.19	0.008	0.225				0.074								12.3		0.021
90	Ferrophosphorus	75			26.2																
195	Ferrosilicon (75% Si-High-Purity Grade)	75	0.034	0.17	0.017	0.001	75.3	0.047	0.032	(0.42)	<0.01	(0.001)	(0.01)	0.037	0.046	<b>Co &lt;0.01</b>	0.011	0.053	23.6	0.0010	(0.0024)
196	Ferrochromium, Low Carbon	100	0.035	(0.282)	0.020	0.003	0.373				70.83	(0.12)									
347	Magnesium Ferrosilicon	100	0.017	0.53	0.023	0.005	47.6	0.065	0.082		0.14			0.036	0.78		<b>Co 0.004</b>	0.81	<b>Mg 4.49</b>	<b>Ce 0.45</b>	<b>La 0.26</b>
689	Ferrochromium Silicon	100	0.043	0.32	0.026	0.002	39.5	0.013	0.20	(0.06)	36.4	0.09	<b>Pb (0.004)</b>	0.40	0.049	<b>Co 0.034</b>	<b>Bi (&lt;0.003)</b>	<b>N (0.002)</b>	23.2	0.0017	(0.009)

Values in parentheses are not certified and are given for information only.

101.13 Cast Irons (chip form)

These SRMs are furnished in 150-g units (unless otherwise noted) for use in checking chemical methods of analysis.

価格についてはお問合せ下さい。

Elemental Composition (mass fraction, in %)

SRM	Type	C		Mn	P	S	Comb	Si	Cu	Ni	Cr	V	Mo	Co	Ti	As	Sn	Al	Mg	N	Fe
		Total	Graphitic			Grav												(total)			
4L	Cast	3.21	2.66	0.825	0.149		0.043	1.33	0.240	0.042	0.118	0.024	0.040	Zn (<0.001)	(0.03)	(0.03)	(0.004)	(0.004)	Sb (<0.001)	(0.0016)	Pb (0.001)
5m	Cast	2.59		0.74	0.32		0.133	1.83	0.89	0.041	0.080	0.033	0.029		0.097						0.006
6g	Cast	2.85	2.01	1.05	0.557		0.124	1.05	0.502	0.135	0.370	0.056	0.035		0.059	0.042					0.005
7g	Cast (High Phosphorus)	2.69	2.59	0.612	0.794	0.061	0.060	2.41	0.128	0.120	0.048	0.010	0.012		0.044	0.014					0.004
82b	Cast (Ni-Cr)	2.85	2.37	0.745	0.025		0.007	2.10	0.038	1.22	0.333	0.027	0.002		0.027						
107c	Cast (Ni-Cr-Mo)	2.99	1.98	0.480	0.079		0.059	1.21	0.205	2.20	0.693	0.015	0.83		0.019						
115a	Cast (Cu-Ni-Cr)	2.62	1.96	1.00	0.086	0.064	0.065	2.13	5.52	14.49	1.98	0.014	0.050		0.020						
122i	Cast	3.47		0.530	0.28		0.087	0.89	0.033	0.047	0.151	0.012	0.008		0.024						
334	Gray Cast (Carbon & Sulfur)	2.83					0.043														
338	White Cast (Carbon & Sulfur)	3.33					0.015														
341	Ductile	1.81	1.23	0.92	0.024	0.007	0.007	2.44	0.152	20.32	1.98	0.012	0.010		0.018						0.068
342a	Nodular	1.86	1.38	0.274	0.019		0.006	2.73	0.135	0.058	0.034		0.006		0.020						0.070
890	HC 250+V	2.91		0.62	0.025		0.015	0.67	0.055	0.397	32.4	0.45	0.018	(0.03)		(0.008)		(<0.01)		(0.089)	(61.8)
891	Ni-Hard, Type I	2.71		0.55	0.038		0.029	0.56	0.150	4.48	2.23	0.039	0.27	0.19	(0.01)	(0.004)	(<0.01)	(0.008)		(0.012)	(88.5)
892	Ni-Hard, Type IV	3.33		0.76	0.054		0.015	1.83	0.270	5.53	10.18	0.041	0.20	0.31	(0.02)	(0.006)	(0.02)	(0.009)		(0.019)	(77.4)

Values in parentheses are not certified and are given for information only.

101.9 High Temperature Alloys (chip and disk forms)

SRM	品名	容量 (g)	Elemental Composition (mass fraction, in %)																	
			C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Co	Ti	Al	Nb	Ta	Fe	W	B	
866	Incoloy™ 800	100	0.082	0.92	0.017	0.001	0.17	0.49	30.8	20.1	0.36	0.075	0.31	0.29	(0.09)		46.1		<0.001	
867	Incoloy™ 825	100	0.021	0.39	0.018	0.002	0.32	1.74	43.5	23.4	2.73	0.089	0.75	0.062	(0.45)		26.6		0.002	
1230	A 286	disk	0.044	0.64	0.023	0.0007	0.43	0.14	24.2	14.8	1.18	0.15	2.12	0.24	(0.07)	<b>V 0.23</b>	(55)	(0.07)	0.0055	
1246	Incoloy™ 800	disk	0.082	0.91	0.018	0.001	0.18	0.49	30.8	20.1	0.36	0.076	0.32	0.30	(0.09)		46.2		<0.001	
1247	Incoloy™ 825	disk	0.021	0.38	0.018	0.002	0.32	1.75	43.5	23.4	2.73	0.089	0.75	0.060	(0.46)		26.5		0.002	
1250	Fe-Ni-Co	disk	0.022	0.052	<0.003	0.0025	0.097	0.022	37.78	0.077	0.014	16.1	1.48	0.99	2.99	0.003	40.5	<b>V</b>	0.0078	
C2400	High Alloy Steel, ACI (17/4 PH)	disk	0.036	0.71	0.013	0.003	0.61	2.63	4.07	17.06	0.23	0.10			0.15	<b>V 0.092</b>		(0.1)	(0.0004)	
C2401	High Alloy Steel (ACI-CD-4M Cu)	disk	0.062	1.03	0.025	0.027	0.74	3.17	5.46	25.1	2.13	0.19		(0.002)	<b>V 0.20</b>		(0.18)	(0.0004)		

Values in parentheses are not certified and are given for information only.

101.5 Gases in Metals (rod form)

SRM	品名	Elemental Composition (mass fraction, in %)		
		Oxygen (in mg/kg)	Hydrogen (in mg/kg)	Nitrogen (in mg/kg*)
1090	Ingot Iron	491		(60)
1091a	Stainless Steel (AISI 431)	132.2		(876)
1093	Valve Steel	60		
1094	Maraging Steel	4.5		(71)
*1095	Steel (AISI 4340)	9	(<5)	(37)
<hr/>				
*1096	Steel (AISI 94B17)	10.7	(<5)	40.4
*1097	Cr-V Steel (mod.)	6.6	(<5)	(<41)
*1098	Steel (High Carbon)	10	(<5)	32
*1099	Electrolytic Iron	61	(<5)	(13)
1754	Low Alloy Steel (AISI 4320)	24		81

Values in parentheses are not certified and are given for information only.

\*These SRMs are sold only as a set designated SRM 1089.

## NONFERROUS METALS (12 ~ 19ページ) 非鉄合金

### 102.1 Aluminum Base Alloys (chip and disk forms)

These SRMs are for analyses of casting and other aluminum alloys by chemical and instrumental methods. SRMs 1710 through 1715 are specially prepared to include low levels of cadmium and lead encountered in the analysis of recycled aluminum.

SRM	品名	容量 (g)	Nominal Elemental Composition (mass fraction, in %)																	
			Sr	Mn	Si	Cu	Ni	Cr	V	Cd	Ti	Sn	Ga	Fe	Pb	Mg	Zn	Zr	Be	
87a	Al-Si	75		0.26	6.24	0.30	0.57	0.11	<0.01		0.18	0.05	0.02	0.61	0.10	0.37	0.16		(0.110)	
855a	Casting Alloy 356	30		0.057	7.07	0.13	0.016	0.013	(0.012)	Mn 0.060	0.15	0.010	Sr 0.018	0.14	0.019	0.37	0.085	(0.003)	Ca (0.001)	
853a	Alloy 3004	40	(<0.0001)	1.25	0.18	0.15	0.004	(<0.0005)	0.018		0.02	(0.0003)	0.018	0.504	(<0.003)	1.09	0.05	(0.0023)		
856a	Casting Alloy 380 (fine millings)	30		0.35	9.21	3.51	0.37	0.055		0.068	0.10			0.92	0.10	0.061	0.96			
<hr/>																				
858	Alloy 6011	35		0.48	0.79	0.84	0.0006	0.0011	0.0030		0.042			0.078		1.01	1.04		<0.0001	
859	Alloy 7075	35		0.078	0.17	1.59	0.063	0.176	0.0082		0.041			0.202		2.45	5.46		0.0026	
<hr/>																				
1240c	Alloy 3004	disk	(<1)	1.268	0.18	0.15	0.0043	(5.4)	0.018	(6.5)	0.02	(4)	(0.010)	0.501	(9)	1.11	0.05	(23)	<0.0001	
1258	Alloy 6011	disk		0.48	0.78	0.84	0.0006	0.0011			(0.04)		(0.010)	0.079		0.98	1.03		<0.0001	
1259	Alloy 7075	disk		0.079	0.18	1.60	0.063	0.173			(0.04)		(0.022)	0.205		2.48	5.44		0.0025	
1710	Alloy 3004	disk								0.000843									0.00177	
1711	Alloy 3004	disk								0.002090									0.00639	
1712	Alloy 3004	disk								0.0005165									0.01559	
1713	Alloy 5182	disk								0.000878									0.001712	
1714	Alloy 5182	disk								0.002013									0.00653	
1715	Alloy 5182	disk								0.00502									0.01509	

Values in parentheses are not certified and are given for information only.

102.2 Cobalt Base Alloys (chip and disk forms)

Elemental Composition (mass fraction, in %)

SRM	品名	C	Mn	P	S	Si	Cu	Ni	Cr	V	Fe	W	Co	N	Al	Ta	Nb	B
862	High Temperature Alloy L605 (chip) (10g)	0.120	1.59	0.002	0.0008	0.017	0.0010	9.74	20.0	0.005	1.80	15.1	51.5	0.026	<<0.01	<<0.01	<<0.005	<<0.0001
1242	High Temperature Alloy L605 (disk)	0.126	1.58	0.002	0.0007	0.016	0.0010	9.78	20.0	0.005	1.80	15.1	51.5	0.026	<<0.01	<<0.01	<<0.005	<<0.0001
1775	Refractory Alloy MP 35N (disk)	0.0051	0.0121	0.0006	0.0013	0.02	0.0046	34.91	20.4	0.0095	0.91	0.02	33.3	0.002	0.024	---	0.03	0.0097
2175	Refractory Alloy MP 35N (chip) (50g)	0.0051	0.0121	0.0006	0.0013	0.02	0.0046	34.91	20.4	0.0095	0.91	0.02	33.3	0.002	0.024	---	0.03	0.0097

Values in parentheses are not certified and are given for information only.

102.5 Copper "Benchmark" (chip and rod forms) [50-g units (unless otherwise noted)] : 1/2

SRM	品名	Cu (mass fraction, in%)	Sb	As	Bi	Cr	Co	Fe	Pb	Mn	Ni	Se	Ag	S	Te	Sn	Zn	Al	Cd	Au	Mg	Si	Be	B	Ca
393	Unalloyed Copper "O"	99.998	0.25	0.41	<0.1	<0.5	0.02	<1	0.039	<0.01	0.05	<0.05	0.10	<1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.5	<0.01	<0.01	<0.05
494	Unalloyed Copper I	99.908	4.5	2.6	0.35	2.0	0.5	147	26.5	3.7	11.7	2.00	50.5	15	0.58	70	405	<<2	(0.5)	(0.07)	<<1	<<2			
395	495 Unalloyed Copper II	99.944	8.0	1.6	0.50	6.0		96	3.25	5.3	5.4	0.63	12.2	13	0.32	1.5	12.2	<<2	(0.4)	(0.13)	<<1	<<2			
396	496 Unalloyed Copper III	99.955	<1	<0.2	0.07	4.3	0.4	143	0.41	7.5	4.2	0.62	3.30	9.5	(0.02)	0.8	5.0	<<2	(0.6)	<<0.05	<<1	<<2			
467	Unalloyed Copper IV	99.96	0.2	0.2	0.2	(0.3)	(0.2)	2.0	0.5	<0.1	0.6	4.2	8.1	(4)	0.29	<0.2	<11	<<2	<<1	<<0.05	<<1	<<2			
398	Unalloyed Copper V	99.98	7.5	25	2.0	(0.3)	2.8	11.4	9.9	(0.3)	7.0	17.5	20.1	(11)	10.1	4.8	24	<<2	(22)	(0.1)	<<1	<<2			
498	Unalloyed Copper V	99.98	7.4	25	2.0	(0.3)	2.7	11	10	(0.3)	7.0	17.5	20.1	(11)	10.1	5	25	<<2	<<22	(0.1)	<<1	<<2			
399	499 Unalloyed Copper VI	99.79	30	47	10.5	(0.5)	0.5	20.0	114	(0.3)	506	95	117	(10)	50	(90)	45	<<2	<<1	(4)	<<1	<<2			
400	500 Unalloyed Copper VII	99.70	102	140	24.5	(0.5)	0.6	41	128	(0.2)	603	214	181	(9)	153	(200)	114	<<2	<<1	(10)	<<1	<<2			
C1252	Phosphorized Copper IX	99.89	42	115	21	7.4	90	(35)	60	(17)	128	53.6	166.6	(29)	51	(110)	60	(7)	14	34.9	(20)	(13)	<<5		(6)
454 (35g)	Unalloyed copper XI	99.84	24	46	19		(4)	(50)	66		(150)	479	286		27	2.2	7			7.5					

102.5 Copper "Benchmark" (chip and rod forms) [50-g units (unless otherwise noted)] : 2/2

SRM	Type	Cu (mass fraction, in%)	Pd	P	Ti	Zr
393	Unalloyed Copper "O"	99.998	<0.05	<0.05	<0.5	<0.5
494	Unalloyed Copper I	99.908				
395	495 Unalloyed Copper II	99.944				
396	496 Unalloyed Copper III	99.955				
467	Unalloyed Copper IV	99.96				
398	Unalloyed Copper V	99.98				
498	Unalloyed Copper V	99.98				
399	499 Unalloyed Copper VI	99.79				
400	500 Unalloyed Copper VII	99.70				
C1252	Phosphorized Copper IX	99.89				
454 (35g)	Unalloyed copper XI	99.84	(0.1)			

102.3 Copper Base Alloys (chip and rod forms) : 1/2

Elemental Composition (mass fraction, in %)

