

CERTIFICATE OF COAL QUALITY Nº ETT_EXP_002





ISO 45001:2018



ISO 9001:2015



ISO 14001:2015



OVERVIEW



LOCATION

Tsankhi mine



START DATE

2023.01.10



END DATE

2023.01.28



CAPACITY OF STOCKPILE 292.68 THOUSAND TONNES



STOCKPILE AGE 3 days



TOTAL SAMPLES

35 samples



AVERAGE QUALITY OF COAL STOCKPILE





The stockpile totally has taken 35 samples. Each sample is representative about 6000-11000 tonnes.



Picture 1. Overview of stockpile

This stockpile is mined 3 days ago (as of 30.01.2023) from the III seam of Tsankhi mine, and it was mined according to the relevant methods of ETT company's "Management Procedures of Mine Coal Stockpile "

Stockpile	Total	moisture (ar)		Ash (db)	VOL	ATILE (daf)
Name		%		%		%
ETT_EXP_002	4.19	(-1.3; +1.5)	12.00	(-2.3; +2.1)	24.92	(-0.7; +1.0)
Stockpile Name	Tota	l sulfur (db)		CSN	C	9-index
Hume		%				5:1
ETT_EXP_002	0.79	(-0.3; +0.5)	7.0	(-0.5; +0.5)	85	(-8.0; +5.0)





ALS GROUP LLC Mongol Nethmel Building, 2nd khoroo Chinggai Avenue, Khan Uul District Ulaanbaatar, Mongolia Tel +975 70 007667

CERTIFICATE OF ANALYSIS 23A40-96-TT	Erdenes Tavantolgol JSC Finance Center, Jigjidjav& 1st khoroo, Chingelite District Ulaanbaetar, Mongolia Erdenebilegt.E xxx 35	CLIENT: ADDRESS: ATTN: PROJECT NO. LAB. JOB NO. NO. SAMPLES:
	SE	VO. SAMPLES:
	23А40-96-ТТ	LAB. JOB NO.
	ХХХ	PROJECT NO.
	Erdenebilegt.E	ATTN:
	Finance Center, Jigjidjav-8 1st khoroo, Chingeltei District Ulaanbaatar, Mongolia	ADDRESS:
	Erdenes Tavantolgoi JSC	CLIENT:
CERTIFICATE OF ANALYSIS 23440-96-TT		

SAMPLES RECEIVED: 13-26/01/2023 INSTRUCTIONS RECEIVED: 13-26/01/2023 DATE OF REPORT: 14-29/01/2023 STATUS OF REPORT: 14-29/01/2023 ANALYSIS COMPLETE: 14-29/01/2023 PREPARATION CODE: CRUSH-01, 02, MILL-01 ANALYSIS CODE: 11-COKING COAL ANALYSIS CODE: 11-COKING COAL

