

Cast Iron

Reference Materials and Setting-up Samples



Excellence through measurement



For further information, or if you require substances or materials not currently listed please contact one of our local sales offices.

Brazil

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Email: bz@lgcstandards.com

Bulgaria

Tel: +359 (0)2 971 4955

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Territories served:

Bulgaria, Macedonia (FYRM)

China

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Email: infochina@lgcstandards.com

Territories served:

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Czech Republic

Tel: +420 543 529 205

Email: cz@lgcstandards.com

Territories served:

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Email: fr@lgcstandards.com

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Email: hu@lgcstandards.com

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Tel: +91 (0)80 6701 2000

Email: in@lgcpromochem.com

Territories served:

Bangladesh, India, Nepal, Pakistan

Ireland

Tel: +44 (0)28 7930 0078

Email: ire@lgcstandards.com

Italy

Tel: +39 02 2412 6830

Email: it@lgcstandards.com

Netherlands

Tel: +31 (0)643 775 422

Email: nl@lgcstandards.com

Poland

Tel: +48 (0)22 751 31 40

Email: pl@lgcstandards.com

Territories served:

Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Lithuania, Poland, Slovakia, Tajikistan, Turkmenistan, Ukraine, Uzbekistan

Romania

Tel: +40 364 116890

Email: ro@lgcstandards.com

Territories served:

Moldova, Romania, Serbia

Russia

Tel: +7 (812)935 1180

Email: ru@lgcstandards.com

South Africa

Tel: +27 (0)11 466 4321

Email: info@industrialanalytical.co.za

Spain

Tel: +34 (0)93 308 4181

Email: es@lgcstandards.com

Territories served:

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Sweden

Tel: +46 (0)33 20 90 60

Email: se@lgcstandards.com

Territories served:

Denmark, Estonia, Iceland, Latvia, Norway, Sweden

Turkey

Tel: +90 216 360 0870

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UAE

Tel: +971 555 570 664

Email: uae@lgcstandards.com

Territories served:

Egypt, Sudan, UAE, Yemen

United Kingdom

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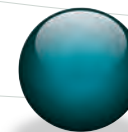
Territories served:

Australia, Brunei, Channel Islands, Ireland, Kenya, Kuwait, Malta, New Zealand, Philippines, Saudi Arabia, South Africa, United Kingdom

USA

Tel: +44 (0)20 8943 8480

Email: lgcusa@lgcstandards.com





Introduction



Excellence through measurement

Sample Grinder HK150

Manual pendulum grinder for fast grinding of iron and steel samples

Grinding Machine HK150

- Compact desktop machine, dustproof, covered working place, halogen spot light
- Reproducible flat surface, easily operated pendulum arm in taper bearings
- Simple and reliable machine construction
- Specially suitable for hard materials, like white cast irons
- Adaptable to various qualities by special stone cup wheels
- Vertical moving of grinding head by handwheel with 0.1 mm scale
- Clean operation by attaching an external dust exhauster at rearside adapter



Technical Data and Accessory

Technical Data

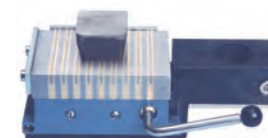
Grinder motor	3 x 400 V/50 Hz, 1.1 kW alt.: 1 x 220 V/60 Hz alt.: 3 x 220 V/60 Hz
Revolutions	2800 rpm/3440 rpm
Lighting	12 V/20 W halogen
Grinding stone	150 x 80 x 32 mm
Grinding height, min.	4 mm
Grinding height, max.	90 mm
Mass	approx. 100 kg
Dimensions	400 x 400 x 680 mm



Cup wheel, open corundum stone

Standard Accessory

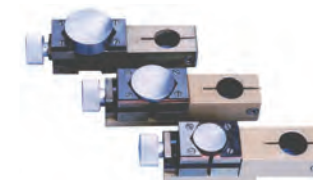
Vice for sample holding
Grinding stone, tool for stone change
Dressing bar for grinding stone
Transport handles



Magnetic plate with quick exchange arm

Optional Accessory

Magnetic vice with handle and quick exchange arm
Special vices – bigger vice for max. diam. 58 mm
Hardened vice jaws: 3 mm, 9 mm (regular) and 20 mm
Copper cooling blocks
corundum/silicon carbide cup wheels 150 x 80 x 32 mm
Spare parts kit: 2 bellows, safety glass, halogen lamp



Vices for different sample diameters

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Introduction

About LGC and LGC Standards

LGC Standards provides the widest range of reference materials from a single supplier. We work closely with the leading manufacturers to provide laboratories worldwide with improved access to reference materials, covering an increasingly large range of parameters. Our global network of offices combined with our extensive technical experience in reference materials allows LGC Standards to work in partnership with our customers to provide fast delivery, sound technical advice and deal with complex import and export regulations.

LGC Standards is part of LGC, an established leader in laboratory services, measurement standards, reference materials and proficiency testing. LGC's Science and Technology Division acts as the designated UK National Measurement Institute (NMI) for chemical and bioanalytical measurement, and has a long history in the development and validation of analytical methods and the production of reference materials.

LGC's Science and Technology Division is accredited to ISO Guide 34 (General requirements for the competence of reference materials producers) for the production of reference materials. In its role as the NMI, LGC serves on the International Organisation for Standardisation (ISO) Committee for Reference Materials (REMCO), which aims to carry out and encourage a broad international effort for the harmonization, production and application of certified reference materials (CRMs).

Breitländer GmbH has been a specialist company in reference materials since 1972 and was acquired by LGC Standards in 2007, joining forces to offer the most extensive range of certified reference materials and standards. Breitländer also brought high quality sample preparation equipment to the portfolio.

Industrial Analytical (Pty) Ltd. was formed in 1988 specifically to meet the ever-increasing demand in industry to supply Reference Materials for verifying analytical results and proving quality of characterization. Now the single largest supplier of Certified Reference Materials, not only in the Republic of South Africa, but also in the African continent as a whole, Industrial Analytical was acquired by LGC Standards in 2011.

This catalogue

This catalogue features certified reference materials and setting-up samples for the cast iron industry. It provides an updated and relevant listing of the available materials on the market. The products are listed in groups according to type and manufacturer. An index of all products is included in the back of the catalogue, listed by name and catalogue number.

The analytical data is given in mass percentage. They have to be considered as typical or pilot values, the proper values are to be found in the certificate only, supplied together with the sample. Values in brackets () are not certified and listed for information only. Reference materials can only be produced in limited numbers, mostly due to homogeneity reasons, thus follow-up melts will differ slightly in composition and may differ in dimension between batches. In case you need an exact value or more information on manufacture, material property, methods, uncertainties, etc. prior to selection, do not hesitate to ask for more information.

Producers of reference materials

This catalogue brings together products from a wide variety of sources. These include certified reference materials from National Measurement Institutes and also reference materials and setting-up samples from many different producers. Most products are supplied with a certificate of analysis although the layout and format of the certificates will vary according to the producer. Setting-up samples come with an information sheet only.

The use of reference materials

Reference materials are instrumental in ensuring the reliability of analytical measurements and so ensuring the use of high quality data as the basis of decision making. When choosing a matrix reference material for a particular application the analyst should consider the following factors before selecting the material:

- Matrix match and potential interference
- Analytes
- Measurement range
- Measurement uncertainties
- Certification procedures used by the producer
- Documentation supplied with the material (e.g. certification or report)

Certified Reference Material (CRM)

Reference material, accompanied by a certificate, one or more of whose property values are certified by a procedure which establishes its traceability to an accurate realization of the unit in which the property values are expressed., and for which each certified value is accompanied by an uncertainty at a stated level of confidence. The CRMs are certified by a recognized certifying organization using approved certification procedures of certification as instructed in ISO Guide 35:2006 "Reference Materials – General and statistical principles for certification". A CRM is the highest order to which an analytical reference material can be elevated because of the traceability to SI units and because of the attributed confidence in the company or organization which produced the material.

Reference Material (RM)

A material or substance one or more of whose property values are sufficiently homogeneous and well established to be used for calibration of an apparatus, the assessment of a measurement method or for assigning values to materials. The RMs usually have been through interlaboratory testing using many analysts and are supplied with a certificate of analysis but do not strictly follow all procedures of certification as indicated in ISO Guide 35.

Setting-Up Samples (SUS)

Materials of minimum inhomogeneity to be used for monitoring or adjustment of the analytical signal of the instruments. These materials are assigned values during calibration with CRMs and RMs, thus they do not have a certified analysis, but a guiding one only. Such standards are also referred to as “re-calibration samples”, “drift control samples” and “monitor samples”.

General ordering information

Prices and delivery procedures are available from your local LGC Standards sales office.

Unless otherwise agreed in advance and in writing, orders are accepted only against LGC Standards standard terms and conditions of sale.

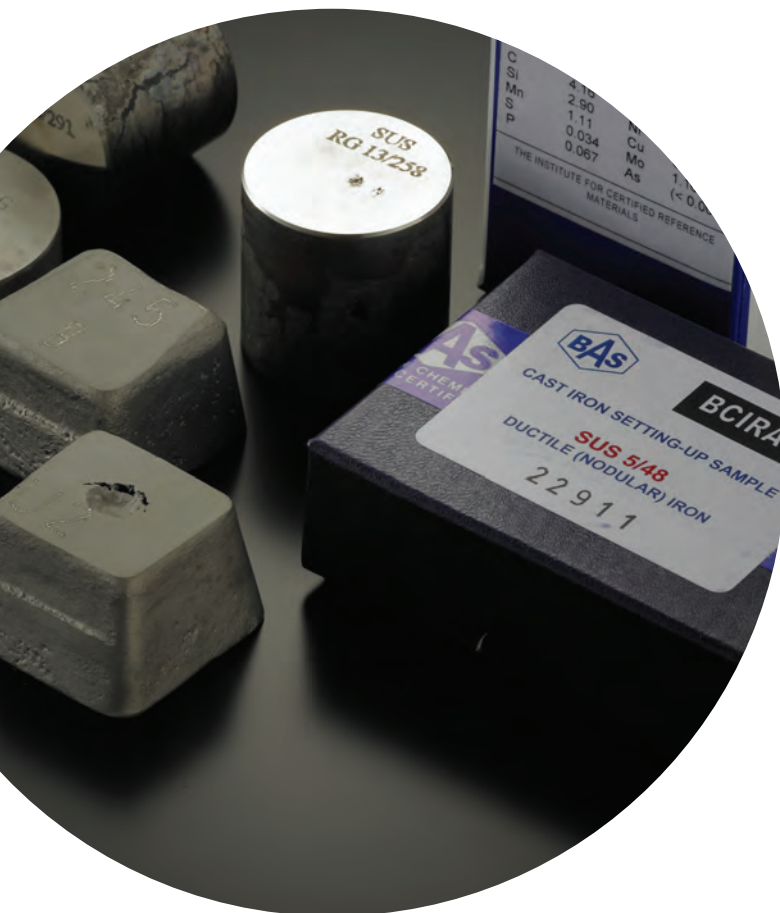
LGC Standards technical staff are available to advice on the use and suitability of a particular product. Customers requiring assistance with the use or application of a particular material should contact their local LGC Standards office, contact details are provided on the back of this catalogue.

For any additional information please visit www.lgcstandards.com or www.breitlander.com.

More catalogues

LGC Standards will be releasing additional catalogues during 2012 to cover the rest of our extensive range of reference materials and standards including:

- Copper base
- Aluminum base
- Geological
- Industrial
- Non-ferrous base
- Precious metals
- Steel
- XRF Glass
- Mechanical testing
- Combustion and wet chemistry analysis



Certified Reference Materials Solid Discs and Blocks



Excellence through measurement

Proficiency Testing

LGC Standards Proficiency Testing (PT) is an international provider of proficiency schemes, accredited to ISO/IEC 17043.

The company operates 39 proficiency testing schemes serving over 7,000 laboratories in more than 140 countries worldwide, helping our customers to achieve excellence through measurement.

Benefits of participation

- A truly independent assessment of measurement quality, which enables laboratories to compare their analytical capabilities with peer laboratories
- Rapid round cycle – from despatch to report in 4 weeks
- The results obtained in proficiency testing are recognised as a demonstration of laboratory quality by a range of 'third parties', customers, regulators and accreditation bodies

The industry leading schemes

AQUACHECK – Water chemistry

Wide range of real, synthetic and simulated samples for the analysis of organic, inorganic and water quality parameters, samples for the analysis of ecotoxicological and radiochemical parameters

CONTEST – Contaminated land

Comprehensive range of standard solutions, soil extracts and soil materials for the analysis of organic and inorganic parameters

STACKS – Stack emissions

Stack (impinger) solutions containing a range of analytes at routinely determined concentrations and filter samples for elements specified in EN 14385



For further information contact: LGC Standards Proficiency Testing

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Cast Iron, Universal Set

Code	Product																		Unit
SPL-CZ02033-1A	(a)	CRM	Cast Iron, ø40x18mm																disc
SPL-CZ02033-2B	(b)	CRM	Cast Iron, ø40x18mm																disc
SPL-CZ02033-3A	(c)	CRM	Cast Iron, ø40x18mm																disc
SPL-CZ02033-4A	(d)	CRM	Cast Iron, ø40x18mm																disc
SPL-CZ02033-5A	(e)	CRM	Cast Iron, ø40x18mm																disc
SPL-CZ02033-6A	(f)	CRM	Cast Iron, ø40x18mm																disc
SPL-CZ02033-7A	(g)	CRM	Cast Iron, ø40x18mm																disc
SPL-CZ02033-8A	(h)	CRM	Cast Iron, ø40x18mm																disc
			Al	B	Bi	C	Ce	Co	Cr	Cu	Mg	Mn	Mo	Ni	P	Pb	S	Sb	
	(a)		0.048	0.0004	0.005	3.26	0.018		0.018	0.015	0.052	0.858	0.119	0.233	0.044		0.011		
	(b)		0.026	0.0100		3.54	(0.03)	0.023	0.051	0.69	0.030	0.098	0.008	0.634	0.049		(0.01)	0.017	
	(c)		0.025	0.0053	0.008	3.72	0.013	0.007	0.205	0.406	0.013	0.333	0.514	0.050	0.022	0.007	0.011		
	(d)		0.015			4.18		0.002	0.040	0.081		0.236	0.002	0.056	0.053	0.006	0.034		
	(e)		0.060			2.30			0.054	0.014		0.804	0.100	0.096	0.035		0.100		
	(f)		0.022			3.14			1.40	0.225		1.22	0.005	0.023	0.077		0.032	0.056	
	(g)		0.029			3.11		0.044	0.479	0.022		0.321	1.07	1.29	0.043		0.019		
	(h)		0.015		0.017	3.49			0.126	0.116		0.408	0.026	0.094	0.169	0.006	0.073	0.001	
			Si	Sn	Ti	V	W	Zn											
	(a)		2.33	0.035	0.039	0.018	0.016	0.001											
	(b)		1.28	0.021	0.099	0.059	(0.003)	0.013											
	(c)		2.30	0.008	0.006	0.010													
	(d)		0.71	0.007	0.015	0.004		0.007											
	(e)		1.26		0.008	0.005													
	(f)		3.37	0.119	0.066	0.300													
	(g)		1.83		0.027	0.005	0.022												
	(h)		2.20	0.040	0.027	0.034	0.011												

Cast Iron, Top sellers

Code	Product																	Unit		
CKD-241B	(a)	CRM	Cast Iron, complex alloyed, 38x38x23 mm																	block
CKD-242A	(b)	CRM	Cast Iron, complex alloyed, 38x38x23 mm																	block
CKD-242B	(c)	CRM	Cast Iron, complex alloyed, 38x38x23 mm																	block
CKD-244C	(d)	CRM	Cast Iron, complex alloyed, 38x38x23 mm																	block
CKD-245A	(e)	CRM	Cast Iron, complex alloyed, 38x38x23 mm																	block
CKD-245B	(f)	CRM	Cast Iron, complex alloyed, 38x38x23 mm																	block
CKD-246B	(g)	CRM	Cast Iron, complex alloyed, 38x38x23 mm																	block
			Al	As	B	Bi	C	Ce	Co	Cr	Cu	Fe	La	Mg	Mn	Mo	N	Nb	Ni	
	(a)		0.003	0.002	0.001		1.84		0.004	0.683	0.011	(93.2)			0.06	0.61	0.0053	0.003	0.021	
	(b)		0.036	0.015	0.008	(0.015)	1.84		0.002	0.029	0.055	(92.9)			0.06	1.13		0.013	0.039	
	(c)		0.042	0.009	0.005	0.02	2.06		0.004	0.031	0.04	(92.6)			0.189	1.21	0.0092	0.009	0.022	
	(d)		0.071	0.043	0.086		2.57	0.017	0.05	0.248	0.301	(92.9)	0.008	0.031	0.715	0.059		0.006	0.344	
	(e)		0.019	0.002	0.007	0.008	2.94		0.003	0.166	0.076	(92.7)		0.003	1.38	0.114		(0.001)	0.161	
	(f)		0.038	0.006	0.003	0.009	2.95		0.007	0.197	0.081	(92.5)		0.003	1.38	0.115		0.029	0.194	
	(g)		0.101	0.003		(0.001)	2.73	0.007	0.012	1.16	1.39	(92.6)	0.003	0.016	0.354	0.009		(0.001)	0.065	
			P	Pb	S	Sb	Se	Si	Sn	Te	Ti	V	W	Zn	Zr					
	(a)		0.007	0.001	0.123	0.139		3.15	(0.003)		0.001	0.08	0.001							
	(b)		0.039	(0.012)	0.036	0.007		3.06	0.01	(0.08)	0.19	0.37	(0.007)							
	(c)		0.044	0.027	0.028	0.005	(0.002)	2.81	0.01	(0.031)	0.28	0.46	(0.002)							
	(d)		0.027	0.003	0.012	0.004		2.15	0.175		0.034	0.002	0.052	0.027	0.037					
	(e)		0.41	0.015	0.039	0.05	(0.036)	1.58	0.076	(0.018)	0.087	0.073	0.021		0.003					
	(f)		0.42	0.020	0.035	0.052	(0.029)	1.59	0.076	(0.017)	0.110	0.055	0.020		0.004					
	(g)		0.66	(0.002)	0.02	0.004		0.76	0.002		0.014	0.013	(0.011)							

Code	Product						Unit
BAS-SCRM 651/4	(a)	CRM	Malleable Irons, 48x42x12 mm				block
BAS-SCRM 652/4	(b)	CRM	Malleable Irons, 48x42x12 mm				block
BAS-SCRM 653/4	(c)	CRM	Malleable Irons, 48x42x12 mm				block
BAS-SCRM 654/4	(d)	CRM	Malleable Irons, 48x42x12 mm				block
BAS-SCRM 655/4	(e)	CRM	Malleable Irons, 48x42x12 mm				block
		C	Cr	Mn	P	S	Si
	(a)	2.66	(1)	0.92	0.249	0.1	0.541
	(b)	2.34	(1)	1.19	0.071	0.129	0.878
	(c)	3.1	(1)	0.11	0.023	0.05	1.22
	(d)	2.28	(1)	0.74	0.13	0.17	1.635
	(e)	1.9	(1)	0.44	0.18	0.076	2.11
BAS-SCRM 656/8	(a)	CRM	Low Phosphorus Engineering Irons, 48x42x12 mm				block
BAS-SCRM 657/8	(b)	CRM	Low Phosphorus Engineering Irons, 48x42x12 mm				block
BAS-SCRM 658/10	(c)	CRM	Low Phosphorus Engineering Irons, 48x42x12 mm				block
BAS-SCRM 659/8	(d)	CRM	Low Phosphorus Engineering Irons, 48x42x12 mm				block
BAS-SCRM 660/9	(e)	CRM	Low Phosphorus Engineering Irons, 48x42x12 mm				block
		C	Cr	Mn	P	S	Si
	(a)	2.61	(1)	0.823	0.062	0.107	2.59
	(b)	2.93	(1)	0.062	0.1	0.024	3.02
	(c)	3.338	(1)	0.532	0.187	0.074	1.943
	(d)	3.96	(1)	1	0.025	0.039	1.4
	(e)	3.461		0.406	0.153	0.105	1.699
BAS-SCRM 661/4	(a)	CRM	High Phosphorus Engineering Irons, 48x42x12 mm				block
BAS-SCRM 662/4	(b)	CRM	High Phosphorus Engineering Irons, 48x42x12 mm				block
BAS-SCRM 663/4	(c)	CRM	High Phosphorus Engineering Irons, 48x42x12 mm				block
BAS-SCRM 664/4	(d)	CRM	High Phosphorus Engineering Irons, 48x42x12 mm				block
BAS-SCRM 665/4	(e)	CRM	High Phosphorus Engineering Irons, 48x42x12 mm				block
		C	Cr	Mn	P	S	Si
	(a)	2.56	(1)	0.3	0.84	0.068	2.96
	(b)	2.95	(1)	0.76	0.3	0.087	2.33
	(c)	3.28	(1)	1.04	0.13	0.024	1.97
	(d)	2.84	(1)	0.57	0.44	0.112	2.71
	(e)	3.25	(1)	0.24	1.09	0.053	1.66