SRM	品名	容量 (g)	Cu	Ni	Fe	Zn	Pb	Mn	Sb	Sn	Cr	P	Ag	Si	Al	Te	Cd	Se	Bi	O	Co	C	Au	H
158a	Bronze, Silicon	150	90.93	0.001	1.23	2.08	0.097	1.11		0.96		0.026		3.03	0.46									
458	Beryllium-Copper (17510)	50	(97.9)	1.60	0.060	0.002	0.002	(<0.002)	(<0.005)	0.004	0.004		(<0.01)	0.035	0.030						0.076	Be 0.360		
459	Beryllium-Copper (17200)	50	(97.7)	0.039	0.079	0.002	0.001	(<0.003)	(<0.005)	0.005	0.005		(<0.003)	0.077	0.044						0.221	Be 1.82		
460	Beryllium-Copper (17300)	50	(97.5)	0.031	0.098	0.004	0.258	(<0.003)	(<0.005)	0.006	0.005		(<0.002)	0.77	0.048						0.217	Be 1.86		
871	Bronze, Phosphor (CDA 521)	100	91.68		<0.001	0.025	0.010			8.14		0.082												
872	Bronze, Phosphor (CDA 544)	100	87.36		0.003	4.0	4.13			4.16		0.26												
874	Cupro-Nickel, 10% (CDA 706) "High-Pur"	100	88.49	10.18	1.22	0.002	<0.0005	0.0020	<0.001	0.007		0.002		(0.0006)			<0.0002	0.00015	<0.0002	(0.06)		(0.0023)		(0.0016)
875	Cupro-Nickel, 10% (CDA 706) "Doped"	100	87.83	10.42	1.45	0.11	0.0092	<0.0007	<0.001	0.009		0.0020		(0.0008)		(<0.0001)	0.0022	0.0004	0.003	(0.14)		(0.0035)		(0.004)
879	Nickel Silver (CDA 762)	100	57.75	12.11	0.0020	30.04	0.002	<0.001																
880	Nickel Silver (CDA 770)	100	54.51	18.13	0.004	27.3	0.002	<0.001																
1034	Unalloyed Copper	rod	(99.96)	(0.6)*	(2.0)*	(<11)*	(0.5)*	(<0.1)*	(0.2)*	(<0.2)*	(0.3)*		(8.1)*	(<2)*	(<2)*	(0.5)*	(<1)*	(3.3)*	(0.2)*	(363)*	(0.2)*		(<0.05)*	
1035	Leaded-Tin Bronze Alloy	50	(78.5)	(0.75)	(0.001)	(0.25)	(13.5)			(6.8)		(0.004)								(0.64)				

102.3 Copper Base Alloys (chip and rod forms) : 2/2

SRM	品名	S	As	Mg	Ti
158a	Bronze, Silicon				
458	Beryllium-Copper (17510)	(<0.002)	Zr (<0.001)	0.003	(<0.002)
459	Beryllium-Copper (17200)	(<0.001)	Zr (<0.001)	0.007	(<0.003)
460	Beryllium-Copper (17300)	(<0.001)	Zr (<0.001)	0.005	(<0.003)
871	Bronze, Phosphor (CDA 521)				
872	Bronze, Phosphor (CDA 544)				
874	Cupro-Nickel, 10% (CDA 706) "High-Pur"	(0.0011)	(<0.0006)	(0.0002)	(0.0001)
875	Cupro-Nickel, 10% (CDA 706) "Doped"	(0.0011)	(0.0010)	(0.0010)	(<0.0002)
879	Nickel Silver (CDA 762)				
880	Nickel Silver (CDA 770)				
1034	Unalloyed Copper	2.8*	(0.2)*	(<1*)	
1035	Leaded-Tin Bronze Alloy	22.3**			

102.4 Copper Base Alloys (block and disk forms)

SRM	品名	Cu	Zn	Pb	Fe	Sn	Ni	Al	Sb	Be	Cd	Mn	P	Si	Ag	Co	Cr	Se	Mg	
Elemental Composition (mass fraction, in %)																				
1104	Free-Cutting Brass	61.33	35.31	2.77	0.088	0.43	0.070						0.005							
1107	Naval Brass B	61.21	37.34	0.18	0.037	1.04	0.098													
1108	Naval Brass C	64.95	34.42	0.063	0.050	0.39	0.033					0.025								
1110	Red Brass B	84.59	15.20	0.033	0.033	0.051	0.053													
1111	Red Brass C	87.14	12.81	0.013	0.010	0.019	0.022													
1112	C1112 Gilding Metal A	93.38	6.30	0.057	0.070	0.12	0.100						0.009							
1113	C1113 Gilding Metal B	95.03	4.80	0.026	0.043	0.064	0.057						0.008							
1114	C1114 Gilding Metal C	96.45	3.47	0.012	0.017	0.027	0.021						0.009							
1115	C1115 Commercial Bronze A	87.96	11.73	0.013	0.13	0.10	0.074						0.05							
1116	C1116 Commercial Bronze B	90.37	9.44	0.042	0.046	0.044	0.048							0.008						
1117	C1117 Commercial Bronze C	93.01	6.87	0.069	0.014	0.021	0.020						0.002							
	C112 Beryllium-Copper	97.45	(0.01)	(0.003)	0.16	(0.01)	(0.01)	0.17		1.75		(0.004)	(0.004)	0.17	(0.05)	0.220	(0.002)			
1276a	Cupro-Nickel (CDA 715)	67.8	0.038	0.004	0.56	0.023	30.5		0.0004		0.0002	1.01	0.006			0.045		0.005	0.12	

Values in parentheses are not certified and are given for information only.

102.10 Lead Base Alloys (disk and powder forms) [150 g units (unless otherwise noted)]

Elemental Composition (mass fraction, in %, unless noted by an asterisk (\*) for mg/kg)

SRM	品名	Pb	Cu	Ni	As	Sn	Sb	Bi	Ag	Fe	Co	In
Powder	Disk											
1129	Solder 63Sn-37Pb (200 g)		0.16	0.010	0.055	62.7	0.13	0.13	0.075			
127b	113 Solder 40Sn-60Pb		0.011	0.012	0.01	39.3	0.43	0.06	0.01			
53e	1132 Bearing Metal (Pb-Sb-Sn)		0.054	0.003	0.057	5.84	10.26	0.052		<0.001		
1727	Anode Tin (blockform) (30x30x30 mm)	33.26	(4)*	(3)*	(<100)*		(40)*	(8)*		(20)*	(2)*	(20)*

Values in parentheses are given for information only.

102.11 Lead Base Material (disk form)

These SRMs are issued in the form of disks, 50 mm in diameter and 16 mm thick. They are intended for use with optical emission spectrometric methods of analysis.

SRM	C2415	C2416	C2417	C2418
品名	Battery Lead	Bullet Lead	Lead Base Alloy	High Purity Lead

Elemental Composition (mass fraction, in %)

Sb	2.95	0.79	0.010	(<0.0001)
As	0.20	0.056	0.011	(<0.0001)
Bi	0.054	0.10	0.010	(<0.0005)
Cu	0.095	0.065	0.010	(<0.0001)
S	0.0026	0.0015	(<0.0005)	
Ag	0.002	0.0044	0.010	0.0001
Sn	0.33	0.09	(<0.010)	(<0.0005)
Al	(<0.0003)	(<0.0001)	(<0.0001)	(<0.0001)
Cd	0.002	(0.0002)	(<0.0002)	0.0003
Ca	(<0.001)	(<0.001)	(<0.001)	(<0.0005)
Co		(<0.0002)	(<0.0002)	(<0.0005)
Fe	<0.001	(<0.0005)	(<0.0003)	(<0.0005)
Mn	<0.001	(<0.0005)	(<0.0003)	(<0.0005)
Ni	<0.001	(<0.0005)	(<0.0005)	(<0.0005)
Te	0.0045	(<0.0005)	(<0.0005)	(<0.0005)
Zn	<0.001	(<0.0005)	(<0.0005)	(<0.0005)

Values in parentheses are not certified and are given for information only.

102.14 Nickel Oxides (powder form)

Elemental Composition (mass fraction, in %)

SRM	品名	容量 (g)	Mn	Si	Cu	Cr	Co	Ti	Al	Fe	Mg	Pb	Se	Bi	As	Sn	Sb	Cd	Ga	Ag	Te	Tl	Zn
671	Oxide 1	25	0.13	0.047	0.20	0.025	0.31	0.024	0.009	0.39	0.030	16	2.0	0.07	(59)	(2.7)	(0.4)	(0.7)	(0.8)	(0.5)	(<0.2)	(<0.1)	(160)
672	Oxide 2	25	0.095	0.11	0.018	0.003	0.55	0.009	0.004	0.079	0.020	38	0.40	0.3	(74)	(4)	(0.5)	(1.7)	(0.4)	(0.3)	(<0.2)	(<0.1)	(140)
673	Oxide 3	25	0.0037	0.006	0.002	0.0003	0.016	0.003	0.001	0.029	0.003	3.5	0.2	0.06	(0.4)	(<0.5)	(<0.5)	(0.5)	(<0.1)	(<0.1)	(0.4)	(<0.1)	(1.7)

Values in parentheses are not certified and are given for information only.

102.12 Nickel Base Alloys (chip and disk forms)

容量

SRM	品名	容量 (g)	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Co	Ti	Al	B	Fe	Ta	V	Nb	W
Elemental Composition (mass fraction, in %)																				
349a	Waspaloy™ Ni-Co-Cr	150	0.035	0.019	0.003	0.0024	0.018	0.007	58.1	19.3	4.25	12.46	3.06	1.23	0.005	1.15		0.12		
864	Inconel™ 600	100	0.064	0.29	0.010	0.003	0.12	0.26	73.1	15.7	0.20	0.059	0.26	0.26	<0.005	9.6			(0.14)	
865	Inconel™ 625	100	0.037	0.18	0.012	0.001	0.41	0.36	59.5	21.9	8.6	0.072	0.28	0.21	<0.001	4.5			3.5	
882	Ni-Cu-Al	100	0.006	0.0007		0.0014	0.006	31.02	65.25				0.57	2.85		0.009				
1159	Electronic and Magnetic Alloy Ni-Fe	disk	0.007	0.305	0.003	0.003	0.32	0.038	48.2	0.06	0.010	0.022				51.0				
1160	Electronic and Magnetic Alloy Ni-Mo	disk	0.019	0.550	0.003	0.001	0.37	0.021	80.3	0.05	4.35	0.054				14.3				
1243	Waspaloy™	disk	0.024	0.019	0.003	0.0018	0.018	0.007	58.78	19.20	4.25	12.46	3.06	1.23	0.005	0.79		0.12		
1244	Inconel™ 600	disk	0.062	0.29	0.010	0.003	0.12	0.26	73.2	15.7	0.20	0.058	0.25	0.26	<0.05	9.6			(0.14)	
1245a	Inconel™ 625	disk	0.037	0.18	0.012	0.001	0.41	0.37	59.7	22.0	8.5	0.071	0.28	0.19		4.5	<0.01		3.5	<0.001
C1248	Ni-Cu	disk	0.266	0.31	0.002	0.0008	1.61	29.80	65.75	0.095	0.006	<b>Pb 3.8 mg/kg</b>	<b>Sn 1.1 mg/kg</b>	0.009		2.10			<b>Zn 3 mg/kg</b>	
1249	Inconel™ 718	disk	0.038	0.109	0.013		0.106	0.145	53.3	18.5	3.09	0.325	0.957	0.563				0.034	5.19	
C2402	Hastelloy™ C	disk	0.010	0.64	0.007	0.018	0.85	0.19	51.5	16.15	17.1	1.50	<b>Sn (0.001)</b>		(0.0004)	7.3		0.22	(<0.01)	4.29

Values in parentheses are not certified and are given for information only.

102.13 Trace Elements in Nickel Base Superalloys (chip form)

容量

SRM	品名	容量 (g)	Pb	Bi	Se	Te	Tl	C	Cr	Co	Ni	W	Nb	Al	Ti	B	Zr	Ta	Hf
Trace Composition (in mg/kg)																			
897	"Tracealloy" A	35	11.7 (0.5)	9.1	1.05	0.51	(0.12)	(12.0)	(8.5)	(Bal)	(1.75)	(0.9)	(2.0)	(2.0)	(0.010)	(0.10)	(1.75)	(1.2)	
898	"Tracealloy" B	35	2.5 (1.0)	2.00	0.54	2.75	(0.12)	(12.0)	(8.5)	(Bal)	(1.75)	(0.9)	(2.0)	(2.0)	(0.010)	(0.10)	(1.75)	(1.2)	
899	"Tracealloy" C	35	3.9 (0.3)	9.5	5.9	0.252	(0.12)	(12.0)	(8.5)	(Bal)	(1.75)	(0.9)	(2.0)	(2.0)	(0.010)	(0.10)	(1.75)	(1.2)	

Values in parentheses are not certified and are given for information only.



## 102.15 Tin Base Alloys (chip form)

## Elemental Composition (mass fraction, in %)

SRM	品名	容量	Pb	Sn	Sb	Bi	Cu	Fe	As	Ag	Ni	In	Co
54d	Bearing Metal	170 g	0.62	88.57	7.04	0.044	3.62	0.027	0.088	0.0032	0.0027		
1727	Anode Tin Block	30x30x3 0 mm	33.26		(40)*	(8)*	(4)*	(20)*	(<100)*		(3)*	(20)*	(2)*

Values in parentheses are given for information only.

## 102.16 Titanium Base Alloys (chip and disk forms)

## Elemental Composition (mass fraction, in %)

SRM	品名	容量 (g)	H	C	Mn	Cr	Cu	Mo	Fe	Al	V	Sn	Si	N	W	Zr
173b	Al-V	50		0.025			0.008	0.013	0.23	6.36	4.31	(0.03)	0.046	0.015		
641	8 Mn (A)	disk			6.68											
642	8 Mn (B)	disk			9.08											
643	8 Mn (C)	disk			11.68											
647	Al-Mo-Sn-Zr	50		0.006				1.96	0.075	5.88	(<0.02)	2.02		(<0.01)		3.90
648	Al-Sn-Zr-Cr-Mo	50		0.011		3.84		3.75	0.15	5.13		1.98	0.027	(0.01)		1.84
649	V-Al-Cr-Sn	50		0.011	(<0.01)	2.96	(<0.001)		0.133	3.08	15.1	3.04		(0.01)		
650	Unalloyed A	30			0.016	0.002	0.033	0.002	0.024	<0.01	0.009	0.03	0.004		1.55	
651	Unalloyed B	30			0.005	0.037	0.032	0.031	0.058	<0.006	0.021	0.026	0.011		0.39	
652	Unalloyed C	30			0.046	0.082	0.081	0.039	0.67	0.039	0.024	0.053	0.16		0.5	
654b	Al-V	disk				(0.025)	0.004	(0.013)	0.023	6.34	4.31	0.023	0.045		Ni 0.028	0.008
1128	V-Al-Cr-Sn	disk		0.011	(<0.01)	2.96	(<0.003)	(0.006)	0.134	3.06	15.13	3.04		(0.01)		
2431	6Al-2Sn-4Zr-6Mo	50		0.006	(<0.01)	(<0.01)	(<0.01)	6.01	0.056	5.73	(<0.01)	1.98	0.088	Ni (<0.01)	(<0.001)	4.06
2432	10V-2Fe-3Al	50		0.008	(<0.01)	(<0.01)	(<0.005)		1.77	3.15	10.00	<b>B (&lt;0.01)</b>	0.029	<b>Ni (&lt;0.01)</b>	(<0.001)	(<0.01)
2433	Al-Mo-V	50					0.99	0.063	7.63	0.98						
2453	Hydrogen in Titanium Alloy	5	0.0114													

Values in parentheses are not certified and are given for information only.

## 102.19 Gases in Metals (platelet form)

SRM	品名	Hydrogen (in mg/kg)
352c	Unalloyed Titanium for Hydrogen	49

102.18 Zirconium Base Alloys (chip form)

Elemental Composition (mass fraction, in %)

SRM	品名	容量 (g)	C	Mn	Hf	Cu	Ni	Cr	Ti	Sn	Fe	N	Al
360b	Zircaloy-4	100	0.011	0.0010	0.008	0.002	0.0025	0.10	0.002	1.55	0.21	0.0045	0.004

102.17 Zinc Base Alloys (chip and disk forms)

SRM 1736 through 1742 and SRM 2139 are specially prepared alloys primarily intended for use with spectrometric methods of analysis.

