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EUROPEAN COAL TAR INDUSTRY
AFTER FEBRUARY 24, 2022

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INTRODUCTION

- On February 24, 2022, Russian military forces invaded the territory of Ukraine. Since then heavy fightings have continued, mainly in the south-east and south areas of the country. Human tragedies are beyond description. Countless civilian and industrial objects have been destroyed by Russian artillery.
- The purpose of this presentation is to discuss most probable effects of the continuing war in Ukraine and its side implications (sanctions against the aggressor) on European coal tar industry.

EUROPEAN COAL TAR INDUSTRY AFTER FEBRUARY 24, 2022

- Production of coal tar in Europe in 2021: European Union and other countries.
- Import of coal tar to the European Union, 2018 – 2022
- Tar trading between Russia and Ukraine, 2018 - 2022
- Ukrainian cokemaking and tar processing industries in the summer of 2022.
- Coal tar price evolution in Europe 2019 – 2022.
- Is it possible for the EU tar processing industry to compensate tar lost from Ukraine and Russia by import from other directions?
- Other threats for the European tar processing industry: decarbonization of steel industry?

PRODUCTION OF COAL TAR IN EUROPE 1: EUROPEAN UNION

Country	2018	2020	2021	Change '21-'18
Austria	40	35	38	- 2
Belgium	42	38	40	-2
Czech Republic	90	80	80	-10
Finland	33	30	32	-1
France	95	70	75	-20
Germany	238	230	235	-3
Hungary	44	30	32	-12
Italy	54	50	50	-4
Netherlands	66	65	65	-1
Poland	365	300	335	-30
Slovakia	52	40	45	-7
Spain	35	15	18	-17
Sweden	40	35	35	-5
United Kingdom	40	30	30	-10
Total	1 234	1 048	1 110	- 124 (10 %)

PRODUCTION OF COAL TAR IN EUROPE 2: OTHER COUNTRIES

Country	2018	2020	2021	Change '21-'18
Bosnia – Hercegovina AM Zenica, GIKIL ?	28	20	25	- 3
Turkiye Kardemir, Ereğli, Iskenderun	180	170	184	+ 4
Russia Severstal, MMK, Gubakha, N.Tagil NLMK: Lipetsk, Altaykoks Mechel: Moscow, Chelabinsk ZapSib, Uralsteel, Kemerovo	1 140	1 080	1 112	- 28
Ukraine AM Krivyi Rih Metinvest: Avdeyevka, Azovstal, Zaporozhkoks, Dnipro, Yuzhkoks, Dniprokoks	440	365	380	-60
Separatists Area (Lugansk & Donetsk Districts) Alchevsk, Donetskkoks, Makiivkoks, Yasinivka, Yenakievie, Istek	140	100 (?)	100 (?)	- 40 (?)
Total	1 928	1 735	1 801	- 127

IMPORT OF COAL TAR TO THE EUROPEAN UNION, 2018-22

Import from, rounded to kt	2018	2019	2020	2021	Q1 2022	Q2 2022	Estimated full 2022
Ukraine	90	121	178	163	15	6	40 ?
Russia	135	72	68	38	10	0	10
Turkiye	85	83	86	100	18	29	95
Bosnia – Herzegovina	-	-	1	6	5	5	20
Argentina	-	-	-	-	-	6	12
Brazil	56	50	37	37	5	11	35
Canada	66	41	1	19	-	6	18
Colombia	6	6	9	10	-	-	?
Total	438	373	380	373	48	58	220

TAR TRADING BETWEEN RUSSIA AND UKRAINE, 2018-22

	2018	2019	2020	2021	2022
Export of tar from Ukraine to Russia, kt (reported by Ukraine)	0.2	1.4	5.5	3.0	0.3 (January)
Import of tar from Ukraine to Russia, kt (reported by Russia), average price, US\$/t	82.5 135	57.2 140	26.7 130	22.2 150	-
Export of tar from Russia to Ukraine, kt (reported by Russia) average price, US\$/t	35.8 240	11.1 255	21.5 180	13.7 280	0.5 (January)
Import of tar from Russia to Ukraine, kt (reported by Ukraine) average price, US\$/t	33.1 280	12.5 320	21.9 235	12.8 315	1.6 (Jan/Feb)

