



ARTUS 8 FERROUS CALIBRATION DATASHEET

CALIBRATION RANGES FOR FERROUS CALIBRATIONS

ARTUS 8 - Ferrous															
Elements	Model ● Ultimate ▲ Standard □ Visible	Fe Global Fe-8000		Low Alloy Fe-8030		Chrome Steels Fe-8110		Cr Ni Steels Fe-8120		Tool Steels Fe-8140		Mn Steels Fe-8150		Cast Irons Fe-8510	
		Min %	Max %	Min %	Max %	Min %	Max %	Min %	Max %	Min %	Max %	Min %	Max %	Min %	Max %
C	● ▲	0.002	5	0.001	2.5	0.001	2.5	0.001	2.5	0.001	2.5	0.001	2.5	0.002	5
Si	● ▲ □	0.002	6.5	0.002	4	0.003	4	0.003	4.8	0.003	4	0.002	4	0.003	4
Mn	● ▲ □	0.002	35.5	0.0007	2.9	0.002	10	0.002	14.5	0.001	2	0.001	35.5	0.002	2.3
P	● ▲	0.002	3	0.0001	0.2	0.0005	0.2	0.0004	0.2	0.0005	0.2	0.0005	0.2	0.001	3
S	● ▲	0.0002	0.3	0.0002	0.15	0.0002	0.15	0.0002	0.3	0.0002	0.15	0.0002	0.15	0.0002	0.15
Cr	● ▲ □	0.003	38	0.002	6	0.002	38	0.002	38	0.002	6	0.002	6.2	0.002	2.7
Mo	● ▲ □	0.002	7.5	0.002	1.7	0.002	3.4	0.002	7.3	0.002	11.3	0.001	2.4	0.001	1.5
Ni	● ▲ □	0.003	60.1	0.0015	5	0.003	12	0.002	60.1	0.002	5.3	0.004	4.5	0.001	3
Cu	● ▲ □	0.0005	7.5	0.0005	1.7	0.0005	2.3	0.0005	3.8	0.0007	1.7	0.0006	1.7	0.0005	2
Al	● ▲ □	0.0005	10.4	0.0005	1.6	0.0005	1.6	0.0005	1.6	0.0004	1.6	0.0003	10.4	0.0004	0.1
As	● ▲	0.001	0.15	0.001	0.15	0.001	0.15	0.001	0.15	0.001	0.1	0.001	0.15	0.002	0.1
B	● ▲	0.0002	3	0.0001	0.02	0.0002	3	0.0003	3	0.0001	0.02	0.0003	0.02	0.0002	0.1
Bi	● ▲ □	0.0004	0.13	0.0003	0.13	0.0005	0.13	0.0004	0.13	0.0004	0.13	0.0003	0.13	0.0004	0.016
Ce	● ▲ □	0.0005	0.07											0.0005	0.07
Co	● ▲ □	0.0006	19.3	0.0006	0.55	0.0006	0.3	0.0006	8.5	0.0002	12	0.0006	0.55	0.0006	0.15
Mg	● ▲ □	0.0002	0.1											0.0002	0.1
Nb	● ▲ □	0.002	3.6	0.0015	0.4	0.002	2.4	0.004	2.4	0.002	0.4	0.002	0.5	0.002	0.12
Pb	● ▲ □	0.0004	0.3	0.0004	0.3	0.0004	0.3	0.0004	0.3	0.0004	0.3	0.0005	0.3	0.0004	0.025
Sb	● ▲ □	0.001	0.15	0.001	0.15	0.001	0.15	0.0015	0.15	0.001	0.15	0.001	0.15	0.001	0.15
Sn	● ▲	0.001	0.5	0.0002	0.15	0.0005	0.15	0.0005	0.15	0.0005	0.15	0.0006	0.15	0.001	0.2
La	● ▲ □	0.0001	0.03											0.0001	0.03
Ti	● ▲ □	0.0004	1.8	0.0003	1	0.0005	0.5	0.0005	1.2	0.0004	0.5	0.0004	0.5	0.0005	0.4
V	● ▲ □	0.0005	5.5	0.0003	1.3	0.0008	1.3	0.0005	1.3	0.0006	5.5	0.0004	1.3	0.0007	0.6
W	● ▲ □	0.003	24.5	0.003	2.5	0.003	1.9	0.003	2.5	0.003	24.5	0.003	1.9	0.004	0.35
Zn	● ▲ □	0.004	0.04	0.0004	0.02			0.0007	0.02	0.0007	0.015	0.0007	0.015	0.0004	0.045
Zr	● ▲ □	0.0004	0.3	0.0004	0.3	0.0007	0.3	0.0005	0.3	0.0006	0.3	0.0005	0.3	0.0008	0.04
N	●	0.007	1.2	0.0008	0.04	0.007	1.2	0.002	1.2	0.004	0.04	0.002	0.05	0.001	0.015
Ca	● ▲ □	0.0003	0.017	0.0001	0.017	0.0002	0.017	0.0001	0.017	0.0001	0.017	0.0002	0.017		
Se	● ▲	0.001	0.12	0.001	0.12	0.001	0.12	0.001	0.12	0.001	0.12	0.001	0.12	0.001	0.07
Fe	● ▲ □	Balance		Balance		Balance		Balance		Balance		Balance		Balance	

