

CRM C, S, O, N, H IN IRON BASE MATERIALS

Number	Carbon	Sulfur	Oxygen	Nitrogen	Hydrogen	Size	Form
CZ 2008	0.977	0.0091	.	0.0066	.	250 g	chips
TH 1038	0.823	0.247	.	.	.	100 g	chips
TH 1007-3	0.787	0.0137	.	0.0031	.	100 g	chips
JK 40	0.793	0.200	.	0.0344	.	100 g	chips
TH 1027-2	0.726	0.0092	.	0.003	.	100 g	chips
TH 1027	0.719	0.0111	.	0.0027	.	100 g	chips
IPT 60A	0.715	0.012	.	.	.	100 g	chips
CZ 2007	0.684	0.0106	.	0.0128	.	250 g	chips
TH 1018-2	0.573	0.0019	.	0.0065	.	100 g	chips
IPT 59A	0.495	0.018	.	.	.	100 g	chips
TH 1002-3	0.4757	0.0526	.	0.0088	.	100 g	chips
CZ 2006	0.461	0.0172	.	0.0066	.	250 g	chips
TH 1013-2	0.384	0.0344	.	0.0142	.	100 g	chips
CZ 2005	0.358	0.0250	.	0.0081	.	250 g	chips
IPT 58	0.294	0.019	.	.	.	120 g	chips
TH 1037	0.194	0.0134	.	.	.	100 g	chips
TH 1008-3	0.163	0.0063	.	0.0053	.	100 g	chips
TH 1010-2	0.145	0.0136	.	0.0034	.	100 g	chips
TH 1041	0.0925	0.0100	.	.	.	100 g	chips
TH 1009-2	0.0875	0.0202	.	0.0064	.	100 g	chips
TH 1036	0.0830	0.327	.	.	.	100 g	chips
TH 1036-2	0.0791	0.321	.	0.0034	.	100 g	chips
CZ 2004	0.079	0.0464	.	0.0038	.	250 g	chips
TH 1031	0.0674	0.403	.	.	.	100 g	chips
TH 1040	0.0504	0.0051	.	0.0011	.	100 g	chips
TH 1042	0.0474	0.0237	.	0.0080	.	100 g	chips
CZ 2003	0.0402	0.0316	.	0.0046	.	250 g	chips
TH 1039	0.0275	0.0199	.	0.0037	.	100 g	chips
TH 1019-4	0.0200	0.0133	.	0.0046	.	100 g	chips
JK 36	0.0125	0.0126	.	0.0337	.	150 g	chips
NCS NS28035	0.012	0.0069	.	.	.	100 g	chips
NCS NS11013	0.0066	0.0056	.	.	.	150 g	chips
TH 1045	0.0023	0.0043	.	0.0046	.	100 g	chips or 40 mm Ø x 40 mm disc
NCS NS11014	0.0019	0.005	.	.	.	100 g	chips
NCS NS11012	0.0016	0.0063	.	.	.	100 g	chips
NCS NS28034	0.0016	0.0058	.	.	.	100 g	chips
NCS NS28033	0.00065	0.00045	.	.	.	100 g	chips
TH 1043	0.0005	0.0002	.	0.0002	.	100 g	chips
TH 1046-2	0.0003	0.0016	.	0.0007	.	100 g	chips
BAM 029-1	.	.	0.0312	0.0083	.	100 g	3 rods, 8 mm Ø x 80 mm
CMSI 3031	.	.	0.0214	.	.	13 g	0.64 g balls
JK 35	.	.	0.0198	.	.	1 rod	10 mm Ø x 500 mm
CMSI 3032	.	.	0.0187	0.0360	.	20 g	1 g balls
NCS NS22007	.	.	0.0133	0.0118	.	50 g	1 g balls
JSS GS 5C	.	.	0.0125	0.0029	.	8 rods	5 mm Ø x 230 mm each
NCS NS22010	.	.	0.0115	0.0025	.	50 g	1 g balls
BAM 028-1	.	.	0.0113	0.0029	.	100 g	3 rods, 8 mm Ø x 80 mm
BCS 318B *	.	.	0.0103	.	.	100 g	1 rod, 12.7 mm Ø x 127 mm
JSS GS 5D	.	.	(0.0101)	0.0041	.	8 rods	5 mm Ø x 230 mm each
BCS 318A *	.	.	0.0096	.	.	100 g	2 rods, 6.35 mm Ø x 95 mm
NCS NS22009	.	.	0.0088	0.0032	.	50 g	1 g balls
BAM 027-1	.	.	0.0084	0.0157	.	100 g	3 rods, 8 mm Ø x 80 mm
NCS NS22005	.	.	0.0074	0.0351	.	50 g	1 g balls
JK 34	.	.	0.0068	.	.	1 rod	8 mm Ø x 500 mm each
CMSI 3033	.	.	0.0064	0.0184	.	20 g	1 g balls
CMSI 3036	.	.	0.00624	0.0256	.	20 g	0.5 g balls
NCS NS20036	.	.	0.00511	0.00677	.	65 g	5.5 mm Ø x 300 mm stick
NCS NS22006	.	.	0.0048	0.0454	.	50 g	1 g balls
CMSI 3034	.	.	0.0039	0.0231	.	20 g	1 g balls
JSS GS 1D	.	.	0.00354	(0.0200)	0.00016	8 rods	5 mm Ø x 230 mm each
JSS GS 3C	.	.	0.00346	0.0032	.	8 rods	5 mm Ø x 230 mm each
JK 32	.	.	0.0028	.	.	1 rod	10 mm Ø x 500 mm each
BAM 026-2	.	.	0.0025	0.0042	.	100 g	3 rods, 8 mm Ø x 80 mm
NCS NS20035	.	.	0.00229	0.01012	.	65 g	5.5 mm Ø x 300 mm stick
NCS NS22008	.	.	0.0022	0.0070	.	50 g	1 g balls
JK 31	.	.	0.0015	.	.	1 rod	8 mm Ø x 500 mm each
NCS NS20037	.	.	0.00107	0.00595	.	65 g	5.5 mm Ø x 300 mm stick
ECRM 099-1	.	.	0.0008	0.0078	.	100 g	1 g balls, Gold Plated
JSS GS 6B	.	.	0.00034	.	.	150 g	1.04 g balls
TH 1034	.	.	.	0.0170	.	100 g	chips
NCS NS14001	.	.	.	0.0081	.	100 g	chips
NCS NS14003	.	.	.	0.0048	.	100 g	chips
NCS NS14002	.	.	.	0.0040	.	100 g	chips
GBW 02606	.	.	.	.	0.00065	200 g	2 g balls
CMSI 3012-3	.	.	.	.	0.00065	40 g	2 g balls
NCS NS20002a	.	.	.	.	0.00065	20 g	1 g balls
NCS NS20004a	.	.	.	.	0.00047	20 g	1 g balls
GBW 02607-2A	.	.	.	.	0.00047	40 g	2 g balls
CMSI 3013	.	.	.	.	0.00045	20 g	1 g balls
CMSI 3014-1	.	.	.	.	0.00044	40 g	2 g balls
CMSI 3015-1	.	.	.	.	0.00024	20 g	1 g balls
CMSI 3016-1	.	.	.	.	0.00024	40 g	2 g balls
GBW 02608-2C	.	.	.	.	0.00022	20 g	1 g balls
NCS NS20034	.	.	.	.	0.00017	50 g	5 g stick

