

Metal and Quality, LLC



Reference Materials

CATALOG

August 2026

<https://rm.co.ua>

Reference Materials for Spectral Analysis

Pure Iron. Discs 38-40mm dia. x 30mm.

Index	C	Mn	Si	S	P	Cr	Ni	Cu	Al	W	Mo	Fe	
C01a	0.0046	0.0012	0.0035	0.0049	0.0011	0.0034	0.0038	0.0063	0.0054	0.0008	0.0003	99.92	
	Co	Ti	Nb	B	Sn	Pb	As	Ca	Sb	Zn	V	N	O
	0.0005	0.0001	0.0006	0.0002	0.0003	0.0003	0.0002	0.0002	0.00008	0.00002	0.0007	0.02	0.01

Low Alloy Steels. C03 - 40mm dia. x 30mm disc, C05a - 40mm dia. x 25 mm disc

Index	C	Mn	Si	P	S	Cr	Ni	Cu	W	V	Mo	Ti	Al	Co	Nb	Sn	B	As	Pb	Sb
C03	0.029	0.089	0.145	0.0062	0.0081	0.27	0.146	0.206	0.009	0.004	0.031	0.002	0.014	0.013	0.002	0.011	0.0004	0.008	0.009	0.003
C05b	0.282	1.82	0.347	0.017	0.033	1.355	1.80	0.478	0.53	0.221	0.218	0.033	0.005	0.179	0.170	0.020	0.018	0.014	N-0.013	-

Low Alloy and Alloy Steels. Discs 40mm dia. x 25mm

Index	C	Mn	Si	P	S	Cr	Ni	Cu	W	V	Mo	Ti	Al	Co	Nb	Sn	B	As	Ca	N
C040a	0.013	0.012	0.060	0.0023	0.0029	0.007	0.005	0.007	0.002	0.001	0.001	0.0010	0.039	0.002	0.0003	0.0002	0.00032	0.0002	0.0021	0.0068
C050	0.082	1.208	0.286	0.040	0.065	0.075	0.118	0.304	-	0.007	0.477	0.002	0.008	-	-	0.004	0.002	0.002	-	-
C041b	0.084	1.44	0.75	0.017	0.027	0.049	0.048	0.091	0.003	0.0033	0.0045	0.0068	0.006	0.004	0.002	0.004	0.0006	0.004	0.0007	0.0073
C042a	0.131	0.488	0.286	0.0091	0.0062	0.997	0.194	0.137	0.006	0.189	0.31	0.0029	0.018	0.009	0.0025	0.0079	0.0005	0.007	0.001	0.01
C048	0.212	0.467	0.273	0.0102	0.0059	0.175	0.105	0.262	-	-	0.016	-	0.0293	0.015	-	0.016	-	0.0085	0.0017	0.011
C043b	0.219	2.13	0.128	0.058	0.061	0.49	2.93	0.51	0.092	0.25	0.146	0.041	0.066	-	0.006	0.0023	0.001	0.001	0.0004	0.009
C044a	0.299	1.07	1.00	0.016	0.0039	0.985	1.44	0.184	0.006	0.006	0.022	0.024	0.026	0.020	0.0031	0.010	0.0006	0.008	0.001	0.0095
C045a	0.374	0.382	0.267	0.012	0.0032	1.45	0.147	0.191	0.005	0.004	0.184	0.004	0.86	0.010	0.003	0.012	0.0004	0.010	0.002	0.0063
C051	0.443	0.795	0.293	0.0162	0.029	0.048	0.041	0.140	-	0.002	-	0.001	0.010	0.003	0.001	0.004	-	0.002	-	-
C047a	0.789	0.411	1.94	0.022	0.0107	4.76	0.311	0.150	2.37	1.21	0.76	0.0096	0.054	0.105	0.020	0.0104	0.0006	0.0095	0.0022	0.022
C049	1.17	0.237	0.227	0.0166	0.0147	0.131	0.044	0.069	-	0.003	0.002	0.003	0.005	0.003	-	0.004	0.0002	0.004	0.003	0.007

Stainless Steels. C014-1 - 38 mm dia. x 20 mm, C014-2 - 39 mm dia. x 20 mm discs

Index	C	Si	Mn	P	S	Cr	Ni	Mo	Ti	Al	Cu	W	V	Ca	N	As	Pb	Sn	Sb
C014-1	0.0054	0.0052	0.004	0.0022	0.0039	17.10	9.16	0.0021	0.0019	0.070	0.037	0.007	0.006	-	0.021	0.0020	0.0003	0.0013	0.0019
C014-2	0.0101	0.090	0.015	0.0030	0.0061	16.88	9.89	0.014	0.017	0.176	0.268	0.074	0.006	-	0.043	0.020	0.0012	0.023	0.019