Cast Iron, Top sellers

Code	Product												Unit
BAS-SCRM 666/11	(a)	CRM	Ductile (Nodular) Irons, 48x42x12 mm										block
BAS-SCRM 667/12	(b)	CRM	Ductile (Nodular) Irons, 48x42x12 mm										block
BAS-SCRM 668/12	(c)	CRM	Ductile (Nodular) Irons, 48x42x12 mm										block
BAS-SCRM 669/12	(d)	CRM	Ductile (Nodular) Irons, 48x42x12 mm										block
BAS-SCRM 669/13	(e)	CRM	Ductile (Nodular) Iron, 48x42x12 mm										block
BAS-SCRM 670/15	(f)	CRM	Ductile (Nodular) Irons, 48x42x12 mm										block
			C	Ce	Cr	Cu	Mg	Mn	Mo	Ni	Si	Ti	V
	(a)		3.371	0.0035	0.129	0.0506	0.073	0.065	0.107	1.648	1.77	0.086	0.0549
	(b)		3.06	0.081	0.298	0.55	0.04	0.236	0.0063	1.298	2.966	0.0029	0.096
	(c)		3.740	0.023	0.999	0.655	0.0093	0.701	0.0206	0.105	1.426	0.0817	0.193
	(d)		3.009	0.0415	0.203	0.235	0.0203	0.563	0.061	0.445	2.634	0.0555	0.505
	(e)		3.17	0.052	0.205	0.2141	0.0267	0.584	0.0586	0.509	2.523	0.0549	0.502
	(f)		3.711	0.0085	0.497	0.923	0.041	0.354		0.889	2.155	0.1096	0.0249

Cast Iron, Low Alloyed and Unalloyed

Code	Product																		Unit		
SEI-KTC-12/1-01	(a)	CRM	Plain Cast Iron ø34x5mm (Set of 10 only)																		disc
SEI-KTC-12/1-02	(b)	CRM	Plain Cast Iron ø34x5mm (Set of 10 only)																		disc
SEI-KTC-12/1-03	(c)	CRM	Plain Cast Iron ø34x5mm (Set of 10 only)																		disc
SEI-KTC-12/1-04	(d)	CRM	Plain Cast Iron ø34x5mm (Set of 10 only)																		disc
SEI-KTC-12/1-05	(e)	CRM	Plain Cast Iron ø34x5mm (Set of 10 only)																		disc
SEI-KTC-12/1-06	(f)	CRM	Plain Cast Iron ø34x5mm (Set of 10 only)																		disc
SEI-KTC-12/1-07	(g)	CRM	Plain Cast Iron ø34x5mm (Set of 10 only)																		disc
SEI-KTC-12/1-08	(h)	CRM	Plain Cast Iron ø34x5mm (Set of 10 only)																		disc
SEI-KTC-12/1-09	(i)	CRM	Plain Cast Iron ø34x5mm (Set of 10 only)																		disc
SEI-KTC-12/1-10	(j)	CRM	Plain Cast Iron ø34x5mm (Set of 10 only)																		disc
			Al	B	Bi	C	Ca	Ce	Cr	Cu	Mn	Mo	Ni	P	Pb	S	Sb	Si	Sn		
	(a)		0.001	0.089		3.96			0.10	0.50	0.80	0.30		0.002		0.034	0.15	0.40			
	(b)		0.013	0.077	0.010	3.87			0.21	0.42	0.63	0.24		0.009		0.018	0.10	0.84			
	(c)		0.018	0.052	0.013	3.73			0.28	0.27	0.05	0.11		0.017		0.076	0.048	1.18			
	(d)		0.033	0.029	0.004	3.52			0.43	0.20	0.50	0.42	0.02	0.30		0.061	0.008	1.59			
	(e)		0.054	0.008	0.001	3.40		0.001	0.26	0.11	0.41	0.047	0.54	0.11	0.007	0.047	0.004	2.11	0.001		
	(f)		0.029	0.001	0.001	3.35	0.0008	0.015	0.35	0.01	0.35	0.002	0.42	0.076	0.006	0.026		2.22	0.41		
	(g)		0.052			3.30	0.0013	0.11	0.03		0.32		0.28	0.050	0.002	0.016		2.45	0.30		
	(h)		0.059			3.04	0.0017	0.067			0.26		0.20	0.030	0.016	0.010		2.71	0.20		
	(i)		0.068			2.92	0.0028	0.011			0.21		0.10	0.52	0.045	0.005		2.95	0.11		
	(j)		0.097			2.50	0.0052	0.028		0.52	0.10		0.01	0.68	0.031	0.0027		3.09	0.045		
			Ti	V	Zn																
	(a)				0.005																
	(b)				0.002																
	(c)				0.010																
	(d)			0.020	0.024																
	(e)			0.14	0.034																
	(f)		0.013	0.048																	
	(g)		0.095	0.10																	
	(h)		0.059	0.20																	
	(i)		0.17	0.31																	
	(j)		0.22	0.004																	

Cast Iron, Low Alloyed and Unalloyed

Code	Product											Unit
VASKUT-120	(a)	CRM	Cast Iron, 30x30x13 mm									block
VASKUT-121	(b)	CRM	Cast Iron, 30x30x13 mm									block
VASKUT-122	(c)	CRM	Cast Iron, 30x30x13 mm									block
VASKUT-123	(d)	CRM	Cast Iron, 30x30x13 mm									block
VASKUT-124	(e)	CRM	Cast Iron, 30x30x13 mm									block
VASKUT-125	(f)	CRM	Cast Iron, 30x30x13 mm									block
VASKUT-126	(g)	CRM	Cast Iron, 30x30x13 mm									block
VASKUT-127	(h)	CRM	Cast Iron, 30x30x13 mm									block
			C	Mn	P	S	Si					
	(a)		3.34	0.59	0.059	0.18	1.84					
	(b)		3.32	0.61	0.135	0.17	(1.86)					
	(c)		3.31	0.61	0.22	0.2	1.72					
	(d)		3.3	0.69	0.31	0.074	(1.87)					
	(e)		2.97	0.62	0.5	0.051	1.63					
	(f)		3.2	0.73	0.7	0.019	(1.87)					
	(g)		3.16	0.81	1.41	0.016	1.9					
	(h)		3.14	0.79	1.55	0.014	1.81					
VASKUT-201	(a)	CRM	Cast Iron, low alloyed, 30x30x13 mm									block
VASKUT-202	(b)	CRM	Cast Iron, low alloyed, 30x30x13 mm									block
VASKUT-203	(c)	CRM	Cast Iron, low alloyed, 30x30x13 mm									block
VASKUT-204	(d)	CRM	Cast Iron, low alloyed, 30x30x13 mm									block
VASKUT-205	(e)	CRM	Cast Iron, low alloyed, 30x30x13 mm									block
VASKUT-206	(f)	CRM	Cast Iron, low alloyed, 30x30x13 mm									block
			C	Cr	Cu	Mn	Mo	Ni	P	S	Si	Sn
	(a)		2.77	2.9	0.1	0.74	0.13	2.47	0.024	(0.009)	1.71	(0.31)
	(b)		3.16	2.36	0.24	0.81	0.44	2.07	0.024	(0.01)	1.77	(0.21)
	(c)		3.14	1.79	0.43	0.79	0.91	1.63	0.024	(0.009)	1.78	(0.16)
	(d)		3.15	1.22	0.64	0.8	1.38	1.09	0.023	(0.009)	1.79	(0.215)
	(e)		3.32	0.64	0.81	0.8	1.79	0.61	0.025	(0.01)	1.88	(0.035)
	(f)		3.32	0.12	1.01	0.75	2.14	0.21	0.027	(0.01)	1.84	(0.107)

Code	Product																	Unit
CTIF-FPA1	(a)	RM	Cast Iron, low alloyed, ø43x5 (x2) mm															disc
CTIF-FO4	(b)	RM	Cast Iron, low alloyed, ø43x5 (x2) mm															disc
CTIF-FO5	(c)	RM	Cast Iron, low alloyed, ø43x5 (x2) mm															disc
CTIF-FO6	(d)	RM	Cast Iron, low alloyed, ø43x5 (x2) mm															disc
CTIF-FO7	(e)	RM	Cast Iron, low alloyed, ø43x5 (x2) mm															disc
CTIF-FO8	(f)	RM	Cast Iron, low alloyed, ø43x5 (x2) mm															disc
CTIF-FO9	(g)	RM	Cast Iron, low alloyed, ø43x5 (x2) mm															disc
CTIF-FO10	(h)	RM	Cast Iron, low alloyed, ø43x5 (x2) mm															disc
			As	C	Co	Cr	Cu	Mn	Mo	N	Ni	P	S	Si	Sn	Ti	V	
	(a)		0.0109	3.09	0.0097	0.071	0.0622	0.1	0.0109	0.0125	0.045	0.0022	0.0009	0.03		0.001	0.001	
	(b)			2.81		0.17	0.31	0.64	0.095		0.32	0.58	0.009	1.51	0.013	0.075	0.049	
	(c)			3.2		0.3	0.12	0.2	0.41		0.172	1.3	0.027	0.7	0.109	0.04	0.14	
	(d)			3.49		0.45	0.12	0.715	0.202		0.128	0.87	0.106	0.55	0.039	0.08	0.11	
	(e)			2.45		0.455	0.125	0.7	0.26		0.15	0.84	0.085	0.675		0.065	0.13	
	(f)			3.6		0.3	0.215	0.37	0.005		0.3	0.107	0.021	1.04	0.05	0.055	0.014	
	(g)			2.7		0.18	0.31	0.7	0.13		0.355	0.02	0.015	1.5	0.144	0.017	0.022	
	(h)			3.5		0.38	0.114	1.05	0.2		0.118	0.2	0.101	0.67		0.1	0.08	
CTIF-FO11	(a)	RM	Cast Iron, low alloyed, ø43x5 (x2) mm															disc
CTIF-FO12	(b)	RM	Cast Iron, low alloyed, ø43x5 (x2) mm															disc
CTIF-FO17	(c)	RM	Cast Iron, low alloyed, ø43x5 (x2) mm															disc
CTIF-FO18	(d)	RM	Cast Iron, low alloyed, ø43x5 (x2) mm															disc
CTIF-FO19	(e)	RM	Cast Iron, low alloyed, ø43x5 (x2) mm															disc
			Al	C	Co	Cr	Cu	Mn	Mo	Ni	P	S	Si	Sn	Te	Ti	V	
	(a)			3.45	(0.013)	0.34	0.211	0.685	0.225	0.235	0.052	0.103	1.57	0.066		0.078	0.113	
	(b)		0.008	3.71			0.77	0.44			0.038	0.004	1.86	0.011				
	(c)			3.01	0.032	(0.016)	(0.006)	0.475		0.021	0.47	0.168	2.48	0.024		0.032	0.018	
	(d)			3.25		0.087	0.09	0.52	0.16	0.19	1.11	0.132	1.33	0.15		0.17	0.17	
	(e)			4.04				1.05			0.032	0.057	1.05		0.0005			

Cast Iron, Low Alloyed and Unalloyed

Code	Product																		Unit		
CTIF-FL1	(a)	RM	Cast Iron, low alloyed, ø43x5 (x2) mm																		disc
CTIF-FL3	(b)	RM	Cast Iron, low alloyed, ø43x5 (x2) mm																		disc
CTIF-FL4	(c)	RM	Cast Iron, low alloyed, ø43x5 (x2) mm																		disc
CTIF-FL5	(d)	RM	Cast Iron, low alloyed, ø43x5 (x2) mm																		disc
CTIF-FL6	(e)	RM	Cast Iron, low alloyed, ø43x5 (x2) mm																		disc
CTIF-FL10	(f)	RM	Cast Iron, low alloyed, ø43x5 (x2) mm																		disc
			Al	As	B	B (sol.)	Bi	C	Co	Cr	Cu	Mn	Mo	N	Nb	Ni	P	Pb	S		
	(a)							2.1	(0.022)	0.06	0.0195	0.8	0.038			0.245	0.118	0.0765			
	(b)							2.3		0.107	0.102	0.27	0.106	0.008		0.553	0.729	(0.013)			
	(c)			(0.05)			(0.003)	2.6		0.45	0.0168	0.5	0.09	0.007		0.061	0.288	0.137			
	(d)				(0.002)		(0.0005)	2.8	0.01	0.35	0.5	0.4	0.01			0.05	0.02	(0.005)			
	(e)				0.008			3.1	0.028	0.167	0.079	0.6	0.5			1.03	0.012	0.18			
	(f)	(0.03)	(0.022)			(0.012)	(0.004)	3.1		(0.07)	0.104	0.85	0.0335		(0.018)	0.1	0.323	(0.002)	0.066		
			Sb	Si	Sn	Te	Ti	V	W	Zn											
	(a)			3.2	0.305		0.02	0.015													
	(b)			2.1	0.111		0.05	0.049													
	(c)			2.91	0.011		0.0296	0.116													
	(d)			2.3	0.07		0.01	0.01													
	(e)			1.4	0.005		0.15	0.033													
	(f)	(0.032)	1.3	0.028	(0.001)	0.045	0.048	(0.02)	(0.029)												
CTIF-FT1	(a)	RM	Cast Iron, low alloyed, ø43x5 (x2) mm																		disc
CTIF-FT2-1	(b)	RM	Cast Iron, low alloyed, ø43x5 (x2) mm																		disc
CTIF-FT3	(c)	RM	Cast Iron, low alloyed, ø43x5 (x2) mm																		disc
CTIF-FAL1	(d)	RM	Cast Iron, low alloyed, ø43x5 (x2) mm																		disc
			Al	C	Cr	Cu	Mn	Mo	Ni	P	S	Si	Sn	Ti	V						
	(a)			2.9	0.057	0.012	0.71		0.11	0.12	0.025	2.12	0.067	0.19	0.525						
	(b)			3.39	0.03	0.01	0.78		0.07	0.045	0.095	1.415		0.1	0.405						
	(c)			3.2	0.685	0.015	0.345		0.092	0.063	0.051	1.55		0.2	0.016						
	(d)	2.1	3	0.04	0.2	0.2	0.015	0.06	0.04	<0.001	1			0.01							

Code	Product									Unit
SEI-KTC-15 N-1	(a)	CRM	N for cal. curve ø35x20mm							disc
SEI-KTC-15 N-2	(b)	CRM	N for cal. curve ø35x20mm							disc
SEI-KTC-15 N-3	(c)	CRM	N for cal. curve ø35x20mm							disc
SEI-KTC-15 N-4	(d)	CRM	N for cal. curve ø35x20mm							disc
SEI-KTC-15 N-5	(e)	CRM	N for cal. curve ø35x20mm							disc
		Al	C	Cr	Mn	N (insol.)	N (sol.)	P	S	Si
	(a)	0.050	0.015	0.21	0.10	0.0001	0.0012	0.002	0.003	0.10
	(b)	0.048	0.014	0.29	0.10	0.0002	0.0048	0.002	0.003	0.10
	(c)	0.048	0.012	0.19	0.10	0.0003	0.0076	0.002	0.003	0.10
	(d)	0.048	0.012	0.20	0.10	0.0002	0.0110	0.003	0.004	0.10
	(e)	0.050	0.012	0.41	0.11	0.0008	0.0194	0.003	0.004	0.10

Cast Iron, Low Alloyed and Unalloyed

Code	Product																		Unit
MBH-11X C1 P	(a)	CRM	Low Alloy Iron, ø40x17 mm																disc
MBH-11X C2 S	(b)	CRM	Low Alloy Iron, ø40x17 mm																disc
MBH-11X C3 Z	(c)	CRM	Low Alloy Iron, ø40x~17 mm																disc
MBH-11X C4 Q	(d)	CRM	Low Alloy Iron, ø40x17 mm																disc
MBH-11X C5 U	(e)	CRM	Low Alloy Iron, ø40x17 mm																disc
MBH-11X C6 V	(f)	CRM	Low Alloy Iron, ø40x17 mm																disc
MBH-11X C7 N	(g)	CRM	Low Alloy Iron, ø40x15 mm																disc
MBH-11X C8 T	(h)	CRM	Low Alloy Iron, ø40x17 mm																disc
MBH-11X C9 B	(i)	CRM	Low Alloy Iron, ø40x17 mm																disc
MBH-11X C10 B	(j)	CRM	Low Alloy Iron, ø40x15 mm																disc
			Al	As	B	Bi	C	Cd	Co	Cr	Cu	Mn	Mo	N	Nb	Ni	P	Pb	S
	(a)		0.0193	0.018	0.052	0.006	2.85		0.082	0.538	0.164	1.262	0.075	0.0044	0.17	0.696	0.105	0.011	0.0383
	(b)		0.049	0.029	0.0072	0.007	3.54		0.113	0.794	0.133	0.961	0.096	0.0057	0.084	1.006	0.2	0.015	0.086
	(c)		(0.015)	0.12	(0.0028)	(0.002)	3.27		0.376	2.43	0.431	0.797	0.235		0.186	4.14	0.387	(0.008)	0.152
	(d)		0.032	0.0103	0.018	0.005	1.89	0.0014	0.0175	1.5	0.342	0.651	0.114		0.072	2.41	0.111	0.0155	0.138
	(e)		0.006	0.0225	0.0172	0.006	2.49		0.105	1.15	2.71	0.791	0.497		(0.088)	2.05	0.097	0.023	0.103
	(f)		(0.018)	0.0499	0.0053	0.005	3.76		0.094	0.606	0.89	1.088	1.561	0.0152	0.023	0.06	0.069	0.006	0.0567
	(g)		0.0127	0.0159	0.0097	0.0137	2.51		0.0335	0.507	0.075	1.942	0.071	0.025	0.051	0.0303	0.0266	0.0106	0.0101
	(h)		0.016	0.077	0.0409	0.041	3.03		0.174	0.501	0.317	0.486	0.158	0.0075	(0.082)	0.32	0.843	0.023	0.189
	(i)		0.005	0.046	0.0058	(0.011)	2.82		0.132	1.31	0.299	1.88	0.158		0.062	2.58	0.032	0.0044	0.0306
	(j)		0.034	0.0163			3.53	(0.001)		0.285	0.614	0.672	0.318	0.009		0.263	0.092	(0.002)	0.096
			Sb	Se	Si	Sn	Te	Ti	V	W	Zn	Zr							
	(a)		0.064	0.01	1.483	0.032		(0.14)	0.101		0.0208	0.005							
	(b)		0.068	(0.009)	1.281	0.065		0.042	0.29	0.098	0.002								
	(c)		0.264	0.0026	0.944	0.236	0.0024	0.071	0.796	(0.054)	0.0111								
	(d)		0.011	(0.003)	3.02	0.0207	0.001	0.091	0.0233	0.122	0.0112	0.006							
	(e)		0.037	0.0046	1.78	0.021	0.005	0.079	0.0537	(0.083)	0.011	(0.004)							
	(f)		0.037	0.007	0.487	0.0585		0.049	0.0608		0.025	0.005							
	(g)		0.025		0.829	0.0114		0.022	0.036	0.066	0.0226	(0.003)							
	(h)		0.068	(0.073)	1.61	0.091	0.0043	0.115	0.0637	0.0175	0.007								
	(i)		0.152	0.0091	1.19	0.052	0.015	0.054	0.475	0.286	0.01								
	(j)		0.0112		1.98	0.034		0.0191	0.0107	0.349									
MBH-11X CC21A	(a)	CRM	Low Alloy Iron, Double Chill Cast, ø45x6 mm																disc
MBH-11X CC22A	(b)	CRM	Low Alloy Iron, Double Chill Cast, ø45x6 mm																disc
			Al	As	C	Cr	Cu	Mn	Mo	Ni	P	S	Si	Sn	Ti	V			
	(a)		0.0024	0.0101	3.12	0.351	0.153	0.785	0.0357	0.107	0.0246	0.083	2.19	0.0078	0.0259	0.0083			
	(b)		(0.002)	0.009	3.7	0.319	0.712	0.69	0.021	0.06	0.033	0.08	1.82	0.012	0.029	0.0087			