Elemental Composition (mass fraction, in %)

SRM	Type	容量 (g)	Cu	Al	Mg	Fe	Pb	Cd	Sn	Cr	Mn	Ni	Si	In	Ga	Ca	Ag	Ge
94c	Die Casting Alloy	150	1.01	4.13	0.042	0.018	0.006	0.002	0.006		0.014	0.006						
625	Zinc-base A-ASTM AG 40A	disk	0.034	3.06	0.070	0.036	0.0014	0.0007	0.0006	0.0128	0.031	0.0184	0.017					
626	Zinc-base B-ASTM AG 40A	disk	0.056	3.56	0.020	0.103	0.0022	0.0016	0.0012	0.0395	0.048	0.047	0.042					
627	Zinc-base C-ASTM AG 40A	disk	0.132	3.88	0.030	0.023	0.0082	0.0051	0.0042	0.0038	0.014	0.0029	0.021					
628	Zinc-base D-ASTM AC 41A	disk	0.611	4.59	0.0094	0.066	0.0045	0.0040	0.0017	0.0087	0.0091	0.030	0.008					
629	Zinc-base E-ASTM AC 41A	disk	1.50	5.15	0.094	0.017	0.0135	0.0155	0.012	0.0008	0.0017	0.0075	0.078					
630	Zinc-base F-ASTM AC 41A	disk	0.976	4.30	0.030	0.023	0.0083	0.0048	0.0040	0.0031	0.0106	0.0027	0.022					
631	Zinc spelter (mod.)	disk	0.0013	0.50	(<0.001)	0.005	(0.001)	0.0002	0.0001	0.0001	0.00015	(<<0.0005)	(0.002)	0.0023	(0.002)	<0.001	(<0.0005)	(0.0002)
1736	Zinc-Aluminum	disk		0.3076			0.0029											
1737	Zinc-Aluminum	disk		0.6302			0.0029											
1738	Zinc-Aluminum	disk		0.1014			0.0101											
1739	Zinc-Aluminum	disk		0.2049			0.0302											
1740	Zinc-Aluminum	disk		0.4177			0.0691											
1741	Zinc-Aluminum	disk		0.5242			0.1571											
1742	Zinc-Aluminum	disk		0.7917			(0.0029)											
2139	Zinc-Aluminum	100 g		0.2042			0.0302											

Values in parentheses are not certified and are given for information only.

112.1 Carbides (powder form)

Composition (mass fraction, in %)

SRM	品名	容量 (in g)	SiC	Total C	Free C	Fe	O	N	Al	Ca
112b	Silicon Carbide	80	97.37	29.43	0.26	0.13			0.44	0.04
276b	Tungsten Carbide	75		6.10	(0.04)		(0.08)	(0.01)		

Values in parentheses are not certified and are given for information only.

112.2 Cemented Carbides (powder form)

SRMs 887-889 are prepared from sintered tungsten carbide base materials.

SRM	887	888	889
品名	Cemented Carbide (W83-Co10)	Cemented Carbide (W64-Co25-Ta5)	Cemented Carbide (W75-Co9-Ta5-Ti4)
容量 (g)	100	100	100
Element	(mass fraction, in %)		
Cobalt	10.35	24.7	9.50
Tantalum		4.77	4.60
Titanium			4.03
Carbon	(5.5)	(4.6)	(6.0)

Values in parentheses are not certified and are given for information only.

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**BRITISH CHEMICAL STANDARD AND EURONORM CERTIFIED REFERENCE MATERIALS – High Purity Irons and Unalloyed Steels**

The figures are listed primarily as a guide to purchasers. In some cases provisional figures are given which may differ slightly from those given on the Certificate. Always consult the Certificate issued with the sample to obtain the accurate analysis.

**High Purity Irons**

CHEMICAL COMPOSITION (nominal mass content in %) – Figures in bold type certified, figures in small italic type only approximate. Purity Irons (Finely divided material units of 100g; 097-1 also available as 38mm dia. x 30, 25 or 3mm discs – see page 13)

EC RM No.	Description	C	Si	Mn	P	S	Cr	Mo	Ni	Al (Total)	As	B	Co	Cu	N
088-2	High Purity Iron	0.0006	0.0052	0.0809	0.0048	0.007	0.0244	(0.0025)	0.0275	0.0005			0.0061	0.0163	(0.001)
097-1 (C)	High Purity Iron	<<0.0005	<<0.01	0.0064	0.0016	0.0022	0.0016	<<0.001	0.0025		0.0051	0.0003	0.0037	0.002	0.0007

EC RM No.	Description	Nb	Pb	Sn	Ti	V	W	Zr	Bi	Ca	Ma	O	Sb	Ta	Zn
088-2	High Purity Iron (cont)					0.00029				0.00072					
097-1 (C)	High Purity Iron (cont)	<<0.001	<<0.0005	<<0.0025	<<0.0015	<<0.001	<<0.001	<<0.001	<<0.0005	<<0.0005	<<0.0005	-0.05	<<0.001	(0.0005)	<<0.0001

**Unalloyed Steels**

Unalloyed Steels (Finely divided material – units of 100g, 111 also available as 44mm dia. x 50mm discs/057-2, 058-2, 059-2, 064-1, 084-1, 085-1, 086-1, 090-1 and 096-2 also available as 38mm dia. x 30 or 25mm discs – see page 13)

BCS-CRM No.	ECRM No.	Description	C	Si	Mn	P	S	Cr	Mo	N	A (Acid sol)	Al (Total)	As	Co	Cu	N	Nb	Pb	Sn	T	V	Sb	Ca	Zn
111		Low Carbon Steel	0.026	0.025	0.155	0.003	0.005	0.02	8E-04	0.039		0.035	0.002	0.014	0.017	0.003	(0.0005)	<<0.01	0.0015	0.0004	0.0009	<<0.001	<<0.0005	
159/3	055-1	0.5% Carbon Steel	0.51	0.24	0.77	0.016	0.036	(0.160)	(0.020)	(0.12)					(0.15)									
161/3	056-1	0.8% Carbon Steel	0.79	0.30	1.02	0.043	0.030	(0.110)	(0.026)	(0.13)	(0.01)				(0.12)			(0.017)		(0.01)				
163/2	063-1	1.2% Carbon Steel	1.26	0.24	0.30	0.019	0.022	(0.160)	0.001	(0.10)			(0.02)		(0.09)	(0.005)								
232/2	051-1	0.1% Subhur Steel	0.181	(0.11)	1.18	(0.025)	0.126	(0.050)		(0.14)					(0.15)									
237/2	060-1	0.1% Carbon Steel	0.122	0.17	0.45	(0.024)	(0.031)	(0.028)	<<0.005	(0.0390)		(0.004)			(0.060)	0.0040		(0.005)						
238/2	061-1	0.2% Carbon Steel	0.210	0.12	(0.61)	(0.019)	(0.034)			(0.21)					(0.10)									
270	054-1	0.09% Phosphorus Steel	0.22	0.05	(0.88)	0.092	(0.10)	(0.17)	0.020	(0.14)			(0.03)		(0.21)						<<0.01			
	057-2 (C)	0.05% Carbon Steel	0.051	3	246	0.012	0.013	0.011		0.01	(0.055)	0.059			0.015	0.00230								
	058-2(C)	0.15% Sulphur Steel	0.424	0.108	1.186	0.01	0.171	0.1211	0.059	0.199			0.01		0.261	0.011								
	059-2 (C)	0.7% Carbon Steel	0.721	188	0.495	0.005	0.008	0.0090	0.002	0.02	0.00020	0.00045			0.0074	0.005								
	064-1 (C)	Nb/Ti Interstitial Free Steel	0.00026	65	0.164	0.009	0.01	0.018	0.00077	0.012	0.0302	0.0330	0.004	0.003	0.0077	0.003	0.015	0.00018	0.00051	0.019	0.00015			
	084-1(C1)	0.4% Carbon Steel	0.391	0.265	0.860	0.018	0.029		0.033	0.154					0.267				0.023					
	085-1 (C)	0.3% Sulphur Steel	0.067	0.008	0.977	0.062	0.336							0.019	0.291			0.0010		0.002	0.007			0.0025
	861-1 (C)	0.3% Carbon Steel	0.297	0.206	0.879	0.024	0.037	0.150		0.168			0.0230		0.32				0.0263					
	087-1	0.15% Carbon Steel	0.174	0.263	0.671	0.010	0.046	0.078	0.021	0.118			0.024	0.015	0.171				0.017		0.005			
	090-1 (C)	1% Carbon Steel	1.054	0.281	0.226	0.013	0.01	0.121	0.009	0.053						0.0146	0.00043	0.00239		0.204	0.00090			0.00209
	091-1	0.5% Carbon Steel	0.518					0.321	0.098	0.310					0.011									
	096-1 (C)	Low S, Low Ca Steel	0.113	0.263	1.35	0.019	0.0009	0.019	0.003	0.020	0.0140	0.044	(0.005)	(0.006)	0.022		0.029	(0.0004)	(0.005)		0.004	(0.001)	0.002	
	096-2 (C)	Low S, Ca-Treated Steel	0.1050	0.262	1.320	0.013	0.0016	0.0243	0.0020	0.0253		0.0460			0.0170		0.0252						0.0020	

**Unalloyed Steels (Continued)**

BCS-CRM No.	ECRM No.	Description	Bi	Cd	Ga	Hg	Se	Te	Tl
	090-1 (C)	1% Carbon Steel	<0.0002	<0.0002	0.00228	<<0.00001	<<0.0002	<0.0002	<0.0001

CHEMICAL COMPOSITION (nominal mass content in %) - 分析値は保証値です。ただしカッコ付数値はその限りではありません。

**Unalloyed Steels** (cont.) (Finely divided material - units of 100g: 431/2-435/2, 456/2-460/2, also available as 38mm dia. x 19mm discs - see page 13)

BCS-CRM No.	Description	C	Si	Mn	P	S	Cr	Mo	Ni	As (Acid Sol)	A (Total)	As	B	Co	Cu	N	Nb	Pb	Sn	Ti	V	W	Zr	Sb	
431/2	Plain Carbon Steels	0.025	0.015	0.902	0.121	0.007	0.049	(0.004)	0.04		(0.010)	(0.005)		(0.006)	(0.015)	0.005	0.004		<(0.005)	<(0.002)	(0.003)	(0.004)			
432/2		0.007	0.082	0.712	0.017	0.036	0.017	(0.002)	0.02		<(0.002)			(0.006)	(0.015)	0.007	0.0174			<(0.001)	(0.003)				
433/2		0.096	0.007	1.188	0.011	0.008	0.026	(0.004)	0.037					(0.006)	(0.025)		0.059			(0.001)	(0.00)				
434/2		0.275	0.51	1.546	0.061	0.014	0.238	(0.014)	0.037					(0.0060)	(0.025)	0.01	0.038			(0.040)	(0.040)				
435/2		0.489	0.328	0.39	0.037	0.042	0.184	(0.018)	0.133						0.012	(0.05)		0.134			(0.005)	(0.015)			
451/1	Carbon Steel Residual Series (Group A)	0.051	0.116	0.62	0.009	0.014	0.104	0.039	0.016			0.041			0.47			(0.001)	0.002	0.105		0.099			
452/1		0.323	0.055	1.3	0.035	0.017	0.067	0.054	0.19			0.015			0.22			0.000	0.094	0.031		0.054			
453/1		0.16	0.34	1.38	0.044	0.026	0.26	0.08	0.11			0.052			0.099			0.000	0.022	0.073		0.3			
454/1		0.376	0.31	0.80	0.061	0.047	0.062	0.2	0.069			0.07			0.051			0.0000	0.054	0.01		0.15			
455/1		0.598	0.25	0.4	0.052	0.055	0.21	0.14	0.35			0.026			0.038			(0.0005)	0.085	0.022		0.2			
456/2	Carbon Steel Residual Series (Group B)	0.112	0.297	0.22	0.021	0.022				<(0.002)	0.002		0.002	0.05			0.006	0.019			0.022		<(-0.013)	0.017	
457/2		0.307	0.105	0.327	0.01	0.045					0.082	0.087		0.005	0.022			0.0174	0.0098			0.153		0.025	0.05
458/2		0.198	0.504	0.479	0.028	0.031					0.052	0.055		0.0069	0.1980			0.051	0.014			0.105		(0.062)	0.089
459/2		0.467	0.64	0.909	0.048	0.0481					0.013	0.015		0.011	0.089			0.01	0.004			0.059		0.074	0.012
460/2		0.383	0.126	0.616	0.037	0.01					0.019	0.024		0.003	0.011			68	0.0005			0.032		<(0.0005)	6E-04

**Unalloyed Steels** (cont.) (Rod material - BCS-CRM S18A is a pair of 6.35mm dia. x 95mm rods, BCS-CRM 318B is a single 12.7mm dia. x 127mm rod)

BCS-CRM#	Description	Form	C	Si	Mn	P	S	Al	O
318A	0.01% Oxygen Steel	6.35mm dia. x 95mm rod	(0.083)	(0.12)	(0.39)	(0.018)	(0.035)	<(0.002)	0.0096
318B	0.01% Oxygen Steel	12.7mm dia. x 127mm rod	(0.083)	(0.12)	(0.39)	(0.018)	(0.035)	<(0.002)	0.0103

**High Speed Tool Steels** (Finely divided material - units of 100g 482/1 and 483/1 also available in disc form for spectroscopic analysis - see page 16)

BCS-CRM No.	ECRM No.	Description	C	Si	Mn	P	S	Cr	Mo	Ni	A	As	Co	Cu	Sn	V	W	
220/2	254-1	High Speed Tool Steels	0.88	0.19	0.3	0.023	0.029	5.12	4.92	0.12			0.32	0.09	0.019	1.94	6.97	
241/2	251-1		0.84	0.21	0.27	0.024	0.025	5.35	0.53	0.15	(0.009)		5.7	0.08	0.025	1.59	19.9	
481			0.69	0.14	0.29	0.021	0.027	3.56	0.22					0.21			0.52	14.2
482			0.7	0.13	0.28	0.021	0.025	4.09	0.27					0.24			0.98	18.1
483			0.67	0.11	0.29	0.019	0.025	3.21	0.17					1.94			0.54	10.8
484			0.85	0.2	0.21	0.03	0.024	5.17	1.07					10.2			0.93	22.4
482/1			0.67	0.14	0.26	0.027	0.027	3.95	0.4	(0.16)				0.29			1.04	17.8
483/1			0.65	0.16	0.22	0.023	0.023	2.90	0.18	(0.08)				2.06			0.22	9.28

CHEMICAL COMPOSITION (nominal mas content in %) - 分析値は保証値です。ただしカッコ付数値はその限りではありません。

**Alloy Steels** (Finely divided material - units of 100g; 112-114 also available as 44mm dia. x 50mm discs; 186-1, 195-1, 401/1, 401/2-410/2 & 421-424 also available in disc form for spectroscopic analysis - see page 14)