Stainless Steels. 40mm dia. x 25mm discs

Index	C	Si	Mn	P	S	Cr	Ni	Mo	Ti	Al	Cu	W	V	Ca	N	Co	As	Sn	B
C015	0.087	0.214	0.420	0.0118	0.059	15.36	12.15	0.89	0.177	0.008	0.070	0.023	0.021	0.0017	0.020				
C016	0.281	1.16	3.26	0.0192	0.0174	21.9	7.47	0.52	0.72	0.007	0.054	0.014	0.036	0.0004	0.010				
C017a	0.039	0.417	1.748	0.048	0.0124	16.73	10.94	2.046	0.317	0.074	0.255	0.052	0.048	-	0.016	0.119	0.0078	0.0090	0.0023
C018	0.125	0.53	1.09	0.0268	0.0099	17.54	9.33	0.189	0.54	0.086	0.163	0.066	0.048	0.0003	0.009				

Stainless Steel. 40mm dia. x 20 mm disc

Index	C	Si	Mn	P	S	Cr	Ni	Mo	Ti	Al	Cu	W	V	Nb	Co	Sn	N
C019	0.143	4.14	0.79	0.025	0.004	18.16	11.02	0.075	0.65	0.213	0.139	0.039	0.038	0.015	0.031	0.013	0.010

Stainless Steel. 39mm dia. x 25 mm disc - provisional certificate

Index	C	Si	Mn	P	S	Cr	Ni	Mo	Ti	W	V	Cu	Al	Co	B	Ca	As	Pb	Sn	Sb	N
C030	0.061	0.67	1.46	0.026	0.0029	22.81	18.68	0.158	0.037	0.038	0.041	0.257	0.011	0.083	0.011	0.0005	0.018	0.005	0.014	0.009	0.038

Chromium Stainless Steels - for trace analysis of non-ferrous metals. 40mm dia. x 20mm discs

Index	C	Si	Mn	P	Cr	Ni	Mo	V	Cu	Pb	Sn	Sb	As	Zn	Ca	B	N
C23	0.4	0.3	0.1	0.02	13	1.4	0.1	0.03	0.2	0.0009	0.010	0.006	0.008	0.0028	0.002	0.004	0.10
C24	0.4	0.2	0.1	0.02	13	1.5	0.1	0.03	0.3	0.0017	0.011	0.010	0.014	0.0035	0.003	0.007	0.12
C25	0.3	0.3	0.1	0.02	13	1.6	0.1	0.03	0.7	0.038	0.095	0.094	0.093	0.034	0.004	0.03	0.10
C26	0.3	0.3	0.1	0.02	13	1.6	0.1	0.03	0.7	0.0025	0.0042	0.0019	0.0023	0.0059	0.0009	0.0003	0.03

High-Temperature Steels. 40-42 mm dia. x 20-25mm discs

Index	Cr	Co	Mo	V	Nb	Ni	Mn	Si	W	P	C	N
C51	10.8	4.07	0.68	0.15	0.10	1.67	0.40	0.25	0.32	0.019	0.16	0.09
C53	14.8	5.20	1.71	0.33	0.13	1.47	0.82	0.29	0.59	0.036	0.26	-
C54	18.5	5.19	1.47	0.47	0.40	1.88	0.60	0.56	0.71	0.036	0.06	0.13
C55	14.9	5.75	1.32	0.29	0.27	2.24	0.73	0.68	1.17	0.042	0.19	0.11

High Boron Stainless Steels. Blocks 30 × 37 mm, thick.17-19mm*

Index	B	C	Si	Mn	P	S	Cr	Ni	Mo	Ti	Al	Cu	W	V	Nb	Co	N
C64	1.26	0.11	0.43	1.11	0.029	0.009	18.8	12.3	0.11	0.79	0.15	0.20	0.32	0.029	0.016	0.048	0.026
C65	2.37	0.12	0.44	0.98	0.023	0.009	18.7	11.7	0.10	0.32	0.26	0.19	0.59	0.021	0.012	0.035	0.018