Code	Product																	Unit		
NCS HS11711A-1	(a)	CRM	Low Alloy Cast Iron ø30x20mm (Set of 7 only)																	disc
NCS HS11711A-2	(b)	CRM	Low Alloy Cast Iron ø30x20mm (Set of 7 only)																	disc
NCS HS11711A-3	(c)	CRM	Low Alloy Cast Iron ø30x20mm (Set of 7 only)																	disc
NCS HS11711A-4	(d)	CRM	Low Alloy Cast Iron ø30x20mm (Set of 7 only)																	disc
NCS HS11711A-5	(e)	CRM	Low Alloy Cast Iron ø30x20mm (Set of 7 only)																	disc
NCS HS11711A-6	(f)	CRM	Low Alloy Cast Iron ø30x20mm (Set of 7 only)																	disc
NCS HS11711A-7	(g)	CRM	Low Alloy Cast Iron ø30x20mm (Set of 7 only)																	disc
			B	C	Ce	Cr	Cu	La	Mg	Mn	Mo	Ni	P	S	Si	Sn	Ti	V	W	
	(a)		0.524	3.31		2.02	0.571		0.00033	0.317	0.811	0.063	0.051	0.029	0.930	0.282	0.223	0.329	0.323	
	(b)		0.261	3.18	0.034	1.62	1.12	0.015	0.038	0.715	0.559	1.01	0.447	0.0061	2.28	0.107	0.478	0.201	0.172	
	(c)		0.096	3.72	(0.0002)	1.61	0.846	0.0060	0.014	1.12	0.467	0.528	0.251	0.038	1.50	0.289	0.388	0.133	0.049	
	(d)		0.021	4.03	(<0.00005)	0.476	0.148	(<0.00005)	0.0015	0.987	0.018	0.054	0.727	0.098	0.246	0.0035	0.031	0.317	0.0073	
	(e)		0.0025	3.00	0.0033	0.784	0.536	0.096	0.077	1.27	0.384	0.940	0.140	0.0034	2.65	0.038	0.078	0.043	0.284	
	(f)		0.524	2.69	0.0088	1.31	0.338	0.0057	0.034	1.70	0.224	0.247	0.395	0.021	3.68	0.102	0.129	0.250	0.444	
	(g)		0.018	1.81	0.122	0.212	1.73	0.023	0.0010	1.99	0.152	1.09	0.091	0.0082	3.35	0.0064	0.131	0.057	0.972	

Cast Iron, Low Alloyed and Unalloyed

Code	Product																		Unit		
BAS-LARM 1	(a)	RM	Low Alloy Cast Irons, 40x37x10 mm																		block
BAS-LARM 2	(b)	RM	Low Alloy Cast Irons, 40x37x10 mm																		block
BAS-LARM 3	(c)	RM	Low Alloy Cast Irons, 40x37x10 mm																		block
BAS-LARM 4	(d)	RM	Low Alloy Cast Irons, 40x37x10 mm																		block
BAS-LARM 5	(e)	RM	Low Alloy Cast Irons, 40x37x10 mm																		block
			Al	As	B	Bi	C	Ce	Cr	Cu	Mn	Mo	Ni	P	Pb	S	Si	Sn	Ti		
	(a)				0.006	0.011	(3)	0.005	0.5	2.49	(0.3)		0.49	(0.05)		(<0.01)	(2)	0.14			
	(b)		0.066	0.044			(3)	0.008	2.5		(0.3)	0.22		(0.05)	0.007	(<0.01)	(2)	0.22	0.33		
	(c)		0.042	0.092	0.003	0.022	(3)			1.2	(0.3)		1.8	(0.05)		(<0.01)	(2)				
	(d)		0.014				(3)	0.008	1.19	0.26	(0.3)	1		(0.05)	0.018	(<0.01)	(2)	0.11	0.17		
	(e)			0.018	0.0012	0.001	(3)				(0.3)	0.62	2.46	(0.05)	0.0005	(<0.01)	(2)	0.025			
			V																		
	(a)		0.11																		
	(c)		0.55																		
	(e)		0.24																		
BAS-SCRM 671	(a)	CRM	Blast Furnace Irons, 40x37x10 mm																		block
BAS-SCRM 672	(b)	CRM	Blast Furnace Irons, 40x37x10 mm																		block
BAS-SCRM 673	(c)	CRM	Blast Furnace Irons, 40x37x10 mm																		block
BAS-SCRM 674	(d)	CRM	Blast Furnace Irons, 40x37x10 mm																		block
BAS-SCRM 675	(e)	CRM	Blast Furnace Irons, 40x37x10 mm																		block
			Al	As	C	Co	Cr	Cu	Mn	Mo	Ni	P	S	Si	Sn	Ti	V	Zn			
	(a)		0.038	0.022	2.86	0.097	0.059	0.047	0.837	0.018	0.056	0.106	0.049	0.98	0.007	0.09	0.01	0.0004			
	(b)		0.008	0.004	4.08	0.158	0.024	0.068	0.491	0.099	0.082	0.242	0.037	0.18	0.0018	0.039	0.109	0.0144			
	(c)		0.028	0.044	2.47	0.053	0.037	0.023	0.133	0.006	0.147	0.328	0.006	1.72	0.0191	0.072	0.059	0.0004			
	(d)		0.004	0.028	3.32	0.014	0.021	0.101	1.48	0.048	0.144	0.011	0.081	0.48	0.014	0.023	0.024	0.0187			
	(e)		0.007	0.035	1.92	0.023	0.08	0.012	1.81	0.034	0.21	0.045	0.072	1.29	0.0062	0.007	0.178	0.0006			

Code	Product																		Unit		
BS-1B	(a)	RM	Cast Iron, ø32x17 mm																		disc
BS-4C	(b)	RM	Chill-cast Iron, ø32x17 mm																		disc
NIST-C1145A	(c)	CRM	White Cast Iron, ø32x19mm																		disc
NIST-C1291	(d)	CRM	High Alloy (Ni-Hard, Type I), ø32x19mm																		disc
			Al	As	B	Bi	C	Ca	Ce	Co	Cr	Cu	La	Mg	Mn	Mo	N	Nb	Ni		
	(a)		0.015	0.004	0.012		2.5		0.01	0.2	0.79	0.013			1.89	0.175		0.021	2.12		
	(b)		0.003	0.007	0.0002		3.82	0.0013	0.01	0.014	0.111	0.014	0.002	0.0002	0.21	0.105	0.008	(0.0005)	0.068		
	(c)		(0.04)	(0.03)	(0.02)	(<0.01)	2.92			0.058	0.63	0.46			0.187	0.48		0.62			
	(d)						2.67				2.78	0.26			1.14	0.32		4.34			
			P	Pb	S	Sb	Si	Sn	Te	Ti	V	W	Zr								
	(a)		0.026	(0.001)	0.035	(0.001)	1.85	0.01	0.021	0.057	0.113	0.1	(0.002)								
	(b)		0.003	(0.0004)	0.001	0.0012	0.52	(0.0004)	0.0011	0.002	0.0005	(0.006)	0.01								
	(c)		0.215	0.0012	0.191	(0.04)	0.271	(0.1)		0.012	0.112		(0.002)								
	(d)		0.028		0.032		1.34				0.031										

Cast Iron, Alloyed

Code	Product										Unit
CTIF-NH1	(a)	RM	Cast Iron, high alloyed, Ø43x5 (x2) mm								disc
CTIF-NH2	(b)	RM	Cast Iron, high alloyed, Ø43x5 (x2) mm								disc
CTIF-NH3	(c)	RM	Cast Iron, high alloyed, Ø43x5 (x2) mm								disc
CTIF-NH4	(d)	RM	Cast Iron, high alloyed, Ø43x5 (x2) mm								disc
CTIF-NH5	(e)	RM	Cast Iron, high alloyed, Ø43x5 (x2) mm								disc
CTIF-NH6	(f)	RM	Cast Iron, high alloyed, Ø43x5 (x2) mm								disc
CTIF-NH7	(g)	RM	Cast Iron, high alloyed, Ø43x5 (x2) mm								disc
CTIF-NH8	(h)	RM	Cast Iron, high alloyed, Ø43x5 (x2) mm								disc
CTIF-NH9	(i)	RM	Cast Iron, high alloyed, Ø43x5 (x2) mm								disc
			C	Cr	Cu	Mn	Mo	Ni	P	S	Si
	(a)		2.98	0.83	1.99	0.9	1.45	1.38	0.06	0.105	1.35
	(b)		2.5	1.26	1.02	1.04	1.01	1.78	0.047	0.058	1.81
	(c)		3.47	1.76	0.031	0.175	0.73	2.53	0.36	0.024	0.85
	(d)		2.84	2.46	0.09	0.28	0.3	3.6	0.12	0.022	0.49
	(e)		2.31	2.85	0.035	0.24	0.017	4.9	0.115	0.04	0.31
	(f)		2.7	6.6	0.115	0.355	0.11	7.06	0.066	0.036	2.28
	(g)		3.43	9.02	0.105	0.63		5.53	0.035	0.022	0.95
	(h)		2.98	5.03	0.065	0.57	0.125	8.16	0.052	0.076	0.8
	(i)		3.13	11.7	0.203	0.65	0.059	4.11	0.087	0.029	1.24
CTIF-FCR1	(a)	RM	Cast Iron, Cr-alloyed, Ø43x5 (x2) mm								disc
CTIF-FCR2	(b)	RM	Cast Iron, Cr-alloyed, Ø43x5 (x2) mm								disc
CTIF-FCR3	(c)	RM	Cast Iron, Cr-alloyed, Ø43x5 (x2) mm								disc
CTIF-FCR4	(d)	RM	Cast Iron, Cr-alloyed, Ø43x5 (2x) mm								disc
CTIF-FCR5	(e)	RM	Cast Iron, Cr-alloyed, Ø43x5 (x2) mm								disc
CTIF-FCR6	(f)	RM	Cast Iron, Cr-alloyed, Ø43x5 (x2) mm								disc
CTIF-FCR7	(g)	RM	Cast Iron, Cr-alloyed, Ø43x5 (x2) mm								disc
			C	Cr	Cu	Mn	Mo	Ni	P	S	Si
	(a)		2.46	18.71	0.031	0.63	1.41	1.3	0.019	0.007	0.45
	(b)		2.86	11.8	0.135	0.74	3.88	1.87	0.137	0.055	1.07
	(c)		2.08	14.85	0.0485	1.02	0.91	0.652	0.034	0.035	0.25
	(d)		2.47	24.2	1.32	2.05	2.16	0.571	0.097	0.066	1.4
	(e)		3.43	28.5	1.02	0.62	3.27	2.69	0.052	0.0175	0.35
	(f)		1.44	30.84	0.48	1.47	0.455	0.188	0.201	0.086	0.76
	(g)		3.59	33.65	0.704	0.365	2.62	0.947	0.099	0.0427	1.07

Code	Product									Unit
CTIF-FCRNI1	(a)	RM	Cast Iron, high alloyed, ø43x5 (x2) mm							disc
CTIF-FCRNI2	(b)	RM	Cast Iron, high alloyed, ø43x5 (x2) mm							disc
CTIF-FCRNI3	(c)	RM	Cast Iron, high alloyed, ø43x5 (x2) mm							disc
			C	Cr	Cu	Mn	Ni	P	S	Si
	(a)		1.27	26.2	0.02	0.71	16.5	0.41	0.06	1.63
	(b)		2.02	29		0.61	13.05	0.185	0.024	1.5
	(c)		2.74	31.65		0.47	11.05	0.036	0.011	0.69
MBH-11X HPC1 G	(a)	CRM	High P Cast Iron, ø40x15 mm							disc
MBH-11X HPC2 K	(b)	CRM	High P Cast Iron, ø40x~17 mm							disc
MBH-11X HPC3 H	(c)	CRM	High P Cast Iron, ø40x15 mm							disc
MBH-11X HPC4 P	(d)	CRM	High P Cast Iron, ø40x~17 mm							disc
MBH-11X HPC5 A	(e)	CRM	High P Cast Iron, ø40x17 mm							disc
			C	Cr	Mn	P	S	Si		
	(a)		3.22		0.499	0.75	0.0311	2.6		
	(b)		2.85	2.05	0.775	1.55	0.066	2.19		
	(c)		3.77		1.316	1.96	0.0513	1.58		
	(d)		3.15	1.57	0.804	2.03	0.094	1.08		
	(e)		3.68	1.42	1.028	0.246	0.223	1.175		

Cast Iron, Alloyed

Code	Product																		Unit
CTIF-3601B	(a)	RM	Magnesium treated cast iron, Ø43x5 (x2) mm																disc
CTIF-4497	(b)	RM	Magnesium treated cast iron, Ø43x5 (x2) mm																disc
CTIF-4500	(c)	RM	Magnesium treated cast iron, Ø43x5 (x2) mm																disc
CTIF-5037	(d)	RM	Magnesium treated cast iron, Ø43x5 (x2) mm																disc
CTIF-5781	(e)	RM	Magnesium treated cast iron, Ø43x5 (x2) mm																disc
CTIF-5783	(f)	RM	Magnesium treated cast iron, Ø43x5 (x2) mm																disc
CTIF-6134	(g)	RM	Magnesium treated cast iron, Ø43x5 (x2) mm																disc
CTIF-6135	(h)	RM	Magnesium treated cast iron, Ø43x5 (x2) mm																disc
CTIF-6736	(i)	RM	Magnesium treated cast iron, Ø43x5 (x2) mm																disc
CTIF-7160	(j)	RM	Magnesium treated cast iron, Ø43x5 (x2) mm																disc
CTIF-8018	(k)	RM	Magnesium treated cast iron, Ø43x5 (x2) mm																disc
CTIF-8532	(l)	RM	Magnesium treated cast iron, Ø43x5 (x2) mm																disc
			Al	As	C	Ce	Co	Cr	Cu	Mn	Ni	P	Pb	S	Sb	Si	Sn	Ti	V
	(a)				3	<0.01		0.029	0.019	0.35	1.08	0.037	(<0.002)	(0.005)		2.1		0.016	(0.005)
	(b)				3.16			0.04	0.048	0.6	1.2	0.043		(0.0025)		2.66	0.094	0.03	0.44
	(c)	0.033			3.38	0.023	0.065	0.014		0.6	1.45	0.059		(0.002)		1.97			
	(d)				3.04			0.014		0.76	0.64	0.043		(0.0025)		3.4		0.029	
	(e)				3.35			0.04	<0.01	0.26	0.83	0.03		(0.0025)		2.5			
	(f)			0.0015	2.55		0.0074	0.054	0.11	0.195	1.23	0.027		(0.0025)		2.31		0.016	0.013
	(g)				3.7	<0.03		0.04	0.02	0.25	2	0.03		<0.01		1.6			
	(h)	(0.006)			3.6		0.037	0.04	0.0219	0.38	1.98	0.013		(0.003)		0.9		0.007	0.0155
	(i)				2.8			0.03	0.0258	0.65	1.7	0.012		(0.002)		1.6		0.008	(0.03)
	(j)	(0.02)	0.009		3.1	0.02	0.09	(0.1)	0.08	0.57	1	0.05		(0.001)		2.4		0.013	0.018
	(k)	0.02			3	(<0.02)		0.09	0.08	0.7	0.127	0.07		(0.0015)	(0.01)	3	0.07	0.06	0.39
	(l)				3.7	<0.025		0.04	0.0443	0.288	0.888	0.05				2.6	0.0303	0.02	0.07
			Zn																
	(a)		<0.05																

Each unit of these reference materials is unique and the individual Mg value can therefore not be listed. In order to receive samples with a fitting range of Mg values please let us know your requirements.

Code	Product																		Unit
NCS HS11712A-1	(a)	CRM	Nitrogen Cast Iron ø30x28mm (Set of 7 only)																disc
NCS HS11712A-2	(b)	CRM	Nitrogen Cast Iron ø30x28mm (Set of 7 only)																disc
NCS HS11712A-3	(c)	CRM	Nitrogen Cast Iron ø30x28mm (Set of 7 only)																disc
NCS HS11712A-4	(d)	CRM	Nitrogen Cast Iron ø30x28mm (Set of 7 only)																disc
NCS HS11712A-5	(e)	CRM	Nitrogen Cast Iron ø30x28mm (Set of 7 only)																disc
NCS HS11712A-6	(f)	CRM	Nitrogen Cast Iron ø30x28mm (Set of 7 only)																disc
NCS HS11712A-7	(g)	CRM	Nitrogen Cast Iron ø30x28mm (Set of 7 only)																disc
			Al	C	Ce	Cr	Cu	La	Mg	Mn	Mo	N	Ni	P	S	Si	Sn	Ti	V
	(a)		0.248	1.75	(<0.0001)	2.48	0.025	(<0.0001)	0.00006	0.080	0.031	0.015	0.030	0.580	0.119	3.40	0.0031	0.038	0.021
	(b)		0.060	2.22	0.0010	2.13	0.458	0.010	0.0085	0.301	0.087	0.024	0.341	0.043	0.058	2.44	0.044	0.065	0.055
	(c)		0.034	2.55	0.027	0.417	0.641	0.0061	0.024	0.878	0.354	0.024	0.519	0.071	0.045	1.50	0.021	0.027	0.085
	(d)		0.0073	3.16	(<0.0001)	1.40	0.921	(<0.0001)	0.025	0.462	0.428	0.0073	0.778	0.396	0.017	1.96	0.024	0.065	0.166
	(e)			3.52	(<0.0001)	2.48	0.389	(<0.0001)	0.021	0.311	0.629	0.0047	1.03	0.420	0.019	1.17	0.013	0.161	0.324
	(f)		0.019	4.02	(<0.0001)	0.112	1.83	(<0.0001)	0.104	1.41	0.726	0.013	1.89	0.021	0.026	0.163	0.057	0.238	0.509
	(g)		0.214	3.94	(<0.0001)	1.05	1.10	(<0.0001)	0.056	1.38	0.168	0.0063	1.37	0.085	0.0048	0.918	0.134	0.114	0.390
NIST-C1290	(a)	CRM	High Alloy (HC-250 + V), ø32x19mm																disc
			C	Cr	Cu	Mn	Mo	Ni	P	S	Si	V							
	(a)		3.04	30.5	0.065	0.66	(0.041)	0.917	0.03	0.013	0.971	0.442							

Cast Iron, Alloyed

Code	Product																	Unit		
SEI-KTC-9 B1	(a)	CRM	Alloy Cast Iron ø34x5mm (Set of 6 only)																	disc
SEI-KTC-9 B2	(b)	CRM	Alloy Cast Iron ø34x5mm (Set of 6 only)																	disc
SEI-KTC-9 B3	(c)	CRM	Alloy Cast Iron ø34x5mm (Set of 6 only)																	disc
SEI-KTC-9 B4	(d)	CRM	Alloy Cast Iron ø34x5mm (Set of 6 only)																	disc
SEI-KTC-9 B5	(e)	CRM	Alloy Cast Iron ø34x5mm (Set of 6 only)																	disc
SEI-KTC-9 B6	(f)	CRM	Alloy Cast Iron ø34x5mm (Set of 6 only)																	disc
			C	Cr	Cu	Mn	Mo	Ni	P	S	Si									
	(a)		2.4	1.0	0.05	0.05	0.05	1.0	0.005	0.10	3.0									
	(b)		2.6	0.8	0.2	0.2	0.2	0.8	0.025	0.09	2.8									
	(c)		3.0	0.6	0.4	0.4	0.4	0.6	0.05	0.06	2.2									
	(d)		3.3	0.4	0.6	0.6	0.6	0.4	0.07	0.04	1.8									
	(e)		3.7	0.2	0.8	0.8	0.8	0.2	0.09	0.02	1.4									
	(f)		4.0	0.05	1.0	1.0	1.0	0.05	0.12	0.003	1.0									
BAS-SIMO 1/3	(a)	RM	Silicon Molybdenum Irons, 48x42x12 mm																	block
BAS-SIMO 2/2	(b)	RM	Silicon Molybdenum Irons, 48x42x12 mm																	block
			Al	As	C	Ce	Co	Cr	Cu	Mg	Mn	Mo	Ni	P	S	Si	Sn	Ti	V	
	(a)		0.026	0.047	2.70		0.013	0.899	0.028	0.036	0.333	0.776	0.030	0.040	0.007	4.07	0.048	0.007	0.007	
	(b)		0.013	0.039	2.14	0.006	0.0029	0.856	0.010	0.026	0.434	0.484	0.0189	0.025	0.007	4.75	0.038	0.005	0.009	
CTIF-SIMO-1	(a)	RM	Cast Iron, ø43x5 (x2) mm																	disc
CTIF-SIMO-2	(b)	RM	Cast Iron, ø43x5 (x2) mm																	disc
CTIF-SIMO-3	(c)	RM	Cast Iron, ø43x5 (x2) mm																	disc
CTIF-SIMO-4	(d)	RM	Cast Iron, ø43x5 (x2) mm																	disc
CTIF-SIMO-5	(e)	RM	Cast Iron, ø43x5 (x2) mm																	disc
			Al	C	Co	Cr	Cu	Mg	Mn	Mo	Ni	P	S	Si	Ti	V				
	(a)			2.98	(0.03)	0.036	0.035	0.019	0.365	0.752	0.065	0.013	(0.0015)	4.03	(0.018)	(0.018)				
	(b)		1.51	(2.85)	(0.03)	0.038	0.036	0.072	0.335	1.04	(0.061)	0.026	(0.001)	3.85	(0.016)	(0.017)				
	(c)		1.15	3.18	0.0296	0.11	0.0325	0.03	0.61	0.604	0.066	0.053	(0.0006)	4.02	0.0176	0.0171				
	(d)		(0.038)	2.7	(0.015)	0.0845	0.0657	0.1	0.28	0.4	(0.029)	0.0211	(0.0015)	4.35	0.0171	0.0133				
	(e)			2.94	(0.013)	0.032	0.0121		0.439	0.841	0.194	0.0282		4.31	0.01	(0.0095)				
CTIF-NIMO-1	(a)	RM	Cast Iron, ø43x5 (x2) mm																	disc
			C	Co	Cr	Cu	Mg	Mn	Mo	Ni	P	S	Si	Sn	Ti	V				
	(a)		3.22	0.0205	0.0353	0.376	0.003	0.2	0.457	2.165	0.059	(0.003)	2.585	0.002	0.019	0.0169				