BCS-CRM#	ECRM No.	Description	C	Si	Mn	P	S	Cr	Mo	N	Al	As	B	Co	Cu	Nb	Pb	Sn	Ti	V	W	Zr	Ca	Sb	Zn		
112		Low AHoy Steel	0.394	0.289	0.436	0.004	0.003	1.236	0.19	1.461	0.015	0.002	7E-04	0.018	0.149	0.002	0.007	<<0.001	0.009	0.01	0.009	<<0.001	<0.0005	<<0.001			
113		Low Alloy Sted	0.837	0.931	1.207	0.06	0.029	1.248	0.056	0.0784	0.015	0.0020	0.007	0.042	0.179	0.011	0.049	<<0.001	0.007	0.0390	0.201	0.012	0.002	<<0.001	<<0.003		
114		Low AHoy Steel	0.403	0.295	0.416	0.004	0.005	0.187	0.184	1.502	0.078	0.0025	8E-04	0.017	0.358	0.004	0.004	<<0.001	0.041	0.0960	0.009	<<0.001	0.005	<<0.001	<<0.0025		
214/2	152-1	Mn-Mo Steel	0.39	0.18	1.61	0.032	0.043	0.09	0.26	0.15					0.21											<<0.01	
219/4	153-1	Ni-Cr-Mo Steel	0.314	0.079	0.81	0.011	0.027	0.66	0.58	2.55	(0.003)				0.088			0.011									
222/1	154-1	Ni Stee	(0.31)	(0.22)	(0.62)	(0.02)	(0.009)	(0.05)	(0.029)	3.54				(0.038)	(0.14)												
225/2	155-1	Ni-Cr-Mo Steel	0.40	0.23	0.56	0.019	0.012	1.08	0.340	1.43	(0.01)	(0.04)	(0.007)	(0.02)	(0.17)	(0.012)	(0.003)		(0.02)		<<0.01	<<0.01		(0.0060)			
317	151-1	Low C, High Si Steel	0.03	3.49	0.085	0.015	0.023																				
	186-1 (C)	Silico Manganese Stee	0.61	1.72	0.87	0.022	0.035	0.218	0.048	0.19	0.014				0.281												
	195-1(C)	Cr-Mo-Ni Sted	0.756	0.466	0.571	0.016	0.012	1.566	0.768	0.327					0.036	0.01		0.001	(0.002)		0.312		0.002	(0.0008)	0.046		
404		Low Alloy Steels	0.67	1.04	0.52	0.05	0.018	0.68	0.33	0.46					0.31					0.1							
405	0.058		1.38	1.28	0.017	0.06	0.21	0.017	0.12						0.015					0.320							
408	0.28		0.24	0.64	0.043	0.030	0.09	0.14	4.58						0.73					0.063							
404/1		Low Alloy Steels	0.74	0.87	0.31	0.057	0.024	0.48	0.31	0.4					0.34					0.11							
405/1	0.032		1.71	1.28	0.018	0.069	0.15	0.002	0.22						0.013					0.28							
407/1	0.47		0.59	0.047	0.03	0.01	2.95	0.78	0.59						0.57					0.18							
408/1	0.285		0.23	0.51	0.037	0.028	0.102	0.09	4.45						0.66					0.031							
409/1	0.082		1.46	0.44	0.025	0.021	0.94	0.65	3.06					0.014	0.048					0.09							
401/2		Low Alloy Steels	0.935	0.602	1.197	0.027	0.007	0.138	0.495	0.019	0.074			0.004	0.101	(0.015)				0.496							
402/2	1.311		0.111	0.228	0.016	0.014	0.652	0.14	0.808	0.161					0.302	0.007				0.194							
403/2	0.75		0.209	1.677	0.055	0.038	0.463	0.088	0.223	0.049					0.221	(0.01)				0.341							
404/2	0.696		1.121	0.532	0.048	0.023	0.774	0.307	0.393	0.017					0.427	0.009				0.107							
405/2	0.044		0.947	0.903	0.01	0.058	0.206	0.025	0.102	0.33				(0.009)	0.022	(0.011)				0.411							
406/2	0.173		0.342	0.447	0.01	0.043	2.001	0.98	1.62	0.013	0.012			(0.006)	0.289	(0.009)		0.0002	(0.001)	0.01							
407/2	0.49		0.66	0.195	0.038	0.011	3.03	0.83	0.527	0.04				0.007	0.397	(0.011)				0.19							
408/2	0.289		0.237	0.557	0.056	0.03	0.111	0.098	4.13	0.154	0.005				0.694	0.008		0.0006	(0.002)	0.067							
409/2	0.086		1.18	0.559	0.014	0.018	1.318	0.599	3.02	0.094					0.205	0.011				0.008							
410/2	0.428		1.1	0.419	0.074	0.041	1.684	0.432	2.07	0.046	0.005			0.025	0.436	0.016				0.44							
421		Low Tungsten Steels	(0.05)	(0.07)	(0.11)	(0.012)	(0.027)													<<0.02	0.52						
422	(0.04)		(0.06)	(0.09)	(0.015)	(0.025)															<<0.02	1.28					
423	(0.03)		(0.05)	(0.07)	(0.017)	(0.027)															<<0.02	2.06					
424	(0.024)		(0.05)	(0.07)	(0.020)	(0.024)															<<0.02	3.02					

CHEMICAL COMPOSITION (nominal mass content In %) - 分析値は保証値です。ただしカッコ付数値はその限りではありません。

**Highly Alloyed Steels** (Finely divided material - units of 100g; 276-2, 285-2, 287-1, 292-1, 295-1, 296-1, 340 (SS70), 461/1-468/1, 466/2, 469-473, 474, 475 also available In disc form for spectroscopic analysis - see pages 15 & 16)

CS-CRM	ECRM No.	Description	C	S	Mn	P	S	Cr	Mo	Ni	Al	As	B	Co	Cu	N	Nb	Pb	Sn	Ti	V	Zr	Ta	Mg	Sb	Fe
	276-2(C)	5% Cr-Mo-V Steel	0.399	1.034	0.365	0.0093	0.0189	4.975	1.134	0.203					0.183	0.0116			0.013		0.296					
	281-1	18/9 Stainless Steel & T	0.048	0.929	0.786	0.012	0.016	18.17		9.37	0.015	(0.015)	0.0012	0.023	0.076	0.023		0.0005	0.009	0.216						
	285-2(C)	Maraging Steel	0.0018	0.0117	0.0168	0.0053	0.0025	0.0236	4.99	18.07	0.1067		0.0009	7.76	0.0094	0.0007			(0.001)	0.52		0.005				
	287-1(C)	High B Stainless Steel	0.016	0.569	1.478	0.0267	0.0014	18.61	0.247	10.35			0.924	0.148	0.203	0.0194										
	292-1(C)	Nb-Stabilised Stainles	0.0367	0.402	1.744	0.0175	0.0055	18	0.046	10.09	(0.002)	(0.008)	(0.0003)	0.0255	0.0391	0.064	0.571					(0.001)				
	295-1(C)	4% Mo-Cr-Ni Steel	0.0166	0.418	1.758	0.0167	0.0003	19.51	3.996	24.4	0.0203	0.0041	0.0018	0.045	1.481	0.062			0.003		0.046		(0.0003)	0.0007	43.36	
	296-1(C)	Jethete Steel	0.1166	0.242	0.676	0.0178	0.0026	11.82	1.7	2.79	0.0275	0.014	(0.0003)	0.022	0.15	0.021		0.00016	0.013		0.363					
332		Austenitic Stainless Steel	0.063	0.44	0.8	0.015	0.02	12.8		12.45					(0.037)	(0.1)					(0.02)					
339		Ferritic Stainless Steels	0.29	0.36	0.41	0.022	0.022	12.4		0.37					(0.08)											
340	0.18		0.35	0.38	0.024	0.02	16.35		0.4						(0.06)											
341	0.1		0.31	0.43	0.016	0.024	24.00		0.56						(0.1)											
342	0.18		0.92	0.91	0.03	0.026	16.15	0.69	2.16						(0.08)											
462		Austenitic Stainless Steels	0.092	0.46	0.74	0.01	0.018	12.35		12.55		0.007						0.0005								
463	0.088		0.51	0.77	0.015	0.017	18.3		9.65				(0.0004)													
461/1	0.0103		0.374	0.686	0.0053	0.0051	14.727	0.0138	6.12	(0.002)	(0.004)			(0.004)	0.0091			(0.005)								
462/1	0.0345		0.463	0.722	0.00053	0.0041	11.888	0.0304	12.85						0.011											
463/1	0.019		0.27	1.4	0.025	0.019	18.46	0.265	10.2					0.002	0.116	0.276	0.063				<<0.005	0.04				
464/1	0.086		0.57	0.79	0.02	0.028	25.39		20.05			(0.003)		0.054				0.0004								
465/1	0.066		0.405	1.38	0.021	0.012	17.31	0.092	9.24	0.026			0.0006	0.053	0.098	0.01			<<0.001		0.4	0.102				
466/2	0.014		0.44	1.311	0.0105	0.007	17.84	2.776	10.2	(0.002)	0.002	0.0039	(0.02)	0.028	0.0508	(0.001)	<<0.0001	<<0.001	0.00	0.102						
467/1	0.082		0.52	0.788	0.018	0.019	18.09		9.21		0.004					0.99	0.004						0.002			
468/1	0.143	1.41	1.7	0.014	0.02	17.96		8.9					0.018													
469		Ferritic Stainless Steels	0.279	0.421	0.598	0.015	0.02	11.93		0.246				(0.01)	(0.02)						(0.02)					
470	0.153		0.335	0.235	0.024	0.035	17.68		0.36					(0.02)	(0.02)						(0.02)					
471	0.095		0.326	0.417	0.018	0.023	23.85		0.96					(0.02)	(0.02)						(0.03)					
472	0.227		1.05	1.02	0.032	0.029	15.82	0.061	1.95					(0.02)	(0.02)						(0.02)					
473	0.172		0.604	0.494	0.019	0.03	9.06	0.95	(0.06)					(0.01)	(0.03)						(0.02)					
474		Stainless Steels	0.022	0.17	1.7	0.008	0.02	19.06	3.55	14.74	(0.006)	0.03		(0.02)	0.35						0.3					
475	0.05		0.21	0.89	0.037	0.008	14.14	1.59	5.66	0.013				0.22	1.94		0.22		0.015							
290/2	253-1	High Manganese Steels	1.15	0.34	12.5	0.042	0.019	0.16	(0.031)	0.29				(0.35)	(0.17)	(0.013)					(0.02)					
491	0.92		0.9	16.1	0.026	0.012	1.45	0.6	0.05	0.042					(0.04)						(0.06)					
494	1.24		0.26	13.55	0.04	0.005	0.56	0.078	0.69	0.004				(0.43)	(0.19)						(0.02)					
495	0.82		0.46	13.6	0.036	0.014	1.93	0.035	1.05	0.103					(0.09)						(0.02)					
495/1	0.81		0.58	13.1	0.054	0.026	1.93	0.11	1.13	0.17											(0.02)					



**Special Alloys** (Finely divided material - units of 100g)

BCS-CRM No.	ECRM No.	Description	C	Si	Mn	S	Ni	Al	Co	Cu	Nb	Ti	Ta
383		Alcomax III	0.025		(0.07)	0.2	(13.2)	(7.700)	(24.4)	(2.630)	(0.510)		
398		Alnico HC	0.025	0.11	0.065	0.19	16.59	9.98	14.92	6.09	0.13	0.765	
	376-1	24% Cobalt Magnet Alloy	0.0256	0.313	0.05	0.004	13.4	8.1	23.7	2.94	0.31	0.158	(0.016)

**Cast Irons** (Finely divided material - units of 100g)

BCS-CRM No.	ECRM No.	Description	C	Graphite	Si	Mn	P	S	Cr	Mo	N	Al	As	Cu	N	Sn	T	V	Mg
	451-2	Austenitic Cast Iron	2.059		2.092	1.079	0.059	0.032	1.097		14.01			6.26					
206/3	453-1	High Si and P Iron	(2.44)	(2.37)	3.17	0.72	1.63	0.049	0.053		0.068		0.019	0.1			(0.04)	0.05	
236/3	454-1	Hematite Iron	(2.53)	(1.96)	2	1.16	0.046	0.068			(0.21)		(0.025)	0.07			0.052		
	481-1	Nodular Iron	3.907		2.288	0.448	0.019	0.004	0.063	0.011	1.19	0.023	0.01	0.15					0.0507
	482-2	Low Alloy Cast Iron	2.599		1.82	0.728	0.097	0.049	0.675	0.454	2.284			1.231					
	483-1	High Duty Iron	2.463	1.65	1.755	0.596	0.615	0.103	0.039							0.13			
	484-1	Whiteheart Malleable Iron	3.203		0.717	0.395	0.121	0.23	0.155										
	486-1	Foundry Iron	2.212		2.429	0.841	0.996	0.023	0.104		0.057			0.548		0.074		0.02	
	489-1	White Iron	2.86		1.524	(0.51)	0.815	0.155						0.274	(0.006)				

**Ferro-Alloys** (Finely divided material - units of 100g)

BCS-CRM No.	ECRM#	Description	C	Si	Mn	P	S	Cr	Mo	Ni	Al (Acid Sol)	Al (Total)	B	Co	Cu	N	Nb	Sn	Ti	V	W	Ta	Fe
242/2	555-1	Ferro-Tungsten	0.025	1.75		(0.02)	(0.018)					0.14						0.034			79.9		(15.2)
	576-1	Ferro-Niobium (40% Nb)	0.201	1.79								2.53					43.9	0.195	1.32			0.306	
	577-1	Ferro-Vanadium	0.089	1.79	0.158	0.035	0.034			0.053	0.21	0.414			0.054					50.16			
	578-1	Ferro-Molybdenum	0.016	0.208		0.024	0.065		72.23						0.136								
	579-1	Ferro-Niobium (60% Nb)	0.037	1.03		0.064	0.021					1.86		0.005			62.87	0.344	0.567			3.85	
	580-1	Low C Ferro-Chromium	0.019	0.306		0.011		72.18						0.047		0.035				0.083			
	583-1	Ferro-Manganese	0.333	0.396	86.42	0.146	(0.007)									(0.041)							(12.3)
	584-1	Ferro-Titanium	0.044	1.8	1.13	0.032	0.03				6	7.19							37.17				
	585-1	Ferro-Chromium (Charge Chrome)	6.87	2.76	0.86	0.018	0.039	57.6		0.197				0.044		0.023			0.36	0.33			(31.1)
	587-1	Ferro-Boron	0.738	(0.129)	0.272	(0.02)	(0.001)	(0.1)	(0.005)			0.047		18.7	(0.01)				(0.04)	(0.004)			
	590-1	Ferro-Tungsten	0.025	1.05	0.136		(0.07)		0.101			(0.37)			0.048			0.045			79.55		(17.9)

CHEMICAL COMPOSITION (nominal mass content in %) 分析値は保証値です。ただしカッコ付数値はその限りではありません。

**Aluminium and Magnesium Base Alloys (Finely divided material units of 100g)**

BCS-CRM No.	Description	S	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Sn	Ni	Sb	Zr	Be	Total Rara Earth	Al
181/3	2.5% Cu Aluminium Alloy	0.3	0.72	2.48	1.1	1.57	0.04	2.52	0.058	0.101		2					Bal.
182/3	11% Si Aluminium Alloy	11.03	0.51	0.037	0.26	0.067		0.128	0.107	0.056	0.027	0.046					Bal.
216/3	5% Cu Aluminium Alloy	0.74	0.77	5.45	0.76	0.76	0.108	0.214	0.2	0.052	0.052	0.24	(0.01)	0.084			Bal.
262/1	10% Mg Aluminium Alloy	0.16	0.2	0.039	0.084	10.75	(0.002)	0.085	0.005	(0.05)	(0.04)	0.071			(<<0.01)		Bal.
263/2	5% Mg Aluminium Alloy	0.14	0.26	0.019	0.36	4.67	0.074	0.056	0.02						(<<0.001)		Bal.
268/1	5% Si Aluminium Alloy	5.49	0.47	1.35	0.24	0.49		0.028	(0.008)	0.028	0.031	0.16					Bal.
300/1	6% Zn Aluminium Alloy	0.14	0.24	1.27	0.33	2.74	0.13	5.87	0.09					0.18			Bal.
343	Wrought Aluminium Alloy	0.52	0.39	0.28	0.69	0.7	0.14	0.028	0.024								Bal.
349	3.5% Cu Aluminium Alloy	1.19	0.154	3.4	0.111	0.024		0.298	0.034	0.077	0.074						Bal.
380/1	2% Si Aluminium Alloy	1.93	1.24	0.91	0.094	0.24	(<<0.001)	0.025	0.024	(0.014)		0.94					Bal.
307	Magnesium Alloy (ZRE 1)	(<<0.001)	0.002	0.01	0.006	Bal.		2.08			(<<0.001)	(<<0.001)		0.56		2.84	(0.008)
316	8% Al Magnesium Alloy	0.055	0.009	0.04	0.28	Bal.		0.68		0.024	0.005	0.004					8.01
504	Aluminium-Silicon Alloys	12.0	0.5	0.27	0.31	0.21		0.06	0.17	0.07	0.03	0.02					Bal.
505		12.8	0.30	0.05	0.52	0.05		0.24	0.03	0.09	0.17	0.2					Bal.
506		13.9	0.40	0.02	0.21	0.12		0.3	0.07	0.02	0.13	0.13					Bal.

