

EUROPEAN COAL AND STEEL COMMUNITY
COMMUNAUTÉ EUROPÉENNE DU CHARBON ET DE L'ACIER
EUROPÄISCHE GEMEINSCHAFT FÜR KOHLE UND STAHL

EURO - STANDARD No. 676-I IRON ORE SINTER

CERTIFICATE OF ANALYSES

Laboratory Means (4 values), all relate to the dried (105°C) sample

Line No.	%Fe	%Si	%Ca	%Mg	%Al	%Ti	%Mn	%P	%S	%Na	%K	%F	%V
1	39.59	6.311	12.57	1.097	3.295	0.1690	0.8020	0.5608	0.1065	0.0850	0.3845	0.0862	0.0615
2	39.63	6.345	12.58	1.099	3.298	0.1735	0.8135	0.5625	0.1075	0.0910	0.3900	0.0868	0.0650
3	39.65	6.348	12.64	1.111	3.310	0.1750	0.8138	0.5642	0.1100	0.0920	0.4150	0.0875	0.0668
4	39.69	6.350	12.69	1.135	3.320	0.1800	0.8162	0.5680	0.1105	0.0922	0.4200	0.0892	0.0682
5	39.69	6.350	12.70	1.135	3.330	0.1802	0.8175	0.5800	0.1110	0.0925	0.4230	0.0897	0.0685
6	39.72	6.372	12.71	1.138	3.333	0.1858	0.8200	0.5800	0.1118	0.0930	0.4268	0.0912	0.0688
7	39.73	6.378	12.72	1.138	3.365	0.1872	0.8290	0.5825	0.1120	0.0942	0.4295	0.0930	0.0690
8	39.75	6.385	12.74	1.142	3.372	0.1900	0.8305	0.5859	0.1138	0.0950	0.4328	0.0938	0.0710
9	39.76	6.396	12.74	1.143	3.385	0.1902	0.8325	0.5862	0.1148	0.0960	0.4349	0.0978	0.0714
10	39.78	6.400	12.75	1.146	3.408	0.1912	0.8333	0.5875	0.1155	0.0960	0.4375	0.0980	0.0715
11	39.79	6.409	12.80	1.148	3.410	0.1920	0.8350	0.5882	0.1160	0.0968	0.4388	0.1050	0.0725
12	39.80	6.409	12.81	1.180	3.432	0.1944	0.8350	0.5896	0.1182	0.0975	0.4402	0.1060	0.0726
13	39.82	6.410	12.84	1.180	3.440	0.1950	0.8350	0.5900	0.1185	0.0975	0.4420	0.1065	0.0728
14	39.82	6.423	12.87	1.190	3.450	0.1950	0.8398	0.5975	0.1196	0.0975	0.4420	0.1142	0.0730
15	39.83	6.453	12.88	1.192	3.460	0.1964	0.8412	0.5996	0.1230	0.0998	0.4450	0.1182	0.0740
16	39.84	6.470	12.90	1.198	3.468	0.1970	0.8462	0.6028	0.1232	0.1045	0.4475	0.1268	0.0745
17	39.86	6.472	12.96	1.205	3.498	0.2020	0.8483	0.6050	0.1270		0.4560		
18	39.89	6.478	12.99	1.208	3.499	0.2175	0.8525	0.6059			0.4575		
19		6.483	13.03	1.210	3.512		0.8538	0.6088					
20								0.6115					
M _M	39.76	6.402	12.78	1.158	3.399	0.1895	0.8313	0.5878	0.1152	0.0950	0.4313	0.0994	0.0701
S _M	0.08	0.051	0.13	0.037	0.072	0.0114	0.0144	0.0155	0.0058	0.0043	0.0196	0.0123	0.0035

M_M: Mean of the intralaboratory means.

S_M: Standard deviation of the intralaboratory means

CERTIFIED VALUES

	%Fe	%Si	%Ca	%Mg	%Al	%Ti	%Mn	%P	%S	%Na	%K	%F	%V
M _M	39.76	6.40	12.78	1.16	3.40	0.19	0.83	0.59	0.12	0.095	0.43	0.10	0.070
S _M	0.08	0.05	0.13	0.04	0.07	0.01	0.01	0.02	0.006	0.004	0.02	0.01	0.004

The above values (M_M) expressed as oxides

%SiO ₂	%CaO	%MgO	%Al ₂ O ₃	%TiO ₂	%P ₂ O ₅	%Na ₂ O	%K ₂ O
13.69	17.88	1.92	6.42	0.32	1.35	0.128	0.52

Laboratories which have participated in the standardization of Euro-Standard 676-I

Arbed, Differdange (Luxemburg).
Arbed, Esch-sur-Alzette (Luxemburg).
British Steel Corporation, Corby Works (U.K.).
British Steel Corporation, Port Talbot Works (U.K.).
British Steel Corporation, Scunthorpe Works (U.K.).
Bundesanstalt für Materialprüfung, Berlin (Germany).
Centre de Recherches de Pont-a-Mousson (France).
Centro Sperimentale Metallurgico, Rome (Italy).
Fried. Krupp Hüttenwerke AG, Werk Rheinhausen (Germany).
Hoogovens, IJmuiden (Holland).
Institut de Recherches de la Sidérurgie Française, Maizières-Les-Metz (France).