Code	Product													Unit
BAS-NIRM 1	(a)	RM	Austenitic (Ni-Resist) Irons, 40x37x10 mm											Each
BAS-NIRM 2	(b)	RM	Austenitic (Ni-Resist) Irons, 40x37x10 mm											Each
BAS-NIRM 3	(c)	RM	Austenitic (Ni-Resist) Irons, 40x37x10 mm											Each
BAS-NIRM 4	(d)	RM	Austenitic (Ni-Resist) Irons, 40x37x10 mm											Each
BAS-NIRM 5	(e)	RM	Austenitic (Ni-Resist) Irons, 40x37x10 mm											Each
BAS-NIRM 6	(f)	RM	Austenitic (Ni-Resist) Irons, 40x37x10 mm											Each
BAS-NIRM 7	(g)	RM	Austenitic (Ni-Resist) Irons, 40x37x10 mm											Each
BAS-NIRM 8/1	(h)	RM	Austenitic (Ni-Resist) Irons, 48x42x12 mm											Each
			C	Ce	Cr	Cu	Mg	Mn	Mo	Nb	Ni	P	S	Si
	(a)		2.05	0.018	0.246	0.2	0.021	6.72			11.8	0.055	0.005	3.15
	(b)		2.91	0.017	1.49	5.86	0.037	2.01			13.88	0.1	0.011	1.53
	(c)		2.51	0.007	2.43	1		0.51		0.09	17.8	0.208	0.096	2.21
	(d)		1.97	0.011	3.56	0.52	0.014	2.37		0.37	20.2	0.051	0.008	3.03
	(e)		2.93	0.001	0.5	0.22	0.04	1.09		0.2	22.1	0.126	0.004	1.73
	(f)		2.44	0.003	1.7	0.1		3.97	0.45		26.7	0.217	0.062	2.43
	(g)		2.04	0.005	3.53	0.52	0.019	0.71	0.99		32.9	0.058	0.02	3.05
	(h)		1.34	0.013	2.34	0.23	0.043	1.6	0.75		35.2	0.109	0.01	5.42
CTIF-NR1S	(a)	RM	Cast Iron, Ni resist with Mg, ø43x5 (x2) mm											disc
CTIF-NR2S	(b)	RM	Cast Iron, Ni resist with Mg, ø43x5 (x2) mm											disc
CTIF-NR3S	(c)	RM	Cast Iron, Ni resist with Mg, ø43x5 (x2) mm											disc
CTIF-NR4S	(d)	RM	Cast Iron, Ni resist with Mg, ø43x5 (x2) mm											disc
CTIF-NR5S	(e)	RM	Cast Iron, Ni resist with Mg, ø43x5 (x2) mm											disc
CTIF-NR6S	(f)	RM	Cast Iron, Ni resist with Mg, ø43x5 (x2) mm											disc
CTIF-NR8S	(g)	RM	Cast Iron, Ni resist with Mg, ø43x5 (x2) mm											disc
CTIF-NR4G	(h)	RM	Cast Iron, Ni resist with Mg, ø43x5 (x2) mm											disc
			C	Cr	Cu	Mn	Ni	P	S	Si				
	(a)		2.58	2	0.11	1.54	20.6	0.19	0.0015	3.02				
	(b)		2.32	0.51	0.21	0.53	36.3	0.062		1.43				
	(c)		2.92	3.05	0.33	0.77	24.63	0.024		2.91				
	(d)		2.47	1.5	0.63	1.71	18.3	0.145		4.87				
	(e)		1.67	0.24	0.5	1.23	27.05	0.035		1.97				
	(f)		1.82	1.06	0.03	0.99	30.75	0.019		2.44				
	(g)		3.05	0.191	0.071	4.39	14.2	0.124		1.41				
	(h)		2.3	1.4	0.64	1.72	21.3	0.11		5.6				

These reference materials all contain Magnesium at levels between 0.003% and 0.25% but the values cannot be given up front.
Please let us know your requirements.

Cast Iron, Alloyed

Code	Product										Unit	
CTIF-NR1L	(a)	RM	Cast Iron, Ni resist, Ø43x5 (x2) mm								disc	
CTIF-NR3L	(b)	RM	Cast Iron, Ni resist, Ø43x5 (x2) mm								disc	
CTIF-NR4L	(c)	RM	Cast Iron, Ni resist, Ø43x5 (x2) mm								disc	
CTIF-NR5L	(d)	RM	Cast Iron, Ni resist, Ø43x5 (x2) mm								disc	
CTIF-NR6L	(e)	RM	Cast Iron, Ni resist, Ø43x5 (x2) mm								disc	
CTIF-NR8L	(f)	RM	Cast Iron, Ni resist, Ø43x5 (x2) mm								disc	
			C	Cr	Cu	Mn	Ni	P	S	Si		
	(a)		2.5	1.74	0.49	1.34	25.87	0.125	0.1	3		
	(b)		2.99	2.97	0.26	0.72	21.58	0.088	0.052	3.05		
	(c)		2.41	1.403	0.758	1.495	15.9	0.155	0.01	5.89		
	(d)		1.77	0.27	0.48	1.207	33.89	0.037	0.083	2.99		
	(e)		1.76	3.49	0.02	0.7	30.37	0.031	0.063	2.07		
	(f)		2.89	0.165	0.075	5.19	13.33	0.054	0.03	1.7		
CTIF-NRCU1-1B	(a)	RM	Cast Iron, aust., Ni-resist, Ø43x5 (x2) mm								disc	
CTIF-NRCU2	(b)	RM	Cast Iron, aust., Ni-resist, Ø43x5 (x2) mm								disc	
CTIF-NRCU3	(c)	RM	Cast Iron, aust., Ni-resist, Ø43x5 (x2) mm								disc	
			Al	C	Cr	Cu	Mn	Ni	P	S	Si	
	(a)		(0.095)	3.12	0.994	4.95	1.465	18.02	0.172	0.09	0.99	
	(b)			2.5	2.05	6.5	1.07	15.9	0.115	0.049	2.07	
	(c)			1.94	3.5	8.05	0.6	13.3	0.046	0.016	3.12	
BAS-NCRM 1	(a)	RM	Nickel Chromium Irons, 40x37x10 mm								block	
BAS-NCRM 2	(b)	RM	Nickel Chromium Irons, 40x37x10 mm								block	
BAS-NCRM 3	(c)	RM	Nickel Chromium Irons, 40x37x10 mm								block	
BAS-NCRM 4	(d)	RM	Nickel Chromium Irons, 40x37x10 mm								block	
BAS-NCRM 5	(e)	RM	Nickel Chromium Irons, 40x37x10 mm								block	
			C	Cr	Cu	Mn	Mo	Ni	P	S	Si	V
	(a)		3.05	0.55	2.17	1.22	1.02	0.57	0.3	0.156	0.95	0.03
	(b)		2.97	1.99	1.67	0.95	0.36	2.1	0.068	0.119	1.82	0.16
	(c)		3.24	3.95	1.21	0.67	0.78	3.64	0.125	0.09	0.29	0.02
	(d)		2.66	7.94	0.68	0.4	0.57	5.34	0.203	0.012	2.13	0.11
	(e)		3.7	10.44	0.204	0.27	0.1	6.74	0.025	0.015	1.15	0.06

Code	Product													Unit	
NCS HS11716-1	(a)	CRM	High Cr Cast Iron ø33x20mm (Set of 6 only)												disc
NCS HS11716-2	(b)	CRM	High Cr Cast Iron ø33x20mm (Set of 6 only)												disc
NCS HS11716-3	(c)	CRM	High Cr Cast Iron ø33x20mm (Set of 6 only)												disc
NCS HS11716-4	(d)	CRM	High Cr Cast Iron ø33x20mm (Set of 6 only)												disc
NCS HS11716-5	(e)	CRM	High Cr Cast Iron ø33x20mm (Set of 6 only)												disc
NCS HS11716-6	(f)	CRM	High Cr Cast Iron ø33x20mm (Set of 6 only)												disc
			C	Cr	Cu	Mn	Mo	Nb	Ni	P	S	Si	Ti	V	
	(a)		1.63	33.9	0.223	0.722	0.332	0.161	0.366	0.041	0.076	1.76	0.055	0.417	
	(b)		1.76	10.43	1.52	1.08	1.49	0.686	1.34	0.093	0.031	0.559	0.018	0.059	
	(c)		2.11	29.82	0.416	0.522	0.465	0.11	0.415	0.042	0.022	1.11	0.045	0.255	
	(d)		2.37	12.08	1.13	0.735	0.846	0.215	0.541	0.05	0.021	0.823	0.023	0.149	
	(e)		2.95	15.93	0.651	0.927	2.17	0.377	0.881	0.133	0.043	0.746	0.089	0.107	
	(f)		3.4	19.09	0.745	1.95	3.53	0.389	2	0.247	0.107	1.37	0.136	0.617	
BAS-CRRM1/1	(a)	RM	High Chromium Irons, 40x37x10 mm												block
BAS-CRRM2/1	(b)	RM	High Chromium Irons, 40x37x10 mm												block
BAS-CRRM3/1	(c)	RM	High Chromium Irons, 40x37x10 mm												block
BAS-CRRM4/1	(d)	RM	High Chromium Irons, 40x37x10 mm												block
BAS-CRRM5/1	(e)	RM	High Chromium Irons, 40x37x10 mm												block
			Al	C	Cr	Cu	Mn	Mo	Ni	P	S	Si	Ti	V	
	(a)		0.117	1.83	11.18	2.01	1.45	3.05	2.03	0.132	0.099	1.53	0.096	0.04	
	(b)		0.054	1.92	14.13	1.59	1.11	2.44	1.61	0.097	0.079	1.18	0.07	0.063	
	(c)		0.084	2.42	17.48	1.21	0.85	1.65	1.28	0.068	0.059	0.82	0.021	0.022	
	(d)		<0.005	3	22.42	0.58	0.6	1.19	0.62	0.044	0.039	0.56	0.027	0.092	
	(e)		0.17	3.46	29.09	0.23	0.32	0.54	0.29	0.029	0.019	0.25	0.026	0.063	
VS-CHG1-5	(a)	CRM	Cast Iron (Chill cast; white structure) approx. ø40x40mm												disc
VS-CHG4-5	(b)	CRM	Cast Iron (Chill cast; white structure) approx. ø40x40mm												disc
VS-CHG5-6	(c)	CRM	Cast Iron (Chill cast; white structure) approx. ø40x40mm												disc
			As	C	Cr	Cu	Mn	P	S	Si	Ti	V			
	(a)		(0.002)	3.38	(0.08)	(0.04)	1.09	0.16	0.029	1.04	0.005	0.05			
	(b)		(0.002)	4.06	0.14	0.025	1.37	0.02	0.015	0.26	0.056	0.112			
	(c)		0.044	3.12	0.227		0.7	0.066	0.022	0.63	0.029	0.46			

Cast Iron, Alloyed

Code	Product																Unit		
VS-CHG24	(a)	CRM	Cast Iron (Chill cast; white structure) approx. 30x35x25mm																disc
VS-CHG25	(b)	CRM	Cast Iron (Chill cast; white structure) approx. 30x35x25mm																disc
VS-CHG26	(c)	CRM	Cast Iron (Chill cast; white structure) approx. 30x35x25mm																disc
VS-CHG27	(d)	CRM	Cast Iron (Chill cast; white structure) approx. 30x35x25mm																disc
VS-CHG28	(e)	CRM	Cast Iron (Chill cast; white structure) approx. 30x35x25mm																disc
			Al	C	Cr	Cu	Mg	Mn	Mo	Ni	P	S	Sb	Si	Sn	Ti	V		
	(a)		0.007	3.05	0.031	0.1	0.015	0.245	0.031	0.87	0.26	0.0048	0.009	2.5	0.077	0.06	0.0067		
	(b)		0.009	3.74	0.25	0.79	0.037	0.68	0.253	0.38	0.009	0.0035	0.052	1.46	0.017	0.017	0.086		
	(c)		0.038		0.05	0.014	0.044	0.126	0.075	1.52	0.123	0.0041		2.98	0.031	0.0026	0.04		
	(d)		0.008	3.53	0.162	0.348		1.21	0.147	0.022	0.044	0.029	0.029	1.82	0.115	0.056	0.16		
	(e)		0.015	3.29	0.127	1.29	0.01	0.414	0.0024	0.166	0.025	0.015	0.015	2.22	0.0017	0.0041	0.002		
VS-CHG35	(a)	CRM	Cast Iron (Chill cast; white structure) approx. ø35x40mm																disc
VS-CHG36	(b)	CRM	Cast Iron (Chill cast; white structure) approx. ø35x40mm																disc
VS-CHG37	(c)	CRM	Cast Iron (Chill cast; white structure) approx. ø35x40mm																disc
VS-CHG38	(d)	CRM	Cast Iron (Chill cast; white structure) approx. ø35x40mm																disc
VS-CHG39	(e)	CRM	Cast Iron (Chill cast; white structure) approx. ø35x40mm																disc
VS-CHG40	(f)	CRM	Cast Iron (Chill cast; white structure) approx. ø35x40mm																disc
			C	Cr	Cu	Mn	Mo	Ni	P	S	Si	Ti	V						
	(a)		3.34	0.233	0.09	1.23	0.027	2.15	0.102	0.021	0.617	0.022	0.043						
	(b)		2.94	0.476	0.7	0.454	0.406	0.542	0.232	0.036	1.5	0.027	0.086						
	(c)		2.49	0.82	0.512	0.92	0.55	0.9	0.038	0.046	2.03	0.092	0.227						
	(d)		2.43	1.98	1.2	0.302	0.046	0.162	0.386	0.084	2.3	0.105	0.119						
	(e)		3.01	1.08	0.414	0.82	0.113	1.09	0.304	0.088	1.45	0.168	0.274						
	(f)		2.59	1.47	0.98	1.56	0.229	1.61	0.059	0.019	1.6	0.18	0.325						
BS-285	(a)	CRM	Cast Iron, ø28x28 mm																disc
			B	C	Co	Cr	Cu	Mg	Mn	Mo	N	Ni	P	Pb	S	Sb	Si	Sn	Ti
	(a)		0.0048	3.21	0.0099	1.09	0.302	0.043	0.706	0.227	0.0025	1.33	0.044	0.0121	0.009	0.184	1.98	0.025	0.053
			V	W															
	(a)		0.129	0.066															

Code	Product																	Unit	
MBH-11X 0331.1 H	(a)	CRM	Corrosion Resistant Iron, ø40x13 mm															disc	
MBH-11X 0331.3 F	(b)	CRM	Corrosion Resistant Iron, ø40x13 mm															disc	
MBH-11X 0331.5 C	(c)	CRM	Corrosion Resistant Iron, ø40x13 mm															disc	
MBH-11X 0331.6 A	(d)	CRM	Corrosion Resistant Iron, ø35x6 mm															disc	
			Al	C	Co	Cr	Cu	Mn	Mo	Ni	P	Pb	S	Si	Sn	Ti	V	Zr	
	(a)		(0.03)	2.831	0.154	2.022	7.68	1.353	0.111	13.75	0.111	0.03	0.137	2.1	0.048	0.094			
	(b)		0.055	2.1		2.57	6.49	1.08	0.061	18.03	0.04	0.0112	0.061	2.46	0.0091				
	(c)		0.018	2.73		0.582	7.74	0.893	0.117	14.52	0.164	0.0056	0.217	2.93	0.121				
	(d)			2.71		1.13	6.57	1.144	0.011	14.03	0.0473	(0.0006)	0.0197	2.05	(0.002)	0.025	0.0106	<0.005	
MBH-11X 15294 T	(a)	CRM	Iron with Chrome, ø40x17 mm															disc	
MBH-11X 15295 P	(b)	CRM	Iron with Chrome, ø40x17 mm															disc	
MBH-11X 15309 R	(c)	RM	Iron with Chrome, ø40x15 mm															disc	
MBH-11X 20001 J	(d)	RM	Corrosion Resistant Iron, ø40x15 mm															disc	
MBH-11X 20002 J	(e)	RM	Corrosion Resistant Iron, ø40x15 mm															disc	
MBH-11X 20003 K	(f)	RM	Corrosion Resistant Iron, ø40x15 mm															disc	
MBH-11X AR5 J	(g)	CRM	Abrasion Resistant Iron, ø40x15 mm															disc	
			Al	C	Co	Cr	Cu	Mn	Mo	Nb	Ni	P	Pb	S	Si	Sn	Ti	V	W
	(a)			2.25	0.179	29.32	0.126	0.551	0.63		1.84	0.1	0.0067	0.05	0.409	0.07		0.124	0.45
	(b)			2.285	0.542	24.87	0.238	1.01	0.518		0.35	0.085	(0.01)	0.094	1.057	(0.045)		0.144	(0.2)
	(c)			3.273	0.068	23.3	1.142	1.196	0.982		2.05	0.034		0.011	0.562			0.096	(0.057)
	(d)			2.9		1.5	0.01	0.58			21.4	0.005		0.143	1.01				
	(e)			2.67		2.03	0.3	1.06			20	0.06		0.045	2.04				
	(f)			2.91		2.53	0.52	1.53			17.8	0.174		0.007	3.03				
	(g)	(0.018)		3.1		9.73	0.032	0.57	0.12	0.03	5.16	0.0299	(0.003)	0.0316	1.7		0.0147	0.0586	

Cast Iron, Alloyed

Code	Product	Unit
MBH-11X S/2 CR1 E(a)	RM Corrosion Resistant Iron, ø40x15 mm	disc
MBH-11X S/2 CR2 D(b)	RM Corrosion Resistant Iron, ø40x15 mm	disc
MBH-11X S/2 CR4 D(c)	RM Corrosion Resistant Iron, ø40x15 mm	disc
MBH-11X S/2 CR5 D(d)	RM Corrosion Resistant Iron, ø40x15 mm	disc
MBH-11X S/2 CR6 D(e)	RM Corrosion Resistant Iron, ø40x15 mm	disc
MBH-11X S/3 CR1 D(f)	RM Corrosion Resistant Iron, ø40x15 mm	disc
MBH-11X S/3 CR3 B(g)	RM Corrosion Resistant Iron, ø40x15 mm	disc
	C Cr Cu Mn Ni P S Si	
(a)	2.83 2.48 0.02 1.68 16.5 0.31 0.011 2.85	
(b)	3.03 2.35 0.23 0.53 18 0.14 0.046 1.23	
(c)	2.82 1.1 0.24 0.97 20.7 0.049 0.01 2.59	
(d)	3.01 3.99 0.24 0.83 19.5 0.14 0.042 2.51	
(e)	2.65 4.39 0.27 0.81 18 0.254 0.009 3.59	
(f)	2.61 0.15 0.19 0.7 31.7 0.046 0.011 2.52	
(g)	2.49 4.06 0.23 0.66 29.4 0.053 0.05 2.44	