**Copper Base Alloys (Finely divided material - units of 100g)**

BC S-CRM No.	Description	Cu	Sn	Zn	Pb	P	Ni	Fe	Al	Mn	Sb	As	Si	Bi	Mg	S	C	Cd
179/2	High Tensile Brass (Cast)	58.5	0.7	35.8	0.35		0.56	1.02	2.22	0.86		(0.008)	0.044					(0.003)
180/2	Copper Nickd	68.12			0.003		30.35	0.68		0.75			(0.018)		0.006	0.04		
183/4	Leaded Gunmetal	84.08	7.27	3.47	3.15	0.09	1.3	0.056	(<<0.002)	(0.01)	0.23	0.13	(0.01)	0.005	0.11			
207/2	Gunmetal	87.35	9.74	1.6	0.7	(0.018)	0.28	0.029	0.013		0.1	0.066	0.016	0.04				
304/1	Copper-Aluminium	80.23	0.03	0.31	0.01		4.82	4.64	9.71	0.12			0.08		(<<0.01)			
344	70/30 Brass	68.98		30.98														
364	Leaded Bronze	80.6	9.35	0.13	9.250	0.056	0.28	(<<0.005)	(<<0.002)		0.18	0.07	(<<0.005)	(<<0.01)		(0.06)		
374	Phosphor Bronze	89.5	9.8	0.006	0.064	0.59	0.014	(<<0.005)	(<<0.005)		(0.01)		(<<0.005)	(0.007)	0.012			
385	Leaded Brass	58.7	0.27	38.5	2.24		0.13	0.15	(<<0.005)	(<<0.005)	(<<0.01)							
390	High Tensile Brass (Wrought)	57.1	0.34	38.6	1.04		0.033	0.83	0.83	1.3			(0.023)					(0.011)
399	Phos. Deoxidised Copper	(99.93)	(0.003)	(0.003)	(0.002)	0.045	(0.002)	(<<0.006)			(<<0.001)	(<<0.001)		(0.001)				(0.003)

BRTISH CHEMICAL STANDARD CERTIFIED REFERENCE MATERIALS – Lead, Tin, Nickel, & Titanium Base Alloys, and Benzoic Acid

CHEMICAL COMPOSITION – 分析値は保証値です。ただしカッコ付数値はその限りではありません。

**Lead and Tin Base Alloys** (Finely divided material – units of 100g) (nominal mass content in %)

BCS –CRM No.	Description	Pb	Sn	Sb	Cu	As	Bi	Cd	Fe	Ni	Zn	Al	Ag	In
177/2	Lead Base White Metal	84.5	5.07	10.1	0.12	0.05	0.028	.....	.....	0.007	.....	.....	0.008	.....
178/2	Tin Base White Metal	3.18	82.2	9.45	4.58	0.15	0.11	0.14	0.024	0.17	0.04	0.005	(0.02)	.....
347	Electronic Flowsolder	Bal	62.6	0.191	0.169	(0.02)	0.08	0.004	(0.002)	0.007	0.002	<0.001	0.099	(0.006)

**Nickel Base Alloys** (Finely divided material – unit of 100g – 345,346(346A),350,363/1,387/1 also available in disk form for spectroscopic analysis –see page 17)

MAJOR ELEMENTS – nominal mass content in % 分析値は保証値です。ただしカッコ付数値はその限りではありません。

BCS –CRM No.	Description	C	Si	Mn	P	S	Cr	Mo	Ni	Al	B	Co	Cu	Nb	Ti	V	W	Zr	Fe	Sb
310/1	Nimonic '90' Alloy	0.068	0.46	0.35			19.45		58.6	1.06		17			2.43				0.25	
345	IN 100 Alloy	0.153					9.95	3.01	Bal.	5.58	0.019	14.71			4.74	1		0.044		
346	IN 100 Alloy	(0.15)					(10)	(3)	Bal.	(5.5)		(15)			(5)	(1)				
350	IN 713 Alloy	0.138	0.11	0.019			13.43	4.29	70.8	5.97	0.013	0.338		2.17	0.87		0.094	0.072	1.5	
351	IN 718 Alloy	0.025	0.14	0.037	(0.006)	0.0006	18.12	3.06	53.1	0.55	0.0051	0.136	0.016	5.2	1.06				18.26	
363/1	Monel Alloy 400	0.14	0.028	1.26		(0.002)	(0.05)		64.7	0.027		0.032	31.9		(0.03)				1.86	
371	Commercial Nickel	0.3	0.34			0.013			Bal.			0.39								
387/1	Nimonic 901 Alloy	0.033	0.06	0.025	0.0033	0.0028	11.35	5.83	41.2	0.24	0.017	0.02	0.0076	0.006	3				38.4	3E-04

**Nickel Base Alloys** (continued) TRACE ELEMENTS – nominal mass content in ug/g

BCS –CRM No.	Description	Pb	Bi	Ag	Se	Te	Tl	Sb	As	Cd	Ga	Sn	Zn	Mg	Ca	In
345	IN 100 Alloy	0.21	<0.2	<0.2	<0.5	<0.2	<0.2	<2	<(2)	<0.1	8.2	5.6	<0.5	5.5	<(5)	
346	IN 100 Alloy	21	10.4	35	9.1	11.7	1.8	47	50.3	0.42	50.6	91	28.9	147	(36)	(19)
371	Commercial Nickel	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	600	.....	.....

**Titanium Base Alloys** (Finely divided material – units of 50g) nominal mass content | 分析値は保証値です。ただしカッコ付数値はその限りではありません。

BCS –CRM No.	Description	Al	V	Fe	Cu	Ni	Cr	Mo	N	Sn	Si	W	C	H	O	B	Zr	Y
356	Titanium Alloy	6.25	4.05	0.124	0.0055	0.007	0.0112	0.002	0.0103	(0.016)	(0.02)	(0.001)	(0.0085)	(0.0019)	(0.2)	<(0.0005)	<(0.0005)	.....
357	Titanium Alloy	5.46	3.53	0.202	0.0537	0.0511	0.0521	0.053	0.0148	(0.062)	(0.05)	<0.001	(0.0072)	(0.0012)	(0.25)	(0.0013)	(0.0455)	(0.005)

**Benzoic Acid** (Finely divided material – units of 100g; also available as 0.2g and as 1.0g tablets)

BCS –CRM No.	Description	
193s	Benzoic Acid	Purity 99.99 ± 0.06 %, Valorific Value: 26,463.7 joules per gramme based on mass (Certified by Bundesanstalt für Materialforschung und -prüfung, Germany)

BRITISH CHEMICAL STANDARD AND EURONORM CERTIFIED REFERENCE MATERIALS – Non-Metallic Materials  
 CHEMICAL COMPOSITION (nominal mast content in %) 分析値は保証値です。ただしカッコ付数値はその限りではありません。

**Ores** (Finely divided material – units of 100g)

BCS-CRM No.	ECRM No.	Description	Fe	FeO	SiO2	Al2O3	Cr2O3	TiO2	CaO	MgO	S	P	Mn	MnO	Na2O	CO2	BaO	Pb	L.O.I	As2O3
176/2		Manganese Ore	6.86		2.53	5.2		0.3	0.09	0.04	0.018	0.087	47.5		0.11		0.19	(0.01)		0.22
301/1	651-1	Lincolnshire Iron Ore	23.85		7.4	4.26		0.16	22.6	1.73	0.4	0.35		1.25	0.32	(22.1)			25.8	
308		Grecian Chrome Ore		15.3	4.25	19.4	41.5	(0.16)	0.34	16.4				(0.14)	(0.01)				0.9	

**Fluorspar & Bauxite** (Finely divided material – units of 100g) 分析値は保証値です。ただしカッコ付数値はその限りではありません。

BCS-CRM No.	Description	Fe2O3	SiO2	Al2O3	CaF2	TiO2	CaO	MgO	BaO	Na2O	S	CO2	Cr	Cu	Mn	Ni	Pb	Sr	Zn	L.O.I
392	Fluorspar		0.67		97.2		0.52		0.37		0.12	0.48					0.18			
395	Bauxite	16.3	1.24	52.4		1.93	0.05	0.02	(0.2200)				(0.0453)	(0.0021)	(0.0042)	(0.0034)	(0.0028)	(0.0023)	(0.0043)	27.8

**Tin Ore** (Finely divided material – units of 100g) 分析値は保証値です。ただしカッコ付数値はその限りではありません。

BCS-CRM No.	Description	Sn	Fe	Cu	As	Bi	Zn	Pb	S	W	Ni	Si	Ti	Al	Ca	F
355	Tin Ore	31.42	17.08	0.085	0.14	0.015	0.059	0.012	0.5	0.35	0.004	7.14	0.37	4.12	2.63	2.07

**Ores & Dust** (Finely divided material – units of 100g) 分析値は保証値です。ただしカッコ付数値はその限りではありません。

ECRM No.	Description	Fe	Si	Ca	Mg	A	Ti	Mn	P	S	Na	K	F	V	Cr	Ni	C	Zn	Pb	Cu	As	Co	Cd
676-1	Iron Ore Sinter	39.76	6.4	12.78	1.16	3.4	0.19	0.83	0.59	0.12	0.095	0.43	0.1	0.07									
681-1	Iron Ore	33.21	8.32	2.8	0.89	5.62	0.29	0.22	0.88	0.103	0.068	0.49	0.19	0.077	0.041	0.016	1.8		(0.0072)		(0.011)	(0.008)	
682-1	Iron Ore	68.74	0.226	0.014	0.018	0.203	0.032	0.212	0.036	0.004	0.004	(0.0054)	(0.002)					0.002	(0.0009)				(0.0003)
683-1	Iron Ore Sinter	56.06	3.38	5.7	1.04	1.3	0.097	0.462	0.148	(0.013)	0.045	0.148	0.02	0.026	0.018			0.01					

**Slags** (Finely divided material – units of 100g) 分析値は保証値です。ただしカッコ付数値はその限りではありません。

BCS-CRM No.	Description	SiO2	TiO2	Al2O3	Fe	FeO	CaO	MgO	Cr2O3	MnO	V2O5	P2O5 (Cit Sol)	P2O5 (Form Sol)	P2O5 (Total)	S	F	
381	Basic Slag	8.78	0.35	0.67	13.3	3.69	49	1.03	0.33	3.16	0.94	15.2			15.7	0.19	
	879-1 Basic Slag	8.82	0.535	0.803	18.97		43.7	2.19	0.477	4.45	0.738	7.59	(5.73)		8.46	0.102	0.368

**Tungsten Carbide** (Finely divided material – units of 100g) 分析値は保証値です。ただしカッコ付数値はその限りではありません。

BCS-CRM No.	Description	C (Total)	C (Free)	Fe	O
352/1	Tungsten Carbide	6.154	0.036	0.003	(0.11)

**Silicon Carbide Refractories** (Finely divided material – units of 100g) 分析値は保証値です。ただしカッコ付数値はその限りではありません。

BCS-CRM	ECRM	Description	C (Total)	S (Total)	Al (Total)	C (Free)	Si (Free)	Fe (Total)	Mn	P	Cr	Mo	Ni	B	O	N	T	V	Ca	Mg	Na	K
	781-1	Silicon Carbide Refractory	48.25	35.56	4.39	(37.22)	(4.646)	(0.8061)	(0.027)	(0.0117)	(0.024)	(0.0264)	(0.021)	(0.0149)		(0.028)	(0.032)	(0.022)	0.043	(0.042)	0.0308	(0.377)
359	359	Nitrogen Bearing Silicon Carbide	23.46	67.6	0.118	(0.061)	(325)	0.175	<<0.01				(0.014)		(0.532)	(7.840)	0.022	(0.027)	0.108	<<0.01	<<0.01	<<0.01
360	360	Sialon Bonded Silicon Carbide	23.53	60.8	6.52	(0.085)	(0.538)	(0.19)	<<0.01		<<0.01		(0.013)		(4.03)	(4.770)	0.025		0.115	<<0.02	<<0.01	<<0.01

Ceramics Materials & Minerals (Finely divided material – units of 100g)

BCS –CRM No.	ECRM	Description	SiO2	Al2O3	TiO2	Fe2O3	MnO	Mn3O4	CaO	MgO	Na2O	K2O	PbO	ZnO	P2O5	ZrO2	S	L.O.I
309		Sillimanite	34.1	61.1	1.92	1.51	(0.03)		0.22	0.17	0.34	0.46						(0.1)
313/1		High Purity Silica	99.78	0.036	0.017	0.012	0.0013		0.006	0.0013	0.003	0.005				(0.002)		(0.1)
319/1		Magnesia	1.093	0.109	0.0070	0.291	0.108		3.00	95.38					(0.007)	(0.0008)		
348		Ball Clay	51.1	31.6	1.08	1.04			0.17	0.30	0.34	2.23			0.071	(0.03)	(0.1)	11.8
358		Zirconia	0.20	0.08	0.20	0.064			1.50	3.42	(<0.01)	(<0.01)				92.70		0.08
362		Mine Tallings Sample	9.03	0.667	0.047	0.483		0.829	44.21	0.068	0.084	0.14	2.63	2.59	(0.014)		1.48	32.81
369		Magnesite – Chrome	2.59	14.7	0.14	10.3	0.11		1.17	53.5	0.05	0.03						
370		Magnesite – Chrome	3.01	12.3	0.13	7.23	0.11		1.54	61.8	0.06	0.03						
375/1*		Soda Feldspar	69.26	17.89	0.313	0.291			0.78	0.180	8.89	1.47	(0.0004)	(0.0005)	0.226	(0.0107)		0.72
388		Zircon	32.7	0.291	0.232	0.049			(0.04)	(<0.05)	(<0.02)	(<0.03)			0.12	64.9		(0.20)
389/1		High Purity Magnesia	0.274	0.104	0.0051	0.607	0.100		0.880	97.89				(0.0029)	0.0295	(0.0008)		
393	725-1	Limestone	0.70	0.12	0.009	0.045	0.010		55.4	0.15	(0.02)	0.02			(0.05)		0.007	43.4
394		Calcined Bauxite	4.98	88.8	3.11	1.90			0.08	0.12	(0.06)	0.02			0.22	(0.15)		(0.40)
396		Low Silica Magnesite Chrom	1.37	5.73	0.26	10.9	0.17		1.12	64.6	(0.06)	(0.03)						(0.04)
	776-1	Firebrick	62.76	29.28	1.62	1.43			0.310	0.476	0.488	2.92			0.062	(0.04)		(0.3)
	782-1	Dolomite	0.266	0.104	0.0042	0.450	0.081		30.34	21.29		0.0260	0.0029	0.0082	0.0128		(0.016)	47.25

\* Information is also given on approximate levels of Ce, Cs, Eu, La, Nb, Nb, Rb, Sc, Sm, and Yb in BCS-CRM375/1 分析値は保証値です。ただしカッコ付数値はその限りではありません。

Ceramics Materials & Minerals (続き)