3 M

APPROVED BY: 0 CHECKED BY: Chief Chemist

GB/T 5447		Coal Caking Index (CKIN)	5:1 3:3	84	81	77	84	81	83		84 -	82 -	88	87 .		86	84	85 -	. 98	87 .	86 .	87 .	. 88	83 .	82 -	. 88	- 86	. 08	86 -	85 .	85 -	82 .	87 -	88	- 00
IB/T 5448	_	Crucible Swelling Number (CSN)		6.5	7.0	7.0	7.5	7.0	7.5	7.5	7.0	7.0	7.5	7.5	7.5	7.5	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.5	7.5	7.0	7.5	7.5	7.5	6.5	7.0	7.5	
0 19579 0		Total Sulphur (TSUL)		0.95	0.79	0.94	0.98	1.08	0.65	0.55	0.97	0.97	1.05	0.86	0.96	1.03	0.75	0.79	0.78	1.00	1.11	0.73	0.69	1.21	0.86	0.68	0.90	0.87	0.79	0.76	1.10	1.59	0.84	0.00	
VT 212 ISC	DRY, ASH-FREE BASIS	Fixed Carbon S (FC) S	*	75.18	75.57	75.76	75.60	75.68	75.62	75.30	75.03	75.07	74.78	74.90	74.73	75.34	74.99	74.67	74.60	74.73	74.64	74.77	74.56	75.59	75.35	74.42	74.59	75.08	74.56	74.84	75.42	75.13	74.77	74.53	
GB/T 212 GB/T 212 ISO 19579 GB/T 212 GB/T 212 ISO 19579 GB/T 5448	DRY, AS	Volatile Matter (VOL)		24.82	24.43	24.24	24.40	-	24.38	24.70	24.97	24.93	25.22	25.10	25.27	24.66	25.01	-	25.40 7	25.27 7	25.36 7	25.23 7	25.44 7	24.41 7	24.65 7	25.58 7	25.41 7	24.92	25.44	25.16	24.58	24.87	25.23 7	25.47 7	
195/9 48	+	Total Vo Sulphur M (TSUL) ()		0.84 2	0.69 2	0.81 2	0.86 2	0.94 2	0.58 2	0.50 2	0.85 2	-	0.92 2	-	0.84 2	0.89 2	0.66 2	-	0.70 2	0.89 2	1.00 2	0.65 2	0.61 2		0.75 2	0.61 2	0.79 2	0.76 2	0.70 2	0.66 2	0.97 2.	\vdash	-		
212 150	-	Fixed Tr Carbon Sul (FC) (T)		66.20 0	65.97 0	65.38 0	66.32 0	-	66.84 0	68.04 0	65.25 0	_	65.67 0	-	65.37 0	65.18 0	66.26 0	_	66.63 0	66.81 0	66.96 1.	66.62 0.	66.44 0.	_	65.95 D.	66.19 0.	65.36 0.	65.07 0	65.90 0	65.11 0	66.55 0.	65.39 1.	_	_	
212 GB/	DRY BASIS		*	-	-	-	-	-	-		_	_	_	-	_	_	_	-	_	_	_	-	_	_		-	-	_	_		_		_	-	
	-	 Volatile Matter (VOL) 		4 21.86	1 21.32	0 20.92	8 21.40	0 21.28	0 21.55	4 22.32	_	_	8 22.15		1 22.11	9 21.33	5 22.09	_	8 22.69	-	8 22.75	0 22.48	9 22.67	-	7 21.58	6 22.75	7 22.27	4 21.59	1 22.49	1 21.89	7 21.69		-	5 22.66	
179 GB/T	_	ur (Ash		11.94	12.71	13.70	12.28	12.50	11.60	9.64	_	-	-	_	12.51	13.49	-	_	_	-		10.90	10.89	-	-	-	12.37	13.34	-	13.01	11.77	12.96	-	11.05	
2 150 196		Sulphur (TSUL)		0.83	0.68	0.80	0.85	0.94	0.57	0.50	0.84	0.82	0.91	0.76	0.83	0.89	0.66	0.70	0.69	0.89	0.99	0.65	0.61	1.06	0.75	0.60	0.79	0.75	0.70	0.66	0.97	1.38	0.75	0.80	
GB/T 21	ASIS	Fixed Carbon (FC)		65.67	65.55	65.00	65.98	65.89	66.39	67.61	64.80	64.09	65.36	66.07	65.05	64.79	65.90	65.56	66.31	66.54	66.61	66.25	66.07	66.64	65.57	65.89	65.00	64.72	65.76	64.78	66.16	65.06	66.57	66.00	