Cast Iron, Nodular

Code	Product																		Unit		
CKD-251	(a)	CRM	Cast Iron, aust., nod., 38x38x23 mm																		block
CKD-253	(b)	CRM	Cast Iron, aust., nod., 38x38x23 mm																		block
CKD-254	(c)	CRM	Cast Iron, aust., nod., 38x38x23 mm																		block
			Al	C	Ce	Co	Cr	Cu	Mg	Mn	Mo	Nb	Ni	P	Pb	S	Si	Sn	Ti		
	(a)		(0.02)	2.25	0.017	0.09	1.07	0.38	0.022	1.97	0.12	0.1	19.7	0.015	(0.009)	0.015	1.14	(0.01)	(0.005)		
	(b)		(0.035)	2.45	0.018	0.105	2.95	0.29	0.038	0.74	0.01		23.6	0.059		0.008	2.28	(0.005)	(0.005)		
	(c)		(0.05)	2.78	0.039	0.06	0.24	0.11	0.058	4.5	0.41	0.26	14.3	0.043	(0.012)	0.018	2.6	(0.02)	(0.005)		
			V																		
	(a)		(0.02)																		
	(b)		(0.02)																		
	(c)		(0.005)																		
SEI-KTC-10 M-1	(a)	CRM	Ductile Cast Iron, Ø34x5mm (Set of 5 only)																		disc
SEI-KTC-10 M-2	(b)	CRM	Ductile Cast Iron, Ø34x5mm (Set of 5 only)																		disc
SEI-KTC-10 M-3	(c)	CRM	Ductile Cast Iron, Ø34x5mm (Set of 5 only)																		disc
SEI-KTC-10 M-4	(d)	CRM	Ductile Cast Iron, Ø34x5mm (Set of 5 only)																		disc
SEI-KTC-10 M-5	(e)	CRM	Ductile Cast Iron, Ø34x5mm (Set of 5 only)																		disc
			C	Mg	Mn	P	S	Si													
	(a)		3.4	0.05	0.1	0.015	0.002	2.5													
	(b)		3.4	0.04	0.1	0.015	0.002	2.5													
	(c)		3.4	0.03	0.1	0.015	0.002	2.5													
	(d)		3.4	0.02	0.1	0.015	0.002	2.5													
	(e)		3.4	0.01	0.1	0.015	0.002	2.5													

Cast Iron, Nodular

Code	Product																			Unit
SEI-KTC-11 D-1A	(a)	CRM	Ductile Cast Iron, Ø34x5mm (Set of 10 only)																	disc
SEI-KTC-11 D-2A	(b)	CRM	Ductile Cast Iron, Ø34x5mm (Set of 10 only)																	disc
SEI-KTC-11 D-3A	(c)	CRM	Ductile Cast Iron, Ø34x5mm (Set of 10 only)																	disc
SEI-KTC-11 D-4A	(d)	CRM	Ductile Cast Iron, Ø34x5mm (Set of 10 only)																	disc
SEI-KTC-11 D-5A	(e)	CRM	Ductile Cast Iron, Ø34x5mm (Set of 10 only)																	disc
SEI-KTC-11 D-6A	(f)	CRM	Ductile Cast Iron, Ø34x5mm (Set of 10 only)																	disc
SEI-KTC-11 D-7A	(g)	CRM	Ductile Cast Iron, Ø34x5mm (Set of 10 only)																	disc
SEI-KTC-11 D-8A	(h)	CRM	Ductile Cast Iron, Ø34x5mm (Set of 10 only)																	disc
SEI-KTC-11 D-9A	(i)	CRM	Ductile Cast Iron, Ø34x5mm (Set of 10 only)																	disc
SEI-KTC-11 D-10A	(j)	CRM	Ductile Cast Iron, Ø34x5mm (Set of 10 only)																	disc
			Al	B	Bi	C	Ca	Ce	Cr	Cu	Mg	Mn	Mo	Ni	P	Pb	S	Sb	Si	
	(a)		0.087	0.028		3.20		0.035		0.19	0.046	0.13	0.11		0.028	0.001	0.005	0.062	3.31	
	(b)		0.074	0.055		3.47		0.011		0.04	0.053	0.50	0.22	0.41	0.016		0.001	0.094	2.99	
	(c)		0.012	0.010		3.60					0.022	0.42	0.45	0.31	0.033		0.017	0.024	2.22	
	(d)		0.053	0.12		3.19	0.0018	0.008	0.21		0.048	0.71	0.021	0.34	0.020	0.004	0.006	0.009	2.71	
	(e)		0.013	0.001	0.001	3.78	0.0005		0.02		0.020	0.24	0.32		0.044	0.007	0.014	0.16	2.47	
	(f)		0.007		0.005	3.93	0.0005		0.31	0.31	0.015	0.37		0.10	0.071	0.016	0.033	1.64		
	(g)		0.014		0.011	3.99				0.11	0.013	0.29	0.062	0.21	0.060	0.009	0.021	2.02		
	(h)		0.11		0.005	2.98		0.064	0.29	0.52	0.021	0.20	0.008	0.01	0.050	0.009	0.037	0.21	2.87	
	(i)		0.10			3.20	0.0030	0.092	0.11	0.01	0.007	0.84	0.004		0.004	0.037	0.014	2.48		
	(j)		0.029	0.087	0.003	2.79	0.0035		0.40	0.40	0.003	0.02			0.008	0.026	0.011	2.40		
			Sn	Ti	V	Zn														
	(a)				0.10	0.009														
	(b)		0.004	0.010	0.20	0.002														
	(c)		0.014	0.24		0.018														
	(d)		0.44		0.25															
	(e)			0.18		0.029														
	(f)		0.054	0.047	0.15															
	(g)			0.12	0.055	(0.051)														
	(h)		0.30		0.009															
	(i)		0.20		0.37															
	(j)		0.089		0.003															

Code	Product																Unit
NIST-C1137A	(b)	CRM	White Cast Iron, ø32x19mm														disc
NIST-C2423A	(c)	CRM	Ductile Iron B, ø32x19mm														disc
NIST-C2424	(d)	CRM	Ductile Iron C, ø32x19mm														disc
		Al	B	C	Ce	Co	Cr	Cu	La	Mg	Mn	Mo	Nb	Ni	P	S	Sb
	(b)	(0.007)		2.86	0.016		0.643	0.192		0.032	0.52	0.86		2.17	0.087	0.017	1.15
	(c)	(0.08)	(0.01)	3.66	0.031	(0.02)	0.322	1.61	0.0042	0.076	0.91	0.159		0.147	0.246	(<0.001)	1.59
	(d)	(<0.01)	(0.002)	2.68	0.0046	(0.05)	0.13	0.125	0.0011	0.006	0.268	0.019		0.061	0.041	0.024	3.37
		Sn	Te	Ti	V												
	(b)			(0.04)	0.019												
	(c)			0.1	0.043												
	(d)			0.05	0.083												

Cast Iron, Complex Alloyed

Code	Product																			Unit
BS-CC9	(a)	RM	Cast Iron, complex alloyed, ø33x19 mm																	disc
BS-CC10	(b)	RM	Cast Iron, complex alloyed, ø33x19 mm																	disc
BS-CC11	(c)	RM	Cast Iron, complex alloyed, ø33x19 mm																	disc
BS-CC13	(d)	RM	Cast Iron, complex alloyed, ø33x19 mm																	disc
BS-CC14	(e)	RM	Cast Iron, complex alloyed, ø33x19 mm																	disc
BS-CC16	(f)	RM	Cast Iron, complex alloyed, ø33x19 mm																	disc
			Al	As	B	Bi	C	Ca	Ce	Co	Cr	Cu	La	Mg	Mn	Mo	Ni	P	Pb	
	(a)		0.027	0.056	0.025	(0.002)	2.97	0.0003	(0.0003)	0.086	0.095	1.21	0.0012	0.0005	2.04	0.21	0.34	0.028	0.0011	
	(b)		0.033	0.007	0.011	(0.0002)	2.96	0.0001	(0.0003)	0.059	0.113	0.23	(0.0002)	0.0006	1.76	0.46	0.52	0.023	0.0007	
	(c)		0.029	0.006	0.0012	(<0.0005)	3	0.0002	(0.001)	0.021	0.06	0.14	(0.001)	(0.013)	1.18	0.011	0.064	0.022	0.0007	
	(d)		0.089	(0.002)	(0.0004)	0.009	(3.82)	(0.0008)	0.0018	0.033	0.57	0.088	(0.0007)	0.016	0.16	1.19	1.6	0.019	0.0002	
	(e)		0.006	(<0.001)	(0.0003)	(<0.0005)	(4.04)	0.0011	(0.002)	0.036	0.031	0.021	(0.0007)	(0.024)	(0.01)	(0.003)	0.074	0.016	0.0002	
	(f)		(0.004)	(0.005)	0.0005	(0.007)	(2.67)	(0.0001)	(0.0004)	0.017	0.91	0.11	(0.0001)	(0.0004)	0.39	1.33	1.94	0.1	0.0002	
			S	Sb	Si	Sn	Te	Ti	V	W	Zr									
	(a)		0.068	0.14	2.29	0.094	(0.004)	(0.11)	0.31	(0.008)	0.004									
	(b)		0.074	0.152	2.02	0.013	(0.002)	0.15	0.047	(0.006)	(0.003)									
	(c)		(0.024)	0.14	1.92	0.045	(0.002)	0.011	0.016	(0.002)	(0.002)									
	(d)		0.006	(0.0006)	1.05	0.03	0.004	0.014	0.023	(0.006)	(0.001)									
	(e)		0.003	(0.001)	0.64	0.002	0.005	0.004	0.021	(0.003)	(0.002)									
	(f)		0.045	(0.001)	3.57	0.005	0.006	0.017	0.014	(0.004)	(0.002)									
BS-CC21	(a)	CRM	Cast Iron, complex alloyed, ø32x17 mm																	disc
BS-CC22	(b)	RM	Cast Iron, complex alloyed, ø32x17 mm																	disc
BS-CC23	(c)	RM	Cast Iron, complex alloyed, ø32x17 mm																	disc
			Al	As	B	C	Ce	Co	Cr	Cu	La	Mg	Mn	Mo	N	Nb	Ni	P	Pb	
	(a)		0.032	0.045	0.02	2.66	<0.002	0.012	2.68	0.013	<0.002	0.0005	1.37	0.13	(0.0013)	(0.001)	0.026	0.85	0.004	
	(b)		0.006	0.091	0.044	2.88	<0.002	0.01	0.98	0.34	<0.002	<0.001	1.84	0.022	(0.012)	0.013	0.151	0.274	0.001	
	(c)		0.059	0.017	0.066	2.96	<0.002	0.09	0.47	0.31	<0.002	<0.001	0.74	0.265	(0.008)	<0.003	0.56	0.53	0.008	
			S	Sb	Si	Sn	Te	Ti	V	W	Zr									
	(a)		0.006	(0.004)	2.32	0.006	(0.009)	0.085	0.051	<0.002	0.025									
	(b)		0.16	0.059	0.74	0.079	0.034	0.012	0.25	0.012	0.026									
	(c)		0.082	0.17	0.43	0.052	0.033	0.091	0.197	<0.01	0.06									

Cast Iron, Gray Iron

Code	Product																Unit
BS-20A	(a)	RM	Cast Iron - Gray, ø38x12 mm														disc
BS-20B	(b)	RM	Cast Iron - Gray, ø40x10 mm														disc
BS-20E	(c)	RM	Cast Iron - Gray, ø47x13 mm														disc
BS-20G	(d)	RM	Cast Iron - Gray, ø47x13 mm														disc
BS-20K	(e)	RM	Cast Iron - Gray, ø50x13 mm														disc
BS-20P	(f)	RM	Cast Iron - Gray, ø44x13 mm														disc
BS-20R	(g)	RM	Cast Iron - Gray, ø47x13 mm														disc
BS-20W	(h)	RM	Cast Iron - Gray, ø47x13 mm														disc
			Al	As	C	Co	Cr	Cu	Mn	Mo	Ni	P	S	Si	Sn	Ti	V
	(a)				3.33		0.034	0.54	0.75	0.18	0.06	0.04	0.029	2.8	0.1	0.033	
	(b)				2.98		0.075	0.1	0.84	0.031	0.22	0.08	0.029	1.79	<0.005	0.042	
	(c)	0.006	(0.003)		3.24	0.006	0.088	0.23	0.8	0.042	0.156	0.042	0.044	2.29	0.093	0.017	0.007
	(d)	0.008	0.004		3.33	0.022	0.086	0.54	0.58	0.19	0.38	0.028	0.029	3.02	0.12	0.012	0.018
	(e)	0.004	0.004		3.21	0.013	0.117	0.56	0.68	0.21	0.28	0.06	0.025	2.47	0.058	0.019	0.013
	(f)	0.008	(0.004)		3.22	0.018	0.079	0.067	0.63	0.033	0.14	0.032	0.044	2.62	0.099	0.018	0.017
	(g)	0.005	0.004		3.25	0.006	0.094	0.35	0.62	0.053	0.096	0.047	0.034	2.72	0.104	0.015	0.007
	(h)	0.04	0.004		3.27	0.005	0.092	0.29	0.62	0.054	0.082	0.045	0.036	2.64	0.086	0.015	0.007

These samples contain free graphite. Extended preburn time may be needed to normalize analysis for optical emission (arc/spark) users.

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Just send an e-mail to: askus@lgcstandards.com



Setting-up Samples Solid Discs and Blocks

Sample Grinder HK150EXS

Manual pendulum grinder with steel cabinet and integrated spark trap and dust exhauster

Grinding Machine HK150EXS

- Clean, powerful sample grinding system with stone – ready to go
- Floor standing machine, dustproof, covered working place, halogen spotlight
- Steel cabinet with switch board, dust trap, exhauster and drawer
- Reproducible flat surface, easily operated pendulum arm in taper bearings
- Simple and reliable machine construction
- Specially suitable for hard materials, like white cast irons
- Adaptable to various qualities by special stone cup wheels
- Vertical moving of grinding head by handwheel with 0.1 mm scale



Technical Data and Accessory

Technical Data

Grinder motor	3 x 400 V/50 Hz, 1.1 kW alt.: 1 x 220 V/60 Hz alt.: 3 x 220 V/60 Hz
Revolutions	2800 rpm/3440 rpm
Lighting	12 V/20 W halogen
Grinding stone	150 x 80 x 32 mm
Grinding height, min.	4 mm
Grinding height, max.	90 mm
Mass (grinder)	approx. 100 kg
Mass (cabinet)	approx. 50 kg
Dimensions (grinder)	400 x 400 x 680 mm
Dimensions (cabinet)	600 x 600 x 870 mm

Standard Accessory

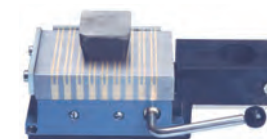
Vice for sample holding
Grinding stone, tool for stone change
Dressing bar for grinding stone
Transport handles

Optional Accessory

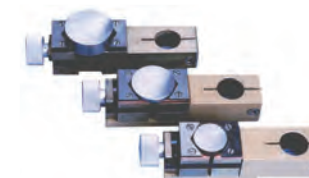
Magnetic vice with handle and quick exchange arm
Special vices – bigger vice for max. diam. 58 mm
Hardened vice jaws: 3 mm, 9 mm (regular) and 20 mm
Copper cooling blocks
Corundum/silicon carbide cup wheels 150 x 80 x 32 mm
Filter bags/exhauster motor protection filter
Spare parts kit: 2 bellows, safety glass, halogen lamp



Cup wheel, open corundum stone



Magnetic plate with quick exchange arm



Vices for different sample diameters

Breitländer – Part of LGC Standards GmbH
Mercatorstr. 51, 46485 Wesel, Deutschland
Tel.: +49 (0)281 319 391 0
Fax: +49 (0)281 319 391 29
E-Mail: mail@breitlander.com



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Cast Iron, Setting-Up Samples

Code	Product																		Unit		
SUS-CFE5+	(a)	SUS	Pig Iron, Check Sample, ø35-40x30 mm																		disc
SUS-CFE6+	(b)	SUS	Cast Iron, grey, Check Sample, ø40x50 mm																		disc
SUS-CFE7+	(c)	SUS	Grey Cast Iron, Check Sample, ø40x50mm																		disc
SUS-CFE8+	(d)	SUS	Cast Iron, Check Sample, ø37-40x30 mm																		disc
SUS-RG13+	(e)	SUS	Cast Iron without Mg, ø38x40 mm																		disc
SUS-RG14+	(f)	SUS	Cast Iron with Mg, ø38x40 mm																		disc
SUS-RG15+	(g)	SUS	Cast Iron without Mg, ø38x40 mm																		disc
SUS-RG16+	(h)	SUS	Cast Iron with Mg, ø36x36 mm																		disc
			Al	As	B	C	Ce	Co	Cr	Cu	La	Mg	Mn	Mo	Nb	Ni	P	Pb	S		
	(a)		0.05			4.1			0.1	0.01			0.2	0.03	<0.002	0.02	0.05	0.04			
	(b)		0.004			(3.3)			0.03	0.8			0.7	<0.01		0.03	0.04	0.03			
	(c)		0.015			(3.7)			0.03	0.14			0.07	<0.01		0.05	0.015	<0.001	0.005		
	(d)		0.03	0.002	0.02	3.2		0.009	0.05	0.06			0.4	0.01	0.001	0.03	0.02	0.02			
	(e)		0.03			3		0.01	1	0.5			1	0.3	<0.01	0.6	0.5	<0.001	0.05		
	(f)		0.03		0.02	3.5	0.03		1	0.07	<0.01	0.04	0.2			0.8	0.05	<0.01			
	(g)		0.03			2.2			0.6	0.02			0.8	0.8		0.5	0.3	0.11			
	(h)		0.03		0.02	3.7	0.02		1	0.1	<0.01	0.05	0.2			0.8	0.2	0.006			
			Si	Sn	Te	Ti	V	W	Zr												
	(a)		0.6	<0.003		0.04	0.2														
	(b)		2.6	0.002		0.02	0.007														
	(c)		3.1	0.003		0.01	0.018														
	(d)		1.1	0.003	0.02	0.01	0.01	0.009	0.0002												
	(e)		2	0.2		0.04	0.3	0.01													
	(f)		2.3	0.2		0.04	0.16														
	(g)		3.8	0.1																	
	(h)		2.4	0.2	0.004	0.05	0.18														

Cast Iron, Setting-Up Samples

Code	Product																		Unit
SEI-KTC-13 A	(a)	SUS	This set consists of 4 pcs of A, 4 pcs of B and 2 pcs of C.																disc
SEI-KTC-13 B	(b)	SUS																	disc
SEI-KTC-13 C	(c)	SUS																	disc
			Al	B	Bi	C	Ca	Cr	Cu	Mg	Mn	Mo	Ni	P	Pb	S	Sb	Si	Sn
	(a)					3.5				0.055	0.1			(<0.02)		(<0.01)		2.5	
	(b)		(<0.01)	0.1	(<0.01)	2.1	(<0.001)	0.5	0.55		0.05	0.3	0.01	0.7	0.01	0.06	0.2	3.0	0.3
	(c)		0.1	(<0.01)	0.02	0.2	0.003	0.01	0.01		0.8	(<0.01)	0.5	(<0.01)	0.05	(<0.01)	0.01	0.5	(<0.01)
			Ti	V	Zn														
	(a)		(<0.01)																
	(b)			(<0.01)	(<0.01)														
	(c)		0.3	0.3	0.06														
SEI-KTC-14 D	(a)	SUS	This set consists of 2 pcs of D, 4 pcs of E and 4 pcs of F.																disc
SEI-KTC-14 E	(b)	SUS																	disc
SEI-KTC-14 F	(c)	SUS																	disc
			C	Cr	Cu	Mg	Mn	Mo	Ni	P	S	Si							
	(a)		3.4			0.05	0.1			0.015		2.5							
	(b)		2.4	1.0	0.05	(<0.01)	0.05	0.05	1.0	0.005	0.10	3.0							
	(c)		4.0	0.05	1.0		1.0	1.0	0.05	0.12	0.005	1.0							
SEI-KTC-16 A-20	(a)	SUS	This set consists of 2 pcs of A and 2 pcs of B.																disc
SEI-KTC-16 B-20	(b)	SUS																	disc
			C	Cr	Cu	Mn	Mo	N	Ni	P	S	Si							
	(a)		0.05	3.80	0.01	0.01	0.01	0.033	0.01	0.002	0.002	0.03							
	(b)		0.01	0.01	0.01	0.01	0.01	0.0015	0.01	0.001	0.002	0.01							
BS-SUCCC+	(a)	SUS	Cast Iron, SUS, ø33-35x17 mm																disc
BS-SUCCD+	(b)	SUS																	disc
			Al	As	C	Ca	Co	Cr	Cu	Mg	Mn	Mo	Ni	P	S	Si	Sn	Ti	V
	(a)		0.013	0.001	3.47	0.002	0.021	0.032	0.024	0.03	0.071	0.006	0.03	0.029	0.01	1.79	0.003	0.003	0.007
	(b)		0.015	0.001	3.28	0.0027	0.009	0.03	0.05	0.032	0.59	0.002	0.02	0.02	0.008	2.53	0.002	0.006	0.014