● Ultimate ▲ Standard □ Visible

Calculation of detection limit according to DIN 32645:2008-11 with a confidence limit of 99.7% (3 sigma).

Calibrations created using Certified Reference Samples (CRMs) only. These values are taken from a production ARTUS 8 instrument, please note that detection limits of individual instruments may vary.

Calibrations can be extended using customer samples.

CALIBRATION RANGES FOR FERROUS CALIBRATIONS

ARTUS 8 - Ferrous									
Elements	Model ● Ultimate ▲ Standard □ Visible	Cr Cast Irons Fe-8520		Ni Cast Irons Fe-8530		Cr Ni Cast Irons Fe-8540		Free Cutting Steel (Low Alloy) Fe-8035	
		Min %	Max %	Min %	Max %	Min %	Max %	Min %	Max %
C	● ▲	0.002	5	0.003	5	0.003	5	0.002	2.5
Si	● ▲ □	0.003	4	0.004	6.5	0.004	6.5	0.003	4
Mn	● ▲ □	0.002	2.3	0.002	8	0.002	8	0.002	2.9
P	● ▲	0.001	3	0.001	3	0.001	3	0.0005	0.2
S	● ▲	0.0002	0.15	0.0002	0.15	0.0002	0.15	0.0001	0.45
Cr	● ▲ □	0.002	38	0.002	6	0.002	38	0.0005	6
Mo	● ▲ □	0.002	4.5	0.002	1.5	0.002	4.5	0.002	1.7
Ni	● ▲ □	0.001	13	0.001	42.5	0.001	42.5	0.003	5
Cu	● ▲ □	0.0005	2.4	0.0005	7	0.0005	7	0.0005	1.7
Al	● ▲ □	0.002	0.1	0.001	0.1	0.001	0.1	0.0005	1.6
As	● ▲	0.003	0.1	0.003	0.1	0.003	0.1	0.001	0.15
B	● ▲	0.0002	0.1	0.0002	0.1	0.0004	0.1	0.0002	0.015
Bi	● ▲ □	0.0004	0.016	0.0005	0.016	0.0005	0.016	0.0003	0.13
Ce	● ▲ □	0.0005	0.07	0.0005	0.07	0.0005	0.07		
Co	● ▲ □	0.0006	0.2	0.0007	0.2	0.0006	0.2	0.0007	0.55
Mg	● ▲ □	0.0002	0.1	0.0002	0.1	0.0005	0.1		
Nb	● ▲ □	0.003	0.1	0.003	0.4	0.003	0.4	0.0015	0.4
Pb	● ▲ □	0.0004	0.025	0.0004	0.025	0.0004	0.025	0.0004	0.4
Sb	● ▲ □	0.001	0.15	0.001	0.15	0.001	0.15	0.001	0.15
Sn	● ▲	0.001	0.2	0.001	0.2	0.001	0.2	0.0002	0.15
La	● ▲ □	0.0001	0.03	0.0001	0.03	0.0001	0.03		
Ti	● ▲ □	0.0005	0.4	0.0005	0.4	0.0005	0.4	0.0005	1
V	● ▲ □	0.0007	0.6	0.001	0.6	0.0007	0.6	0.001	1.3
W	● ▲ □	0.008	0.15	0.008	0.15	0.008	0.35	0.003	2.5
Zn	● ▲ □	0.0004	0.045	0.0004	0.045	0.006	0.045	0.001	0.02
Zr	● ▲ □	0.0008	0.04	0.0008	0.04	0.0008	0.04	0.0007	0.3
N	●	0.001	0.015	0.001	0.015	0.001	0.015	0.005	0.04
Ca	● ▲ □							0.0001	0.017
Se	● ▲	0.002	0.07	0.002	0.07	0.002	0.07		
Fe	● ▲ □	Balance		Balance		Balance		Balance	

