

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. **579-1** FERRO-NIOBIUM

CERTIFICATE OF ANALYSES

Laboratory Means (4 values)

Line No.	%C	%Si	%S	%Al	%Nb	%Ti	%Ta	%P	%Co	%Sn
1	0.0342	0.938	0.0186	1.740	—	0.4950	3.619	0.0560	0.0035	—
2	0.0345	0.962	0.0188	1.778	62.57	0.5150	3.632	0.0573	0.0040	0.3150
3	0.0350	0.970	0.0192	1.785	62.63	0.5150	3.712	0.0580	0.0042	0.3250
4	0.0350	0.979	0.0198	1.798	62.66	0.5312	3.725	0.0595	0.0045	0.3275
5	0.0350	1.000	0.0200	1.828	62.78	0.5365	3.742	0.0624	0.0052	0.3300
6	0.0356	1.003	0.0202	1.830	62.78	0.5365	3.802	0.0625	0.0052	0.3400
7	0.0356	1.030	0.0204	1.840	62.80	0.5385	3.812	0.0648	0.0058	0.3418
8	0.0362	1.040	0.0205	1.840	62.80	0.5385	3.816	0.0658	0.0058	0.3445
9	0.0368	1.042	0.0210	1.842	62.85	0.5416	3.832	0.0660	0.0058	0.3550
10	0.0369	1.049	0.0212	1.855	62.86	0.5425	3.842	0.0662	0.0060	0.3575
11	0.0370	1.057	0.0213	1.855	62.87	0.5650	3.885	0.0678	0.0060	0.3620
12	0.0371	1.061	0.0216	1.878	62.91	0.5778	3.895	0.0691	0.0068	0.3675
13	0.0372	1.080	0.0218	1.911	63.00	0.6162	3.942			0.3691
14	0.0375	1.088	0.0220	1.912	63.00	0.6274	3.992			
15	0.0375	1.105	0.0222	1.918	63.04	0.6425	4.015			
16	0.0379	1.125	0.0230	1.942	63.08	0.6550	4.046			
17	0.0385		0.0242	1.953	63.21	0.6600	4.198			
18	0.0385			1.968						
19	0.0395									
M_M	0.0366	1.033	0.0209	1.860	62.87	0.5668	3.853	0.06	0.005	0.34
s_M	0.0015	0.054	0.0015	0.064	0.17	0.0529	0.152			

M_M : Mean of the intralaboratory means.

s_M : Standard deviation of the intralaboratory means.

CERTIFIED VALUES

	%C	%Si	%S	%Al	%Nb	%Ti	%Ta
M_M	0.037	1.03	0.021	1.86	62.87	0.567	3.85
s_M	0.001	0.05	0.001	0.06	0.17	0.053	0.15

Particle size 53-150 μ m

Laboratories which have participated in the standardization of Euro-Standard 579-1

Arbed, Division d' Esch Belval, Esch-sur-Alzette (Luxembourg)
Aubert et Duval, Les Ancizes (France)
Böhler AG, Düsseldorf 11 (Germany)
British Steel Corporation, Consett Works (UK)
British Steel Corporation, Scunthorpe Works (UK)
Bundesanstalt für Materialprüfung (BAM), Berlin-Dahlem (Germany)
Cockerill, Seraing (Belgium)
ESTEL-Hoogovens BV, IJmuiden (Holland)
Gesellschaft für Elektrometallurgie, Nürnberg 1 (Germany)
Krupp Stahl AG, Bochum (Germany)

London and Scandinavian Metallurgical Co. Ltd., Rotherham (UK)
Murex Ltd., Rainham (UK)
Ridsdale & Co. Ltd., Middlesbrough (UK)
SNIAS, Suresnes (France)
SOFREM, Le Fayet, (France)
Sollac, Florange (France)
Stahlwerke Röchling-Burbach, Volklingen Saar (Germany)
Thyssen Edelstahlwerke A.G., Krefeld (Germany)
Usinor, Dunkerque (France)

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. NOVEMBER 1981

METHODS USED
ES 579-1

Element	Line No.	Method
C	1-15	Combustion, non aqueous titration
	2-3-4-6-7-8-10-11-12-13-14-16-17-19	Combustion, infrared absorption
	5-9	Combustion, thermal conductivity
	18	Combustion, coulometric
Si	1-2-3-5-6-8-9-10-11-12	Gravimetric, dehydration with sulphuric acid
	4	Photometric as silicomolybdate
	7-13-14-15	X-ray fluorescence spectrometry
	16	Atomic absorption spectrometry
S	1-2-3-4-5-6-9-11-14-15-16-17	Combustion, infrared absorption
	7	Combustion, oxidation/reduction titration
	8-10	Combustion, acidimetric titration
	12	Combustion, photometric with p-rosaniline
	13	Combustion, conductimetric
Al	1-3-4-7-8-9-10-11-18	Atomic absorption spectrometry
	2	Gravimetric as oxinate
	5-6-13-16	X-ray fluorescence spectrometry
	12-14-17	Atomic absorption spectrometry, after separation
	15	Photometric with 8-hydroxyquinoline with extraction
Nb	2-3-6-8-9-11-14	X-ray fluorescence spectrometry
	4	Atomic absorption spectrometry
	5-10-15-16	Gravimetric as oxide, precipitation with cupferron, ion exchange separation
	7	Photometric with PAR, ion exchange separation
	12-13	Gravimetric as oxide, precipitation by hydrolysis
Ti	17	Gravimetric as oxide, precipitation with phenylarsonic acid
	1-3-12-17	X-ray fluorescence spectrometry
	2-5-6-11-14	Atomic absorption spectrometry
	4	Photometric with hydrogen peroxide, ion exchange separation
Ta	7	Photometric with diantipyrylmethane, ion exchange separation
	8-9-16	Photometric with chromotropic acid, ion exchange separation
	10	Photometric with diantipyrylmethane
	13-15	Photometric with hydrogen peroxide
Ta	1	Photometric with methyl violet
	2-3-5-6-7-11-14-16	X-ray fluorescence spectrometry
	4	Photometric with pyrogallol
	8-9-12-15	Gravimetric as oxide, precipitation with cupferron, ion exchange separation
	10-13	Photometric with phenylfluorone, ion exchange separation
P	17	Gravimetric as oxide, precipitation with phenylarsonic acid, separation from niobium by extraction
	1-2-5-7-8-10	Photometric as phosphovanadomolybdate with extraction
	3-11	X-ray fluorescence spectrometry
	4	Photometric as molybdenum blue with extraction
Co	6-9	Photometric as molybdenum blue
	12	Photometric as molybdenum blue, ion exchange separation
	1-2-5-6-9-10-11-12	Atomic absorption spectrometry
	3	Photometric with nitroso-R -salt, separation with 1-nitroso-2-naphthol
Sn	4-7	Photometric with nitroso-R-salt
	8	Photometric with 4 (5-chloropyridyl-2-azo)-m-phenylenediamine after ion exchange separation
	2-3-6-8-9-10-12-13	Atomic absorption spectrometry
	4-5	X-ray fluorescence spectrometry
Sn	7	Titrimetric with iodate, separation of niobium by hydrolysis
	11	Titrimetric with iodate, sulphide separation