

**Summary information on environment status in 2004**  
**in the surroundings of U. S. Steel Košice, s.r.o.**  
*(According to Law No. 17/1992 Coll. on the environment*  
*as amended)*

**WASTE WATER POLLUTION INDICATORS**

**RECIPIENT: Sokol'any river**

INDICATOR	UNIT	AVERAGE		MAX. VALUE 1. - 12. /04	
		LIMIT	ACTUAL	MAX. LIMIT	ACTUAL
BOD5	mg.l <sup>-1</sup>	7,00	4.9	9.0	8.5
Total iron	mg.l <sup>-1</sup>	2,00	1.5	3.0	2.98
Phenols	mg.l <sup>-1</sup>	0,05	0.001	0.1	0.05
Chlorides	mg.l <sup>-1</sup>	250	187	300	269
COD <sub>Cr</sub>	mg.l <sup>-1</sup>	30	18	60	44
Insoluble substances (105°C)	mg.l <sup>-1</sup>	35	21	40	39.8
N-NH <sub>4</sub> <sup>+</sup>	mg.l <sup>-1</sup>	2,00	0.7	3.5	1.9
pH	-	6,0 - 9,0	8.0	9.0	8.5
NEL	mg.l <sup>-1</sup>	1,50	0.1	1.5	0.9
Soluble substances (105°C)	mg.l <sup>-1</sup>	900	766	1000	1000
Soluble substances (550°C)	mg.l <sup>-1</sup>	640	614	800	800
Sulfates	mg.l <sup>-1</sup>	200	138	250	228
Total cyanides	mg.l <sup>-1</sup>	0,10	0.003	0.2	0.16

- ❖ Stated results are specified daily from mixed 24-hrs` samples that are taken and analyzed by Sokol'any WWTP laboratory.
- ❖ The pollution limit is set by the Resolution of the Regional Authority in Košice, No. 2003/02118 from April 25th, 2003.

	ACTUAL	LIMIT
<i>Total quantity of treated waste water released into the Sokol'any river</i>	26,400,005 m <sup>3</sup> /year	32,000,000 m <sup>3</sup> /year
<i>Total quantity of treated waste water returned to U.S. Steel Košice, s.r.o.</i>	4,874,058 m <sup>3</sup> /year	-

- ❖ The quantity of treated waste water returned into U. S. Steel Košice, s.r.o. is 14 % of the total treated waste water from Sokol'any Waste Water Treatment Plant.

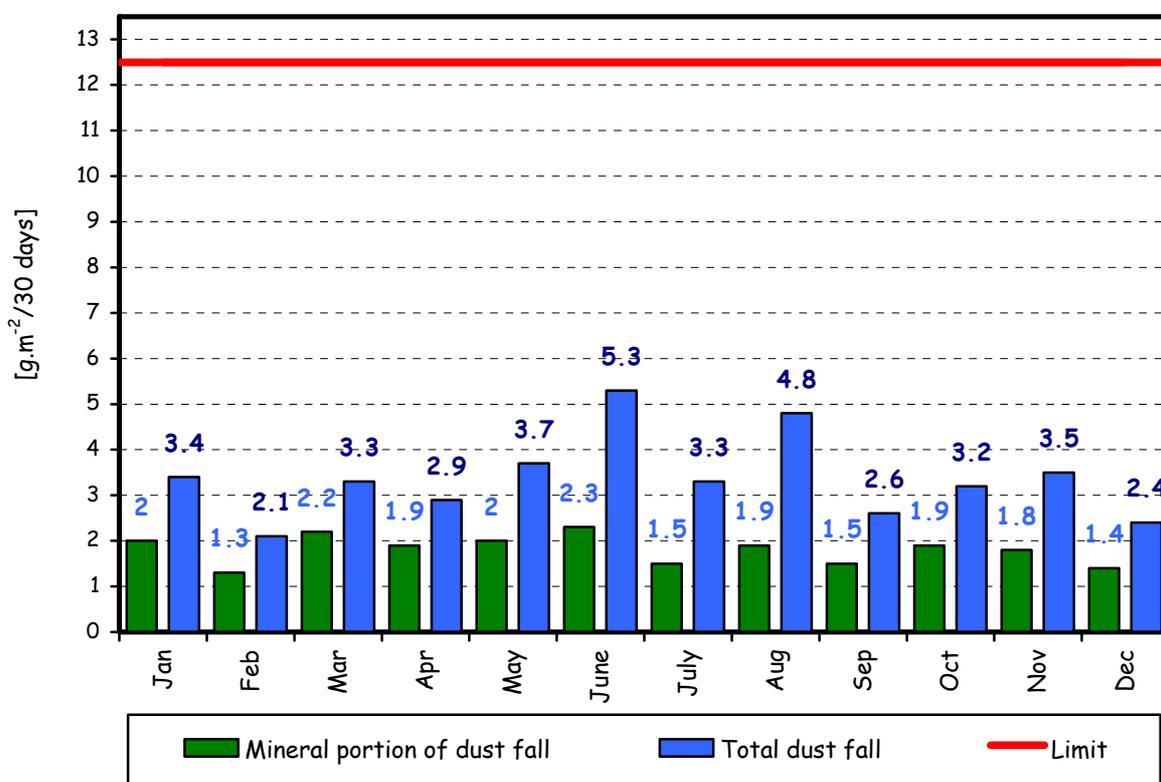
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**DUST FALL in SURROUNDINGS of U. S. Steel Košice, s.r.o.**