● Ultimate ▲ Standard □ Visible

Calculation of detection limit according to DIN 32645:2008-11 with a confidence limit of 99.7% (3 sigma).

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Calibrations can be extended using customer samples.

FE-8020 – LOW ALLOY CALIBRATION

Sample Data – BCS/ SS 402 – Low Alloy Steel

ID	C	N	Al	Si	P	S	V	Cr	Mn	Ni	Cu	Mo
1#	1.31	0.00695	0.153	0.112	0.0166	0.0202	0.197	0.656	0.236	0.799	0.290	0.144
2#	1.30	0.00684	0.153	0.113	0.0154	0.0155	0.193	0.648	0.233	0.795	0.289	0.141
3#	1.34	0.00790	0.152	0.110	0.0164	0.0134	0.195	0.653	0.235	0.797	0.294	0.141
AVG	1.32	0.00723	0.153	0.112	0.0161	0.0164	0.195	0.652	0.235	0.797	0.291	0.142
CRM	1.311	0.0069	0.161	0.111	0.0161	0.0138	0.194	0.652	0.228	0.808	0.302	0.14
SD	0.0241	0.000292	0.000667	0.00122	0.000639	0.00347	0.00235	0.00422	0.00161	0.00224	0.00264	0.00173

Sample Data – BSC/ SS 410 – Low Alloy Steel

ID	C	Si	P	S	V	Cr	Mn	Ni	Cu	Mo
Run 1	0.392	0.966	0.0755	0.0565	0.373	1.36	0.224	2.18	0.366	0.368
Run 2	0.396	0.960	0.0727	0.0551	0.368	1.36	0.223	2.18	0.365	0.361
Run 3	0.393	0.958	0.0725	0.0520	0.365	1.35	0.221	2.18	0.368	0.361
AVG	0.394	0.961	0.0736	0.0545	0.369	1.36	0.222	2.18	0.367	0.363
CRM	0.39	0.95	0.072	0.055	0.37	1.34	0.22	2.16	0.36	0.36
SD	0.00185	0.00399	0.0017	0.0023	0.00417	0.00533	0.00151	0.00291	0.00125	0.00399

Analysis results obtained from **Certified Reference Samples** using the **Fe-8020** calibration for low alloy steel samples on a production ARTUS 8 instrument. Results given in mass-%.

Data provided is a typical representation of ARTUS 8 performance, individual instrument performance may vary.

FE-8110 – CHROME STEELS CALIBRATION

Sample Data – BCS/ SS 473 – Chrome Steel

ID	C	Si	P	S	Cr	Mn	Mo
Run 1	0.169	0.603	0.0198	0.0271	9.10	0.492	0.942
Run 2	0.165	0.597	0.0182	0.0258	9.03	0.486	0.942
Run 3	0.173	0.601	0.0186	0.0281	9.10	0.491	0.946
Run 4	0.178	0.601	0.0197	0.0282	9.10	0.492	0.948
Run 5	0.167	0.611	0.0206	0.0303	9.11	0.494	0.941
AVG	0.170	0.603	0.0194	0.0279	9.09	0.491	0.944
CRM	0.172	0.604	0.019	0.03	9.06	0.494	0.95
SD	0.00542	0.00513	0.000993	0.00167	0.0305	0.00322	0.00307