MAP OF UKRAINE



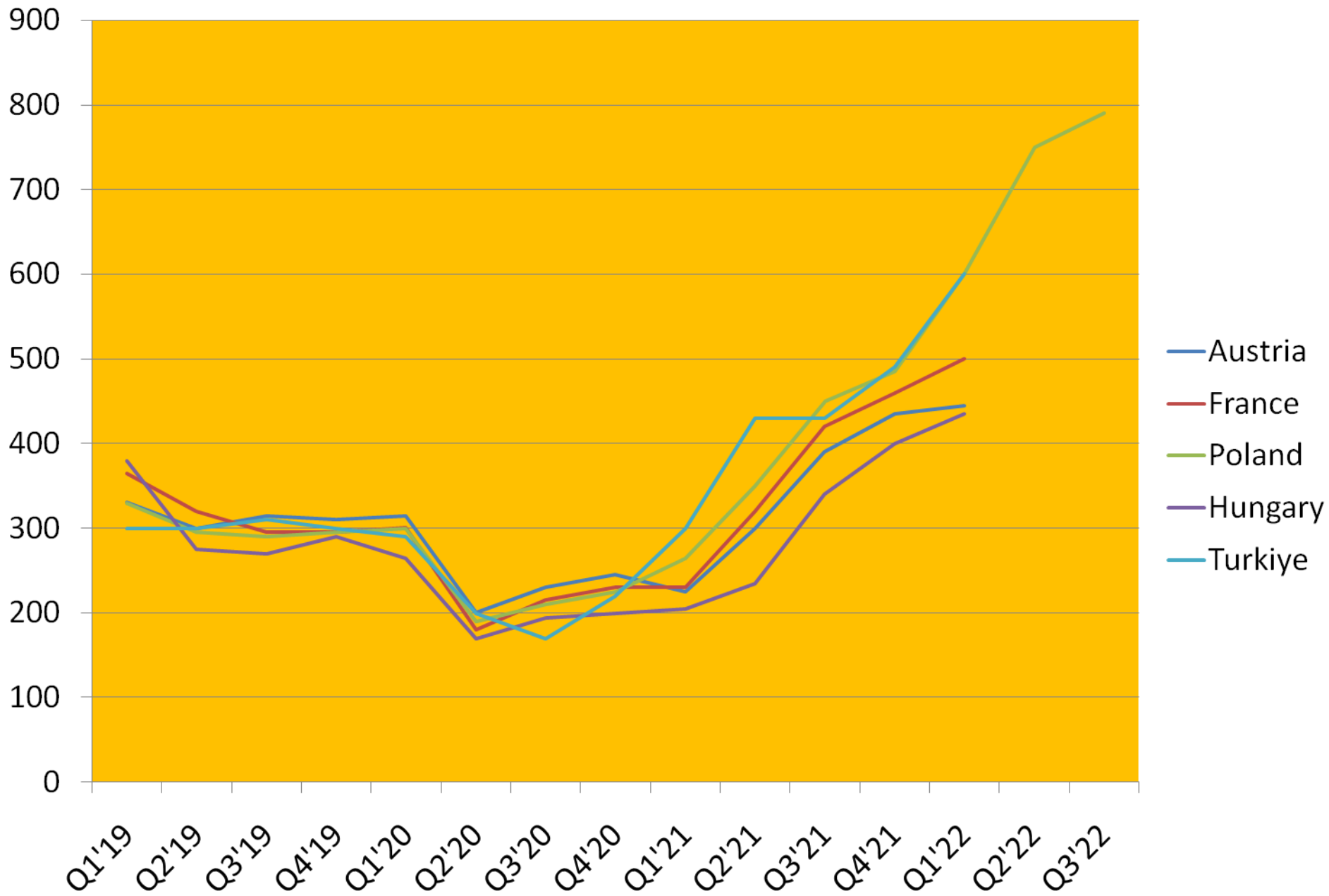
UKRAINIAN COKEMAKING PLANTS IN 2022

Company	Plant	Production of tar in 2021	Situation as for June 2022	Remarks
ArcelorMittal	Krivyi Rih	104	Operational	
Metinvest	Avdeyivka	116	Partly destroyed, idled	Subjected to rocket attack
Metinvest	Azovstal (Mariupol)	52	Destroyed	After two months of fightings
Metinvest	Zaporozhkoks	65	Operational	
Metinvest	Dniprodzerzhinsk	45	Idled	Lack of coal
Metinvest	Yuzhkoks	28	Idled	Lack of coal
Metinvest	Dniprokoks	22	Operational	
		380 in total		