High Manganese Steels. 38-42mm dia. x 20-25mm discs

Index	C	Si	Mn	P	S	Cr	Ni	Cu	Mo	V	B	N	Nb	Ti	Al
C020	0.97	0.091	8.85	0.024	0.015	0.96	1.36	0.53	0.13	0.152	0.0017	0.020	0.02	0.003	0.004
C010	1.20	0.49	12.25	0.082	0.0035	0.187	0.108	0.120	0.01	-	-	0.017	-	-	0.005
C022	1.15	0.34	12.89	0.087	0.0057	0.192	0.122	0.103	0.03	0.03	0.0010	0.013	0.01	0.006	0.007
C023	0.78	0.291	13.09	0.052	0.0062	0.313	3.15	0.111	0.02	0.02	0.0013	0.018	0.02	0.004	0.006
C011	0.44	0.41	16.09	0.031	0.0093	0.30	0.058	0.105	0.01	-	-	0.010	-	-	2.6
C011a	0.45	0.43	17.4	0.042	0.008	0.36	0.11	0.089	0.014	-	-	-	-	-	2.8
C012	0.39	0.31	20.9	0.021	0.0072	0.17	0.103	0.087	0.03	1.14	-	0.013	-	-	2.9
C013	0.89	0.29	28.8	0.025	0.002	0.14	0.20	0.108	0.46	0.1	-	0.002	0.46	-	8.6

High Manganese Steels. LG51 - 39 mm dia. x 20 mm, LG53 - 40 mm dia. x 25 mm discs. LG53a-LG53d, LG55a-LG56 40 mm dia. x 20 mm discs

Index	C	Si	Mn	P	S	Cr	Ni	Cu	Mo	V	B	N	Nb	Al
LG51	0.98	0.09	8.9	0.024	0.016	0.97	1.37	0.53	0.157	0.151	0.0010	0.023	0.11	0.004
LG53	1.15	0.35	12.9	0.087	0.0056	0.197	0.121	0.100	0.010	0.0104	0.0010	0.013	0.01	0.007
LG53a	1.21	0.495	12.22	0.085	0.0049	0.191	0.109	0.120	0.010	0.014	-	0.02	0.01	0.007
LG53b	1.15	0.375	12.68	0.0497	0.0073	0.417	0.201	0.137	0.023	0.022	-	0.015	0.015	0.017
LG53c	1.15	0.39	12.53	0.086	0.0048	0.159	0.148	0.146	0.014	0.017	-	0.02	0.013	0.017
LG53d	1.11	0.292	13.09	0.091	0.0080	0.105	0.092	0.118	0.012	0.016	-	0.014	0.013	0.022
LG54	0.78	0.292	13.1	0.051	0.0061	0.32	3.15	0.109	0.018	0.0211	0.013	0.020	0.02	0.006
LG55a	1.12	1.01	15.54	0.067	0.0044	2.34	1.36	0.414	0.26	0.149	-	0.021	0.069	0.009
LG56	1.19	0.86	18.62	0.088	0.0069	2.65	0.473	0.184	0.049	0.19	-	0.08	0.017	0.008

Cast Iron. CH01.CH05-CH08 blocks 30-35x40-35 thick.18-20mm; CH02 35-37dia.x18-20mm; CH03.CH04 30-40x45-35 thick.14-18mm

Index	C	Si	Mn	P	S	Cr	Ni	Ti	Cu	Al	V	Mo	Sn	Pb	Co	Nb	W	Mg	Ca	B
CH01	2.61	1.95	0.258	0.012	0.0045	0.88	0.072	0.132	0.097	0.079	0.134	0.070	0.05	-	0.06	0.010	0.02	0.0005	0.001	0.03
CH02	3.18	1.35	1.09	0.007	0.0116	0.59	0.658	0.161	0.038	0.026	0.005	0.224	0.014	-	0.06	0.4	-	0.002	0.001	0.016
CH03	3.54	0.57	0.40	0.023	0.034	0.612	0.187	0.059	0.194	0.035	0.009	0.019	0.004	0.01	0.05	0.010	0.006	0.0001	0.002	0.001
CH04	4.01	0.73	1.77	0.074	0.018	0.100	0.273	0.025	0.55	0.014	0.004	0.004	0.002	0.007	0.05	0.005	<0.0002	0.0001	0.0007	0.0007
CH05	3.99	0.46	2.23	0.119	0.039	1.63	0.85	0.070	0.61	0.002	0.200	0.109	0.01	-	0.07	0.3	-	0.001	0.002	0.03
CH06	3.88	0.28	0.85	0.050	0.050	2.8	1.23	0.33	1.03	0.025	0.205	0.29	0.03	-	0.07	0.05	0.1	-	0.001	0.02
CH07	2.33	3.01	1.36	0.090	0.064	0.34	0.403	0.150	0.35	0.036	0.52	0.66	0.07	-	-	0.08	-	0.01	0.001	0.13
CH08	3.02	2.05	0.79	0.056	0.058	2.13	2.52	0.315	1.60	0.29	0.34	0.96	0.008	-	0.07	0.3	-	-	0.001	0.08

