

The Annex to the decision No. 026/7467/2018/1 and to the Certificate of accreditation No. S-024 dated 14.08.2018

The Annex is an integral part of
the Certificate of Accreditation

Accreditation Scope

The name of the accredited body: **U. S. Steel Košice – Labortest, Ltd**
Department of Cokery Laboratory
 Vstupný areál U. S. Steel, 044 54 Košice

Laboratory with fixed scope of accreditation

Item	Subject of test		Applied method		Other specifications	
	Subject	Property/Parameter	Kind/Type	Indication	Range	Extended uncertainty
1.	Solid fuels: coal	Total water	gravimetry	STN 44 1377 ISO 589 (PP1/ZT21-1)	(1-10) % (11- 40) %	0,3 % ¹⁾ 3 % ²⁾
		Analytical water	gravimetry	PP1/ZT21-3 (ASTM D 7582) (manual Leco)	(0,2 - 2) % (3 - 10) %	0,2 % ¹⁾ 0,4 % ¹⁾
	coke		gravimetry	STN 44 1377 (PP1/ZT21-1)	(0,2- 2) % (3 - 10) %	0,2 % ¹⁾ 0,4 % ¹⁾
		Total water	gravimetry	STN ISO 579 (PP1/ZT21-2)	(1- 20) %	0,5 % ¹⁾
		Analytical water	gravimetry	PP1/ZT21-3 (ASTM D 7582) (manual Leco)	(0,2 - 2) % (3 - 10) %	0,2 % ¹⁾ 0,4 % ¹⁾
			gravimetry	STN 44 1384-2 (PP1/ZT21-2)	(0,2 - 2) % (3 - 10) %	0,2 % ¹⁾ 0,4 % ¹⁾
2.	coal	Ash	gravimetry	PP1/ZT21-3 (ASTM D 7582) (STN ISO 1171) (manual Leco)	(2 - 10) % (11 - 50) %	0,3 % ¹⁾ 3 % ²⁾
			gravimetry	STN ISO 1171 (PP1/ZT21-4)	(2 - 10) % (11 - 50) %	0,3 % ¹⁾ 3 % ²⁾
	coke	Ash	gravimetry	PP1/ZT21-3 (ASTM D 7582) (STN ISO 1171) (manual Leco)	(1 - 10) % (11 - 20) %	0,3 % ¹⁾ 3 % ²⁾
			gravimetry	STN ISO 1171 (PP1/ZT21-4)	(1 - 10) % (11 - 20) %	0,3 % ¹⁾ 3 % ²⁾
3.	coal	Volatile matter	gravimetry	STN ISO 562 (PP1/ZT21-7)	(1 - 10) % (11 - 40) %	0,4 % ¹⁾ 4 % ²⁾
	coke	Volatile matter	gravimetry	STN ISO 562 (PP1/ZT21-7)	(0,2 - 3) %	0,3 % ¹⁾

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4.	Solid fuels	Carbon	IR absorbance after the burn	PP1/ZT21-11 (ASTM D 5373) (manual Leco)	(10 - 100) %	2 % ¹⁾
		Hydrogen	IR absorbance after the burn		(0,2 - 2) % (3 - 10) %	0,2 % ¹⁾ 0,4 % ¹⁾
		Nitrogen	TCD detection After the burn		(0,2 - 5) %	0,2 % ¹⁾
5.		Sulfur	IR absorbance after the burn	PP1/ZT21-14 (ASTM D 4239) (manual Leco)	(0,1 - 1) % (2 - 3) %	0,1 % ¹⁾ 0,2 % ¹⁾
6.		Gross and Net calorific value	calorimetry calculation	STN ISO 1928 (PP1/ZT21-16)	(5 - 40) MJ/kg (5 - 35) MJ/kg	0,3 MJ/kg ¹⁾ 0,4 MJ/kg ¹⁾
7.	Gases	Methane(CH ₄)	GC-TCD GC-FID	PP1/ZT21-44 (ASTM D 1946)	(0,01 - 1) % (2 - 30) %	10 % ²⁾ 5 % ²⁾
		Hydrogen (H ₂)	GC-TCD		(0,05 - 1) % (2 - 10) % (11 - 100) %	10 % ²⁾ 5 % ²⁾ 2 % ²⁾
		Oxygen (O ₂)	GC-TCD		(0,3 - 1) % (2 - 10) % (11 - 100) %	10 % ²⁾ 5 % ²⁾ 2 % ²⁾
		Nitrogen (N ₂)	GC-TCD		(0,3 - 1) % (2 - 10) % (11 - 100) %	10 % ²⁾ 5 % ²⁾ 2 % ²⁾
		Carbon dioxide(CO ₂)	GC-TCD		(0,3 - 1) % (2 - 10) % (11 - 30) %	10 % ²⁾ 5 % ²⁾ 2 % ²⁾
		Carbon monoxide (CO)	GC-TCD		(0,3 - 1) % (2 - 10) % (11 - 30) %	10 % ²⁾ 5 % ²⁾ 2 % ²⁾
		Ethen (C ₂ H ₄)	GC- FID		(0,01 - 1) % (2 - 5) %	10 % ²⁾ 5 % ²⁾
		Ethane (C ₂ H ₆)	GC- FID		(0,01 - 1) % (1 - 5) %	10 % ²⁾ 5 % ²⁾
		Acetylene (C ₂ H ₂)	GC- FID		(0,01 - 1) % (2 - 5) %	10 % ²⁾ 5 % ²⁾
8.	Waste water	pH	potentiometry	STN EN ISO 10523 (PP1/ZT21-27)	(4-10)	0,2 ¹⁾
9.		Cyanide	spectrophotometry	STN ISO 6703-1 (PP1/ZT21-36)	(0,05-50) mg/l	15 % ²⁾
10.		Chemical oxygen demand	spectrophotometry	PP1/ZT21-31 (STN ISO 15705) (cuvette test manual Hach)	(20 - 150) mg/l (160-1000) mg/l	20 % ²⁾ 10 % ²⁾