Code	Product																		Unit		
NCS AH11345	(a)	SUS	Cast Iron, SUS, ø28x20 mm																		disc
NCS AH11346	(b)	SUS	Cast Iron, SUS, ø28x20 mm																		disc
NCS AH11347	(c)	SUS	Cast Iron, SUS, ø28x20 mm																		disc
NCS AH11348	(d)	SUS	Cast Iron, SUS, ø28x20 mm																		disc
NCS AH11349	(e)	SUS	Cast Iron, SUS, ø28x20 mm																		disc
NCS AH11350	(f)	SUS	Cast Iron, SUS, ø28x20 mm																		disc
NCS AH93301	(g)	SUS	Cast Iron, SUS, ø30x30 mm																		disc
			Al	As	B	C	Co	Cr	Cu	Mn	Mo	Nb	Ni	P	Pb	S	Sb	Si	Sn		
	(a)		0.017	0.037	0.008	2.06	0.006	0.159	0.322	1.2	0.097	0.147	0.151	0.041	0.006	0.041	0.064	2.94	0.066		
	(b)		0.028	0.023	0.019	2.53	0.008	1.06	1.5	0.85	0.223	0.067	0.255	0.17	0.007	0.033	0.025	2.48	0.027		
	(c)		0.011	0.014	0.049	3.01	0.012	0.276	0.83	0.681	0.319	0.11	0.592	0.37	0.004	0.064	0.065	1.98	0.06		
	(d)		0.004	0.009	0.024	3.28	0.009	0.462	1.13	0.873	0.245	0.119	0.451	0.074	0.0005	0.078	0.031	1.6	0.049		
	(e)		0.012	0.027	0.077	3.66	0.009	0.488	0.63	0.465	0.99	0.103	1.31	0.56	0.002	0.064	0.038	1.2	0.096		
	(f)		0.02	0.002	0.041	4.3	0.01	2.19	0.49	0.241	0.428	0.08	1.02	0.044	0.003	0.13	0.13	1.2	0.021		
	(g)				0.0039	1.89		3	1.96	2.13	0.017	0.499	0.074	0.043		0.1	0.0021	3.5			
			Ti	V	W																
	(a)		0.032	0.058	0.279																
	(b)		0.161	0.136	0.188																
	(c)		0.111	0.3	0.44																
	(d)		0.094	0.15	0.11																
	(e)		0.22	0.049	0.055																
	(f)		0.154	0.579	0.72																
	(g)		0.247	0.027	0.044																

Cast Iron, Setting-Up Samples

Code	Product																		Unit		
BAS-SUS1	(a)	SUS	Low Phosphorus Iron, 60x35x18 mm																		block
BAS-SUS2	(b)	SUS	Medium Phosphorus Iron, 60x35x18 mm																		block
BAS-SUS3	(c)	SUS	High Phosphorus Iron, 60x35x18 mm																		block
BAS-SUS4	(d)	SUS	Ductile (Nodular) Iron, 60x35x18 mm																		block
BAS-SUS5	(e)	SUS	Ductile (Nodular) Iron, 60x35x18 mm																		block
BAS-SUS6	(f)	SUS	Malleable Iron, 60x35x18 mm																		block
BAS-SUS7	(g)	SUS	Malleable Iron, 60x35x18 mm																		block
			Al	As	B	Bi	C	Ce	Cr	Cu	Mg	Mn	Mo	Ni	P	S	Sb	Si	Sn		
	(a)		0.02				3.1		0.48	0.47		0.4	0.32	0.2	0.05	0.06		2.5	0.05		
	(b)		<0.005				3.6		0.07	0.2		0.72	0.1	0.48	0.19	0.14		1.7	0.1		
	(c)		<0.005				3.3		0.26	0.03		0.92	<0.005	0.03	1	0.1		2.2	<0.005		
	(d)		0.01	0.07			3.3		0.09	0.74	0.02	0.12		0.09		0.01	<0.005	2.6	<0.005		
	(e)		0.04	0.005			3.9	0.03	0.03	<0.005	0.09	0.66		1		0.008	0.04	2	0.07		
	(f)		<0.005		<0.001	0.01	2.5		0.1	0.02		0.65			0.05	0.12		1.8	0.05		
	(g)		0.02		0.004	<0.001	2.8		0.07	0.21		0.29			0.09	0.18		0.94	<0.01		
			Ti	V																	
	(a)		<0.005	0.04																	
	(b)		0.06	0.51																	
	(c)		0.12	0.3																	
	(d)		0.06	0.51																	
	(e)		<0.005	0.5																	
	(f)		0.02	0.02																	
	(g)			0.06																	
CKD-T+	(a)	SUS	Cast Iron, SUS, 40x40x21 mm																		block
CKD-U2+	(b)	SUS	Cast Iron, SUS, 40x40x21 mm																		block
			Al	As	B	Bi	C	Co	Cr	Cu	Mn	Mo	Nb	Ni	P	Pb	S	Sb	Se		
	(a)			0.03			2.8	0.05	0.1	0.3	1.3	0.2		0.2	0.15		0.18	0.1			
	(b)		0.025	0.03	0.008	0.01	3.41	0.012	0.69	0.49	1.16	1.15	0.014	0.57	0.42	0.011	0.099	0.022	0.014		
			Si	Sn	Te	Ti	V	W	Zn	Zr											
	(a)		1.6	0.04	0.02	0.05	0.05			0.01											
	(b)		2.18	0.052	0.017	0.052	0.21	0.002	0.016												
IARM-215A+	(a)	SUS	Cast Iron, SUS, ø31x18.75 mm																		disc
IARM-216A+	(b)	SUS	Cast Iron, SUS, QA22, ø31x18.75 mm																		disc
			Al	As	B	Bi	C	Co	Cr	Cu	Mg	Mn	Mo	Nb	Ni	P	Pb	S	Sb		
	(a)		0.037				3.5		0.6	0.6		1.3	0.5		0.9	0.3		0.13			
	(b)		0.06	0.03	0.037	0.004	3	0.6	1.5	0.08	0.08	0.3	0.004	0.3	2	0.026	0.005	0.001	0.06		
			Si	Sn	Ti	V	W	Zn	Zr												
	(a)		2.1	0.17	0.07	0.5															
	(b)		3	0.04	0.007	0.03	0.043	0.01	0.05												



Chips and powders



Excellence through measurement

Moulds for Iron and Non-Ferrous Metal Samples



Casting of your own samples for spectrometric analysis requires different moulds, depending on alloy type and further handling.

There are different moulds that have been tested under practical working conditions.

Our product range comprises one special mould for cast iron, a modification for pig iron samples releasing robot compatible samples and a number of various classical copper moulds for different metals.

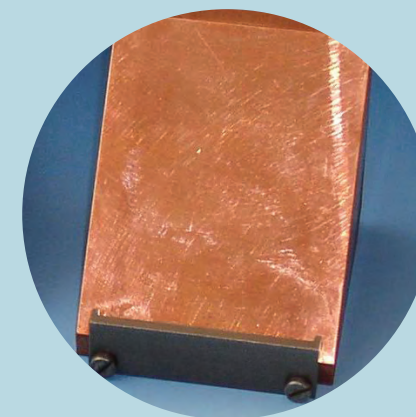
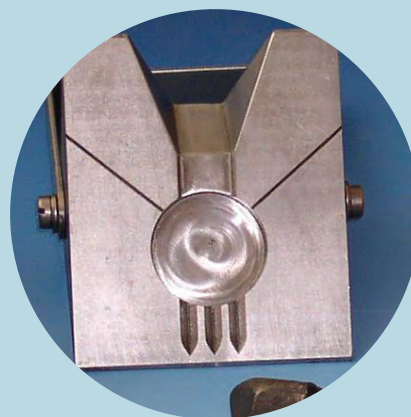
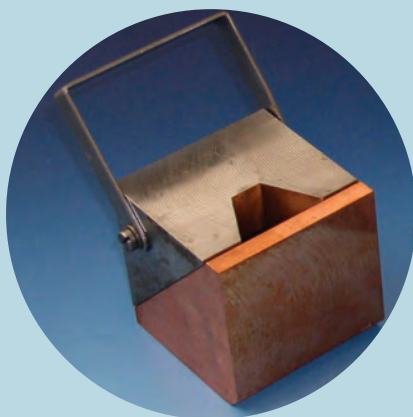
Special Mould for Grey and Nodular Cast Iron BR 150

Mould with 45° casting angle in combined steel/copper construction

- Mould form from steel, casting on copper block ensures unidirectional chill cast solidification on the analytical side of the sample only
- Spectro sample and pins for analysis of C + S simultaneously from same sample cast
- Pin samples of about 0.4 g each to be broken off easily and ready for analysis
- Most simple mounting for tight joining by putting mould form on copper block, no mechanism, no moving parts, self locking
- Copper block designed as flat surface block, enabling easy resurfacing and thus giving extended life time of mould
- Standard size of sample: Ø 34-36 x 5 mm

Special Mould for Pig Iron BR 150/RE

This special mould, intended for casting pig iron samples directly after the blast furnace, is made completely from copper. Pig iron coming from the blast furnace is hotter than regular cast iron, this mould enables rapid cooling for white structure and avoids semi-welding of sample at the regular steel mould form. The big handle is support for the casting ladle and the robust construction is designed to be fixed on a solid steel beam for protection in rough working environment. The sample dimension is: 34 mm diameter with side wall 10 mm high for robot grip tongs.



Cast Iron, Chips

Code	Product			Unit
AR-300	(a)	CRM	Cast Iron	150 g
AR-301	(b)	CRM	Cast Iron	150 g
AR-302	(c)	CRM	Gray Iron	150 g
AR-304	(d)	CRM	Ductile Iron	150 g
AR-305	(e)	CRM	Malleable Iron	150 g
AR-309	(f)	CRM	Nodular Iron	150 g
AR-310	(g)	CRM	Cast Iron	150 g
AR-315	(h)	CRM	Cast Iron, shot	150 g
AR-318	(i)	CRM	Cast Iron	150 g
AR-319	(j)	CRM	Cast Iron	150 g
AR-322	(k)	CRM	Cast Iron	250 g
AR-323	(l)	CRM	Pig Iron	250 g
		C	S	
	(a)	3.32	0.014	
	(b)	2.07	0.010	
	(c)	3.29	0.046	
	(d)	4.23		
	(e)	2.75	0.015	
	(f)	3.71	0.021	
	(g)	3.38	0.086	
	(h)	3.09	0.111	
	(i)	3.08	0.037	
	(j)	3.28	0.055	
	(k)	3.37	0.046	
	(l)	3.84	0.064	

Cast Iron, Chips

Code	Product										Unit								
NCS HC11003	(a)	CRM	Cast Iron										100 g						
NCS HC11003A	(b)	CRM	Cast Iron										100 g						
NCS HC11003B	(c)	CRM	Cast Iron										100 g						
NCS HC11004	(d)	CRM	Cast Iron										100 g						
NCS HC11005	(e)	CRM	Cast Iron										100 g						
NCS HC11006	(f)	CRM	Cast Iron										100 g						
NCS HC11007	(g)	CRM	Pig Iron										100 g						
NCS HC11008	(h)	CRM	Pig Iron										100 g						
NCS HC11009	(i)	CRM	Pig Iron										100 g						
NCS HC11010	(j)	CRM	Pig Iron										100 g						
			C	Cr	Cu	Mn	P	S	Si	Ti	V								
	(a)		3.77			0.659	0.23	0.129	1.47										
	(b)		3.36			0.561	0.166	0.176	1.39										
	(c)		3.36			0.386	0.135	0.154	1.82										
	(d)		2.72			0.359	0.124	0.115	2.56										
	(e)		2.19			0.219	0.047	0.048	3.07										
	(f)		3.11			0.85	0.27	0.13	1.37										
	(g)		2.7	0.589	0.031	1.66	0.201	0.102	1.72	0.014	0.0067								
	(h)		1.9	0.766	0.041	1.96	0.06	0.097	2.72	0.013	0.0075								
	(i)		3.26	0.373	0.02	1.98	0.385	0.081	1.18	0.024	0.0074								
	(j)		3.41	0.17	0.017	0.46	0.569	0.067	0.716	0.015	0.0039								
NCS HC11015	(a)	CRM	Rare Earth Magnesium Cast Iron										80 g						
			Al (sol.)	As	C	Ce	Co	Cr	Cu	La	Mg	Mn	Mo	N	Ni	P	REE	S	Sb
	(a)		0.021	0.011	2.74	0.019	0.011	0.04	0.031	0.013	0.012	0.473	0.0016	0.0047	0.627	0.022	0.036	0.0009	(0.0005)
			Si	Sn	Ti	V													
	(a)		2.32	0.0037	0.015	0.031													
NCS HC13004	(a)	CRM	High Cr Cast Iron										150 g						
NCS HC13005	(b)	CRM	High Cr Cast Iron										150 g						
NCS HC13006	(c)	CRM	High Cr Cast Iron										150 g						
			C	Cr	Cu	Mn	Mo	Ni	P	S	Si	Ti	V						
	(a)		2.46	12.95	0.73	1.63	0.76	1.2	0.383	0.013	0.32	0.0089	0.026						
	(b)		2.86	22.52	0.42	1.07	1.14	0.25	0.058	0.028	0.36	0.005	0.039						
	(c)		2.31	26.5	0.36	0.83	2.71	0.49	0.064	0.043	0.59	0.0051	0.039						

Code	Product											Unit
NCS HC13007	(a)	CRM	Alloy Cast Iron									150 g
NCS HC13008	(b)	CRM	Alloy Cast Iron									150 g
NCS HC13009	(c)	CRM	Alloy Cast Iron									150 g
NCS HC13010	(d)	CRM	Alloy Cast Iron									150 g
NCS HC13011	(e)	CRM	Alloy Cast Iron									150 g
		C	Cr	Cu	Mn	Mo	Ni	P	S	Si	Ti	V
	(a)	3.95	4.31	0.011	0.27	0.36	0.029	0.13	0.233	1.3	0.016	0.012
	(b)	3.46	0.202	0.263	1.05	0.047	0.132	0.252	0.062	3.15	0.047	0.007
	(c)	3.06	0.045	0.016	1.08	0.0036	0.0069	0.162	0.112	2.17	0.035	0.0053
	(d)	3.35	0.96	0.018	0.699	2.39	0.3	0.147	0.045	2.44		
	(e)	3.23	1.36	0.243	1.2	0.639	0.919	0.31	0.045	4.3		
NCS HC13014	(a)	CRM	Pig Iron									150 g
NCS HC13015	(b)	CRM	Pig Iron									150 g
NCS HC13016	(c)	CRM	Pig Iron									150 g
NCS HC13020	(d)	CRM	Pig Iron									100 g
NCS HC13021	(e)	CRM	Pig Iron									100 g
NCS HC13022	(f)	CRM	Pig Iron									100 g
NCS HC13023	(g)	CRM	Pig Iron									100 g
NCS HC13024	(h)	CRM	Pig Iron									100 g
NCS HC13025	(i)	CRM	Pig Iron									100 g
NCS HC13026	(j)	CRM	Cast Iron									100 g
NCS HC13027	(k)	CRM	Cast Iron									100 g
NCS HC13028	(l)	CRM	Cast Iron									100 g
		C	Cr	Cu	Mn	Mo	Ni	P	S	Si	Ti	V
	(a)	3.71			0.796			0.826	0.03	0.42		
	(b)	2.51			0.62			0.104	0.02	4.08		
	(c)	2.99			1.3			0.278	0.1	1.29		
	(d)	2.72			0.508			0.105	0.024	1.32		
	(e)	2.52			1.46			0.273	0.060	1.41		
	(f)	2.85			0.821			0.071	0.027	3.02		
	(g)	2.36			2.10			0.124	0.038	1.45		
	(h)	1.88			0.472			0.160	0.034	4.13		
	(i)	2.51			0.301			0.087	0.081	2.28		
	(j)	1.28	21.12	0.044	0.741	0.335	1.12	0.0285	0.0054	0.644	0.060	0.287
	(k)	1.34	22.40	0.028	0.969	0.546	1.60	0.0310	0.0035	0.843	0.106	0.035
	(l)	1.58	24.73	0.0290	1.37	0.842	2.07	0.032	0.0038	1.11	0.184	0.032

Cast Iron, Chips

Code	Product								Unit
NCS HC14003	(a)	CRM	Pig Iron (NIM-GBW07219A)						150 g
NCS HC14004	(b)	CRM	Pig Iron (NIM-GBW07220)						150 g
NCS HC15011	(c)	CRM	Pig Iron						150 g
			C	Cu	Mn	P	S	Si	
	(a)		2.03	0.085	0.402	0.077	0.042	1.5	
	(b)		2.78	0.028	0.9	0.064	0.047	0.419	
	(c)		2.58		1	0.087	0.068	2.76	
NCS HC16001B	(a)	CRM	Pig Iron						100 g
NCS HC16002B	(b)	CRM	Pig Iron						100 g
NCS HC16003B	(c)	CRM	Pig Iron						100 g
NCS HC16004B	(d)	CRM	Pig Iron						100 g
NCS HC16005	(e)	CRM	Pig Iron (NIM-GBW01105A)						100 g
NCS HC16005B	(f)	CRM	Pig Iron (NIM-GBW01105B)						100 g
NCS HC16006	(g)	CRM	Pig Iron (NIM-GBW01106A)						100 g
NCS HC16006B	(h)	CRM	Pig Iron (NIM-GBW01106B)						100 g
NCS HC16008B	(i)	CRM	Pig Iron (NIM-GBW01108B)						100 g
NCS HC16009B	(j)	CRM	Pig Iron (NIM-GBW01109B)						100 g
			C	Cu	Mn	P	S	Si	Ti
	(a)		3.04	0.025	1.22	0.072	0.052	1.34	0.008
	(b)		2.38	0.026	0.7	0.082	0.034	0.48	0.006
	(c)		3.53	0.258	1.1	0.066	0.048	1.83	0.025
	(d)		3.39	0.202	0.94	0.113	0.016	2.41	0.058
	(e)		3.41	0.109	0.463	0.193	0.0081	3.82	0.151
	(f)		3.27	0.123	0.42	0.219	0.0046	3.87	0.107
	(g)		2.809	0.045	1.48	0.039	0.062	0.856	0.0118
	(h)		2.71	0.036	0.98	0.077	0.089	1.14	0.007
	(i)		3.45	0.015	1.84	0.046	0.018	1.44	0.019
	(j)		2.31	0.038	0.509	0.025	0.1	0.28	0.03

Code	Product																		Unit
NCS HC16010B	(a)	CRM	Pig Iron																100 g
NCS HC16012	(b)	CRM	Pig Iron																150 g
NCS HC16016	(c)	CRM	Pig Iron																150 g
NCS HC16022	(d)	CRM	Pig Iron																100 g
NCS HC16023	(e)	CRM	Pig Iron																150 g
NCS HC16024	(f)	CRM	Pig Iron																150 g
NCS HC16025	(g)	CRM	Pig Iron																150 g
NCS HC16026	(h)	CRM	Pig Iron																150 g
NCS HC16027	(i)	CRM	Pig Iron																150 g
NCS HC16028	(j)	CRM	Pig Iron																150 g
		As	Bi	C	Cr	Cu	Mn	Mo	Ni	P	Pb	S	Sb	Si	Sn	Ti	V	Zn	
	(a)			3.9		0.01	0.414			0.044		0.044		0.93		0.024			
	(b)	0.001	<0.00005	3.89	0.0081	0.0029	0.65	0.0066	0.0058	0.058	<0.0002	0.028	0.00016	1.58	0.00015	0.042			
	(c)			3.04			0.646			0.032		0.102		0.85					
	(d)			2.83			0.721			0.094		0.067		2.19					
	(e)			3.8			0.929			0.171		0.016		1.42					
	(f)			3.59			0.514			0.315		0.033		1.96					
	(g)			3.46			0.67			0.081		0.058		2.61					
	(h)			3.22			0.726			0.085		0.059		2.25					
	(i)	0.0011	<0.00005	4.06	0.01	0.0023	0.094	0.0027	0.0023	0.038	<0.0002	0.029	0.00013	0.725	0.00014	0.026	0.0064	(0.0003)	
	(j)	0.0012	<0.00005	4	0.036	0.0051	0.634	0.0089	0.0045	0.046	<0.0002	0.0073	0.00016	1.55	0.00018	0.084	0.018	(0.0002)	

