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# НҮҮРСНИЙ ОВООЛГЫН ҮЗҮҮЛЭЛТ

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№ ETT\_SP\_TC

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ISO 45001:2018

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ISO 9001:2015

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ISO 14001:2015



НҮҮРСНИЙ ОВООЛГЫН ЧАНАРЫН ДУНДАЖ ҮЗҮҮЛЭЛТ

<p><b>НИЙТ ЧИЙГ (ar)</b></p> <p><b>6.0%</b></p> <p>(-3.0; +3.0)</p>	<p><b>ҮНСЛЭГ (db)</b></p> <p><b>21.5%</b></p> <p>(-5.0; +5.0)</p>	<p><b>ДЭГДЭМХИЙ (daf)</b></p> <p><b>34.0%</b></p> <p>(max)</p>
<p><b>НИЙТ ХҮХЭР (db)</b></p> <p><b>1.5%</b></p> <p>(max)</p>	<p><b>ИЛЧЛЭГ</b></p> <p><b>5500</b></p> <p>(-500; +700)</p>	<p><b>БАРЬЦАЛДАХ ЧАНАР</b></p> <p><b>&lt;5.0</b></p>

НҮҮРСНИЙ ОВООЛГЫН ШИНЖИЛГЭЭНИЙ ҮР ДҮН

ALS GROUP LLC  
Mongol Nakhmel Building, 2nd khoroo  
Chinggis Avenue, Khan-Uul District  
Ulaanbaatar, Mongolia  
Tel +976 70 007667



CERTIFICATE OF ANALYSIS  
22L58, 77, 94-TT, 23A06, 08, 11, 27, 42, 89, 93-TT, 23B12, 34, 41-TT

**CLIENT:** Erdenes Tavantolgoi JSC  
**ADDRESS:** Finance Center, Jigjidjav-8  
1st khoroo, Chingeltei District  
Ulaanbaatar, Mongolia  
**ATTN:** Erdenebilegt.E  
**PROJECT NO.** xxx  
**LAB. JOB NO.** 22L58, 77, 94-TT, 23A06, 08, 11, 27, 42, 89, 93-TT, 23B12, 34, 41-TT  
**NO. SAMPLES:** 20  
**Notes/Comments:** xxx

**SAMPLES RECEIVED:** 09/May/22  
**INSTRUCTIONS RECEIVED:** 09/May/22  
**DATE OF REPORT:** 09/May/22  
**STATUS OF REPORT:** FINAL  
**ANALYSIS COMPLETE:** 09/May/22  
**PREPARATION CODE:** CRUSH-01, 02; MILL-01  
**ANALYSIS CODE:** 1.1\_COKING COAL  
2.1\_THERMAL COAL  
TM, MOIS, ASH, VOL, TSUL,  
GCV, CSN, CKIN

**APPROVED BY:** Laboratory Manager

Quality Manager  
Chief Chemist

These test results are representative only of the sample received in the laboratory.

LAB NO.	SAMPLE NO.	AS RECEIVED BASIS						AIR DRIED BASIS					
		Total Moisture (TM)	Ash (ASH)	Volatile Matter (VOL)	Fixed Carbon (FC)	Total Sulphur (TSUL)	Gross Calorific Value (GCV)	Moisture (MOIS)	Ash (ASH)	Volatile Matter (VOL)	Fixed Carbon (FC)	Total Sulphur (TSUL)	Gross Calorific Value (GCV)
		%						%					
		kcal/kg						kcal/kg					
1	WSS-22-8-1tr-1A-491	7.66	24.48	21.93	45.92	0.54	5232	1.63	26.08	23.36	48.92	0.58	5574
2	WSS-22-8-1tr-1B-492	10.88	20.34	22.24	46.54	0.47	5170	3.26	22.08	24.14	50.51	0.51	5612
3	WSS-22-8-1tr-1C-493	8.75	22.73	21.86	46.66	0.60	5298	2.39	24.31	23.38	49.92	0.64	5667
4	WSS-22-8-1tr-1D-494	7.07	20.61	22.58	49.75	0.68	5747	1.83	21.77	23.85	52.55	0.72	6071
5	WSS-22-8tr-2A-522	5.78	16.40	24.40	53.41	0.56	6368	1.59	17.13	25.49	55.79	0.58	6651
6	WSS-22-8tr-2B-539	9.86	14.56	25.29	50.29	0.57	5840	2.42	15.76	27.38	54.44	0.62	6322
7	WSS-22-8tr-2C-541	6.71	18.69	24.13	50.47	0.34	6024	1.73	19.68	25.42	53.17	0.36	6346
8	WSS-22-8tr-2D-542	10.14	14.01	25.17	50.67	0.42	5773	2.86	15.15	27.21	54.78	0.46	6241
9	WSS-23-8tr-3A-2	9.19	14.85	24.27	51.68	0.33	6000	2.74	15.91	26.00	55.35	0.35	6426
10	WSS-23-8tr-3B-3	11.57	19.42	22.58	46.42	0.36	5135	3.82	21.13	24.56	50.49	0.39	5585
11	WSS-23-8tr-3C-4	11.27	17.56	22.86	48.31	0.37	5422	3.46	19.11	24.87	52.56	0.40	5899
12	WSS-23-8tr-3D-10	12.20	16.40	23.88	47.51	0.36	5292	3.49	18.03	26.25	52.23	0.40	5817