GB/T 212	AIR DRIED BASIS	Volatile Matter (VOL)	*	21.68	21.19	20.80	21.29	21.17	21.41	22.18	21.56	21.28	22.04	22.14	22.00	21.20	21.97	22.24	22.58	22.50	22.63	22.36	22.54	21.52	21.45	22.65	22.14	21.48	22.44	21.77	21.56	21.54	22.46	22.56	
GB/T 212		Ash (ASH)		11.84	12.63	13.62	12.22	12.44	11.53	9.58	12.94	14.06	12.12	11.32	12.45	13.41	11.59	11.66	10.62	10.55	10.23	10.84	10.83	11.38	12.40	11.01	12.30	13.26	11.59	12.94	11.70	12.90	10.50	11.00	
2121/95		Moisture (MOIS)		0.81	0.64	0.57	0.51	0.51	0.67	0.63	0.70	0.57	0.48	0.47	0.50	09:0	0.54	0.54	0.49	0.42	0.53	0.55	0.56	0.46	0.58	0.45	0.56	0.54	0.21	0.51	0.58	0.50	0.47	0.45	
150 195/9 GB/1 212 GB/T 212 GB/T 212 GB/T 212 150 19579 GB/T 212		Total Sulphur (TSUL)		0.79	0.65	0.78	0.82	0.91	0.55	0.48	0.81	0.79	0.88	0.73	0.80	0.85	0.64	0.67	0.67	0.85	0.95	0.63	0.58	1.02	0.71	0.58	0.75	0.72	0.66	0.63	0.93	1.35	0.73	0.78	
_	212	Fixed Carbon (FC)		62.43	62.37	62.71	63.13	64.01	63.87	65.41	62.50	61.76	63.04	63.71	62.66	62.43	63.91	63.50	64.33	64.06	64.04	63.92	63.55	63.82	62.71	63.10	62.08	62.21	62.55	61.71	63.71	63.52	64.82	64.27	
2121/05	AS RECEIVED BASIS	Volatile Matter (VOL)	*	20.61	20.16	20.07	20.37	20.57	20.60	21.46	20.80	20.51	21.26	21.35	21.19	20.43	21.31	21.54	21.91	21.66	21.76	21.57	21.68	20.61	20.52	21.69	21.15	20.64	21.35	20.75	20.76	21.03	21.87	21.97	
217 1/95 717 785 78/1717 78/1717	AS KI	Ash (ASH)		11.26	12.02	13.14	11.69	12.08	11.09	9.27	12.48	13.55	11.69	10.92	11.99	12.93	11.24	11.29	10.31	10.15	9.84	10.46	10.41	10.90	11.86	10.55	11.75	12.75	11.02	12.33	11.26	12.59	10.23	10.71	
1171/0		Total Moisture (TM)		5.70	5.45	4.08	4.81	3.34	4.44	3.86	4.22	4.19	4.01	4.02	4.16	4.21	3.53	3.67	3.45	4.13	4.36	4.05	4.36	4.67	4.91	4.67	5.03	4.40	5.09	5.21	4.27	2.86	3.08	3.05	
	1	SAMPLE NO.		ESS-23-1-1co-1A-65	ESS-23-1-1co-1B-68	ESS-23-1co-1C-131	ESS-23-1co-1D-132	ESS-23-1co-1E-134	ESS-23-1co-1G-137	ESS-23-1co-1F-138	ESS-23-1co-2A-147	ESS-23-1co-2B-148	ESS-23-1co-2C-149	ESS-23-1co-2D-150	ESS-23-1co-2E-151	ESS-23-1co-2F-152	ESS-23-1co-2G-153	ESS-23-1co-3A-156	ESS-23-1co-38-157	ESS-23-1co-3C-158	ESS-23-1co-3D-159	ESS-23-1co-3E-162	ESS-23-1co-3F-163	ESS-23-1co-3G-164	ESS-23-1co-4A-170	ESS-23-1co-48-171	ESS-23-1co-4C-172	ESS-23-1co-4D-173	ESS-23-1co-4E-174	ESS-23-1co-4F-175	ESS-23-1co-4G-176	ESS-23-1co-5A-189	ESS-23-1co-5B-190	ESS-23-1co-5C-191	
		LAB NO.		-	2	m	4	ß	9	2	8	6	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	