Dust fall	LIMIT (g.m <sup>-2</sup> / 30 days)	Average monthly concentration											
		Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
Total	12.5	3.4	2.1	3.3	2.9	3.7	5.3	3.3	4.8	2.6	3.2	3.5	2.4
Mineral	-	2.0	1.3	2.2	1.9	2.0	2.3	1.5	1.9	1.5	1.9	1.8	1.4

❖ The limit of the pollution is set according to the "Mandatory Provisions of the Ministry of Healthcare of SSR", Art. 5 - 8 from 1981.

**DUST FALL GRAPH**  
LIMIT 12,5 g.m<sup>-2</sup>/30 days



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**MEASURED POLLUTION IN SURROUNDINGS OF U. S. STEEL KOŠICE, s.r.o.**

MEASUREMENT PLACE	HARMFUL SUBSTANCES (average annual concentration)				
	CO ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	NO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	Ozone ( $\mu\text{g}/\text{m}^3$ )	Dust ( $\mu\text{g}/\text{m}^3$ )
CESTICE	0.83	9	9	53	18
HANISKA	0.53	4	26	44	31
KOMÁROVCE	0.74	8	11	45	24
PERÍN-CHYM	0.66	8	12	56	21
SEŇA	0.69	8	13	48	17
SOKOLANY-WWTP	0.67	11	22	40	20
SOKOLANY-village	0.71	11	15	63	22
ŠACA	0.85	10	8	57	22
ŠEBASTOVCE	0.76	5	6	51	19
VELKÁ IDA-GOMBOŠ	0.89	5	7	57	37

❖ Annual limit of pollution only for NO<sub>2</sub> (52  $\mu\text{g}/\text{m}^3$ ) is set in the SR Environment Ministry Notice No. 705/2002 Coll. from Nov 29th, 2002.

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The results of authorized measurements of pollution agents (PA) performed by authorized measuring teams for the purpose of establishing the observance of emission limits (EL) and finding out the quantity of released pollution agents at:

*DP Cokery*

Measurement place	PA	EL	Measured quantity
Dry gas de-dusting during coke pushing VKB1; Stack	CO	-	4.285 kg.h <sup>-1</sup>
	NO <sub>x</sub>	Satisfies	0.645 kg.h <sup>-1</sup>
	SO <sub>2</sub>	Satisfies	1.904 kg.h <sup>-1</sup>
	PM	Satisfies	0.0006 kg.t <sub>coke</sub> <sup>-1</sup>
	TOC	Satisfies	0.439 kg.h <sup>-1</sup>
	4 <sup>th</sup> Group, 3 <sup>rd</sup> Subgroup of VOC (expressed as ethylene)	Satisfies	0.514 kg.h <sup>-1</sup>
Dry gas de-dusting during coke pushing VKB3; Stack	CO	-	7.697 kg.h <sup>-1</sup>
	NO <sub>x</sub>	Satisfies	0.981 kg.h <sup>-1</sup>
	SO <sub>2</sub>	Satisfies	2.288 kg.h <sup>-1</sup>
	PM	Satisfies	0.0016 kg.t <sub>coke</sub> <sup>-1</sup>
	TOC	Satisfies	0.627 kg.h <sup>-1</sup>
	4 <sup>th</sup> Group, 3 <sup>rd</sup> Subgroup of VOC (expressed as ethylene)	Satisfies	0.005 kg.h <sup>-1</sup>

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*DZ Cokery*

Measurement place	PA	EL	Measured quantity
Rough coke sorter VKB1, line #402 - Outlet airway #1	PM	Satisfies	0.030 kg.h <sup>-1</sup>
Rough coke sorter VKB1, line #412 - Outlet airway #2	PM	Satisfies	0.283 kg.h <sup>-1</sup>
Rough coke sorter VKB1, line #402 - Outlet airway #3	PM	Satisfies	0.297 kg.h <sup>-1</sup>
Rough coke sorter VKB3, line A - Outlet airway #1	PM	Satisfies	0.406 kg.h <sup>-1</sup>
Rough coke sorter VKB3, line B - Outlet airway #2	PM	Satisfies	1.009 kg.h <sup>-1</sup>
Rough coke sorter VKB3, line S - Outlet airway #3	PM	Satisfies	1.349 kg.h <sup>-1</sup>