BCS –CRM No.	ECRM	Description	B2O3	BaO	Cr2O3	HfO2	Li2O	SrO	ThO2	U3O8	Y2O3	C	Cd	F	Ni
309		Sillimanite		(0.006)			(0.01)	(0.003)							
313/1		High Purity Silica			(<0.0002)		(0.0005)	(0.0060)							
319/1		Magnesia	(0.002)	(0.0038)	0.004						(0.0014)				(0.0075)
348		Ball Clay		(0.04)	0.016	1.63		0.07	(0.0007)	(0.08)		(1.64)			
358		Zirconia		0.10				0.034							
362		Mine Tallings Sample		(2.02)	(0.003)			(<0.01)				(9.9)	0.020		(0.001)
369		Magnesite – Chrome		(<0.01)	17.2		0.03	(<0.01)							(0.015)
370		Magnesite – Chrome		(<0.01)	13.4		0.03	(0.012)	(0.0011)	(0.0002)	(0.0023)				(0.08)
375/1*		Soda Feldspar		(0.0106)	(0.0018)	(0.0004)			0.018	0.034	0.136				
388		Zircon				1.30		(0.0007)			(0.0029)				
389/1		High Purity Magnesia	(0.015)	(0.0015)	(0.004)			0.019							
393	725-1	Limestone		0.006											
394		Calcined Bauxite			(0.08)		<0.01								
396		Low Silica Magnesite Chrom	0.09		15.6		(0.05)								(0.0012)
	776-1	Firebrick		0.122	0.022		0.019							(<0.01)	
	782-1	Dolomite	(0.0329)	(0.0008)	0.0009										(0.0004)

Cemnets (Finely divided material – units of 100g)

分析値は保証値です。ただしカッコ付数値はその限りではありません。

BCS –CRM No.	Description	SiO2	Al2O3	TiO2	Fe2O3	Mn2O3	CaO	MgO	Na2O(Acid Sol)	K2O(Acid Sol)	P2O5	SO3	SrO3	Cl		
353	Sulphate Resisting Portoland Cement	20.5	3.77	0.16	4.82	(0.02)	0.23	2.42		0.10		0.49	0.077	2.25	0.23	(0.01)
354	White Portoland Cement	21.8	4.85	(0.04)	0.30	(0.003)	0.057	0.42		0.10		0.11	0.12	2.25	0.11	(0.005)
372/1	Ordinary Portoland Cement	20.3	5.37	0.27	3.42	(0.01)	65.3	1.31		0.10		0.75	(0.07)	2.25	(0.05)	(0.008)

このページの分析値はすべて参考値です。

**High Purity Metals** (Fine divided material or blocks/bars – description 参照)

BCS-RM No	Description	Cu	Sn	Zn	Pb	N	Fe	Al	Mn	Sb	Si
192g	High Purity Tin (300g blocks)	0.00007	99.997	0.00006	0.0007	<0.00005	0.0002			0.0007	
192h	High Purity Tin (100g millings)	<0.000	99.998	<0.000	0.0006	<0.0001	<0.0001			<0.0005	
194e	High Purity Zinc (300g blocks)	<0.000	<0.001	99.99	0.002		0.001				
195g	High Purity Aluminium (100g millings or 300g blocks)	0.001		0.015			0.08	99.85	0.001		0.035
198f	Super Pure Aluminium (100g blocks)	0.005					0.001	99.99			0.002
210e	High Purity Lead (500g bars)	0.0006	<0.002	<0.005	99.996	<0.001	0.0005	<0.001	<0.001	<0.002	

**High Purity Metals** (続き)

BCS-RM No	Description	Bi	Ti	Ag	C	S	V	Tl	Ga	Melting Point
1920	High Purity Tin (300g blocks)	0.00003			0.001	0.0002				231.9°C
192h	High Purity Tin (100g millings)	<0.0001			0.001	0.0002				231.9°C
194e	High Purity Zinc (300g blocks)									419.5°C
195g	High Purity Aluminium (100g millings or 300g blocks)		0.002				0.004		0.009	659.2°C
198f	Super Pure Aluminium (100g blocks)									
210e	High Purity Lead (500g bars)	0.0008		0.0001				0.001		327.3°C

**Ceramic Materials** (finely divided material – units of 100g). These samples have been prepared jointly by Ceram Research Limited and BAS.

BCS-RM No	Description	SiO2	Al2O3	TiO2	Fe2O3	CaO	MgO	Na2O	K2O	P2O5	BaO	Mn2O3	SnO2	SrO	SO3	ZrO2 + HfO2	L.O.I.
201a	Nepheline Syenite	57.3	23.54	0.05	0.12	1.07	0.025	7.53	8.9	0.025	37	0.007		0.43			0.76
202a	Plaster (Gypsum)	1.38	0.33	0.03	0.10	37.4	39	<0.03	0.10	<0.01				0.33	53		7.0
203a	Talc	59.7	0.3	<0.01	0.22	0.25	32.08	0.02	0.005	0.13							6.78
2048	Zircon	37.6	0.74	222	0.18	0.15	0.012	0.014	0.017	0.77			1.69			53.8	0.50

SPECTROSCOPIC STANDARD CERTIFIED REFERENCE MATERIALS – High Purity Iron and Unalloyed Steels

High Purity Iron (Wrought) (38mm dia. x 30, 25mm or 3mm discs)

分析値は保証値です。ただしカッコ付数値はその限りではありません。

Ref No.	Description	C	Si	Mn	P	S	Cr	Ni	As	B	Co	Cu	N	Sn	Ti	O	Zn	W,Sb	Mo,Nb,V,Zr	Pb,Bi,Ca,Mg,Ta
ECRM 097-1(D)	Higt Purity Iron	0.00025	<(0.01)	0.0064	0.0016	0.0022	0.0016	0.0025	0.0051	0.0003	0.0037	0.0020	0.0007	<(0.0025)	<(0.0015)	(0.05)	<(0.0001)	<(0.0001)	<(0.001)	<(0.0005)

Plain Carbon Steels (Wrought) (38mm dia. x 19mm discs ECRM: 38mm dia. x 30 or 25mm discs)

分析値は保証値です。ただしカッコ付数値はその限りではありません。

Ref No.	Description	C	Si	Mn	P	S	Cr	Mo	N	Al·(Acid Sol)	A·(Total)	As	Co	Cu	N	Nb	Pb	Sn	Tl	V	Ca	Sb	Zn	
SS-CRM 432/1	Plain Carbon Steels	0.102	0.043	1.34	0.024	0.039	0.31	(0.02)	0.14		0.01			(0.04)		<0.002								
SS-CRM 433/1		0.195	0.18	0.6	0.074	0.069	0.26	(0.01)	0.064		<(0.01)			(0.06)		0.02								
SS-CRM 434/1		0.41	0.31	1.49	0.05	0.027	0.055	(0.01)	0.044		<(0.01)			(0.05)		0.078								
SS-CRM 435/1		0.52	0.54	0.41	0.033	0.031	0.14	<(0.01)	0.06		<(0.01)			(0.05)		0.039								
SS-CRM 431/2	Plain Carbon Steels	0.0249	0.015	0.902	0.121	0.0065	0.049	(0.004)	0.04					(0.006)		0.0052	0.004							
SS-CRM 432/2		0.0065	0.0822	0.712	0.0171	0.036	0.0166	(0.002)	0.02					(0.006)		0.0066	0.0174							
SS-CRM 433/2		0.096	0.0071	1.188	0.011	0.0083	0.0262	(0.004)	0.037					(0.006)		0.059								
SS-CRM 434/2		0.275	0.51	1.546	0.0611	0.0141	0.238	(0.014)	0.037					(0.006)		0.0104	0.038							
SS-CRM 435/2		0.489	0.328	0.39	0.0373	0.0424	0.184	(0.018)	0.133					0.0116		0.134								
SS-CRM 215/3	0.9% Carbon Steel	0.91	0.23	0.68	0.011	0.031	0.04	(0.006)	0.038	(0.002)	0.004			0.052										
ECRM 057-2(D)	0.05% Carbon Steel	0.0507	0.003	0.246	0.012	0.0127	0.0114		0.0096		0.059			0.0146	0.0023									
ECRM 058-2(D)	0.15% Sulphur Steel	0.424	0.108	1.186*	0.0098	0.1712	0.1211	0.0589	0.199			0.01		0.261	0.0107									
ECRM 059-2(D)	0.7% Carbon Steel	0.721	0.188	0.495	0.0046	0.0084	0.009	0.0018	0.0198	0.0002	0.00045			0.0074	0.0051									
ECRM 064-1(D)	Nb/Ti Interstitial Free Steel	0.0026	0.0065	0.1641	0.0091	0.0104	0.0184	0	0.0115	0.0302	0.033	0.0036	0.0027	0.0077	0.0026	0.0146	0.00018	0.0005	0.0189	0.00015				
ECRM 084-1(D)	0.4% Carbon Steel	391	0.265	0.86	0.018	0.029		0.033	0.154					0.267				0.023						
ECRM 085-1(D)	0.3% Sulphur Steel	0.067	0.008	0.977*	0.062	0.336*							0.019	0.291			0.001			0.0021		0.0073	0.002	
ECRM 086-1(D)	0.3% Carbon Steel	0.297	0.206	0.879	0.0238	0.0371	0.15		0.168			0.023		0.32				0.0263						
ECRM 090-1(D)	1% Carbon Steel	1.054	0.261	0.226	0.0128	0.0095	0.121	0.0089	0.053						0.0146	0.0004				0.204				
ECRM 096-2(D)	Low S,Ca-Treated Steel	0.105	0.262	1.32	0.0128	0.0016	0.0243	0.002	0.0253		0.046		0.017			0.0252						0.002		

The metallurgical conditions of ECRM 058-2(D) and 065-1(O) render them unsuitable for the determination of Mn and S by Optical Emission Spectrometry.

Plain Carbon Steels (Wrought) (続き)

Ref No.	Description	Bi	Cd	Ga	Hg	Pb	Sb	Se	Te	Tl	Zn
ECRM 090-1(D)	1% Carbon Steel	<0.00002	<0.00002	0.00228	<(0.0001)	0.00239	0.00090	<(0.0002)	<0.00002	<0.00001	0.00209

Carbon Steels Residual Series (Wrought) (38mm dia. x 19mm discs)

Raf No.	Description	C	Si	Mn	P	S	A·(Acid Sol)	A·(Total)	B	Co	Nb	Pb	V	Zr	Sb
SS-CRM 456/2	Carbon Steel Residual Series	0.112	0.297	0.22	0.0212	0.0221	<(0.002)	0.0018	0.0015	0.0504	0.0057	0.0189	0.0221	0.013	0.0172
SS-CRM 457/2		0.307	0.105	327	0.0098	0.0448	0.082	0.087	0.0046	0.0217	0.0174	0.0098	0.153	0.025	0.05
SS-CRM 458/2		0.198	0.504	0.479	0.0281	0.0314	0.052	0.055	0.0069	0.198	0.051	0.014	0.105	0.062	0.089
SS-CRM 459/2		0.467	0.64	0.909	0.0482	0.0481	0.0134	0.0154	0.011	0.089	0.0102	0.0044	0.0585	0.074	0.012
SS-CRM 460/2		0.383	0.126	0.616	0.0374	0.0099	0.0193	0.024	0.003	0.011	0.068	0.0005	0.0322	<(0.0005)	0.0006

## SPECTROSCOPIC STANDARD CERTIFIED REFERENCE MATERIALS - Low Alloy Steels

CHEMICAL COMPOSITION (nominal matt content in %)

分析値は保証値です。ただしカッコ付数値はその限りではありません。

LOW Alloy SteeS (Wrought) (SS-CRM 11M14: 44mm dia. x 19 or 50mm discs. Other SS-CRM: 38mm dia. x 19mm discs. ECRM: 38mm dia. x 30 or 25mm discs)

Ref. No.	Description	C	Si	Mn	P	S	Cr	Mo	Ni	A	As	B	Co	Cu	N	Nb	Pb	Sn	Tl	V	W	Zr	Ca	Sb	Zn
SS-CRM 111	Low Alloy Steels	0.0258	0.0253	0.155	0.0033	0.0054	0.0197	0.0008	0.0387	0.0348	0.0017	<<0.001	0.0144	0.0171	0.0034	(0.0005)	<<0.001	0.0015	0.0004	0.0009		<<0.001	<<0.001	<<0.001	
SS-CRM 112		0.394	0.289	0.436	0.0043	0.0026	1.236	0.19	1.461	0.0148	0.0021	0.0007	0.0175	0.149	0.0024	0.0065	<<0.001	0.0086	0.01	0.0088		<<0.001	<<0.001	<<0.001	
SS-CRM 113		437	0.931	1.207	0.0595	0.0294	1.248	0.056	0.0784	0.0151	0.002	0.0066	0.0415	0.179	0.0109	0.0487	<<0.001	0.0067	0.039	0.201	0.012	0.003	<<0.001	<<0.003	
SS-CRM 114		0.403	0.295	0.416	4044	0.0046	0.187	0.114	1.502	0.078	0.0025	0.0008	0.0171	0.358	0.0043	0.0042	<<0.001	0.041	0.0096	0.0086	<<0.001	0.005	<<0.001	<<0.0025	
SS-CRM 404/1	Low Alloy Steel	0.74	0.87	0.31	0.057	0.024	0.48	0.31	0.4					0.34					0.11						
SS-CRM 401/2	Low Alloy Steels	0.935	0.602	1.187	0.0265	0.0078	0.138	0.495	0.019	0.074			0.004	0.101	(0.015)				0.496						
SS-CRM 402/2		1.311	0.111	0.228	0.0161	0.0138	0.652	0.14	0.808	0.181				0.302	0.0069				0.194						
SS-CRM 403/2		0.75	0.209	1.677	0.055	0.0381	0.403	0.088	0.223	0.0455				0.221	(0.010)				0.341						
SS-CRM 404/2		0.696	1.121	0.532	0.0479	0.0228	0.774	0.307	0.393	0.017				0.427	0.0089				0.107						
SS-CRM 405/2		0.044	0.947	0.903	0.0095	0.058	0.206	0.025	0.102	0.33			(0.009)	0.022	(0.011)				0.411						
SS-CRM 406/2		0.173	342	0.447	0.0102	0.043	2.001	0.98	1.62	0.013	0.012		(0.006)	0.289	(0.009)		0.0002	(0.001)		0.01					
SS-CRM 407/2		0.49	0.66	0.105	0.038	0.0105	3.03	0.83	0.527	0.04			0.0068	397	(0.011)				0.19						
SS-CRM 408/2		0.289	0.237	0.557	0.056	0.03	0.111	0.098	4.13	0.154	0.0046			0.694	0.0075		0.0006	(0.002)		0.067					
SS-CRM 409/2		0.086	1.18	0.559	0.0141	0.0179	1.318	0.509	3.02	0.094				0.205	0.0108				0.008						
SS-CRM 410/2		0.428	1.1	0.419	0.074	0.041	1.684	0.432	2.07	0.046	0.0053			0.024	0.436	0.0155			0.44						
SS-CRM 421	Low Tungsten Steels	(0.049)	(0.07)	(0.11)	(0.012)	(0.027)		(0.028)											<<0.02	0.52					
SS-CRM 422		(0.036)	(0.06)	(0.09)	(0.015)	(0.025)		(0.033)												<<0.02	1.28				
SS-CRM 423		(0.030)	(0.05)	(0.07)	(0.017)	(0.027)		(0.027)												<<0.02	2.06				
SS-CRM 424		(0.024)	(0.05)	(0.09)	(0.02)	(0.024)		(0.036)												<<0.02	3.02				
ECRM 186-1(D)	Slice Manganese	0.61	1.72	0.87	0.022	0.035	0.218	0.048	0.19	0.014				0.281											
ECRM 195-1(D)	Cr-Mo-Ni Steel	(0.73)	0.466	0.571	0.016	0.012	1.566	0.768	0.327					0.036	0.01		0.001	(0.002)		0.312		0.002	(0.0008)	0.0046	

Most of these samples are also available in the finely divided form - see page 9.