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11.	Waste water	PAH: Naphthalene	GC/MS	PP1/ZT21-28 (EPA 8270D) (EPA 8000C) (EPA 3535) (EPA 3510C)	(0,02-1) µg/l	30 % ²⁾
		2-Methylnaphthalene			(0,015-1) µg/l	30 % ²⁾
		1-Methylnaphthalene			(0,015-1) µg/l	30 % ²⁾
		Acenaphthylene			(0,01-1) µg/l	30 % ²⁾
		Acenaphthene			(0,01-1) µg/l	30 % ²⁾
		Fluorene			(0,01-1) µg/l	30 % ²⁾
		Phenanthrene			(0,015-1) µg/l	30 % ²⁾
		Anthracene			(0,015-1) µg/l	30 % ²⁾
		Fluoranthene			(0,01-1) µg/l	30 % ²⁾
		Pyrene			(0,01-1) µg/l	30 % ²⁾
		Benz(a)anthracene			(0,01-1) µg/l	30 % ²⁾
		Chrysene			(0,01-1) µg/l	30 % ²⁾
		Benzo(b)fluoranthene			(0,01-1) µg/l	30 % ²⁾
		Benzo(k)fluoranthene			(0,01-1) µg/l	30 % ²⁾
		Benzo(a)pyrene			(0,015-1) µg/l	30 % ²⁾
		Indeno (1,2,3-cd)pyrene			(0,01-1) µg/l	30 % ²⁾
		dibenzo(ah)anthracene			(0,03-1) µg/l	30 % ²⁾
		benzo(ghi)perylene			(0,01-1) µg/l	30 % ²⁾
12.	Waste and underground water	Ammonium	spectrophotometry	PP1/ZT21-29 (STN ISO 7150-1) (STN ISO 5664) (cuvette testmanual Hach)	(0,05-1000) mg/l	20 % ²⁾
13.	Waste and underground water	Chlorides	IC/Electrochemical detector	STN EN ISO 10304-1 (PP1/ZT21-30)	(0,2-7500) mg/l	20 % ²⁾
		Fluorides	IC/UV VIS		(0,1-50) mg/l	20 % ²⁾

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13.	Waste and underground water	Nitrates	IC/Electro-chemical detector	STN EN ISO 10304-1 (PP1/ZT21-30)	(0,1-250) mg/l	20 % ²⁾
		Nitrites	IC/UV VIS		(0,1-100) mg/l	20 % ²⁾
		Phosphates			(0,1-50) mg/l	20 % ²⁾
		Sulphates			(0,1-5000) mg/l	20 % ²⁾
14.	Underground water	Permanganate Index	Potentiometric titration	PP1/ZT21-32 (STN EN ISO 8467)	(0,5-50) mg/l	20 % ²⁾

Note:

¹⁾ Extended uncertainty U, k=2

²⁾ Uncertainty is percent of measured value

IR– Infrared

GC – Gas Chromatography

TCD – Thermal Conductivity Detector

FID – Flame Ionization Detector

IC – Ion Chromatography

MS – Mass Spectroscopy

UV VIS – Ultra Violet and Visible Detector