Cast Iron. Blocks ~30 mm x 40 mm, thick.18-21 mm

Index	C	Si	Mn	P	S	Cr	Ni	Ti	Cu	V
CH09	2.75	0.69	0.336	0.269	0.073	0.070	0.096	0.032	0.177	0.004
CH010	3.14	1.16	0.779	0.058	0.020	0.105	0.024	0.017	0.018	0.002
CH011	3.31	1.65	1.576	0.410	0.035	0.033	0.043	0.023	0.106	0.021
CH012	3.56	0.252	1.122	0.097	0.046	0.309	0.198	0.030	0.328	0.003

High Chromium Cast Iron. Blocks 35x35mm, thick.16-17mm

Index	C	Si	Mn	P	S	Cr	Ni	Ti	Cu	Al	V	Mo
CH021	3.93	0.52	3.66	0.064	0.009	9.07	5.86	0.093	0.369	0.168	0.61	4.42
CH022	2.90	0.43	1.76	0.033	0.018	14.85	2.19	0.078	2.53	0.053	0.45	2.65
CH023	2.33	0.98	0.43	0.023	0.073	23.45	0.715	0.38	0.054	0.255	0.288	1.46
CH024	2.01	2.18	1.22	0.102	0.037	27.84	0.222	0.099	0.88	0.096	0.164	3.86
CH025	1.80	2.70	0.378	0.030	0.026	35.14	1.77	0.117	1.23	0.351	0.044	0.302
CH026	1.62	1.14	0.305	0.050	0.032	35.87	3.63	0.013	0.288	0.059	0.067	0.96

High-Speed Powdered Steels. 40-42mm dia. x 15-19mm discs

Index	C	W	Mo	Co	V	Cr	Si	Mn	S	P	Ni	Cu
C070	2.43	0.29	1.28	0.053	9.39	5.57	0.79	0.38	0.054	0.021	0.153	0.130
C071	1.06	1.74	9.67	8.10	1.07	3.77	0.38	0.20	0.028	0.020	0.149	0.162
C072	1.30	6.33	5.39	0.011	3.59	4.25	0.55	0.29	0.019	0.024	0.192	0.106
C073	1.32	6.40	4.97	8.31	2.82	3.97	0.27	0.23	0.013	0.019	0.198	0.112
C074	1.10	6.47	5.21	5.08	1.94	3.93	0.16	0.16	0.020	0.023	0.158	0.141
C075	1.16	9.27	4.06	8.03	2.10	3.10	0.47	0.16	0.015	0.021	0.202	0.120
C076	0.69	9.81	4.29	13.88	2.03	5.75	0.58	0.18	0.022	0.024	0.213	0.120
C077	1.16	12.17	3.05	7.73	2.04	4.07	0.40	0.19	0.024	0.030	0.271	0.142
C078	0.67	18.3	0.14	0.022	1.04	3.98	0.117	0.22	0.019	0.022	0.121	0.116

Tool Powdered Steels. 35-40mm dia. x 25mm discs

Index	C	W	Mo	Co	V	Cr	Si	Mn	S	P	Ni	Cu			
C079	0.59	0.06	4.10	0.04	0.90	4.00	0.43	0.38	0.012	0.024	0.541	0.154			
C080	1.68	3.40	0.39	0.03	5.12	5.06	1.89	0.31	0.020	0.025	0.162	0.120			
C081	1.01	0.05	2.13	0.03	0.25	7.78	1.10	0.32	0.011	0.017	0.207	0.124			
C082	2.32	0.17	1.11	0.04	4.02	12.24	0.36	0.33	0.014	0.029	0.239	0.118	N	Al	Ti
C083	1.497	<i>0.050</i>	1.488	<i>0.027</i>	3.88	7.830	0.97	0.402	0.0203	0.0189	0.139	0.095	0.094	0.008	0.003

Tool Steel. 39 mm dia. x 25 mm discs

Index	C	Mn	Si	P	S	Cr	Ni	Cu	W	V	Mo	Ti	Al	Co
C085	1.58	0.166	0.21	0.031	0.035	11.77	0.30	0.083	0.075	0.272	0.670	0.003	0.012	0.013