\* BCS 318A and 318B are clearance sale items.

**RM C, S, N IN IRON BASE MATERIALS**

Number	Carbon	Sulfur	Nitrogen	Oxygen	Hydrogen	Units	Form
BS CSN 3	0.892	0.0035	0.0047	.	.	500 g	1 g rods
BS CSN 2-2	0.548	0.028	0.076	.	.	500 g	1 g rods
BS CSN 2-1	0.476	0.034	0.064	.	.	500 g	1 g rods
BS CSN A	0.068	0.305	0.0081	.	.	100 g	chips
BS ST-626	0.068	0.020	0.0064	.	.	500 g	1 g rods
BS CS 5	0.050	0.0040	.	.	.	500 g	1 g rods
BS HON-2	0.049	0.0025	0.03627	0.00564	0.00017	250 g	1 g rods
BS CSN 4	0.011	0.0008	0.026	.	.	500 g	1 g rods

**CRM CARBON IN IRON**

Number	C	Units
JSS 1204-3	0.0172	150 g
JSS 1203-2	0.0096	150 g
JSS 1202-2	0.0039	150 g
JSS 1201-2	0.00043	150 g

**CRM STEEL BALLS**

analysis listed in mg/kg				250 balls	
Number	Size/mm	Weight g/ball	Carbon	Sulfur	
SKF C-S 500-1	3.97	0.2545 ±0.0001	1.01	0.0212	
SKF C-S 600-1	5.00	0.5086 ±0.0002	0.995	0.0212	

The standard deviation in weight is extremely small, which means that all weighing is eliminated. The given contents of carbon and sulfur and the standard deviation are based on the results of the reported averages from the different laboratories. These CRMs are all high precision steel balls and are fully protected against oxidation and contamination by gold plating. The weight is taken before gold plating.