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Sample Data – BCS/ SS 475 - Chrome Steel

ID	C	Si	Cr	Mn	Co	Ni	Cu	Nb
Run 1	0.0395	0.212	14.1	0.901	0.226	5.70	1.97	0.235
Run 2	0.0358	0.213	14.1	0.899	0.230	5.72	1.97	0.234
Run 3	0.0329	0.214	14.1	0.903	0.230	5.70	1.98	0.235
AVG	0.0361	0.213	14.1	0.901	0.229	5.71	1.97	0.235
CRM	0.035	0.21	14.14	0.89	0.22	5.7	1.94	0.22
SD	0.00331	0.00118	0.0122	0.0022	0.00271	0.0107	0.00391	0.000518

Analysis results obtained from **Certified Reference Samples** using the **Fe-8110** calibration for Chrome Steels on a production ARTUS 8 instrument. Results given in mass-%.

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FE-8120 – CHROME NICKEL STEELS AND STAINLESS STEEL CALIBRATION

Sample Data – BS 86F - RA330 Grade Stainless Steel

ID	C	N	Si	Cr	Mn	Ni	Cu	Mo
Run 1	0.0477	0.0340	1.23	18.6	1.29	35.1	0.220	0.241
Run 2	0.0472	0.0345	1.23	18.7	1.29	35.1	0.217	0.242
Run 3	0.0463	0.0331	1.23	18.6	1.27	35.1	0.215	0.236
AVG	0.0470	0.0339	1.23	18.6	1.28	35.1	0.217	0.239
CRM	0.048	0.035	1.22	18.61	1.3	35	0.22	0.24
SD	0.000684	0.000685	0.00283	0.0412	0.0104	0.0356	0.00265	0.00329

Sample Data – BCS/ SS 475 - Stainless Steel

ID	C	Si	Cr	Mn	Co	Ni	Cu	Nb
Run 1	0.0395	0.212	14.1	0.901	0.226	5.70	1.97	0.235
Run 2	0.0358	0.213	14.1	0.899	0.230	5.72	1.97	0.234
Run 3	0.0329	0.214	14.1	0.903	0.230	5.70	1.98	0.235
AVG	0.0361	0.213	14.1	0.901	0.229	5.71	1.97	0.235
CRM	0.035	0.21	14.14	0.89	0.22	5.7	1.94	0.22
SD	0.00331	0.00118	0.0122	0.0022	0.00271	0.0107	0.00391	0.000518

Analysis results obtained from **Certified Reference Sample** using the **Fe-8120** calibration for Cr-Ni Steels on a production ARTUS 8 instrument. Results given in mass-%.

Data provided is a typical representation of ARTUS 8 performance, individual instrument performance may vary.

FE-8140 – TOOL STEELS CALIBRATION

Sample Data – SS 484 – High Speed Tool Steel

ID	C	Si	V	Cr	Mn	Co	Mo	W
Run 1	0.750	0.180	1.00	4.95	0.208	10.0	1.05	20.1
Run 2	0.761	0.181	1.02	4.97	0.210	10.1	1.06	20.0
Run 3	0.727	0.182	0.984	4.91	0.210	10.1	1.03	19.9
Run 4	0.759	0.182	1.00	4.95	0.209	10.2	1.06	20.2
AVG	0.749	0.181	1.00	4.95	0.209	10.1	1.05	20.1
CRM	0.76	0.18	1.05	4.98	0.21	10.1	1.08	20.1
SD	0.0154	0.001	0.0134	0.0271	0.00113	0.0558	0.0156	0.166

Sample Data – SS 487 – High Speed Tool Steel

ID	C	Si	V	Cr	Mn	Co	Mo	W
1#	0.997	0.183	1.13	3.89	0.264	7.91	9.43	1.82
2#	1.01	0.186	1.15	3.89	0.264	7.85	9.56	1.84
3#	1.02	0.185	1.15	3.88	0.263	7.86	9.54	1.83
4#	1.01	0.183	1.17	3.89	0.264	7.91	9.49	1.82
5#	0.967	0.183	1.11	3.83	0.262	7.97	9.10	1.77
AVG	1.00	0.184	1.14	3.88	0.264	7.90	9.42	1.82
CRM	1.02	0.18	1.14	3.91	0.26	7.95	9.41	1.8
SD	0.0201	0.00146	0.0243	0.028	0.000882	0.0459	0.185	0.0254

Analysis results obtained from **Certified Reference Samples** using the **Fe-8140** calibration for Tool Steels on a production ARTUS 8 instrument. Results given in mass-%.