IMPACT OF WAR IN UKRAINE ON EUROPEAN TAR MARKET

- Physical elimination (destruction) of certain tar sources (cokemaking plants) in Ukraine (Avdeyevka, Azov).
- Decreased production at other Ukrainian cokemaking plants due to shortages of coking coal and destroyed infrastructure (railway lines).
- Limited access to Galati tar storage terminal; Danube mouth on Black Sea is close to potential maritime fighting area.
- Limited access to Baltic ports (Riga, Liepaya) through Belarus.
- Railway lines („wide tracks”) to Slovakia/Czech Republic and Poland are still operational.
- International sanctions on Russia effectively eliminated this country as a source of tar for the EU (50 kt imported in 2021).
- In total, on an annual basis, between 160 and 200 kt of tar could be eliminated from the European market.

TAR PRICE EVOLUTION IN EUROPE, 2019 – 22, Euro/t FOB



TAR PRICE EXPLOSION IN EUROPE IN 2021/2 – REASONS?

- A general economic slowdown during 2019 -2020 created by COVID pandemic has affected (among others) prices of cokeoven tar, which decreased significantly in Q2 2020.
- Gradual returning to „business as usual” in the second half of 2020 - Q1 2021 has caused a slight increase or stabilization.
- There was no other reason for a sharp increase that started in Q2 2021 than announcements about „decarbonization of the steel industry” coming from major steel corporations.
- „Decarbonization of the steel industry” means switching steelmaking from the BF – BOF route to the DRI (Direct Reduction) – EAF route.
- Elimination of blast furnaces means elimination of cokeoven batteries (blast furnace coke is not needed anymore) – and the end of coal tar.
- Tar processing companies started a race for tar – when it is still available, increasing its price to historical heights.
- War in Ukraine made the rest.

DECARBONIZATION OF THE STEEL INDUSTRY – A PROBLEM

- The biggest potential for the Direct Reduction Iron technology is through the natural gas conversion to hydrogen, which is the key agent in removing oxygen from iron oxide.
- An alternative way of producing hydrogen is electrolysis of water – a rather expensive process (35.8 MWh per 1 ton of hydrogen).
- The European Union approach to manufacturing hydrogen from natural gas was based on massive import of gas from Russia.
- With effective closure of this way, the whole concept is doubtful.
- Lack of Russian gas (and oil and coal for that matter) in Europe is already creating havoc on energy markets.
- Apart from the DRI, another element of the new route planned for the future European steelmaking was Electric Arc Furnace.
- Serious shortages of energy, including electricity, predicted for the whole Europe in the nearest future make a perspective of numerous EAF replacing blast furnaces unrealistic.

ANOTHER CONSEQUENCE OF WAR: AN END OF UKRAINIAN PITCH IN RUSSIA

Import of pitch to Russia from (rounded to 0.1 kt):	2018	2019	2020	2021	Q1 2022
Ukraine	107.2	100.8	77.6	60.6	3.2 (January)
Kazakhstan	6.8	1.5	3.2	3.1	-
China	68.8	23.8	3.8	41.4	3.0
Czech Republic	2.7	1.4	-	3.8	-
Germany	5.5	5.0	3.4	13.4	0.1 (January)
Total	191.0	132.5	88.0 (Covid?)	122.3	6.3

A SUMMARY: HOW A RUSSIAN DECISION TO INVADE UKRAINE HAS CHANGED EUROPEAN COAL TAR INDUSTRY

IN UKRAINE:

- Physical elimination of several key production (cokeovens) and processing (distillation units) facilities.
- End of tar and tar products trading with Russia.
- At least temporal elimination of established routes of export of tar and tar products to the EU (only land routes from Ukraine to Slovakia/Czechia, Poland, and Romania are still operational).

IN RUSSIA:

- Reorientation of the whole coal tar industry towards Asia.
- End of export of tar and tar products to the EU.

IN THE EU:

- A serious drop in the contingent of available tar.
- Reorientation of the procurement policy towards a more global approach.

THANK YOU VERY MUCH

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