LOW Alloy Cast Steels (44mm dia. x 19mm discs)

分析値は保証値です。ただしカッコ付数値はその限りではありません。

Ref. No.	Description	C	Si	Mn	S	Cr	Mo	Ni	Cu	V
SS-CRM 612/1	Low Alloy Cast Steels	0.12	0.28	0.6	(0.02)	4.14	0.8	0.97	(0.06)	0.21
SS-CRM 613/1		0.2	0.58	0.9	(0.02)	1.99	1.04	2.01	(0.06)	0.30
SS-CRM 614/1		0.41	39	1.3	(0.02)	1.18	0.6	3.05	(0.06)	0.27
SS-CRM 615/1		30	0.17	1.68	(0.02)	0.49	0.21	4.01	(0.06)	0.10



SPECTROSCOPIC STANDARD CERTIFIED REFERENCE MATERIALS – Highly Alloyed Steels

CHEMICAL COMPOSITION (nominal mass content in %)

分析値は保証値です。ただしカッコ付数値はその限りではありません。

Highly Alloyed Steels (Wrought) (38mm dia. X 30 or 25mm disks)

Ref. No.	Description	C	Si	Mn	P	S	Cr	Mo	Ni	Al	As	B	Co	Cu	N	Nb	Pb	Sn	Ti	V	Zr	Sb	Fe	
ECRM 276-2(D)	5% Cr-Mo-V Steel	0.399	1.034	0.365	0.0093	0.0189	4.975	1.134	0.203					0.183	0.012			0.0133		0.296				
ECRM 285-2(D)	Maraging Steel	0.0018	0.0117	0.0168	0.0053	0.0025	0.0236	4.99	18.07	0.1067		0.0009	7.76	0.0094	0.0007			(0.001)	0.520		0.0050			
ECRM 287-1(D)	High B Stainless Steel	0.016	0.569	1.48	0.027	0.0014	18.61	0.247	10.35			0.89	0.148	0.203	0.019									
ECRM 292-1(D)	Nb-Stabilised Stainless Steel	0.0367	0.402	1.744	0.0175	0.0055	18.00	0.0464	10.09	(0.002)	(0.008)	(0.0003)	0.0255	0.0391	0.0640	0.571								
ECRM 295-1(D)	4% Mo-Cr-Ni Steel	0.0166	0.418	1.758	0.0167	0.0003	19.51	3.996	24.40	0.0203	0.0041	0.0018	0.0450	1.481	0.0615			0.0025		0.0456		0.0007	48.36	
ECRM 296-1(D)	Jethete Steel	0.0166	0.242	0.676	0.0178	0.0026	11.82	1.700	2.790	0.0275	0.0139	(0.0003)	0.0218	0.1498	0.0214		0.00016	0.0131		0.363				

\* ECRM 292-1(D) は上記分析値の他に Ta(0.001), Ca(0.0006), Mg(0.0003) が分析されています。

上記製品は別の形状(細粒状)としてP.6 にも記載されております。

Austenitic Stainless Steels (Wrought) (38mm dia. X 19mm disks)

分析値は保証値です。ただしカッコ付数値はその限りではありません。

Ref. No.	Description	C	Si	Mn	P	S	Cr	Mo	Ni	Al	As	B	Co	Cu	N	Nb	Pb	Sn	Ti	V	Ta			
SS-CRM 462	Austenitic Stainless Steels	0.092	0.46	0.74	0.010	0.018	12.35		12.55		0.007						0.0005							
SS-CRM 461/1		0.0103	0.374	0.686	0.0053	0.0051	14.727		6.124				(0.004)	0.0091										
SS-CRM 462/1		0.035	0.463	0.772	0.005	0.0041	11.888	0.0138	12.85					0.0112										
SS-CRM 463/1		0.019	0.270	1.400	0.025	0.019	18.46	0.0304	10.20			0.002	0.116	0.276	0.063									
SS-CRM 464/1		0.086	0.57	0.791	0.020	0.028	25.39	0.265	20.05		(0.003)		0.054					0.0004						
SS-CRM 465/1		0.066	0.405	1.380	0.021	0.012	17.31		9.24	0.026		0.0006	0.053	0.098	0.010			<(0.001)		0.40	0.102			
SS-CRM 466/1		0.062	0.505	0.698	0.020	0.016	17.65	0.092	8.61		0.017	0.0024					0.029	0.0014	0.0050				(0.0003)	
SS-CRM 466/2		0.0141	0.480	1.314	0.0105	0.0009	17.84	2.19	10.20	0.0018	0.0020	0.0039	(0.02)	0.0278	0.0505	(0.001)	<(0.0001)	<(0.001)	(0.002)	0.0346				
SS-CRM 467/1		0.082	0.52	0.788	0.018	0.019	18.09	2.772	9.21		0.004						0.99	0.004					0.0017	
SS-CRM 468/1		0.143	1.41	1.70	0.014	0.020	17.96		8.90					0.018										
SS-CRM 474		0.022	0.17	1.70	0.008	0.020	19.06	3.55	14.74	(0.006)	0.030		(0.02)	0.35							0.30			
SS-CRM 475		0.050	0.21	0.89	0.037	0.008	14.14	1.59	5.66	0.013				0.22	1.94			0.22		0.015				

上記製品は別の形状(細粒状)としてP. にも記載されております。

SPECTROSCOPIC STANDARD CERTIFIED REFERENCE MATERIALS – Highly Alloyed Steels

CHEMICAL COMPOSITION (nominal mass content in %) 分析値は保証値です。ただしカッコ付数値はその限りではありません。

**Ferritic Stainless Steels (Wrought)** (SS: 469–473 : 38mm dia. x 19mm discs, SS 70: 44m dia. x 13mm disc)

Ref. No.	Description	C	Si	Mn	P	S	Cr	Mo	Ni	Co	Cu	V
SS-CRM 70	Ferritic Stainless Steels	0.18	0.35	0.38	0.024	0.020	16.35		0.40		(0.06)	
SS-CRM 469		0.279	0.421	0.598	0.015	0.020	11.93		0.246	(0.01)	(0.02)	(0.02)
SS-CRM 470		0.153	0.335	0.235	0.024	0.035	17.68		0.369	(0.02)	(0.02)	(0.02)
SS-CRM 471		0.095	0.326	0.417	0.018	0.023	23.85		0.96	(0.02)	(0.02)	(0.03)
SS-CRM 472		0.227	1.05	1.02	0.032	0.029	15.82	0.661	1.95	(0.02)	(0.02)	(0.02)
SS-CRM 473		0.172	0.604	0.494	0.019	0.030	9.06	0.95	(0.06)	(0.01)	(0.03)	(0.02)

上記製品は別の形状(細粒状)としてP. にも記載されております。

**High Speed Tool Steels (Wrought)** (SS: 483: 41mm dia. x 11mm disc. SS 481/1 – 487/1 : 38mm dia. x 19mm discs)

Ref No.	Description	C	Si	Mn	P	S	Cr	Mo	Ni	Al	As	Co	Sn	V	W
SS-CRM 481/1	High Speed Tool Steels	0.68	0.15	0.25	0.023	0.022	3.40	0.28	(0.09)			0.31		0.56	14.0
SS-CRM 482/1		0.67	0.14	0.26	0.027	0.027	3.95	0.40	(0.16)			0.29		1.04	17.8
SS-CRM 483/1		0.65	0.16	0.22	0.023	0.023	2.90	0.18	(0.08)			2.06		0.22	9.28
SS-CRM 485/1		0.94	0.30	0.41	0.043	0.039	4.02	0.66	(0.14)	(0.006)	(0.022)	4.97	0.019	1.02	17.8
SS-CRM 486/1		0.74	0.27	0.21	0.029	0.021	4.54	5.20	(0.06)	(0.005)	(0.016)	0.08	0.014	1.82	5.80
SS-CRM 487/1		1.02	0.18	0.26	0.022	0.029	3.91	9.41	(0.14)	0.006	(0.012)	7.95	(0.006)	1.14	1.80

分析値は保証値です。ただしカッコ付数値はその限りではありません。

**High Manganese Steels** (50mm dia. x 10mm chill cast discs). These samples have been prepared jointly by the Castings Development Centre (formerly BCIRA) and BAS.

Ref Nos.	Description	C	Si	Mn	P	S	Cr	Mo	Ni	Al	Co	Cu	Ni	V
SS 491/2	High Manganese Steel	0.994	1.101	16.73	0.0494	0.0112	1.482	0.608	0.0745	0.11		(0.04)	0.022	0.0839
SS 492/2		1.165	0.133	9.18	0.0468	0.0042	1.059	1.295	3.833	0.186				(0.010)
SS 493/2		0.873	0.782	11.74	0.098	0.0118	0.178	0.955	3.01	0.0375				(0.017)
SS 494/2		1.398	0.373	13.37	0.042	0.0032	0.668	0.101	0.732	0.0022	(0.43)		0.015	(0.025)
SS 495/3		0.813	0.595	14.05	0.079	0.0203	2.03	0.304	1.585	0.0093				(0.028)

分析値は保証値です。ただしカッコ付数値はその限りではありません。

## SPECTROSCOPIC STANDARD CERTIFIED REFERENCE MATERIALS – Cast Iron and Nickel Based Alloys

CHEMICAL COMPOSITION 分析値は保証値です。ただしカッコ付数値はその限りではありません。

**Cast Iron** (SCRM 666/9-666/11, 671-675: 40mm x 37mm x 12mm chill cast block, それ以外は全て50mm x 42mm x 12mm chill cast block)

These samples are prepared jointly by Casting Technology International(formerly BCIRA) and BAS. Nominal mass content in %

Ref Nos.	Description	C	Si	Mn	P	S	Cr	Mo	Ni	Al	As	Co	Cu	Sn	Ti	V	Ce	Mg	Zn
SCRM 651/4	malleable Irons	2.66	0.541	0.92	0.249	0.100	(1)												
SCRM 652/4		2.34	0.878	1.19	0.071	0.129	(1)												
SCRM 653/4		3.10	1.22	0.110	0.023	0.050	(1)												
SCRM 654/4		2.28	1.635	0.74	0.130	0.170	(1)												
SCRM 655/4	Low Phosphorus Engineering Irons	1.90	2.110	0.44	0.180	0.076	(1)												
SCRM 656/8		2.61	2.59	0.823	0.062	0.107	(1)												
SCRM 657/8		2.93	3.02	0.062	0.100	0.024	(1)												
SCRM 658/8		3.34	2.07	0.534	0.214	0.058	(1)												
SCRM 659/8	High Phosphorus Engineering Irons	3.96	1.40	1.00	0.025	0.039	(1)												
SCRM 660/8		3.62	1.72	0.425	0.146	0.089	(1)												
SCRM 661/4		2.56	2.96	0.30	0.84	0.068	(1)												
SCRM 662/5		2.95	2.33	0.76	0.30	0.087	(1)												
SCRM 663/6	Ductile(Nodular)Irons	3.28	1.97	1.04	0.13	0.024	(1)												
SCRM 664/7		2.84	2.71	0.57	0.44	0.112	(1)												
SCRM 665/8		3.25	1.66	0.24	1.09	0.053	(1)												
SCRM 666/9		3.39	1.76	0.101		(0.005)	(1)	0.095					0.067		0.066	0.056		0.079	
SCRM 667/9	Blast Furnace Irons	2.85	2.77	0.190		(0.003)	(1)	0.003				0.499		<0.005	0.086		0.068		
SCRM 668/4		3.75	1.48	0.679		(0.007)	(1)	0.031					0.772		0.011	0.210		0.010	
SCRM 669/11		2.973	2.509	0.540				0.992	0.0492				0.201		0.0453	0.479	0.038	0.0274	
SCRM 670/11	Blast Furnace Irons	3.387	2.195	0.339			0.498	0.0120					0.949		0.0161	0.0174		0.0385	
SCRM 671		2.865	0.980	0.835	0.1062	0.0499	0.0586	0.0182	0.0379	0.0379	0.0220	0.097	0.0470	0.0070	0.0896	0.0105			0.0004
SCRM 672		4.079	0.181	0.492	0.244	0.0379	0.0236	0.099	0.0075	0.0075	0.0039	0.156	0.0684	0.0018	0.0393	0.1093			0.0144
SCRM 673		2.474	1.715	0.1334	0.328	0.0067	0.0374	0.0057	0.0282	0.0282	0.044	0.0540	0.0230	0.0191	0.0722	0.0586			0.0004
SCRM 674		3.322	0.474	1.457	0.0104	0.0810	0.0211	0.0477	0.0040	0.0040	0.0275	0.0143	0.1014	0.0140	0.0233	0.0235			0.0187
SCRM 675		1.916	1.300	1.798	0.0453	0.0724	0.0794	0.0342	0.0072	0.0072	0.0342	0.0230	0.0117	0.0062	0.0070	0.179			0.0006

**Nickel Base Alloys** (38, 41 or 50mm dia. x 13 or 19mm disk)

分析値は保証値です。ただしカッコ付数値はその限りではありません。

Ref Nos.	Description	C	Si	Mn	P	S	Cr	Mo	Ni	Al	B	Co	Cu	Nb	Ti	V	W	Zr	Fe	Sb
SS345	IN 100 Alloy (Cast)	0.153					9.95	3.01	Bal.	5.58	0.019	14.71			(5)	1.00		0.044		
SS346A	IN 100 Alloy (Cast)	(0.15)					(10)	(3)	Bal.	(5.5)		(15)			(5)	(1)				
SS350	IN 713 Alloy (Cast)	0.138	0.110	0.019			13.43	4.29	70.8	5.97	0.013	0.338		2.17	0.87		0.094	0.072	1.50	
SS351	IN 718 Alloy (wrought)	0.025	0.14	0.037	(0.006)	0.0006	18.12	3.06	53.1	0.55	51	0.136	0.016	5.20	1.06				18.26	
SS363/1	Monel Alloy 400	0.140	0.028	1.26		(0.002)	(0.05)		64.7	0.027		0.032	31.90		(0.03)				1.86	
SS387/1	Nimonic 901 Alloy(wrought)	0.033	0.06	0.025	0.0033	0.0028	11.35	5.83	41.2	0.24	0.017	0.020	0.0076		3.00				38.4	0.0003

**Nickel Base Alloys** (続き)

Ref Nos.	Description	Pb	Bi	Ag	Se	Te	Tl	Sb	As	Cd	Ga	Sn	Zn	Mg	Ca	In
SS345	IN 100 Alloy (Cast)	0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<2	(2)	<0.1	8	6	<0.5	5	(<0.5)	<0.14
SS346A	IN 100 Alloy (Cast)	22	10	42	6	9	(2)	45	51	0.4	(50)	93	29	130	(20)	(20)
SS387/1	Nimonic 901 Alloy(wrought)	(0.3)														

## SPECTROSCOPIC STANDARD CERTIFIED REFERENCE MATERIALS – Cast Iron

Cast Iron Reference Materials (40mm x 30mm x 12mm chill cast blocks) BASとCasting Technology International (IBCIRA)との共同作成。