Maraging Steels. 40-42mm dia. x 17-18mm discs

Index	Ni	Co	Mo	Ti	Cr	Mn	C	Si	Al	S	P	Cu
C091	18.23	8.19	5.04	0.81	0.120	0.090	0.035	0.090	0.050	<i>0.011</i>	<i>0.006</i>	<i>0.12</i>
C092	20.09	5.27	5.59	0.009	0.23	0.274	0.015	0.101	<i>0.004</i>	<i>0.009</i>	<i>0.006</i>	<i>0.16</i>
C093	15.81	12.14	3.79	1.56	0.42	0.318	0.013	0.099	0.166	<i>0.007</i>	<i>0.006</i>	<i>0.12</i>

FeCrAl. 36-38mm dia. x 16-18mm discs

Index	C	Cr	Al	Ti	Mn	Si	Ni	Cu	Mo	V	P	S	Nb	Zr	W
C101	0.024	21.77	5.06	0.31	0.198	0.32	0.34	0.055	0.026	0.023	0.013	<i>0.006</i>	<i>0.011</i>	<i>0.003</i>	<i>0.011</i>
C102	0.038	24.41	4.98	0.25	0.265	1.27	0.19	0.031	0.022	0.089	0.025	<i>0.006</i>	<i>0.005</i>	<i>0.003</i>	<i>0.020</i>
C103	0.064	27.04	5.28	0.29	0.287	0.34	0.21	0.066	0.013	0.035	0.027	<i>0.006</i>	<i>0.002</i>	<i>0.001</i>	<i>0.004</i>
C104	0.055	29.77	5.58	0.76	0.838	0.78	0.51	0.199	0.18	0.22	0.035	0.019	0.52	0.28	<i>0.008</i>

High Chromium Steels. 40mm dia. x 20mm discs (C119 38mm dia. x 20 mm disc)

Index	Cr	Ni	C	Si	Mn	P	S	Mo	W	V	Ti	Cu	Al	Nb	Co	Sn	N
C115	11.73	1.66	0.145	0.389	0.341	0.0278	0.0026	0.368	1.98	0.250	<i>0.002</i>	0.122	0.011	0.015	0.028	0.006	0.039
C116	12.71	0.209	0.286	0.295	0.464	0.0214	0.0118	0.029	<i>0.01</i>	0.029	<i>0.002</i>	0.082	<i>0.006</i>	<i>0.01</i>	0.021	0.005	0.022
C117	16.89	0.52	0.071	0.393	0.200	0.0240	0.0122	0.044	<i>0.04</i>	0.027	0.59	0.091	0.012	<i>0.02</i>	0.019	0.005	0.008
C118	19.69	3.45	0.018	0.142	1.23	0.0057	0.0098	0.337	<i>0.32</i>	0.109	0.117	0.344	<i>0.004</i>	0.116	0.093	0.026	0.028
C119	25.38	0.244	0.128	0.51	0.229	0.027	0.0068	0.084	0.046	0.052	1.02	0.069	0.017	<i>0.02</i>	<i>0.01</i>	0.006	0.010
C120	30.8	8.46	0.078	0.35	0.158	0.0138	0.0030	<i>0.03</i>	<i>0.01</i>	0.041	0.005	0.122	<i>0.02</i>	0.015	<i>0.03</i>	0.004	0.044

Bold - certified values

Bold italic - presents data of standard deviation or uncertainty

Italics - the approximate value obtained in one or more laboratories

Reference Materials for Combustion and Fusion Techniques

Steel

CRM CA01a Carbon Steel. Coated pins mass of 0.9 g. Packing - 50 pins

O	N	H
0.00035	0.0029	<i>0.00009</i>

RM CA02a Bearing Steel. Coated pins mass of 1 g. Packing - 150 g.

N	S	C
0.0030	0.0021	1.03

RM CA03 Stainless Steel. Pins mass $\approx$ 1 mg. Packing - 100 g.

N	S	C
0.0086	0.0114	0.082

CRM CA04 Steel. The polished rods 2.8 dia. x 80 mm. Packing - 100 g.

O	N
0.00088	0.0067

CRM CA05 Unalloyed Steel. The polished rods 2.8mm dia. x 80 mm.
Packing - 100 g.

O	N
0.0202	0.0044

CRM CA06 Unalloyed Steel. The polished rods 2.8mm dia. x 80mm.
Packing - 100 g.

O	N
0.0120	0.0072

CRM CA07 Chromium Steel. The polished rods 1.7 mm dia. x 80 mm.
Packing - 100 g.