**CRM CAST IRON CHIPS**

Number	C	S	N	Units
TH 1047	4.47	0.093	.	100 g
TH 1028-3	4.356	0.0258	.	100 g
TH 1049	4.276	0.0018	.	100 g
GBW 01113C	4.11	0.054	.	150 g
GBW 01115C	4.06	0.030	.	150 g
NCS NS56003d	3.68	0.043	.	150 g
TH 1023-2	3.62	0.0206	.	100 g
GBW 01111C	3.55	0.016	.	150 g
ECRM 485-3	3.5	0.15	0.008	100 g
TH 1050	3.424	0.143	.	100 g
NCS NS56011C	3.38	0.066	.	150 g
TH 1048	3.194	0.0442	.	100 g
CTIF FB 11/2	3.15	0.0842	.	100 g
GBW 01117	3.08	0.098	.	150 g
GBW 01118	2.88	0.142	.	150 g

**CRM FERROMANGANESE**

400 g units			
Number	Material	C	S
CKD 240	75% Mn, 15% Fe Carbide	3.86	0.0013

**RM LOW IMPURITY NICKEL POWDER**

certified analysis listed in mg/kg											informational values										
100 g units																					
Number	Al	C	Cr	Cu	Fe	Mn	Mo	P	Pb	S	Si	Ag	As	B	Ba	Be	Bi	Ca	Cd	Co	Ga
BS HPN-1	70	268	22	2	202	2	3	5	0.2	4	6	<0.1	<0.5	<2	<1	<1	<0.2	3	<0.1	<2	<0.5

continued informational values

Number	H	In	Mg	N	Na	O	Sb	Se	Sn	Te	Ti	Tl	V	Zn
BS HPN-1	70	<0.2	1	17	4	1400	<0.1	<0.2	<1	<0.2	<1	<0.1	<1	<1

**C, O, N, H, C, B IN NON-FERROUS METALS**

analysis listed in mg/kg

Number	Material	Sulfur	Oxygen	Nitrogen	Hydrogen	Carbon	Boron	Size & Form
CRM								
BCR 025A	Aluminum	.	<0.1	.	.	0.26	1.22	disc, 26 mm Ø x 9 mm
BCR 025B	Aluminum	.	<0.1	.	.	0.26	1.22	rod, 8 mm Ø x 50 mm
IMN Cu 90-1	Copper	83.7	.	.	.	.	.	250 g chips
IMN Cu 50-1	Copper	49.6	.	.	.	.	.	250 g chips
IMN Cu 18-2	Copper	18	.	.	.	.	.	250 g chips
IMN Cu 5-1	Copper	7.1	.	.	.	.	.	250 g chips
BCR 058	Copper	.	390	.	.	.	.	rod, 7 mm Ø x 50 mm
NCS NS41001	Copper	.	333	.	.	.	.	rod, 23 g
NCS NS41002	Copper	.	272	.	.	.	.	rod, 23 g
BCR 022A	Copper	.	138	.	.	.	.	disc, 26 mm Ø x 9 mm
BCR 022B	Copper	.	138	.	.	.	.	rod, 9 mm Ø x 50 mm
NCS NS41003	Copper	.	8.5	.	.	.	.	rod, 23 g
NCS NS41004	Copper	.	4.6	.	.	.	.	rod, 23 g
BCR 054R	Copper	.	0.47	.	.	.	.	rod, 7 mm Ø x 50 mm
BCR 055	Lead	.	1.0	.	.	.	.	disc, 30 mm Ø x 9 mm
BCR 023A	Molybdenum	.	14.7	<0.3	.	<0.2	.	disc, 26 mm Ø x 9 mm
BCR 023B	Molybdenum	.	14.7	<0.3	.	<0.2	.	25 1 g cubes
BCR 099	Nickel	.	8.4	1.1	.	.	.	25 2 g cubes
GBW 02605	Unalloyed Titanium	.	3160	.	.	.	.	6 discs, 10 g total
BCR 059A	6Al-4V Titanium alloy	.	1750	.	.	.	.	disc, 26 mm Ø x 9 mm
BCR 059B	6Al-4V Titanium alloy	.	1750	.	.	.	.	25 0.2 g cubes
BCR 024A	Titanium	.	608	117	.	.	.	disc, 26 mm Ø x 9 mm
BCR 024B	Titanium	.	608	117	.	.	.	25 0.4 g cubes
BCR 024C	Titanium	.	608	117	.	.	.	25 0.2 g cubes
GBW 02602	5Al-4V Titanium alloy	.	.	200	.	.	.	35 g chips
GBW 02601	Unalloyed Titanium	.	.	170	.	.	.	35 g chips
GBW 02618	15Al-3V Titanium alloy	.	.	130	.	.	.	20 g chips
BCR 318	Titanium	.	.	.	12.2	.	.	100 discs, 7 mm Ø x 1 mm
BCR 102	Tungsten Carbide	.	185	.	.	.	.	2 to 3 grams in sealed bottles
NCS NS51001	Tungsten Carbide	.	.	.	.	6.10%	.	100 g
RM								
BAM 379/3	Copper	.	378	.	.	.	.	disc, 40 mm Ø x 30 mm
BAM 379/2	Copper	.	212	.	.	.	.	disc, 40 mm Ø x 30 mm
BAM 379/1	Copper	.	38	.	.	.	.	disc, 40 mm Ø x 30 mm