Data provided is a typical representation of ARTUS 8 performance, individual instrument performance may vary.

FE-8150 – MANGANESE STEELS CALIBRATION

Sample Data – SS 493 – 12% Manganese Steel

ID	C	Si	Cr	Mn	Ni	Mo
Run 1	0.866	0.771	0.180	11.8	2.99	0.938
Run 2	0.885	0.789	0.179	11.7	2.99	0.964
Run 3	0.878	0.774	0.182	11.8	2.98	0.942
AVG	0.877	0.778	0.180	11.7	2.99	0.948
CRM	0.873	0.782	0.178	11.73	3.01	0.955
SD	0.00955	0.00995	0.00139	0.0614	0.00351	0.0137

Sample Data – IMZ 199 – High Manganese Steel

ID	C	Al	Si	Cr	Mn	Cu	Mo
Run 1	0.899	8.64	0.295	0.136	28.7	0.124	0.439
Run 2	0.916	8.54	0.302	0.136	28.6	0.124	0.447
Run 3	0.897	8.66	0.293	0.136	28.6	0.123	0.442
AVG	0.904	8.62	0.296	0.136	28.6	0.124	0.443
CRM	0.9	8.65	0.294	0.134	28.74	0.11	0.43
SD	0.0108	0.0648	0.00475	0.000235	0.05	0.000541	0.00373

Analysis results obtained from **Certified Reference Samples** using the **Fe-8150** calibration for Manganese Steels on a production ARTUS 8 instrument. Results given in mass-%.

Data provided is a typical representation of ARTUS 8 performance, individual instrument performance may vary.

FE-8510 – CAST IRONS CALIBRATION

Sample Data – CKD 242 – Low Alloy Cast Iron

ID	C	Al	Si	P	S	Ti	V	Cr	Cu	Mo	Pb
Run 1	2.24	0.0742	2.84	0.0311	0.0297	0.310	0.443	0.0265	0.0399	1.21	0.0231
Run 2	2.25	0.0755	2.86	0.0327	0.0333	0.308	0.444	0.0264	0.0395	1.19	0.0209
Run 3	2.24	0.0738	2.84	0.0330	0.0315	0.308	0.441	0.0258	0.0398	1.21	0.0208
AVG	2.24	0.0745	2.85	0.0323	0.0315	0.308	0.443	0.0262	0.0397	1.2	0.0216
CRM	2.21	0.075	2.88	0.033	0.024	0.31	0.43	0.026	0.04	1.2	0.02
SD	0.00728	0.000907	0.0133	0.00103	0.00182	0.00102	0.00129	0.000346	0.000186	0.012	0.00131

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Sample Data – CKD 248 – Low Alloy Cast Iron

ID	B	C	Mg	Al	Si	Ti	V	Cr	Mn	Co	Ni	Cu	As	Se	Zr	Sn	Ce
Run 1	0.0316	3.48	0.0546	0.0342	1.74	0.0946	0.157	0.039	0.22	0.0263	0.693	0.105	0.0215	0.0132	0.0107	0.0177	0.0327
Run 2	0.0312	3.46	0.0471	0.0365	1.76	0.0916	0.153	0.0387	0.219	0.0262	0.685	0.107	0.0179	0.0112	0.0107	0.0165	0.0308
Run 3	0.0307	3.41	0.0486	0.0342	1.74	0.0929	0.152	0.0385	0.217	0.0258	0.69	0.107	0.0192	0.0121	0.0107	0.017	0.0315
Run 4	0.0312	3.45	0.0455	0.0342	1.75	0.0916	0.152	0.0393	0.218	0.0254	0.684	0.106	0.0163	0.0113	0.0108	0.017	0.0306
AVG	0.0312	3.45	0.049	0.0348	1.75	0.0927	0.154	0.0389	0.218	0.0259	0.688	0.106	0.0188	0.012	0.0107	0.017	0.0314
CRM	0.033	3.42	0.049	0.03	1.75	0.096	0.152	0.039	0.218	0.024	0.69	0.116	0.017	0.011	0.01	0.016	0.035
SD	0.000379	0.0292	0.00399	0.00115	0.00609	0.0014	0.00218	0.000325	0.00118	0.00045	0.00413	0.000754	0.00219	0.000964	0.000058	0.00051	0.000936