O	N
0.0055	0.0292

CRM CA08 Carbon Steel. Prepared for analysis coated pins mass of 0.5 g.
Packing - 100 pins

O	N	H
0.0152	0.0034	<i>0.00018</i>

RM CA09 Carbon Steel. Prepared for analysis coated pins mass of 0.5 g.
Packing - 100 pins

N	O
0.0105	<i>0.03</i>

CRM CA010 Low Alloy Steel. Granules. Packing - 150 g.

N	S	C
0.0073	0.0161	0.091

RM CA11a Stainless Steel. Prepared for analysis pins mass of 1 g
Packing - 50 pins

O	N	H
<i>0.002</i>	0.0074	0.00011

CRM CA013 Stainless Steel. Prepared for analysis coated pins mass of 1 g.
Packing - 50 pins

O	N	H
0.0018	0.0102	0.00068

RM CA031 Stainless Steel. Prepared for analysis coated pins mass of 1 g.
Packing - 50 pins

O	N	H
0.0025	0.0072	0.00061

RM CA032 Stainless Steel. Prepared for analysis coated pins mass of 1 g.
Packing - 50 pins

O	N	H
0.0097	0.0309	0.00017

RM CA033 Stainless Steel. Prepared for analysis coated pins mass of 1 g.
Packing - 50 pins

O	N	H
0.0071	0.051	0.00072

RM CA034 Stainless Steel. Prepared for analysis coated pins mass of 1 g.
Packing - 50 pins

O	N	H
0.0054	0.073	0.00062

CRM CA036 Stainless Steel. Prepared for analysis pins mass of 0.5 g.
Packing - 100 pins

O	N	H
0.0133	0.0982	<i>0.0007</i>

CRM CA037 Stainless Steel. Prepared for analysis pins mass of 1 g.
Packing - 50 pins

O	N	H
0.0127	0.0857	<i>0.0002</i>

CRM CA040 Stainless Steel. Prepared for analysis balls mass of 1.071g.

Packing - 50 balls

O	N	H
0.0036	0.0335	0.00039

RM CA050 Stainless Steel. Prepared for analysis balls mass of 1.066g.

Packing - 50 balls

H
0.00005

Titanium

RM CA016a Titanium. Pins mass of 0.1 g. Packing - 100 pins

O	N	H
0.063	0.0054	0.0021

CRM CA016b Titanium. Pins mass of 0.1 g. Packing - 100 pins

O	N	H
0.060	0.0039	0.0016

CRM CA017 Titanium. Pins mass of 0.1 g. Packing - 100 pins

O	N	H
0.151	0.0061	0.0039

CRM CA018a Titanium. Pins mass of 0.1 g. Packing - 100 pins

O	N	H
0.051	0.013	0.0016

CRM CA019 Titanium. Pins mass of 0.1 g. Packing - 100 pins

O	N	H
0.246	0.0104	0.0016

Copper

CRM CA021 Copper. Coated pins mass of 1 g. Packing - 50 pins

O	H
0.00074	0.00019

CRM CA023 Copper. Coated pins mass of 0.5 g. Packing - 100 pins

O	H
0.0158	0.00021

Bold - certified values, *Italic* - indicative values
Reference Materials for Wet Chemical Analysis

CRM CX01. Unalloyed Steel. Chips - units of 200g

C	Si	Mn	S	P	Cr	Ni	Cu	N	As	Mo	Al	Ti	V	Co	Pb	Sn	W	Sb	Zn	B
0.029	0.146	0.086	0.0085	0.0063	0.222	0.147	0.209	0.0160	<i>0.01</i>	<i>0.031</i>	<i>0.014</i>	<i>0.003</i>	<i>0.003</i>	<i>0.011</i>	<i>0.009</i>	<i>0.012</i>	<i>0.007</i>	<i>0.005</i>	<i>0.004</i>	<i>0.0002</i>

CRM CX020a. Carbon Steel. Chips - units of 200g

C	S	Mn	Si	P	Cr	Ni	Cu	N
0.076	0.034	<i>0.4</i>	<i>0.01</i>	<i>0.03</i>	<i>0.04</i>	<i>0.01</i>	<i>0.02</i>	<i>0.08</i>

CRM CX02a. Alloy Steel. Chips - units of 250g

C	Si	Mn	S	P	Cr	Ni	Cu	N	Mo	Al	Ti	V	Co	Pb	Sn	W	Sb	Zn	B
0.092	0.86	2.12	0.0164	0.022	0.028	0.014	0.016	0.0070	<i>0.004</i>	<i>0.004</i>	<i>0.002</i>	<i>0.004</i>	<i>0.003</i>	<i>0.0003</i>	<i>0.001</i>	<i>0.01</i>	<i>0.001</i>	<i>0.0003</i>	<i>0.002</i>