ИТГЭМЖЛЭЛИЙН ГЭРЧИЛГЭЭ

СТАНДАРТ. ХЭМЖИЛ ЗҮЙН ГАЗАР

Дугаар **TL 10**

ISO/IEC 17025:2017 (MNS ISO/IEC 17025:2018) стандартын шаардлагыг хангасан

"АЛС ГРУПП" ХХК-ийн лабораторийг

(Улаанбаатар хот дахь салбар, Хаяг: Хан-Уул дүүрэг, 2-р хороо, Чингисийн өргөн чөлөө, Монгол Нэхмэл ХК-ийн байр) (Оюу толгой дахь салбар, Хаяг: Өмнөговь аймаг, Ханбогд сум)

хавсралтад заасан итгэмжлэлийн хүрээнд сорилт гүйцэтгүүлэхээр итгэмжлэв.

Энэ итгэмжлэл нь тодорхойлсон хүрээнд сорилт гүйцэтгэх төхникийн чадавхитай бөгөөд лабораторийн чанарын удирдлагын тогтолцоотой болохыг (ISO-ILAC-IAF-ын 2017 оны хамтарсан мэдэгдлийг үндэслэн) гэрчилнэ.

Анх итгэмжлэл авсан огноо: 2009.09.10

Олгосон огноо: 2019.10.01 Дуусах огноо: 2023.10.01

СТАНДАРТ, ХЭМЖИЛ ЗҮЙН ГАЗРЫН ДЭД ДАРГА





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СТАНДАРТ. ХЭМЖИЛ ЗҮЙН ГАЗАР

ИТГЭМЖЛЭЛИЙН ГЭРЧИЛГЭЭ

Дугаар TL 10-01

ISO/IEC 17025:2017 (MNS ISO/IEC 17025:2018) стандартын шаардлагыг хангасан

Таван Толгой уурхай дахь "АЛС Групп" ХХК-ийн Нүүрсний шинжилгээний лабораторийг

(Өмнөговь аймаг, Цогтцэций сум)

хавсралтад заасан итгэмжлэлийн хүрээнд сорилт гүйцэтгүүлэхээр итгэмжлэв.

Энэ итгэмжлэл нь тодорхойлсон хүрээнд сорилт гүйцэтгэх техникийн чадавхитай бөгөөд лабораторийн чанарын удирдлагын тогтолцоотой болохыг (ISO-ILAC-IAF-ын 2017 оны хамтарсан мэдэгдлийг үндэслэн) гэрчилнэ.

Анх итгэмжлэл авсан огноо: 2015.10.01

Итгэмжлэл олгосон огноо: 2019.12.30 Дуусах огноо: 2023.10.01



СТАНДАРТ, ХЭМЖИЛ ЗҮЙН ГАЗРЫН ДЭД ДАРГА

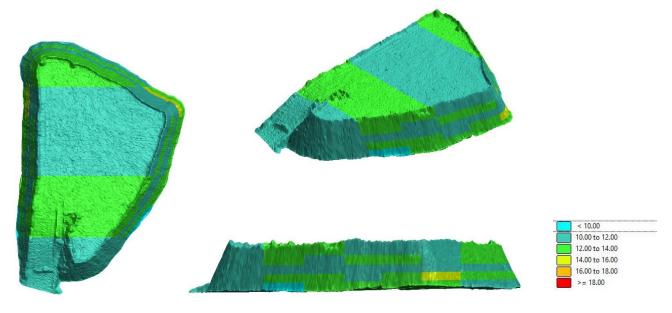


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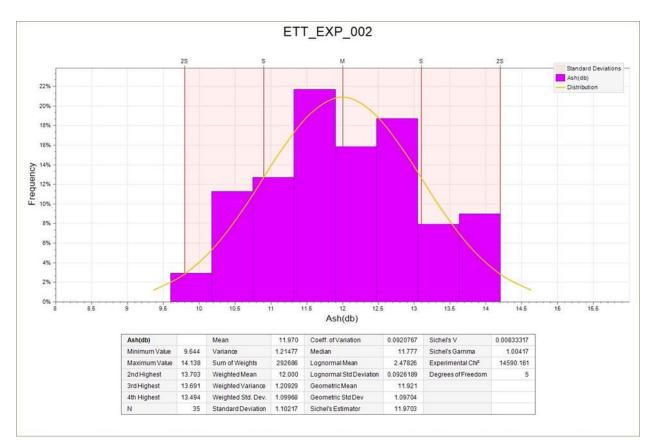


1. ASH OF STOCKPILE

The stockpile is mined from the Tsankhi mine with the number ETT_EXP_002. Ash of the coking coal stockpile of Tsankhi mine has a minimum index of 9.65% and a maximum of 14.14%, and the average index is 12.0 %, which is represented by the results of the analysis of a total of 35 samples.