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.  
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STANDARD METHOD		GB/T 211	GB/T 212	GB/T 212	GB/T 212	ISO 19579	GB/T 213	GB/T 212	GB/T 212	GB/T 212	GB/T 212	ISO 19579	GB/T 213
LAB NO.	SAMPLE NO.	AS RECEIVED BASIS						AIR DRIED BASIS					
		Total Moisture (TM)	Ash (ASH)	Volatile Matter (VOL)	Fixed Carbon (FC)	Total Sulphur (TSUL)	Gross Calorific Value (GCV)	Moisture (MOIS)	Ash (ASH)	Volatile Matter (VOL)	Fixed Carbon (FC)	Total Sulphur (TSUL)	Gross Calorific Value (GCV)
		%						%					
13	WSS-23-8tr-4A-15	7.39	16.19	24.01	52.41	0.44	6100	2.06	17.12	25.39	55.42	0.46	6451
14	WSS-23-8tr-4B-16	6.94	16.81	24.24	52.01	0.47	6046	2.53	17.60	25.39	54.47	0.49	6332
15	WSS-23-8-1tr-4C-26	6.22	32.22	20.05	41.50	1.05	4974	0.98	34.03	21.18	43.82	1.11	5252
16	WSS-23-8-1tr-4D-42	5.75	20.35	22.83	51.06	1.08	6076	0.93	21.40	24.00	53.68	1.13	6387
17	WSS-23-8-1tr-5A-63	5.50	15.91	26.76	51.83	0.56	6258	0.84	16.70	28.08	54.38	0.59	6566
18	WSS-23-8-1tr-5B-83	5.92	24.12	22.44	47.52	0.33	5471	1.88	25.16	23.40	49.56	0.35	5706
19	WSS-23-8-1tr-5C-96	5.56	19.03	24.13	51.29	0.36	5942	1.90	19.76	25.06	53.27	0.37	6172
20	WSS-23-8-1tr-5D-97	5.81	16.05	23.54	54.61	0.39	6287	1.76	16.74	24.55	56.95	0.40	6558

**QUALITY ASSURANCE/QUALITY CONTROL DATA**

STDALSWS-23/20	ASH	VOL	GCV	TSUL
Certified Value	10.85	18.16	7673	0.616
Standard Deviation	0.05	0.16	17	0.017
Unit	%	%	kcal/kg	%
Analyzed value	10.88	18.13	7671	0.616

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Ulaanbaatar, Mongolia  
Tel +976 70 007667



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**STATUS OF REPORT:** FINAL  
**ANALYSIS COMPLETE:** 09/May/22  
**PREPARATION CODE:** CRUSH-01, 02; MILL-01  
**ANALYSIS CODE:** 1.1\_COOKING COAL  
2.1\_THERMAL COAL  
TM, MOIS, ASH, VOL, TSUL  
GCV, CSN, CKIN

*These test results are representative only of the sample received in the laboratory.*