CRM CX07. Unalloyed Steel. Chips - units of 250g

C	Si	Mn	S	P	Cr	Ni	Cu	N	Mo	Al	Ti	V	Co	Pb	Sn	W	Sb	Zn	Nb	As
0.115	0.312	0.636	0.0206	0.0152	0.084	0.040	0.074	<i>0.0048</i>	<i>0.004</i>	<i>0.007</i>	<i>0.0007</i>	<i>0.0009</i>	<i>0.0024</i>	<i>0.0003</i>	<i>0.0021</i>	<i>0.0015</i>	<i>0.0006</i>	<i>0.0008</i>	<i>0.0001</i>	<i>0.0030</i>

CRM CX011. Alloy Steel. Chips - units of 100g

C	Si	Mn	S	P	Cr	Ni	Cu	V	Mo	Ti	Al	Sn	As	Ca	Co	Nb	B	Pb	N
0.120	0.319	0.562	0.0058	0.0123	0.962	0.203	0.131	0.178	0.286	0.0018	0.023	0.006	0.0073	0.0010	<i>0.01</i>	<i>0.003</i>	<i>0.0002</i>	<i>0.0011</i>	0.0100

RM CX03a. Carbon Steel. Chips - units of 200g

C	Si	Mn	S	P	Cr	Ni	Cu
0.206	0.014	0.369	0.033	0.029	0.046	0.0155	0.020

CRM Y20. Unalloyed Steel. Chips - units of 250g

C	Si	Mn	S	P	Cr	Ni	Cu
0.352	0.253	0.57	0.0207	0.0070	0.139	0.208	0.179

CRM C58. Alloy Steel. Chips - units of 250g

C	Si	Mn	S	P	Cr	Ni	Cu
0.348	1.27	1.25	0.0077	0.0076	0.123	0.086	0.100

CRM Y21. Unalloyed Steel. Chips - units of 250g

C	Si	<i>Mn</i>	S	P	Cr	Ni	Cu
0.453	0.291	<i>0.9</i>	0.0211	0.0155	0.142	0.152	0.186

CRM CX08. Alloy Steel. Chips - units of 150g

C	Si	Mn	S	P	Cr	Ni	Cu
0.410	0.220	0.533	0.0241	0.0110	0.835	0.053	0.086

CRM CX04. Unalloyed Steel. Chips - units of 250g

C	Si	Mn	S	P	Cr	Ni	Cu	N	As	Al	Ti	V	Co	Pb	Sn	Sb	Zn
0.559	0.327	0.607	0.0216	0.0133	0.0573	0.017	0.0147	0.0079	0.002	0.004	0.002	0.005	0.002	0.0001	0.0009	0.001	0.001

RM CX015. Carbon Steel. Chips - units of 150g

C	Si	Mn	S	P	Cr	Ni	Cu	Ti	Mo	V
0.674	0.250	1.10	0.0252	0.017	0.03	0.01	0.01	0.002	0.003	0.01

RM CX014. Carbon Steel. Chips - units of 150g

C	Si	Mn	S	P	Cr	Ni	Cu
0.802	0.240	0.212	0.0174	0.0129	0.230	0.125	0.16

RM CX010a. Carbon Steel.

Chips - units of 200g

C	S
0.993	0.0203

RM CX012. Carbon Steel. Chips - units of 150g

C	Si	Mn	S	P	Cr	Ni	Cu	N	As	Mo	Al	Co	Sn
1.22	0.227	0.235	0.0145	0.0159	0.135	0.050	0.071	0.007	0.004	0.002	0.003	0.0025	0.004

CRM CX09. High Manganese Steel. Chips - units of 75g

C	Si	Mn	S	P	Cr	Ni	Cu	Al	V	Nb	N	B	Ti
1.16	0.35	12.90	0.0057	0.087	0.193	0.121	0.101	0.007	0.03	0.014	0.013	0.0012	0.006

CRM CX06. Stainless Steel. Chips - units of 100g

C	Si	Mn	S	P	Cr	Ni	Cu	Mo	Ti	N	As	Co	V	W
0.082	0.62	1.20	0.0118	0.0253	18.39	10.24	0.152	0.13	0.58	0.0081	0.01	0.04	0.03	0.03

RM CH02X. Cast Iron. Chips - units of 100g

C	Si	Mn	S	P	Cr	Ni	Ti	Mo	C graph.	Cu	Al	Sn	Co	B
2.90	1.36	1.08	0.013	0.006	0.59	0.66	0.16	0.23	1.5	0.04	0.03	0.015	0.06	0.016

RM MCX01 Brass. Chips - units of 100g

Zn	Fe	Pb	Sb	Sn	As	Cu
36.35	0.016	0.004	0.0005	0.0002	0.0001	Bal.