Ref Nos.	Description	C	Si	Mn	P	S	Cr	Mo	Ni	Al (total)	As	B	Co	Cu	Nb	Pb	Sn	Ti	V	Bi	Ce	Mg	
LARM 1	Low Alloy Cast Irons	(3.0)	(2.0)	(0.3)	(0.05)	(<0.01)	0.50		0.49			0.006		2.49				0.14	0.11	0.011	0.005		
LARM 2		(3.0)	(2.0)	(0.3)	(0.05)	(<0.01)	2.50	0.22		0.066	0.044					0.007	0.22	0.33			0.008		
LARM 3		(3.0)	(2.0)	(0.3)	(0.05)	(<0.01)				1.80	0.042	0.092	0.003		1.20					0.55	0.022		
LARM 4		(3.0)	(2.0)	(0.3)	(0.05)	(<0.01)	1.19	1.00			0.014				0.26		0.018	0.11	0.17			0.008	
LARM 5		(3.0)	(2.0)	(0.3)	(0.05)	(<0.01)		0.62	2.46			0.018	0.0012				0.0005	0.025		0.24	0.0010		
CRRM 1	High Chromium Cast Irons	1.91	1.56	1.43	0.114	0.072	11.35	3.08	2.07					1.97		0.008							
CRRM 2		2.68	0.94	0.84	0.054	0.050	18.28	1.80	1.27					1.22		0.008							
CRRM 3		3.57	0.39	0.30	0.014	0.013	30.3	0.54	0.26					0.21		0.007							
CRRM 1/1	High Chromium Cast Irons	1.83	1.53	1.45	0.132	0.099	11.18	3.05	2.03	0.117				2.01				0.096	0.040				
CRRM 2/1		1.92	1.18	1.11	0.097	0.079	14.13	2.44	1.61	0.054				1.59				0.070	0.063				
CRRM 3/1		2.42	0.82	0.85	0.068	0.059	17.48	1.65	1.28	0.084				1.21				0.021	0.022				
CRRM 4/1		3.00	0.56	0.60	0.044	0.039	22.42	1.19	0.62	<0.005				0.58				0.027	0.092				
CRRM 5/1		3.46	0.25	0.32	0.029	0.019	29.09	0.54	0.29	0.17				0.23				0.026	0.063				
NCRM 1	Nickel Chromium Cast Irons	3.05	0.95	1.21	0.300	0.156	0.55	1.02	0.57					2.17									
NCRM 2		2.97	1.82	0.95	0.068	0.119	1.99	0.36	2.10					1.67									
NCRM 3		3.24	0.29	0.67	0.125	0.090	3.95	0.78	3.64					1.21									
NCRM 4		2.66	2.13	0.40	0.203	0.012	7.94	0.57	5.34					0.68									
NCRM 5		3.70	1.15	0.27	0.025	0.015	10.44	0.10	6.74					0.204									
NIRM 1	Austenitic (Ni-Resist) Cast Irons	2.05	3.15	6.72	0.055	0.005	0.246		11.80					0.20							0.018	0.021	
NIRM 2		2.91	1.53	2.01	0.100	0.011	1.49		13.88					5.86							0.017	0.037	
NIRM 3		2.51	2.21	0.51	0.208	0.096	2.43		17.8					1.00	0.09						0.007		
NIRM 4		1.97	3.03	2.37	0.051	0.008	3.56		20.2					0.52	0.37						0.011	0.014	
NIRM 5		2.93	1.73	1.09	0.126	0.004	0.50		22.1					0.22	0.20						<0.002	0.040	
NIRM 6		2.44	2.43	4.00	0.217	0.062	1.07	0.45	26.7					0.10							0.003		
NIRM 7		2.05	3.05	0.71	0.058	0.020	3.53	0.99	32.9					0.52							0.005	0.019	
NIRM 8		1.41	5.47	1.56	0.096	0.009	2.45	0.73	35.4					0.20							0.012	0.046	
SIMO 1	Silicon Molybdenum Cast Irons	2.60	4.05	0.323	0.029	0.008	0.917	0.740	0.026	0.017	0.048		0.009	0.028			0.054	0.003	0.008			0.043	
SIMO 2		2.13	4.73	0.356	0.025	0.007	0.930	0.459	0.024	0.010	0.043		0.003	0.009			0.046	0.004	0.006		0.004	0.024	

分析値は保証値です。ただしカッコ付数値はその限りではありません。

SPECTROSCOPIC STANDARD CERTIFIED REFERENCE MATERIALS – Copper Base Alloy

Copper Base Alloy Reference Materials (Apporox. 50mm dia x 12mm or 10mm disks)

分析値は保証値です。ただしカッコ付数値はその限りではありません。

Ref Nos.	Description	Cu	Sn	Pb	Zn	Ni	P	Fe	Si	Mn	As	Sb	Bi	Al	S	Mg	Cr	Cd	Co	Ag	Te
CURM09.01-4	Phosphorus Deoxidised Coppers	99.82	<0.001	<0.0005	0.0008	<0.0005	0.151	0.019	<0.001	<0.0005	<0.001	<0.0005	<0.0005	<0.0005					<0.0005	0.011	<0.001
CURM09.02-4		99.90	<0.001	<0.001	<0.001	<0.0005	0.078	0.0042	<0.002	<0.0005	<0.001	<0.0005	<0.0005	<0.0005					<0.0005	0.0055	<0.001
CURM09.03-4		99.92	<0.001	<0.0005	<0.001	<0.0005	0.056	0.0033	<0.001	<0.0005	<0.001	<0.0005	<0.0005	<0.0005					<0.0005	0.012	<0.001
CURM09.09-4		99.96	<0.001	<0.001	<0.001	<0.0005	0.0174	0.0047	<0.002	<0.0005	<0.001	<0.0005	<0.0005	<0.0005					<0.0005	0.0033	<0.001
CURM30.09-4	Main Elements in Brasses	89.53	<0.001	<0.001	10.45	<0.0003		0.0005	<0.001	<0.0003	<0.001	<0.001	<0.001	<0.001							
CURM30.11-4		59.86	<0.002	0.005	38.17	1.7		0.002	<0.001	0.23	<0.001	<0.001	<0.002	<0.001							
CURM30.15-4		60.66	<0.002	<0.005	38.88	<0.001		0.50	<0.005	<0.001	<0.005	<0.001	<0.001	<0.001							
CURM30.16-4		60.53	<0.002	<0.005	38.33	<0.001		1.14	<0.005	<0.001	<0.005	<0.001	<0.001	<0.001							
CURM30.18-4		63.66	0.58	<0.005	32.33	<0.001		0.006	0.13	<0.001	<0.005	<0.001	<0.001	<0.001	3.28						
CURM30.20-4		61.46	0.40	<0.002	35.71	<0.001		<0.005	0.17	<0.001	<0.001	<0.001	<0.002	<0.002	2.32						
CURM30.23-4		58.58	<0.005	2.21	39.25	<0.001		<0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002						
CURM30.24-4		58.33	<0.002	3.31	38.32	<0.001		0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001						
CURM42.21-2	Admiralty & Naval Brasses	66.78	0.6	0.259	31.61	0.120	0.087	0.119	0.15	<0.001	<0.003	0.25	0.013	0.003	0.034						
CURM42.22-2		70.46	1.10	1.10	26.32	0.061	0.177	0.23	0.042	0.122	0.217	0.173	0.046	0.042	<0.001						
CURM42.23-2		74.36	1.63	0.575	22.13	0.168	0.128	0.354	0.015	0.019	0.168	0.356	0.034	0.008	0.045						
CURM42.24-2		62.45	2.25	0.91	33.75	0.025	0.226	0.066	0.093	0.065	0.065	0.060	0.054	0.067	0.012						
CURM42.25-2	57.78	2.72	0.0023	39.20	<0.001	0.050	0.003	<0.001	0.169	0.118	<0.001	<0.001	0.021	0.005							
CURM43.01-4	Aluminium Brasses	74.36	0.116	<0.002	22.44	0.121		0.008	0.063	0.064	0.118	<0.001	<0.002	2.75							
CURM43.02-4		76.21	0.06	0.064	20.82	0.068		0.128	0.038	0.035	0.083	<0.001	<0.001	2.40							
CURM48.01-1	Cartridge Brasses	66.98	<0.002	0.106	32.6	0.134	0.016	0.049	0.041	<0.001	0.067	0.047	0.038	<0.001	<0.001	0.0008	<0.0005	<0.0003			
CURM48.02-1		67.16	0.035	0.084	32.58	<0.001	0.012	0.053	0.010	0.067	0.025	0.037	0.004	0.013	0.007	<0.0005	0.004	<0.0005			
CURM48.04-1		72.68	0.018	0.043	26.99	0.096	0.006	0.008	0.004	0.012	0.034	0.026	0.014	<0.001	0.011	0.0005	<0.002	<0.0003			
CURM48.05-1		68.69	0.083	<0.003	31.0	0.117	0.007	0.066	0.026	0.016	<0.001	<0.0005	<0.0005	<0.002	0.013	<0.0005	<0.0005	<0.0003			
CURM50.01-4	Leaded Bronzed	74.08	9.45	11.74	1.17	2.24	0.113	0.243	0.007	0.024	0.22	0.59	0.029	0.018	0.113						
CURM50.02-4		78.84	10.34	10.67	0.006	<0.0005	0.046	<0.001	<0.002	<0.0005	<0.002	<0.0005	<0.0005	<0.001	<0.001						
CURM50.03-4		77.42	8.41	8.86	1.72	2.89	0.159	0.018	0.005	0.037	0.11	0.24	0.051	0.005	0.064						
CURM50.04-4		76.11	11.3	9.94	0.66	1.10	0.032	0.10	0.011	0.028	0.06	0.50	0.10	0.014	0.14						
CURM51.11-4	Aluminium Bronzrd	93.95	0.027	0.33	0.111	0.012	0.035	0.060	0.159	<0.001	<0.001			5.27							
CURM51.12-4		88.29	0.196	0.219	0.45	0.112	<0.001	2.87	0.005	1.33	0.111			6.36							
CURM51.13-4		88.79	0.27	0.104	0.335	0.057	0.022	1.81	0.174	0.898	0.215			7.30							
CURM51.14-4		88.57	0.113	0.003	0.656	0.219	0.012	0.72	0.286	0.55	0.44			8.42							
CURM54.01-4	Phosphor Bronzed	95.42	3.17	0.307	0.346	0.348	0.053	0.028	0.039	0.158	0.044	0.070		0.040	0.023	0.008					
CURM54.02-4		92.87	5.53	0.663	0.410	0.109	0.107	0.102	0.012	0.101	0.023	0.026		0.020	0.030	0.0020					
CURM54.03-4		91.74	7.30	0.003	0.003	0.0019	0.954	0.005	<0.002	<0.0005	0.006	0.0007		<0.001	<0.001	<0.0003					
CURM54.04-4		86.54	9.47	0.79	1.09	0.536	0.250	0.316	0.065	0.419	0.106	0.33		0.074	0.046	0.0009					
CURM54.05-4	84.78	11.36	1.14	0.554	1.28	0.501	0.051	0.006	0.078	0.063	0.111		0.055	0.063	0.0021						
CURM62.12-4	Cupro-Nickle	89.42	0.111	0.053	0.18	7.94		0.45	0.109	1.59					0.034	0.002			0.81		
CURM71.31-5	Leaded Gunmetal	83.00	4.06	6.07	3.98	1.98	0.060	0.118	0.020	0.037	0.110	0.128	0.030	0.023	0.059		0.039			0.046	
CURM71.32-4		80.48	6.46	4.43	6.52	0.70	0.016	0.35	0.022	0.046	0.25	0.26	0.12	0.12	0.08		0.05			0.034	
CURM71.33-6		83.91	4.91	4.91	4.75	1.00	0.232	0.003	<0.002	<0.0005	<0.001	<0.002	<0.001	<0.001	<0.001		<0.002			0.0014	

このページの分析値はすべて参考値です。

**Carbon, Low Alloy and Stainless Steels (Wrought)** (Approx. 44mm dia x 25,75,150mm or 300mm lengths)

Ref Nos.	Description	Approximate Chemical Compositions ( mass content in % )																					
		C	Si	Mn	P	S	Cr	Mo	Ni	Al	As	B	Co	Cu	N	Nb	Sn	Tl	V	W	Zr	Ca	other
SUS A/10	Low Carbon Steel	0.03	0.01	0.17	<0.005	<0.005	0.03	<0.005	0.04	0.03			0.01	<0.005		<0.005	<0.005	<0.001	<0.005	<0.005			
SUS B/6	Low Alloy Steel	0.39	0.29	0.44	0.005	<0.005	1.2	0.20	1.5	0.01	0.005	0.001	0.02	0.15		0.005	0.01	0.01	0.01	0.005		<0.001	<0.001Pb
SUS C/17	Low Alloy Steel	0.15	0.17	1.2	0.07	0.06	0.19	0.11	3.4	0.05		0.008	0.06	0.47	0.004	0.02	0.05	0.04	0.40	0.25	0.05	<0.001	
SUS D/11	Low Alloy Steel	0.80	0.80	0.40	0.01	0.03	3.0	1.3	0.10	0.19		<0.001	0.29	0.11	0.01	0.05	0.01	0.10	0.12	0.16			
SUS E/5	Highly Alloyed Steel	0.07	0.29	0.53	0.005	<0.001	19.7	0.005	31.0	0.55		<0.001	0.04	0.005	0.01	<0.005		0.48	0.08	0.02			46.8Fe
SUS F/4	Super Duplex Steel	0.02	0.19	0.46	0.02	<0.005	25.5	3.5	7.4	<0.005		<0.001		0.58	0.20	<0.005	0.01	0.01	0.05	0.63			
SUS F/5	Duplex Stainless Steel	0.02	0.26	0.50	0.02	<0.005	24.7	3.5	7.0	<0.005	0.005	0.002	0.01	0.59	0.23	<0.005	<0.001	<0.005	0.03	0.62			62.9Fe
SUS G/5	Stainless Steel	0.03	0.33	1.6	0.03	0.03	16.5	2.2	11.4	<0.005			0.12	0.43	0.03	<0.005	<0.01	<0.005	0.06	0.04	<0.005	<0.005	<0.005Ta
SUS G/6	Stainless Steel	0.02	0.22	1.5	0.03	0.03	16.9	2.1	11.0	0.003			0.11	0.35	0.04	<0.001	0.008	0.003	0.05	0.06	<0.001	0.002	<0.002Ta
SUS H/6	Low Alloy Steel	0.52	1.00	1.6	0.04	3	1.3	0.42	1.1	0.20	0.01	0.01		0.39		0.11	0.03	0.34	0.33		0.03	<0.005	

**Cast Iron** (Approx. 60mm x 35mm x 18mm chill cast block)

Ref Nos.	Description	Approximate Chemical Compositions ( mass content in % )																					
		C	Si	Mn	P	S	Cr	Mo	Ni	Al	As	B	Cu	Sn	Tl	V	Bi	Mg	Sb	Ce			
SUS 1/17	Low Phosphorus Iron	3	2.6	0.38	0.06	0.06	0.51	0.30	0.20	0.02			0.48	0.05	0.01	0.04							
SUS 2/37	Midium Phosphorus Iron	3.4	1.8	0.72	0.21	0.21	0.05	0.10	0.46	<0.005			0.17	0.10	0.04	0.57							
SUS 3/19	High Phosphorus Iron	3.2	2.1	0.89	1.0	1.0	0.25	<0.005	0.02	<0.005			0.01	<0.005	0.07	0.31							
SUS 4/20	Ductile(Nodular)Iron	3.2	2.7	0.12			0.08		0.10	0.01	0.07		0.75	<0.005	0.05	0.49		0.04	<0.005				
SUS 5/37	Ductile(Nodular)Iron	3.8	2.0	0.58			0.01		1.1	0.03	0.005		0.02	0.07	0.005	0.50		0.07	0.05	0.03			
SUS 6/6	Malleable Iron	2.5	1.8	0.65	0.05	0.05	0.10			<0.005		<0.001	0.02	0.05	0.02	0.02	0.01						
SUS 7/8	Malleable Iron	2.8	0.94	0.29	0.29	0.09	0.07			0.02		0.004	0.21	<0.01		0.06	<0.001						