STANDARD METHOD		GB/T 212	GB/T 212	GB/T 212	ISO 19579	GB/T 213	GB/T 212	GB/T 212	ISO 19579	GB/T 213	GB/T 5447	
LAB NO.	SAMPLE NO.	DRY BASIS				DRY, ASH-FREE BASIS						
		Ash (ASH)	Volatile Matter (VOL)	Fixed Carbon (FC)	Total Sulphur (TSUL)	Gross Calorific Value (GCV)	Volatile Matter (VOL)	Fixed Carbon (FC)	Total Sulphur (TSUL)	Gross Calorific Value (GCV)	Coal Caking Index (CKIN)	
		%				kcal/kg		%		kcal/kg		5:1
1	WSS-22-8-1tr-1A-491	26.52	23.75	49.73	0.59	5666	32.32	67.68	0.80	7710	-	0
2	WSS-22-8-1tr-1B-492	22.83	24.96	52.22	0.52	5801	32.34	67.66	0.68	7516	-	0
3	WSS-22-8-1tr-1C-493	24.91	23.96	51.14	0.66	5806	31.90	68.10	0.88	7732	-	0
4	WSS-22-8-1tr-1D-494	22.17	24.29	53.53	0.73	6184	31.22	68.78	0.94	7946	-	10
5	WSS-22-8tr-2A-522	17.41	25.90	56.69	0.59	6759	31.36	68.64	0.72	8184	-	1
6	WSS-22-8tr-2B-539	16.15	28.06	55.79	0.63	6479	33.46	66.54	0.75	7727	-	2
7	WSS-22-8tr-2C-541	20.03	25.87	54.10	0.36	6457	32.35	67.65	0.45	8075	-	13
8	WSS-22-8tr-2D-542	15.59	28.01	56.39	0.47	6424	33.19	66.81	0.56	7611	-	0
9	WSS-23-8tr-3A-2	16.36	26.73	56.91	0.36	6608	31.96	68.04	0.43	7900	-	0
10	WSS-23-8tr-3B-3	21.97	25.54	52.50	0.41	5807	32.72	67.28	0.53	7441	-	0
11	WSS-23-8tr-3C-4	19.79	25.76	54.44	0.42	6110	32.12	67.88	0.52	7618	-	0
12	WSS-23-8tr-3D-10	18.68	27.20	54.12	0.41	6028	33.45	66.55	0.50	7412	-	0

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STANDARD METHOD		GB/T 212	GB/T 212	GB/T 212	ISO 19579	GB/T 213	GB/T 212	GB/T 212	ISO 19579	GB/T 213	GB/T 5447		
LAB NO.	SAMPLE NO.	DRY BASIS					DRY, ASH-FREE BASIS					Coal Caking Index (CKIN)	
		Ash (ASH)	Volatile Matter (VOL)	Fixed Carbon (FC)	Total Sulphur (TSUL)	Gross Calorific Value (GCV)	Volatile Matter (VOL)	Fixed Carbon (FC)	Total Sulphur (TSUL)	Gross Calorific Value (GCV)			
		%					kcal/kg	%			kcal/kg	5:1	3:3
13	WSS-23-8tr-4A-15	17.48	25.93	56.59	0.47	6587	31.42	68.58	0.57	7983	-	0	
14	WSS-23-8tr-4B-16	18.06	26.05	55.89	0.50	6496	31.79	68.21	0.61	7928	-	5	
15	WSS-23-8-1tr-4C-26	34.36	21.39	44.25	1.12	5305	32.58	67.42	1.70	8082	-	14	
16	WSS-23-8-1tr-4D-42	21.60	24.22	54.18	1.14	6447	30.90	69.10	1.46	8223	39	-	
17	WSS-23-8-1tr-5A-63	16.84	28.32	54.84	0.59	6622	34.05	65.95	0.71	7963	50	-	
18	WSS-23-8-1tr-5B-83	25.64	23.85	50.51	0.35	5815	32.07	67.93	0.47	7821	-	0	
19	WSS-23-8-1tr-5C-96	20.15	25.55	54.31	0.38	6292	31.99	68.01	0.47	7879	-	1	
20	WSS-23-8-1tr-5D-97	17.04	24.99	57.97	0.41	6675	30.12	69.88	0.50	8046	-	1	

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