FE-8510 – CAST IRONS CALIBRATION

Sample Data – NCRM 2 – Cast Irons

ID	C	Si	S	Cr	Mn	Ni	Cu	Mo
Run 1	2.92	1.78	0.124	2.02	0.950	2.11	1.62	0.379
Run 2	2.89	1.78	0.143	2.02	0.948	2.16	1.61	0.376
Run 3	2.91	1.78	0.121	2.02	0.946	2.13	1.62	0.368
AVG	2.91	1.78	0.129	2.02	0.948	2.13	1.62	0.375
CRM	2.97	1.8	0.12	1.99	0.95	2.1	1.67	0.36
SD	0.0144	0.00355	0.0119	0.00318	0.00232	0.0264	0.00266	0.00589

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Analysis results obtained from **Certified Reference Samples** using the **Fe-8510** calibration for Cast Irons on a production ARTUS 8 instrument. Results given in mass-%.

Data provided is a typical representation of ARTUS 8 performance, individual instrument performance may vary.

FE-8520 – CHROME CAST IRONS CALIBRATION

Sample Data – FCRNi 3 – High Chromium Cast Irons

ID	C	Si	S	Cr	Mn	Ni
Run 1	2.74	0.710	0.0105	31.5	0.470	11.0
Run 2	2.72	0.706	0.0103	31.5	0.470	11.1
Run 3	2.81	0.697	0.0101	31.9	0.470	10.9
Run 4	2.72	0.709	0.01	31.4	0.472	11.1
AVG	2.75	0.706	0.0102	31.6	0.471	11
CRM	2.75	0.71	0.011	31.65	0.48	11.05
SD	0.0395	0.00556	0.0002	0.215	0.00107	0.0819

Sample Data – CRRM 5 – High Chromium Cast Irons

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ID	C	Si	S	Cr	Mn	Ni	Cu
Run 1	3.56	0.387	0.0101	30.0	0.308	0.273	0.227
Run 2	3.52	0.386	0.0104	30.0	0.310	0.250	0.228
Run 3	3.53	0.381	0.0105	30.2	0.309	0.251	0.227
Run 4	3.54	0.386	0.0100	29.9	0.311	0.250	0.225
AVG	3.54	0.385	0.0103	30.0	0.311	0.256	0.227
CRM	3.57	0.39	0.013	30.3	0.3	0.26	0.21
SD	0.0161	0.00283	0.000241	0.143	0.00122	0.0114	0.00165

Analysis results obtained from **Certified Reference Samples** using the **Fe-8520** calibration for Chrome Cast Irons on a production ARTUS 8 instrument. Results given in mass-%.

Data provided is a typical representation of ARTUS 8 performance, individual instrument performance may vary.

FE-8530 – NICKEL CAST IRONS CALIBRATION

Sample Data – NIRM 1 – Austenitic (Ni-Resist) Cast Irons

ID	C	Mg	Si	P	Cr	Mn	Ni	Cu	Ce
Run 1	2.04	0.0405	3.10	0.0654	0.251	6.73	11.9	0.200	0.0174
Run 2	2.01	0.0404	3.11	0.0635	0.242	6.72	11.9	0.200	0.0172
Run 3	2.05	0.0434	3.15	0.0653	0.234	6.70	11.9	0.200	0.0182
Run 4	2.02	0.0426	3.12	0.0630	0.230	6.72	11.9	0.201	0.0178
AVG	2.03	0.0417	3.12	0.0643	0.239	6.72	11.9	0.200	0.0177
CRM	2.05	0.04	3.15	0.065	0.246	6.72	11.8	0.2	0.018
SD	0.0168	0.00151	0.0207	0.00119	0.00906	0.0109	0.0123	0.00061	0.000411