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*DP Tin Mill*

Measurement place	PA	EL	Measured quantity
Electrolytic tinning line #2, chemical treatment - Outlet airway #1	PM	Satisfies	0.028 kg.h <sup>-1</sup>
Electrolytic tinning line #2, chemical treatment - Outlet airway #2	PM anorg. subst, 2 <sup>nd</sup> group 3 <sup>rd</sup> subgroup (Sn)	Satisfies	0.032 g.h <sup>-1</sup>
	4 <sup>th</sup> group, 1 <sup>st</sup> subgroup (phenol)	Satisfies	0.091 kg.h <sup>-1</sup>
Electrolytic tinning line #2, passivation - Outlet airway #3	Carcinogen PA 1 <sup>st</sup> group, 2 <sup>nd</sup> subgroup (Cr <sup>6+</sup> )	Satisfies	0.000 kg.h <sup>-1</sup>
Continuous annealing line #2, Annealing Furnace	PM	Satisfies	0.045 kg.h <sup>-1</sup>
	CO	Satisfies	0.732 kg.h <sup>-1</sup>
	NO <sub>x</sub>	Satisfies	3.490 kg.h <sup>-1</sup>
Continuous annealing line #2, degreasing section	PM	Satisfies	0.128 kg.h <sup>-1</sup>

*DP Steelworks*

Measurement place	PA	EL	Measured quantity
Boiler house Bukovec, Stack	CO	-	4.666 kg.h <sup>-1</sup>
	NO <sub>x</sub>	Satisfies	0.015 kg.h <sup>-1</sup>
	SO <sub>2</sub>	Not applied	0.335 kg.h <sup>-1</sup>

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*DP Elektro*

Measurement place	PA	EL	Measured quantity
Thermic cleaning furnace MERI, Outlet airway	CO	-	0.000 kg.h <sup>-1</sup>
	NO <sub>x</sub>	Satisfies	0.141 kg.h <sup>-1</sup>
	SO <sub>2</sub>	Satisfies	0.001 kg.h <sup>-1</sup>
	4 <sup>th</sup> group, 3 <sup>rd</sup> subgroup VOC (expressed as acetone)	Satisfies	0.005 kg.h <sup>-1</sup>

*DP Power Plant*

Measurement place	PA	EL	Measured quantity
Boiler K1, right branch of flue way	PM	Satisfies	0.295 kg.h <sup>-1</sup>
Boiler K1, left branch of flue way	PM	Satisfies	0.205 kg.h <sup>-1</sup>

- ❖ Emission limit of pollution is specified in SR Environment Ministry Regulation No.706/2002 Coll. From Dec 29th, 2002 as amended.

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*DP Power Plant*

Equipment	PA	EL (mg/m <sup>3</sup> )	Number of exceeded PA	Measured PA quantity	
				when PA observed	when PA exceeded
Boiler K1	CO	100	0	8,595 kg	0 kg
	NO <sub>x</sub>	200	0	143,492 kg	0 kg
	SO <sub>2</sub>	800	0	332,209 kg	0 kg
Boiler K2	CO	250	0	61,637 kg	0 kg
	NO <sub>x</sub>	1 300	0	1,294,251 kg	0 kg
	SO <sub>2</sub>	1 700	0	1,113,954 kg	0 kg
	PM	100	0	14,293 kg	0 kg
Boiler K4	CO	250	0	86,068 kg	0 kg
	NO <sub>x</sub>	1 300	0	1,340,592 kg	0 kg
	SO <sub>2</sub>	1 700	0	975,299 kg	0 kg
	PM	100	1	43,156 kg	3 kg
Boiler K5	CO	250	0	46,502 kg	0 kg
	NO <sub>x</sub>	1 300	0	1,243,567 kg	0 kg
	SO <sub>2</sub>	1 700	0	1,046,299 kg	0 kg
	PM	100	0	40,294 kg	0 kg
Boiler K6	CO	250	4	50,044 kg	377 kg
	NO <sub>x</sub>	1 300	1	710,905 kg	29 kg
	SO <sub>2</sub>	1 700	1	847,477 kg	29 kg
	PM	100	6	93,363 kg	344 kg

Notice: An annual measuring protocol could not be generated due to run of AMS on the Boiler K3 from September 2004 only.

- ❖ Emission limit of pollution is specified in SR Environment Ministry Regulation No.706/2002 Coll. From Dec 29th, 2002 as amended.
- ❖ Overall information about measuring results from the Sintering bands #1 - 4 will be published in the February's monthly report after sending of emission & fee calculation to the Environment District Authority Košice.