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CERTIFICATE OF CHEMICAL ANALYSIS No 10 – 22

**PURE IRON (2025A) AND FREE CUTTING STEEL (2026A) RMs WITH CERTIFIED
CONTENT OF CARBON AND SULPHUR**

SPL RM 2025A, 2026A

CERTIFIED VALUES AND THEIR UNCERTAINTIES (expressed in % m/m)

RM		2025A	2026A
Carbon	value	0.0020	0.068
	U	0.0003	0.001
Sulphur	value	0.0018	0.255
	U	0.0002	0.005

Reference materials SPL RM 2025A, 2026A are identical to the former CRMs CZ 2025A, 2026A (certified 6/1/2007). Since the validity of this CRM certificate expired recently, we have arranged for it to be re-issued as RM given the temporal stability of these materials.

Designed for the calibration and validation of combustion methods with a minimum sample weight 0.25g. The set covers the most frequent concentration ranges of the certified elements. They may not substitute CRM in establishing traceability of the results.

Manufacture and Technical Parameters

2025A - The candidate material was a commercial pure iron powder, sieved to the fraction between 0.1 mm and 0.2 mm grain size. CRM is available in 200 g units in glass bottles with plastic lids, sealed in plastic containers.

2026A - The candidate material was a wire chopped to the typical grain mass 0,008g, cleaned and homogenised. CRM is available in 250 g units in glass bottles with plastic lids, sealed in plastic containers.

Homogeneity was tested by combustion infra-red absorption spectrometry. Both within-bottle and between-bottles inhomogeneity were tested and found statistically insignificant.

Stability and storage

The CRM materials and certified constituents are stable over the entire validity period. The samples must be stored in a dry and non-corrosive environment with the lid replaced immediately after each weighing.

CERTIFICATION

Procurements, production and characterisation were carried out in compliance with the quality requirements of the ISO/REMCO Guide 35.

Characterisation was based on the interlaboratory experiment carried out by selected competent laboratories, in compliance with the ISO/REMCO Guide 35.

Traceability

The results (except of the calculable results - gravimetry, volumetry) were traced to the adequate matrix-compatible CRM.

Methods

The combustion in a stream of oxygen with infra-red molecular absorption spectrometry was applied for both carbon and sulphur, along with gravimetry and volumetry for carbon only.

2025A - Participating laboratories

BAS, Middlesbrough	United Kingdom
Chemopetrol a.s., Litvínov	Czechia
ICRM, Ekaterinburg	Russia
Instytut Metalurgii Żelaza, Gliwice	Poland
Moravské železářny a.s., Olomouc	Czechia
Qualitest Lab. Ltd., Dunaujváros	Hungary
Třinecké železářny a.s., Třinec	Czechia
U.S. Steel Košice-Labortest s.r.o., Košice	Slovakia
VÍTKOVICE-Zkušebny a laboratoře, Ostrava	Czechia
ŽDB a.s., Bohumín	Czechia
ŽĐAS a.s., Žďár nad Sázavou	Czechia

2026A - Participating laboratories

BAS, Middlesbrough	United Kingdom
Edelstahl Witten-Kreifeld GmbH	Germany
Ferromet Group, s.r.o. Veselí nad Moravou	Czechia
Henningsdorfer Elektrostahlwerke GmbH	Germany
Huttenwerke Krupp Mannesmann, Duisburg	Germany
Chemopetrol a.s., Litvínov	Czechia
ICRM, Ekaterinburg,	Russia
Instytut Metalurgii Żelaza, Gliwice	Poland
ISPAT NOVÁ HUŤ, a.s., Ostrava	Czechia
Moravské železářny a.s., Olomouc	Czechia
PSP Slévárna, a.s., Přerov	Czechia
Qualitest Lab. Ltd., Dunaujváros	Hungary
Tafonco a.s., Kopřivnice	Czechia
Třinecké železářny a.s., Třinec	Czechia
U.S. Steel Košice-Labortest s.r.o., Košice	Slovakia
VÍTKOVICE-Zkušebny a laboratoře, Ostrava	Czechia
ZPS - Slévárna, a.s., Zlín	Czechia
ŽDB a.s., Bohumín	Czechia
ŽĐAS a.s., Žďár nad Sázavou	Czechia

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