Sample Data – NIRM 8 – Austenitic (Ni-Resist) Cast Irons

ID	C	Mg	Si	P	Cr	Mn	Ni	Cu	Mo	Ce
Run 1	1.41	0.0510	5.40	0.107	2.44	1.55	35.4	0.196	0.741	0.0115
Run 2	1.43	0.0445	5.45	0.110	2.42	1.55	35.4	0.196	0.745	0.0115
Run 3	1.42	0.0454	5.43	0.107	2.42	1.56	35.4	0.197	0.730	0.0115
AVG	1.42	0.047	5.43	0.108	2.43	1.55	35.4	0.196	0.739	0.0115
CRM	1.41	0.046	5.47	0.096	2.45	1.56	35.4	0.2	0.73	0.012
SD	0.0139	0.00352	0.0213	0.00168	0.0105	0.00439	0.0351	0.000418	0.00779	0.000036

Analysis results obtained from **Certified Reference Samples** using the **Fe-8530** calibration for Nickel Cast Iron samples on a production ARTUS 8 instrument. Results given in mass-%.

Data provided is a typical representation of ARTUS 8 performance, individual instrument performance may vary.

FE-8540 – CHROME NICKEL CAST IRONS CALIBRATION

Sample Data – FCRNi 3 – High Chromium and Nickel Cast Irons

ID	C	Si	S	Cr	Mn	Ni
Run 1	2.74	0.710	0.0105	31.5	0.470	11.0
Run 2	2.72	0.706	0.0103	31.5	0.470	11.1
Run 3	2.81	0.697	0.0101	31.9	0.470	10.9
Run 4	2.72	0.709	0.0100	31.4	0.472	11.1
AVG	2.75	0.706	0.0102	31.6	0.471	11
CRM	2.75	0.71	0.011	31.65	0.48	11.05
SD	0.0395	0.00556	0.0002	0.215	0.00107	0.0819

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Sample Data – NH 8.1 – High Chromium and Nickel Cast Irons

ID	C	Si	P	S	Cr	Mn	Ni	Cu	Mo
Run 1	3.04	0.800	0.0584	0.0663	5.05	0.572	8.12	0.0612	0.148
Run 2	3.04	0.793	0.0567	0.0678	5.07	0.576	8.12	0.0619	0.150
Run 3	3.05	0.798	0.0576	0.0642	5.04	0.577	8.12	0.0626	0.151
AVG	3.04	0.797	0.0576	0.0661	5.05	0.575	8.12	0.0619	0.150
CRM	3.02	0.8	0.052	0.067	5.03	0.57	8.16	0.065	0.15
SD	0.00275	0.0035	0.000841	0.00181	0.0122	0.00265	0.00474	0.000675	0.00135

Analysis results obtained from **Certified Reference Samples** using the **Fe-8540** calibration for Chrome Nickel Cast Irons on a production ARTUS 8 instrument. Results given in mass-%.

Data provided is a typical representation of ARTUS 8 performance, individual instrument performance may vary.

FE-8035 – FREE CUTTING STEEL (LOW ALLOY) CALIBRATION

Sample Data –BS 74E– Free Cutting Steel

ID	C	P	S	Pb
Run 1	0.239	0.0669	0.325	0.238
Run 2	0.238	0.0632	0.311	0.206
Run 3	0.247	0.0718	0.369	0.257
AVG	0.242	0.0673	0.323	0.234
CRM	0.24	0.065	0.308	0.234
SD	0.00506	0.00432	0.0065	0.0256

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Analysis results obtained from **Certified Reference Sample** using the **Fe-8035** calibration for Free Cutting Steel (Low Alloy) on a production ARTUS 8 instrument. Results given in mass-%.

Data provided is a typical representation of ARTUS 8 performance, individual instrument performance may vary.