Italsider, Laboratorio Centrale Metodologie Analitiche, Genova (Italy).
Laboratoire des Refractaires et Minerais, Nancy (France).
LKAB, Kiruna (Sweden).
Ridsdale & Co. Ltd., Middlesbrough (U.K.).
Société Cockerill, Seraing (Belgium).
Sollac, Florange (France).
Stahlwerke Peine-Salzgitter AG, Peine (Germany).
Stahlwerke Röchling-Burbach GmbH, Völklingen-Saar (Germany).
Stora Kopparberg, Borlänge (Sweden).

For the Commission of Co-ordination of the Nomenclature of metallurgical products—Commission of European Communities.

For information regarding the Euro-Standards, please refer to the ECSC Information Circular No. 1 available from the Institution responsible for standardisation in your country.

Pour tous renseignements sur les Euro-échantillons-types, se reporter à la Circulaire d'Information No. 1 de la CECA, diffusée par les organismes nationaux de normalisation.

Wegen Erläuterungen über Euro-Analysenkontrollproben siehe Mitteilung Nr. 1 (2. Auflage) der EGKS. Zu beziehen durch die nationalen Normenorganisationen.



BUREAU OF ANALYSED SAMPLES LIMITED

Newham Hall, Middlesbrough, England. NOVEMBER, 1975

METHODS USED

676-1

Element	Line Number	Methods
Fe	1-2-3-4-5-6-7-8-9-11-13-14-16-17-18 10-12-15	Titration with dichromate Titration with permanganate
Si	1-2-3-5-6-7-8-9-10-11-12-14-15-17-18 16-19 13 4	Gravimetric after acid dehydration Colorimetric as reduced silicomolybdate Atomic absorption spectroscopy X-ray fluorescence spectroscopy
Ca	1-5-8-9-14-18 6-7-11 2-4-10-12-16-19 3-15-17 13	Atomic absorption spectroscopy Gravimetric as calcium oxalate Precipitation as oxalate and titration with permanganate Complexometric titration X-ray fluorescence spectroscopy
Mg	1-3-4-5-6-7-9-11-12-13-14-16-17-18 8-10-15-19 2	Atomic absorption spectroscopy Gravimetric as pyrophosphate X-ray fluorescence spectroscopy
Al	6-15-19 13-17 5 1-4-18 2-3-9-10-11-12-16 8 14 7	Colorimetric with eriochromecyanine Gravimetric as aluminium phosphate Gravimetric with 8-hydroxyquinoline Colorimetric with chrome azurol S Atomic absorption spectroscopy Precipitation with 8-hydroxyquinoline and bromometric titration Gravimetric as oxide X-ray fluorescence spectroscopy
Ti	3-4-5-8-9-12-15-16-17-18 1-13-14 7-11 2-10 6	Colorimetric with chromotropic acid Colorimetric with hydrogen peroxide Colorimetric with diantipyrimethane Atomic absorption spectroscopy X-ray fluorescence spectroscopy
Mn	18 1-2 4 3-7-8-10-12-13-14-15-16-17 6-9 5-11-19	Titrimetric after zinc oxide separation Titrimetric with arsenite Potentiometric titration with permanganate Colorimetric with periodate Colorimetric with persulphate Atomic absorption spectroscopy
P	7 16-18 1-5-6-10-12-15-17-19-20 2-3-4-9-11-13 14	Gravimetric as phosphomolybdate Titrimetric as phosphomolybdate Colorimetric as phosphovanadomolybdate Colorimetric as phosphomolybdate X-ray fluorescence spectroscopy
S	1-4-5-6-7-10-11-12-14-15-16 2-3-8-9-13	Combustion Gravimetric as barium sulphate
Na	1-3-5-6-9-11-13-14-15 2-4-7-8-10-12-16	Flame emission spectroscopy Atomic absorption spectroscopy
K	1-2-3-4-5-7-8-11-14-15 6-9-10-12-13-16-17-18	Flame emission spectroscopy Atomic absorption spectroscopy
F	4-11 2-3-7-16 1-5-8-9-10-12-13-15 14	Titration with thorium nitrate Specific ion electrode Colorimetric with alizarin fluorine blue Colorimetric with alizarin
V	2-6-13 11 1-3-4-9 7 5-8-10-12-16 14 15	Colorimetric with N-benzoylphenylhydroxylamine Colorimetric with pyrocatechol Colorimetric with dimethylnaphthidine Colorimetric as phosphovanadotungstate Atomic absorption spectroscopy Colorimetric with hydrogen peroxide Colorimetric with pyrogallol