Cast Iron, Chips

Code	Product									Unit
NCS HC18001	(a)	CRM	Cast Iron							150 g
NCS HC18002	(b)	CRM	Cast Iron							150 g
NCS HC18003	(c)	CRM	Pig Iron							100 g
NCS HC18004	(d)	CRM	Pig Iron							100 g
NCS HC18005	(e)	CRM	Pig Iron							100 g
NCS HC18006	(f)	CRM	Pig Iron							100 g
NCS HC18007	(g)	CRM	Pig Iron							100 g
NCS HC18008	(h)	CRM	Pig Iron							100 g
NCS HC18009	(i)	CRM	Pig Iron							100 g
		As	C	Mg	Mn	P	REE	S	Si	
	(a)		2.54		1.82	0.11		0.054	1.74	
	(b)		2.67		1.36	0.051		0.031	2.94	
	(c)	0.064	3.18		0.0732	0.243		0.049	1.43	
	(d)	0.095	4.00		0.26	0.11		0.023	0.796	
	(e)	0.091	2.89		0.733	0.108		0.0058	2.01	
	(f)	0.092	2.65		0.75	0.114		0.0057	1.99	
	(g)	0.017	4.17		0.348	0.078		0.0233	1.03	
	(h)	0.016	4.13		0.348	0.078		0.023	1.02	
	(i)	0.025	3.83		0.74	0.186		0.023	1.88	
NCS HC18010	(a)	CRM	Pig Iron							100 g
NCS HC18011	(b)	CRM	Pig Iron							100 g
NCS HC18012	(c)	CRM	Pig Iron							100 g
NCS HC18013	(d)	CRM	Pig Iron							100 g
NCS HC18014	(e)	CRM	Pig Iron							100 g
NCS HC18015	(f)	CRM	Pig Iron							100 g
NCS HC18016	(g)	CRM	Pig Iron							100 g
NCS HC18018	(h)	CRM	Pig Iron							100 g
		As	C	Mg	Mn	P	REE	S	Si	
	(a)	0.036	3.66	0.030	0.59	0.145	0.024	0.041	2.40	
	(b)	0.036	3.43		0.729	0.079		0.0082	1.93	
	(c)	0.037	3.23		0.74	0.079		0.0080	1.93	
	(d)	0.013	3.40		0.79	0.049		0.0087	2.12	
	(e)	0.012	3.36		0.792	0.049		0.0087	2.136	
	(f)	0.039	4.01		0.908	0.136		0.046	1.09	
	(g)	0.092	3.20		0.42	0.104		0.0092	2.91	
	(h)	0.027	4.02		0.856	0.056		0.036	1.73	

Code	Product																	Unit		
NCS HC19002	(a)	CRM	V Ti Pig Iron (NIM-GBW07225)																	100 g
NCS HC19004	(b)	CRM	V Ti Pig Iron (NIM-GBW07226A)																	100 g
NCS HC19007	(c)	CRM	Nodular Cast Iron																	100 g
NCS HC19008	(d)	CRM	Nodular Cast Iron																	100 g
NCS HC19010	(e)	CRM	V Ti RE Spherulitic Iron																	100 g
NCS HC19016	(f)	CRM	V Ti Pig Iron																	100 g
NCS HC19017	(g)	CRM	V Ti Pig Iron																	100 g
NCS HC19018	(h)	CRM	V Ti Pig Iron																	100 g
			C	Co	Cr	Cu	Ga	Mg	Mn	Mo	Ni	P	REE	S	Si	Ti	Tl	V		
	(a)		3	0.033	0.033	0.066	0.0077		0.869		0.027	0.048		0.145	1.42		0.254	0.29		
	(b)		2.38	0.034	0.03	0.07	0.0073		1.28		0.028	0.069		0.077	2.12		0.314	0.4		
	(c)		2.855	0.036	0.0466	0.046		0.036	0.977		0.032	0.05	0.04	0.021	2.615	0.106		0.536		
	(d)		3.486	0.035	0.0425	0.044		0.0106	0.734		0.03	0.08	0.0185	0.015	2.529	0.096		0.394		
	(e)		2.69		0.227	0.042		0.028	0.79	0.0016	0.025	0.029	0.04	0.023	2.92	0.109		0.236		
	(f)		2.21	0.037	0.04	0.047		0.099	0.42		0.032	0.014	0.099	0.012	3.78	0.066		0.31		
	(g)		2.77	0.037	0.042	0.046		0.07	0.57		0.031	0.015	0.07	0.014	2.52	0.072		0.356		
	(h)		2.7	0.035	0.043	0.049		0.083	0.625		0.031	0.024	0.083	0.011	3.1	0.125		0.405		
NCS HC28007	(a)	CRM	Cast Iron																	150 g
NCS HC28009	(b)	CRM	Cast Iron																	150 g
NCS HC28010	(c)	CRM	Cast Iron																	150 g
NCS HC28011	(d)	CRM	Cast Iron																	150 g
NCS HC28012	(e)	CRM	Cast Iron																	150 g
NCS HC28013	(f)	CRM	Cast Iron																	150 g
NCS HC28014	(g)	CRM	Cast Iron																	150 g
NCS HC28015	(h)	CRM	Cast Iron																	150 g
NCS HC28017	(i)	CRM	Cast Iron																	150 g
			As	C	Co	Cr	Cu	Mn	Mo	Ni	P	Pb	S	Sb	Si	Sn	Ti	V		
	(a)		0.006	3.06		0.033	0.068	0.77		0.042	0.069	0.000022	0.094	0.00089	1.36	0.0019	0.032			
	(b)		0.007	3.24		0.025	0.077	0.38		0.018	0.352	0.000018	0.159	0.00085	1.89	0.0023	0.055			
	(c)		0.0099	2.65		0.041	0.086	0.575		0.067	0.446	0.00002	0.097	0.0018	2.29	0.0042	0.041			
	(d)		0.045	3.05		0.022	0.194	0.57		0.018	0.298	0.000029	0.079	0.0044	2.67	0.0023	0.079			
	(e)			3.06		0.0325	0.068	0.77		0.0415	0.071		0.094		1.36		0.032			
	(f)			2.65		0.041	0.086	0.575		0.0675	0.45		0.098		2.29		0.041			
	(g)			3.05		0.022	0.194	0.57		0.018	0.3		0.079		2.67					
	(h)			3.58		0.0075	0.091	0.97		0.0125	0.08		0.014		3.02					
	(i)		0.016	3.08	0.011	0.035	0.1	0.665	0.0029	0.023	0.106	0.000021	0.122	0.00255	1.49	0.0028	0.043	0.02		

Cast Iron, Chips

Code	Product											Unit					
NCS HC28023	(a)	CRM	High P Cast Iron										150 g				
NCS HC28025	(b)	CRM	High P Cast Iron										150 g				
NCS HC28026	(c)	CRM	High P Cast Iron										150 g				
NCS HC28028	(d)	CRM	Alloy Cast Iron										150 g				
NCS HC28029	(e)	CRM	Alloy Cast Iron										150 g				
NCS HC28030	(f)	CRM	Alloy Cast Iron										150 g				
NCS HC28031	(g)	CRM	Alloy Cast Iron										150 g				
NCS HC28032	(h)	CRM	Alloy Cast Iron										150 g				
			C	Cr	Cu	Mn	Mo	P	S	Si	Ti	V					
	(a)		3.08	0.094	0.294	0.704		0.847	0.13	1.61							
	(b)		2.98	0.081	0.201	0.698		1.8	0.087	1.8							
	(c)		2.9	0.086	0.245	0.702		1.91	0.124	1.81							
	(d)		3.11	0.28	1.03	0.605		0.25	0.088	1.71	0.0494	0.023					
	(e)		2.85	0.316	0.865	0.85		0.086	0.0995	1.91	0.033	0.017					
	(f)		3.23	0.12	0.12	0.736		0.109	0.124	1.28							
	(g)		2.95	0.23	0.642	0.595	0.155	0.065	0.107	1.75	0.03						
	(h)		3.19	0.54	0.745	0.955	0.303	0.107	0.108	1.295	0.04						
NCS HC28034	(a)	CRM	Alloy Cast Iron										150 g				
NCS HC28035	(b)	CRM	Alloy Cast Iron										150 g				
NCS HC28040	(c)	CRM	Rare Earth Cast Iron										150 g				
NCS HC28041	(d)	CRM	Rare Earth Cast Iron										150 g				
NCS HC28043	(e)	CRM	RE-Mg Spherulitic Iron										85 g				
NCS HC28051	(f)	CRM	Pig Iron										150 g				
NCS HC28054	(g)	CRM	Alloy Cast Iron										150 g				
			C	Co	Cr	Cu	Mg	Mn	Mo	Nb	Ni	P	REE	S	Si	Ti	V
	(a)		3.15		0.464	1.04		0.795	0.515			0.321		0.082	1.67	0.053	
	(b)		3.15			0.915		0.685				0.49		0.076	1.44		
	(c)			0.0049	0.03	0.024		0.77	0.0026		0.013	0.058	0.058		3.04	0.076	0.011
	(d)		1.59		0.052	0.024		0.44				0.067	0.019	0.004	2.13		
	(e)		3.67	0.0065	0.0115	0.033	0.023	0.497	0.0013		0.011	0.084	0.0187	0.0053	2.673	0.068	0.0205
	(f)		3.94		0.0086	0.052		0.513			0.014	0.067		0.029	1.3	0.088	0.052
	(g)		3.01		0.619		0.047	0.645	0.355	0.095	1.19	0.188		0.011	2.03		

Code	Product										Unit
NCS HC30001	(a)	CRM	Cast Iron								100 g
NCS HC30002	(b)	CRM	Cast Iron								100 g
NCS HC30003	(c)	CRM	Cast Iron								100 g
			C	Cu	Mn	P	S	Si			
	(a)		2.26	1.01	1.28	0.178	0.025	2.21			
	(b)		3.12	0.29	0.687	0.1	0.023	0.96			
	(c)		2.62	0.52	1.68	0.12	0.032	1.64			
NCS HC37001	(a)	CRM	High Cr Cast Iron								80 g
NCS HC37002	(b)	CRM	High Cr Cast Iron								80 g
NCS HC37003	(c)	CRM	High Cr Cast Iron								80 g
			C	Cr	Cu	Mn	Mo	Ni	P	S	Si
	(a)		3.4	13.54	1.22	0.99	1.03	0.63	0.06	0.054	1.35
	(b)		3.42	8.93	0.9	0.71	1.74	0.23	0.058	0.064	1.05
	(c)		2.95	15.39	1.06	1.72	1.12	1.05	0.062	0.034	1.32
NCS HC37004	(a)	CRM	RE-Mg Spherulitic Iron								100 g
NCS HC37005	(b)	CRM	RE-Mg Spherulitic Iron								100 g
NCS HC37006	(c)	CRM	RE-Mg Spherulitic Iron								100 g
NCS HC37007	(d)	CRM	RE-Mg Spherulitic Iron								100 g
NCS HC37008	(e)	CRM	RE-Mg Spherulitic Iron								100 g
			C	Cu	Mg	Mn	Mo	P	REE	S	Si
	(a)		2.1	0.451	0.036	0.704	0.205	0.055	0.034	0.015	2.74
	(b)		1.92	0.181	0.073	0.955	0.128	0.041	0.059	0.0064	3.36
	(c)		2.12	0.617	0.056	0.531	2.295	0.036	0.08	0.0062	2.23
	(d)		2.95	0.783	0.015	0.238	0.405	0.041	0.01	0.012	2.06
	(e)		2.59	0.288	0.014	0.373	0.514	0.042	0.011	0.012	3.08

Cast Iron, Chips

Code	Product											Unit
NCS HC37010	(a)	CRM	Cast Iron									100 g
NCS HC37011	(b)	CRM	Cast Iron									100 g
NCS HC37012	(c)	CRM	Cast Iron									100 g
NCS HC37013	(d)	CRM	Wrought Iron									100 g
NCS HC37014	(e)	CRM	Wrought Iron									100 g
NCS HC37015	(f)	CRM	High Cr Cast Iron									80 g
NCS HC37016	(g)	CRM	High Cr Cast Iron									80 g
NCS HC37017	(h)	CRM	High Cr Cast Iron									80 g
			Bi	C	Cr	Cu	Mn	Mo	Ni	P	S	Si
	(a)			3.63			0.762			0.187	0.07	2.82
	(b)			3.73			0.565			0.117	0.067	2.58
	(c)			3.75			0.73			0.152	0.068	2.15
	(d)	0.0025		2.11	0.119		0.353			0.167	0.139	1.7
	(e)	0.00093		2.25	0.163		0.537			0.241	0.088	1.03
	(f)			3.4	13.45	1.22	0.89	1.03	0.63	0.06	0.054	1.35
	(g)			3.42	8.93	0.9	0.71	1.74	0.23	0.058	0.064	1.05
	(h)			2.95	15.39	1.06	1.72	1.12	1.05	0.062	0.034	1.32
NCS HC37018	(a)	CRM	Manganese Spherulitic Iron									100 g
NCS HC37019	(b)	CRM	Manganese Spherulitic Iron									100 g
NCS HC37020	(c)	CRM	Manganese Spherulitic Iron									100 g
NCS HC37021	(d)	CRM	Manganese Spherulitic Iron									100 g
			C	Mg	Mn	P	REE	S	Si			
	(a)		2.78	0.049	6.8	0.12	0.041	0.0027	5.96			
	(b)		3.06	0.054	6.72	0.11	0.049	0.0041	5.8			
	(c)		2.88	0.068	6.4	0.11	0.047	0.0035	3.75			
	(d)		2.79	0.028	8.77	0.1	0.045	0.006	6.58			

Code	Product								Unit
NCS HC37028	(a)	CRM	Pig Iron						100 g
NCS HC37029	(b)	CRM	Pig Iron						100 g
NCS HC37030	(c)	CRM	Pig Iron						100 g
NCS HC37031	(d)	CRM	Pig Iron						100 g
NCS HC37032	(e)	CRM	Pig Iron						100 g
NCS HC37034	(f)	CRM	Pig Iron						100 g
NCS HC37035	(g)	CRM	Pig Iron						100 g
		C	Cr	Cu	Mn	P	S	Si	
	(a)	2.04	0.197	0.642	1.34	0.479	0.038	3.37	
	(b)	2.15	0.221	0.752	1.08	0.451	0.068	2.69	
	(c)	2.22	0.142	0.501	0.869	0.339	0.101	2.2	
	(d)	2.04	0.054	0.176	1.67	0.226	0.103	1.86	
	(e)	2.28	0.028	0.041	0.358	0.086	0.161	1.34	
	(f)	3.73			0.565	0.117	0.067	2.58	
	(g)	3.75			0.73	0.152	0.068	2.15	
NCS HC37036	(a)	CRM	Cast Iron						100 g
NCS HC37037	(b)	CRM	Cast Iron						100 g
NCS HC37038	(c)	CRM	Cast Iron						100 g
NCS HC37039	(d)	CRM	Cast Iron						100 g
NCS HC37040	(e)	CRM	Cast Iron						100 g
NCS HC37041	(f)	CRM	Cast Iron						100 g
NCS HC37042	(g)	CRM	Cast Iron						100 g
NCS HC37043	(h)	CRM	Cast Iron						100 g
		Bi	C	Cr	Cu	Mn	P	S	Si
	(a)	0.0034	1.67	0.055		1.05	0.085	0.024	1.9
	(b)	0.0038	1.9	0.025		0.78	0.11	0.055	2.34
	(c)	0.0015	2.01	0.113		0.677	0.057	0.115	1.44
	(d)		2.04	0.197	0.642	1.34	0.479	0.038	3.37
	(e)		2.15	0.221	0.752	1.08	0.451	0.068	2.69
	(f)		2.22	0.142	0.501	0.869	0.339	0.101	2.2
	(g)		2.04	0.054	0.176	0.67	0.226	0.103	1.86
	(h)		2.28	0.028	0.041	0.358	0.086	0.161	1.34

Cast Iron, Chips

Code	Product						Unit
NCS HC39001	(a)	CRM	Cast Iron				100 g
NCS HC39002	(b)	CRM	Cast Iron				100 g
NCS HC39003	(c)	CRM	Cast Iron				100 g
NCS HC39004	(d)	CRM	Cast Iron				100 g
NCS HC39005	(e)	CRM	Cast Iron				100 g
NCS HC39008	(f)	CRM	Cast Iron				100 g
NCS HC39009	(g)	CRM	Cast Iron				100 g
NCS HC39010	(h)	CRM	Cast Iron				100 g
		C	Mn	P	S	Si	
	(a)	2.85	0.38	0.081	0.096	2.48	
	(b)	2.81	0.57	0.062	0.134	1.71	
	(c)	2.95	0.26	0.142	0.085	1.49	
	(d)	2.78	0.78	0.066	0.082	2.17	
	(e)	3.18	0.76	0.122	0.073	1.57	
	(f)	2.59	0.859	0.187	0.093	2.17	
	(g)	2.47	1.56	0.318	0.057	3.33	
	(h)	2.65	0.331	0.113	0.134	1.29	

Code	Product																	Unit		
NCS HC39011	(a)	CRM	Boron Cast Iron																	100 g
NCS HC39012	(b)	CRM	Boron Cast Iron																	100 g
NCS HC39013	(c)	CRM	Boron Cast Iron																	100 g
NCS HC39014	(d)	CRM	Boron Cast Iron																	100 g
			B	C	Mn	P	S	Si												
	(a)		0.061	2.96	0.57	0.082	0.058	1.67												
	(b)		0.125	3.03	0.68	0.128	0.064	2.08												
	(c)		0.0101	2.86	0.56	0.106	0.052	2.35												
	(d)		0.049	3.03	0.36	0.1	0.054	1.95												
NCS HC41001	(a)	CRM	Pure Iron Used in Industry																	150 g
NCS HC41002	(b)	CRM	DT4																	150 g
NCS HC41010	(c)	CRM	Cast Iron																	150 g
NCS HC41011	(d)	CRM	Cast Iron																	150 g
NCS HC41012	(e)	CRM	Cast Iron																	150 g
NCS HC41013	(f)	CRM	Cast Iron																	150 g
			Al	As	C	Cr	Cu	Mn	Mo	Ni	P	Pb	S	Sb	Si	Sn	Ti	V		
	(a)			0.0024	0.021	0.022	0.027	0.204	0.0060	0.003	0.0115		0.0092		0.074	0.014		0.0003		
	(b)		0.309		0.023			0.178			0.016		0.009		0.075					
	(c)				2.64	0.086	0.056	0.54	0.021	0.03	0.086		0.029		1.49		0.024	0.011		
	(d)				2.64	0.151	0.146	0.725	0.105	0.035	0.177		0.033		2.23		0.031	0.014		
	(e)		0.017		2.52	0.115	0.114	1.24		0.037	0.635	0.0008	0.032	0.0011	3.86		0.071	0.033		
	(f)		0.026		2.46	0.105	0.132	0.93		0.036	0.41	0.0008	0.041	0.0011	2.66		0.061	0.024		

Cast Iron, Chips

Code	Product													Unit				
NCS HC93001	(a)	CRM	Pig Iron											100 g				
NCS HC93002	(b)	CRM	Alloy Cast Iron											100 g				
NCS HC93003	(c)	CRM	Alloy Cast Iron											100 g				
NCS HC93004	(d)	CRM	Alloy Cast Iron											100 g				
NCS HC93005	(e)	CRM	Alloy Cast Iron											100 g				
NCS HC93006	(f)	CRM	Alloy Cast Iron											100 g				
NCS HC93007	(g)	CRM	Alloy Cast Iron											100 g				
			C	Cr	Cu	Mn	Mo	Ni	P	REE	S	Si	Ti	V				
	(a)		4.01			1.15			0.097		0.069	1.49						
	(b)		1.82	0.6	0.24	1.84	0.16	0.95	0.027	0.024	0.097	3.54	0.46	0.2				
	(c)		2.4	0.97	2.18	1.19	0.11	0.23	0.072	0.025	0.084	2.47	0.13	0.16				
	(d)		3.28	0.21	0.82	0.48	1.1	0.33	0.34	0.01	0.018	2	0.035	0.06				
	(e)		2.76	0.39	1.36	0.69	0.65	0.59	0.14	0.007	0.058	1.37	0.15	0.3				
	(f)		2.64	1.92	0.35	0.29	0.25	2.65	0.43	0.044	0.079	1.21	0.029	0.02				
	(g)		3.94	0.14	0.49	0.14	0.42	1.56	0.058	0.027	0.028	0.82	0.08	0.58				
ECRM-D 428-2	(a)	CRM	Cast iron GG 25, powdered material produced by atomization of the melt - powder											100 g				
ECRM-D 476-3	(b)	CRM	Pig iron - powder											100 g				
ECRM-D 478-2	(c)	CRM	Hematite pig iron - powder											100 g				
ECRM-D 479-1	(d)	CRM	Alloyed cast iron - powder											100 g				
ECRM-D 480-1	(e)	CRM	Nodular iron - powder											100 g				
			Al	As	B	C	Cr	Cu	Mg	Mn	Mo	N	Ni	P	S	Si	Ti	V
	(a)			0.0156		2.747	0.0366	0.0996		0.75			0.0358	0.0691	0.1105	1.751	0.0311	0.012
	(b)			0.0145		3.39	0.0648	0.2445		0.987		0.0038	0.0549	0.0908	0.0493	1.813	0.0222	0.0115
	(c)			(0.0018)	0.0006	4.003	0.251	0.1276		0.321		0.0023	0.151	0.201	0.046	2.411	0.0328	0.0113
	(d)		0.0143			2.86	1.001	(0.0065)		0.136	0.1959		1.0123	0.0764	0.0893	2.018		
	(e)		0.0163			3.029		(0.0052)	0.0172	0.1514			0.4826	0.0021	0.0086	2.407		