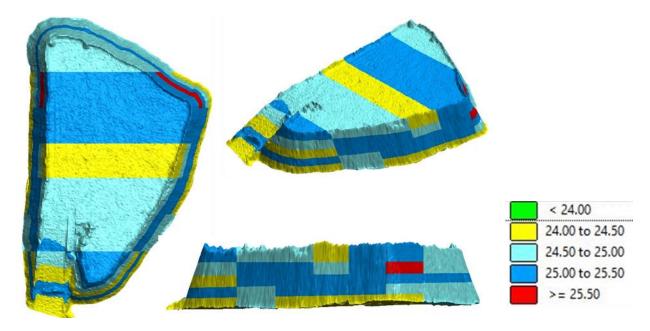
Picture 2. Ash of stockpile



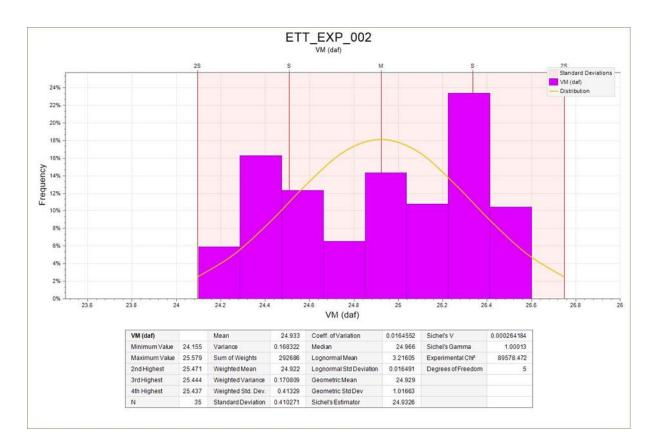


2. VOLATILE MATTER OF STOCKPILE

Volatile matter of the coking coal stockpile of Tsankhi mine has a minimum index of 24.16% and a maximum of 25.58%, and the average index is 24.92 %, which is represented by the results of the analysis of a total of 35 samples.



Picture 3. Volatile matter of stockpile



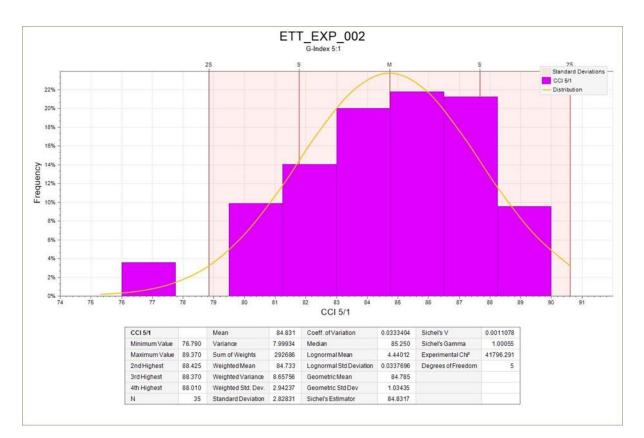


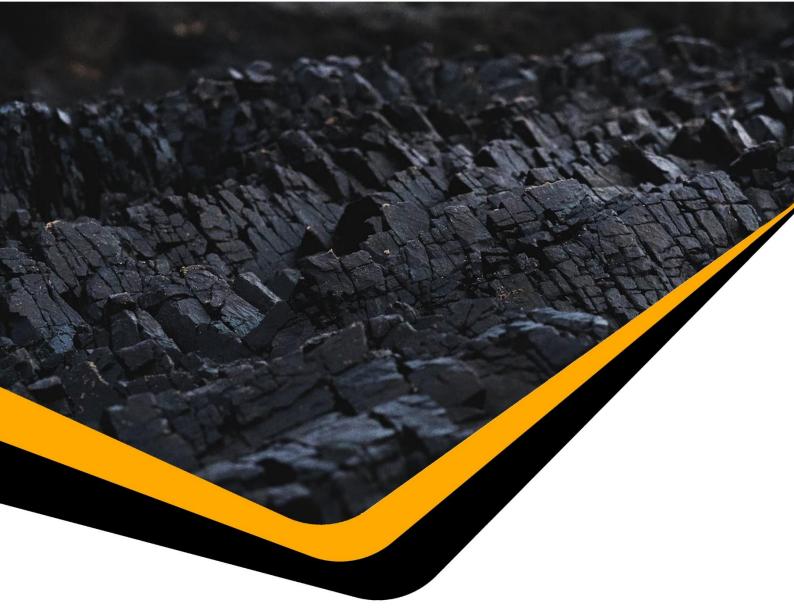
3. G-INDEX OF STOCKPILE

G-index of the coking coal stockpile of Tsankhi mine has a minimum index of 76 and a maximum of 89, and the average index is 84.7, which is represented by the results of the analysis of a total of 35 samples.



Picture 4. G-index of stockpile







ISO 45001:2018



ISO 9001:2015



ISO 14001:2015







75055555 1800-1072



Mongolia, Ulaanbaatar, Chingeltei district, 1st khoroo. Jigjidjav street-8 Financial center