Ferro-Manganese, Slag, Ores

CRM MHCX01. Ferro-Manganese. Powder - units of 150g

C	S	Mn	Si	P	Fe	Cu	Ni	Al	Ti	Cr	B
1.34	0.004	87.5	1.13	0.25	7.32	0.11	0.06	0.006	0.009	0.16	0.008

CRM MHCX02. Ferro-Manganese. Powder - units of 150g

C	S	Mn	Si	P	Fe	Cu	Ni	Al	Ti	Cr	B
5.04	0.0033	79.7	4.71	0.50	8.76	0.05	0.08	0.032	0.065	0.08	0.013

CRM MHCX03. Silico-Manganese. Powder - units of 100g

C	S	Mn	Si	P	Fe	Cu	Ni	Al	Ti	Cr	B
0.04	0.004	65.5	29.2	0.047	4.92	0.13	0.11	0.013	0.49	0.20	0.009

RM MHCX04. Silico-Manganese. Powder - units of 70g

C	S	Mn	Si	P	Fe	Cu	Ni	Al	Ti	Cr	B	Co	Mo	V	As	Sn	Pb	Zn	Ca
0.80	0.012	69.9	22.8	0.148	5.30	0.104	0.120	0.011	0.28	0.103	0.03	0.111	0.017	0.084	0.004	0.008	0.008	0.011	0.015

RM PX02. Metallurgical Slag. Powder - units of 50g

SiO ₂	CaO	MgO	MnO	Al ₂ O ₃	P	FeO	Fe	S	TiO ₂	Cr ₂ O ₃
12.9	64.7	3.51	0.024	10.96	0.0025	0.21	0.2	0.91	0.07	0.03

RM PX01. Manganese Ore. Powder - units of 100g

Mn	Fe	SiO ₂	CaO	MgO	Al ₂ O ₃	P	S	MnO ₂	BaO	K ₂ O	Na ₂ O	*LOI
46.8	1.63	11.4	1.77	1.10	1.50	0.28	0.025	51.3	0.3	1.33	0.41	12.8

CRM RG36. Iron Ore. Powder - units of 150g

Fe	SiO ₂	FeO	Al ₂ O ₃	MgO	S	P	MnO	TiO ₂	Na ₂ O	K ₂ O	CaO	*LOI	**IR
62.01	9.43	0.67	0.84	0.48	0.0068	0.015	0.026	0.037	0.079	0.017	0.051	1.1	10.0

* Loss on ignition at 900°C

** Insoluble Residue. Residue after dissolution in concentrated hydrochloric acid when heated (DSTU 8811.6:2020)

Bold - certified values

Bold italic - presents data of standard deviation or uncertainty

Italics - the approximate value obtained in one or more laboratories

High-purity Metals for Solutions Preparation

BMSB. Antimony. Granules - units of 100g

Sb not less, %	Pb	As	Fe	Sn	Si
99.999	<0.0001	<0.0002	<0.0002	<0.0001	<0.0001

BMBI. Bismuth. Shavings - units of 100g

Bi not less, %	Fe	Cu	Sb	Co	As	Zn	Ag	Pb
99.97	<0.001	<0.0001	<0.0002	<0.003	<0.0001	<0.003	<0.0001	<0.02

BMPB. Lead. Shavings - units of 100g

Pb not less, %	Cu	Sb	Sn	Ni	As	Zn	Bi	Ag
99.99	<0.0005	0.0005	<0.0005	<0.0001	<0.0005	<0.001	<0.004	<0.0003

BMCD. Cadmium. Shavings - units of 100g

Cd not less, %	Pb	Zn	Cu	Fe	Tl
99.96	<0.02	<0.004	<0.01	<0.002	<0.003

BMPZN. Zinc. Shavings - units of 100g

Zn not less, %	Pb	Cd	Fe	Sn	Cu	Al
99.995	<0.003	<0.003	<0.002	<0.001	<0.001	<0.001

BMSN. Tin. Shavings - units of 100g

Sn not less, %	Bi	Zn	Pb	Ni	Cu	Fe
99.999	<0.00005	<0.00004	<0.00003	<0.00001	<0.00001	<0.00001

Metal and Quality, LLC
37 Nezalezhnoi Ukrain Street, Zaporozhye City 69019, Ukraine
Tel/fax: +380 61 717 1800
rm@rm.co.ua
<https://rm.co.ua>