Code	Product																		Unit		
ECRM-B 451-2	(a)	CRM	Austenitic cast iron - chips (BAS-BCS-CRM 263/3)																		100 g
ECRM-B 453-1	(b)	CRM	High Si and P iron - chips (BAS-BCS-CRM 206/3)																		100 g
ECRM-B 454-1	(c)	CRM	Hematite iron - chips																		100 g
ECRM-B 481-1	(d)	CRM	Nodular iron - chips																		100 g
ECRM-B 482-2	(e)	CRM	Low alloyed cast iron - chips																		100 g
ECRM-B 483-1	(f)	CRM	High duty iron - chips																		100 g
ECRM-B 484-1	(g)	CRM	Whiteheart malleable iron - chips																		100 g
ECRM-B 486-1	(h)	CRM	Foundry iron - chips																		100 g
ECRM-B 489-1	(i)	CRM	White cast iron - chips																		100 g
			Al	As	C	C (graph)	Cr	Cu	Mg	Mn	Mo	N	Ni	P	S	Si	Sn	Ti	V		
	(a)				2.059		1.097	6.2613		1.0790			14.0131	0.0593	0.0315	2.0916					
	(b)			0.019	(2.44)	(2.37)	0.053	0.1		0.72			0.068	1.63	0.049	3.17		(0.04)	0.05		
	(c)			(0.025)	(2.53)	(1.96)		(0.07)		1.16			(0.21)	0.046	0.068	2		0.052			
	(d)	0.023	0.01	3.91			0.063	0.15	0.051	0.448	0.011		1.19	0.019	0.004	2.29					
	(e)			2.599			0.675	1.231		0.728	0.454		2.284	0.0974	0.0491	1.815					
	(f)			2.46	1.65		0.039			0.596				0.615	0.103	1.75	0.13				
	(g)			3.2			0.155			0.395				0.121	0.23	0.717					
	(h)			2.21			0.104	0.548		0.841			0.057	1	0.023	2.43	0.074	0.02			
	(i)			2.86				0.274		(0.51)		(0.0056)		0.815	0.155	1.524					
ECRM-F 485-2	(a)	CRM	Cast iron - chips																		100 g
ECRM-F 487-1	(b)	CRM	Cast iron - chips																		100 g
ECRM-F 487-2	(c)	CRM	Cast iron - chips																		100 g
ECRM-F 488-2	(d)	CRM	Low alloyed white cast iron - chips																		100 g
ECRM-F 492-1	(e)	CRM	Cast iron, for C/S/N-determination - chips																		100 g
			Al	As	C	Co	Cr	Cu	Mn	N	Ni	P	S	Si	Sn	Te	Ti	V	Zn		
	(a)				3.308		0.0845	0.0303	0.19	0.0058	0.0742	0.61	0.165	0.508							
	(b)			0.011	3.27	0.0088	0.063		0.094	0.0042	0.04	0.002	0.0007	0.006							
	(c)	0.079	0.0063	3.573	0.0151	0.0248	0.0136	0.0491	0.004	0.0219	0.0065	0.0031	0.0898	0.0045	0.0064	0.0022	0.0117	0.0012			
	(d)			3.956			0.303	0.0256	0.201	0.0052	0.1247	0.0111	0.1173	0.374	0.0013		0.0636	0.0545			
	(e)			3.258						0.0048			0.0854								

Cast Iron, Chips

Code	Product									Unit
CTIF-FA10	(a)	CRM	Cast Iron							100 g
CTIF-FA20	(b)	CRM	Cast Iron							100 g
CTIF-FB20	(c)	CRM	Cast Iron							100 g
CTIF-FB20-1	(d)	CRM	Cast Iron							100 g
CTIF-FB20-2	(e)	CRM	Cast Iron							100 g
CTIF-FG10	(f)	CRM	Cast Iron							100 g
CTIF-FG20	(g)	CRM	Cast Iron							100 g
		C	Cr	Cu	Mn	Ni	P	S	Si	
	(a)	1.976	1.986	0.492	1.063	20.05	0.045		1.48	
	(b)	0.643	28.3		0.368		0.045		1.519	
	(c)	2.114	0.035		0.464		0.039	0.128	1.012	
	(d)	3.552	(0.1)		(0.39)		(0.07)	0.059	(0.935)	
	(e)	3.557	(0.1)		(0.39)		(0.07)	0.0614	(0.935)	
	(f)	2.322			1.098		0.111	0.016	2.467	
	(g)	2.487			0.571		1.44	0.109	1.726	

Code	Product																		Unit
MBH-C11X 152940 S	(a)	RM	Pure Iron with Chromium																100 g
CKD-228	(b)	CRM	Cast Iron																200 g
CKD-230/100	(c)	CRM	Cast Iron																100 g
DH-SE25-12	(d)	RM	Cast iron																50 g
IPT-37B	(e)	CRM	Cast Iron, gray																80 g
IPT-49	(f)	CRM	Cast Iron, white																80 g
IPT-69	(g)	CRM	Cast Iron																80 g
IPT-75A	(h)	CRM	Cast Iron, gray (Ni-Cr-Mo-Cu)																80 g
SEI-102-8	(i)	CRM	Pig Iron for steel making																150 g
SEI-110-12	(j)	CRM	Pig Iron for Casting																100 g
SEI-120-1	(k)	CRM	Cast Iron - 3C																150 g
NM 73	(l)	CRM	Cast Iron																100 g
			Al (sol.)	As	B	Bi	C	C (graph)	Ce	Co	Cr	Cu	La	Mg	Mn	Mo	N	Nb	Ni
	(a)						2.15			1.05	31.02	0.174			0.52	0.278		4.2	
	(b)	0.01	0.035	0.005	0.005	1.95				0.015	0.31	0.56			1.27	1		0.31	
	(c)	0.01	0.005		(0.001)	2.55			0.01	0.01	0.09	1.05	(0.005)	0.04	0.31	0.05		1.11	
	(d)	0.054	0.012			4.738				0.016	0.08	0.106			0.758	0.002		<0.002	0.026
	(e)					3.37	2.85				0.088	0.052			0.737			0.074	
	(f)					2.11					0.02	0.04			0.272			0.021	
	(g)					3.34	2.5				0.353	0.47			0.715	(0.004)		0.272	
	(h)					3.4	2.7				0.487	0.433			0.722	0.438		0.425	
	(i)					4.71									0.326		0.003		
	(j)		0.0022			4.18					0.0162	0.003			0.392		0.0044	0.0117	
	(k)					2.85					0.28	0.29			0.7	(0.007)	0.0058	0.12	
	(l)					3.07	2.55								0.82				
			P	Pb	S	Sb	Se	Si	Sn	Te	Ti	Tl	V	W	Zr				
	(a)		0.081	0.023	0.072			0.49	0.072				0.024	0.301					
	(b)		0.3	0.005	0.145	0.02	(0.02)	2.51	0.05	(0.01)	0.03		0.005	0.04	0.015				
	(c)		0.049		0.024	0.006		1.04	0.01		0.01		0.02						
	(d)		0.081		0.103			1.865			0.036		0.015						
	(e)		0.148		0.069			1.66				0.034							
	(f)		0.012		0.019			0.78											
	(g)		0.267		0.018			2.07				0.019							
	(h)		0.25		0.033			1.98			0.022		0.03						
	(i)		0.103		0.0353			0.257			0.0255								
	(j)		0.0902		0.0251			1.7			0.0324		0.01						
	(k)		0.053		0.0095			1.32			0.006		0.007						
	(l)		0.22		0.014			1.21											

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AR-315	49	BAS-SCRM 673	22	CTIF-7160	26	CTIF-NR3S	29	MBH-11X C2 S	20	NCS HC13025	51	NCS HC28013	55
AR-318	49	BAS-SCRM 674	22	CTIF-8018	26	CTIF-NR4G	29	MBH-11X C3 Z	20	NCS HC13026	51	NCS HC28014	55
AR-319	49	BAS-SCRM 675	22	CTIF-8532	26	CTIF-NR4L	30	MBH-11X C4 Q	20	NCS HC13027	51	NCS HC28015	55
AR-322	49	BAS-SIMO 1/3	28	CTIF-FA10	64	CTIF-NR4S	29	MBH-11X C5 U	20	NCS HC13028	51	NCS HC28017	55
AR-323	49	BAS-SIMO 2/2	28	CTIF-FA20	64	CTIF-NR5L	30	MBH-11X C6 V	20	NCS HC14003	52	NCS HC28023	56
BAS-CRRM1/1	31	BAS-SUS1	46	CTIF-FAL1	18	CTIF-NR5S	29	MBH-11X C7 N	20	NCS HC14004	52	NCS HC28025	56
BAS-CRRM2/1	31	BAS-SUS2	46	CTIF-FB20	64	CTIF-NR6L	30	MBH-11X C8 T	20	NCS HC15011	52	NCS HC28026	56
BAS-CRRM3/1	31	BAS-SUS3	46	CTIF-FB20-1	64	CTIF-NR6S	29	MBH-11X C9 B	20	NCS HC16001B	52	NCS HC28028	56
BAS-CRRM4/1	31	BAS-SUS4	46	CTIF-FB20-2	64	CTIF-NR8L	30	MBH-11X CC21A	20	NCS HC16002B	52	NCS HC28029	56
BAS-CRRM5/1	31	BAS-SUS5	46	CTIF-FCR1	24	CTIF-NR8S	29	MBH-11X CC22A	20	NCS HC16003B	52	NCS HC28030	56
BAS-LARM 1	22	BAS-SUS6	46	CTIF-FCR2	24	CTIF-NRCU1-1B	30	MBH-11X HPC1 G	25	NCS HC16004B	52	NCS HC28031	56
BAS-LARM 2	22	BAS-SUS7	46	CTIF-FCR3	24	CTIF-NRCU2	30	MBH-11X HPC2 K	25	NCS HC16005	52	NCS HC28032	56
BAS-LARM 3	22	BS-1B	23	CTIF-FCR4	24	CTIF-NRCU3	30	MBH-11X HPC3 H	25	NCS HC16005B	52	NCS HC28034	56
BAS-LARM 4	22	BS-20A	39	CTIF-FCR5	24	CTIF-SIMO-1	28	MBH-11X HPC4 P	25	NCS HC16006	52	NCS HC28035	56
BAS-LARM 5	22	BS-20B	39	CTIF-FCR6	24	CTIF-SIMO-2	28	MBH-11X HPC5 A	25	NCS HC16006B	52	NCS HC28040	56
BAS-NCRM 1	30	BS-20E	39	CTIF-FCR7	24	CTIF-SIMO-3	28	MBH-11X S/2 CR1 E	34	NCS HC16008B	52	NCS HC28041	56
BAS-NCRM 2	30	BS-20G	39	CTIF-FCRN1	25	CTIF-SIMO-4	28	MBH-11X S/2 CR2 D	34	NCS HC16009B	52	NCS HC28043	56
BAS-NCRM 3	30	BS-20K	39	CTIF-FCRN2	25	CTIF-SIMO-5	28	MBH-11X S/2 CR4 D	34	NCS HC16010B	53	NCS HC28051	56
BAS-NCRM 4	30	BS-20P	39	CTIF-FCRN3	25	DH-SE25-12	65	MBH-11X S/2 CR5 D	34	NCS HC16012	53	NCS HC28054	56
BAS-NCRM 5	30	BS-20R	39	CTIF-FG10	64	ECRM-B 451-2	63	MBH-11X S/2 CR6 D	34	NCS HC16016	53	NCS HC30001	57
BAS-NCRM 6	30	BS-20W	39	CTIF-FG20	64	ECRM-B 453-1	63	MBH-11X S/3 CR1 D	34	NCS HC16022	53	NCS HC30002	57
BAS-NCRM 7	30	BS-285	32	CTIF-FL1	18	ECRM-B 454-1	63	MBH-11X S/3 CR3 B	34	NCS HC16023	53	NCS HC30003	57
BAS-NIRM 1	29	BS-4C	23	CTIF-FL10	18	ECRM-B 481-1	63	MBH-C11X 152940 S	65	NCS HC16024	53	NCS HC37001	57
BAS-NIRM 2	29	BS-CC10	38	CTIF-FL3	18	ECRM-B 482-2	63	NCS AH11345	45	NCS HC16025	53	NCS HC37002	57
BAS-NIRM 3	29	BS-CC11	38	CTIF-FL4	18	ECRM-B 483-1	63	NCS AH11346	45	NCS HC16026	53	NCS HC37003	57
BAS-NIRM 4	29	BS-CC13	38	CTIF-FL5	18	ECRM-B 484-1	63	NCS AH11347	45	NCS HC16027	53	NCS HC37004	57
BAS-NIRM 5	29	BS-CC14	38	CTIF-FL6	18	ECRM-B 486-1	63	NCS AH11348	45	NCS HC16028	53	NCS HC37005	57
BAS-NIRM 6	29	BS-CC16	38	CTIF-FO10	17	ECRM-B 489-1	63	NCS AH11349	45	NCS HC18001	54	NCS HC37006	57
BAS-NIRM 7	29	BS-CC21	38	CTIF-FO11	17	ECRM-D 428-2	62	NCS AH11350	45	NCS HC18002	54	NCS HC37007	57
BAS-NIRM 8/1	29	BS-CC22	38	CTIF-FO12	17	ECRM-D 476-3	62	NCS AH93301	45	NCS HC18003	54	NCS HC37008	57
BAS-SCRM 651/4	13	BS-CC23	38	CTIF-FO17	17	ECRM-D 478-2	62	NCS HC11003	50	NCS HC18004	54	NCS HC37010	58
BAS-SCRM 652/4	13	BS-CC9	38	CTIF-FO18	17	ECRM-D 479-1	62	NCS HC11003A	50	NCS HC18005	54	NCS HC37011	58
BAS-SCRM 653/4	13	BS-SUCC+	44	CTIF-FO19	17	ECRM-D 480-1	62	NCS HC11003B	50	NCS HC18006	54	NCS HC37012	58
BAS-SCRM 654/4	13	BS-SUCCD+	44	CTIF-FO4	17	ECRM-F 485-2	63	NCS HC11004	50	NCS HC18007	54	NCS HC37013	58
BAS-SCRM 655/4	13	CKD-228	65	CTIF-FO5	17	ECRM-F 487-1	63	NCS HC11005	50	NCS HC18008	54	NCS HC37014	58
BAS-SCRM 656/8	13	CKD-230/100	65	CTIF-FO6	17	ECRM-F 487-2	63	NCS HC11006	50	NCS HC18009	54	NCS HC37015	58
BAS-SCRM 657/8	13	CKD-241B	12	CTIF-FO7	17	ECRM-F 488-2	63	NCS HC11007	50	NCS HC18010	54	NCS HC37016	58
BAS-SCRM 658/10	13	CKD-242A	12	CTIF-FO8	17	ECRM-F 492-1	63	NCS HC11008	50	NCS HC18011	54	NCS HC37017	58
BAS-SCRM 659/8	13	CKD-242B	12	CTIF-FO9	17	IARM-215A+	46	NCS HC11009	50	NCS HC18012	54	NCS HC37018	58
BAS-SCRM 660/9	13	CKD-244C	12	CTIF-FPA1	17	IARM-216A+	46	NCS HC11010	50	NCS HC18013	54	NCS HC37019	58
BAS-SCRM 661/4	13	CKD-245A	12	CTIF-FT1	18	IPT-37B	65	NCS HC11015	50	NCS HC18014	54	NCS HC37020	58
BAS-SCRM 662/4	13	CKD-245B	12	CTIF-FT2-1	18	IPT-49	65	NCS HC13004	50	NCS HC18015	54	NCS HC37021	58
BAS-SCRM 663/4	13	CKD-246B	12	CTIF-FT3	18	IPT-69	65	NCS HC13005	50	NCS HC18016	54	NCS HC37028	59
BAS-SCRM 664/4	13	CKD-251	35	CTIF-NH1	24	IPT-75A	65	NCS HC13006	50	NCS HC18018	54	NCS HC37029	59
BAS-SCRM 665/4	13	CKD-253	35	CTIF-NH2	24	MBH-11X 0331.1 H	33	NCS HC13007	51	NCS HC19002	55	NCS HC37030	59
BAS-SCRM 666/11	14	CKD-254	35	CTIF-NH3	24	MBH-11X 0331.3 F	33	NCS HC13008	51	NCS HC19004	55	NCS HC37031	59
		CKD-T+	46	CTIF-NH4	24	MBH-11X 0331.5 C	33	NCS HC13009	51	NCS HC19007	55	NCS HC37032	59
		CKD-U2+	46	CTIF-NH5	24	MBH-11X 0331.6 A	33	NCS HC13010	51	NCS HC19008	55	NCS HC37034	59
		CTIF-3601B	26	CTIF-NH6	24	MBH-11X 15294 T	33	NCS HC13011	51	NCS HC19010	55	NCS HC37035	59
		CTIF-4497	26	CTIF-NH7	24	MBH-11X 15295 P	33	NCS HC13014	51	NCS HC19016	55	NCS HC37036	59

NCS HC3703759	NCS HC4101161	NCS HS11712A-627	SEI-KTC-10 M-535	SEI-KTC-13 B44	SPL-CZ02033-5A11	VASKUT-20316
NCS HC3703859	NCS HC4101261	NCS HS11712A-727	SEI-KTC-11 D-10A36	SEI-KTC-13 C44	SPL-CZ02033-6A11	VASKUT-20416
NCS HC3703959	NCS HC4101361	NCS HS11716-131	SEI-KTC-11 D-1A36	SEI-KTC-14 D44	SPL-CZ02033-7A11	VASKUT-20516
NCS HC3704059	NCS HC9300162	NCS HS11716-231	SEI-KTC-11 D-2A36	SEI-KTC-14 E44	SPL-CZ02033-8A11	VASKUT-20616
NCS HC3704159	NCS HC9300262	NCS HS11716-331	SEI-KTC-11 D-3A36	SEI-KTC-14 F44	SUS-CFE5+43	VS-CHG1-531
NCS HC3704259	NCS HC9300362	NCS HS11716-431	SEI-KTC-11 D-4A36	SEI-KTC-15 N-119	SUS-CFE6+43	VS-CHG2432
NCS HC3704359	NCS HC9300462	NCS HS11716-531	SEI-KTC-11 D-5A36	SEI-KTC-15 N-219	SUS-CFE7+43	VS-CHG2532
NCS HC3900160	NCS HC9300562	NCS HS11716-631	SEI-KTC-11 D-6A36	SEI-KTC-15 N-319	SUS-CFE8+43	VS-CHG2632
NCS HC3900260	NCS HC9300662	NIST-C1137A37	SEI-KTC-11 D-7A36	SEI-KTC-15 N-419	SUS-RG13+43	VS-CHG2732
NCS HC3900360	NCS HC9300762	NIST-C1145A23	SEI-KTC-11 D-8A36	SEI-KTC-15 N-519	SUS-RG14+43	VS-CHG2832
NCS HC3900460	NCS HS11711A-121	NIST-C129027	SEI-KTC-11 D-9A36	SEI-KTC-16 A-2044	SUS-RG15+43	VS-CHG3532
NCS HC3900560	NCS HS11711A-221	NIST-C129123	SEI-KTC-12/1-0115	SEI-KTC-16 B-2044	SUS-RG16+43	VS-CHG3632
NCS HC3900860	NCS HS11711A-321	NIST-C2423A37	SEI-KTC-12/1-0215	SEI-KTC-9 B128	VASKUT-12016	VS-CHG3732
NCS HC3900960	NCS HS11711A-421	NIST-C242437	SEI-KTC-12/1-0315	SEI-KTC-9 B228	VASKUT-12116	VS-CHG3832
NCS HC3901060	NCS HS11711A-521	NM 7365	SEI-KTC-12/1-0415	SEI-KTC-9 B328	VASKUT-12216	VS-CHG3932
NCS HC3901161	NCS HS11711A-621	SEI-102-865	SEI-KTC-12/1-0515	SEI-KTC-9 B428	VASKUT-12316	VS-CHG4032
NCS HC3901261	NCS HS11711A-721	SEI-110-1265	SEI-KTC-12/1-0615	SEI-KTC-9 B528	VASKUT-12416	VS-CHG4-531
NCS HC3901361	NCS HS11712A-127	SEI-120-165	SEI-KTC-12/1-0715	SEI-KTC-9 B628	VASKUT-12516	VS-CHG5-631
NCS HC3901461	NCS HS11712A-227	SEI-KTC-10 M-135	SEI-KTC-12/1-0815	SPL-CZ02033-1A11	VASKUT-12616	
NCS HC4100161	NCS HS11712A-327	SEI-KTC-10 M-235	SEI-KTC-12/1-0915	SPL-CZ02033-2B11	VASKUT-12716	
NCS HC4100261	NCS HS11712A-427	SEI-KTC-10 M-335	SEI-KTC-12/1-1015	SPL-CZ02033-3A11	VASKUT-20116	
NCS HC4101061	NCS HS11712A-527	SEI-KTC-10 M-435	SEI-KTC-13 A44	SPL-CZ02033-4A11	VASKUT-20216	

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