

ECSC - CECA - EGKS

**EUROPEAN COAL AND STEEL COMMUNITY**

**COMMUNAUTÉ EUROPÉENNE DU CHARBON ET DE L'ACIER**

**EUROPÄISCHE GEMEINSCHAFT FÜR KOHLE UND STAHL**

**EURO-STANDARD No. 577-1 FERRO-VANADIUM**

**CERTIFICATE OF ANALYSES**

Laboratory Means (4 values)

Line No.	%C	%Si	%P	%S	%V	%Al (Acid-soluble)	%Al* (Total)
1	0.0838	1.726	—	—	49.98	—	—
2	0.0842	1.728	—	0.0298	49.99	0.1778	—
3	0.0842	1.732	0.0300	0.0320	49.99	0.1882	0.3375
4	0.0845	1.745	0.0305	0.0320	50.00	0.2000	0.3688
5	0.0848	1.767	0.0328	0.0322	50.06	0.2000	0.3775
6	0.0865	1.777	0.0338	0.0327	50.07	0.2025	0.3862
7	0.0868	1.780	0.0338	0.0332	50.07	0.2090	0.4040
8	0.0875	1.785	0.0340	0.0332	50.08	0.2105	0.4048
9	0.0878	1.788	0.0342	0.0333	50.08	0.2125	0.4048
10	0.0880	1.798	0.0348	0.0336	50.13	0.2142	0.4050
11	0.0882	1.802	0.0352	0.0339	50.16	0.2152	0.4095
12	0.0895	1.804	0.0352	0.0339	50.18	0.2205	0.4118
13	0.0900	1.805	0.0360	0.0346	50.20	0.2250	0.4248
14	0.0905	1.807	0.0362	0.0350	50.22	0.2275	0.4275
15	0.0905	1.808	0.0366	0.0352	50.24	0.2295	0.4305
16	0.0908	1.810	0.0380	0.0360	50.27	0.2305	0.4400
17	0.0908	1.811	0.0400	0.0360	50.28	0.2306	0.4432
18	0.0912	1.818	—	0.0360	50.29	0.2348	—
19	0.0921	1.821	—	0.0365	50.32	—	—
20	0.0940	1.835	—	0.0367	50.36	—	—
21	0.0948	1.835	—	0.0378	50.37	—	—
$M_M$	0.0886	1.790	0.0347	0.0342	50.16	0.2134	0.4051
$s_M$	0.0032	0.033	0.0026	0.0020	0.13	0.0160	—

$M_M$ : Mean of the intralaboratory means.  $s_M$ : Standard deviation of the intralaboratory means.

\* It is hoped to certify this constituent at a later date.

**CERTIFIED VALUES**

	%C	%Si	%P	%S	%V	%Al (Acid-soluble)
$M_M$	0.089	1.79	0.035	0.034	50.16	0.21
$s_M$	0.003	0.03	0.003	0.002	0.13	0.02

**Laboratories which have participated in the standardization of Euro-Standard 577-1**

Arbed, Division d'Esch Belval, Esch-sur-Alzette (Luxembourg)  
 Böhler AG, Düsseldorf—Oberkassel (Germany)  
 Breda Siderurgica, Milan (Italy)  
 British Steel Corporation, Stocksbridge and Tinsley Park Works (U.K.)  
 Bundesanstalt für Materialprüfung (BAM), Berlin-Dahlem (Germany)  
 Centro Sperimentale Metallurgico (CSM), Rome (Italy)  
 Cockerill, Seraing (Belgium)  
 Firth-Brown Research Laboratories, Sheffield (U.K.)  
 Gesellschaft für Elektrometallurgie mbH, Nürnberg (Germany)  
 Hainaut Sambre, Couillet (Belgium)  
 Institut de Recherches de la Sidérurgie Française (IRSID), Saint Germain en Laye (France)

Laboratoires d'Analyses Pourquery, Paris (France)  
 London and Scandinavian Metallurgical Co. Ltd., Rotherham (U.K.)  
 Murex Ltd., Rainham (U.K.)  
 Ridsdale and Co. Ltd., Middlesbrough (U.K.)  
 Société Française d'Electrometallurgie (SOFREM), Aiguebelle (France)  
 Société Française d'Electrometallurgie (SOFREM) Chedde, Le Fayet (France)  
 Société Nouvelle des Acieries de Pompey (France)  
 Sollac, Florange (France)  
 Stahlwerke Röhring-Burbach GmbH, Völklingen-Saar (Germany)  
 Thyssen Edelstahlwerke AG, Krefeld (Germany)

For the Commission of Co-ordination of the Nomenclature of Metallurgical Products—Commission of European Communities.

For information regarding Euro-Standards, please refer to the ECSC Information Circular No. 1 available from the Institution responsible for standardization 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 der EGKS, zu beziehen durch die nationalen Normenorganisationen.



**BUREAU OF ANALYSED SAMPLES LIMITED**  
 Newham Hall, Middlesbrough, England. MAY, 1978

**METHODS USED**  
**ES 577-1**

Element	Line No.	Methods
<b>C</b>	1-3-4-15	Combustion, Thermal conductivity
	2-10-13-17	Combustion, Conductimetric
	5-9	Combustion, Coulometric
	6-7-8-12-14-19-20-21	Combustion, infrared absorption
	11-16	Combustion, non aqueous titration
	18	Combustion, gravimetric
<b>Si</b>	1-3-6-9-11-15-17-19-21	Gravimetric, dehydration with perchloric acid
	2-4-5-7-8-10-12-13-14-16-20	Gravimetric, dehydration with sulphuric acid
	18	Titrimetric after precipitation as $K_2SiF_6$
<b>P</b>	3-4-6-9	Colorimetric as molybdenum blue with extraction
	5-8-11-13-14-17	Colorimetric as phosphovanadomolybdate with extraction
	7-10	Colorimetric as molybdenum blue without extraction
	12-15	Colorimetric as phosphovanadomolybdate without extraction
	16	Titrimetric as phosphomolybdate
<b>S</b>	2-10	Combustion, conductimetric
	3-4-5-6-9-11-12-13-15-16	Combustion, infrared absorption
	7-17-18	Combustion, acidimetric titration
	8	Combustion, coulometric
	14	Combustion, colorimetric with p. rosaniline
	19-20-21	Combustion, oxidation/reduction titration
<b>V</b>	1-2-3-5-6-8-15-16-21	Titrimetric with ammonium ferrous sulphate, visual end point
	4-7-9-10-11-12-14-17-18-19-20	Titrimetric with ammonium ferrous sulphate, potentiometric end point
	13	Titrimetric with permanganate, potentiometric end point
<b>Al</b> (Acid soluble)	2-3-4-5-6-7-10-11-12-14-15-16-17	Atomic absorption spectroscopy
	8	Colorimetric with chrome azurol S
	9	Colorimetric with eriochrome cyanine after mercury cathode separation
	13	Gravimetric as oxinate
	18	Complexometric titration after ion exchange separation
<b>Al</b> (Total)	5-6-7-9-10-11-12-13-14-15-16-17	Atomic absorption spectroscopy
	3	Gravimetric as oxinate
	4	Colorimetric with eriochrome cyanine after mercury cathode separation
	8	Colorimetric with chrome azurol S