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# COAL QUALITY SPECIFICATION

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Nº ETT\_SP\_SSC

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ISO 45001:2018



ISO 9001:2015



ISO 14001:2015



### COAL STOCKPILES QUALITY (weighted average)

<b>TOTAL MOISTURE (ar)</b> <b>3.3%</b> (-1.0; +1.5)	<b>ASH (db)</b> <b>20.5%</b> (-4.0; +4.0)	<b>VOLATILE MATTER (daf)</b> <b>34%</b> (-2; +1)
<b>TOTAL SULPHUR (db)</b> <b>1.1</b> (-0.5; +0.5)	<b>G INDEX</b> <b>70</b> (-10.0; +10.0)	<b>QUANTITY</b> <b>1000.0</b> THOUSAND TONS

THE FOLLOWING IS THE RESULT OF THE LABORATORY TESTS

ALS GROUP LLC  
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CERTIFICATE OF ANALYSIS  
 23102, 110, 130, 140, 163, 173, 188, 211-TT

**CLIENT:** Erdenes Tavan Tolgoi JSC  
**ADDRESS:** Finance Center, Jigjidjav 8  
 1st khooor, Chinggisel District  
 Ulaanbaatar, Mongolia  
**ATTN:** Bekhivet P.  
**PROJECT NO.** xxx  
**LAB. JOB NO.** 23102, 110, 130, 140, 163, 173, 188, 211-TT  
**NO. SAMPLES:** 15  
**Notes/Comments:** xxx

**SAMPLES RECEIVED:** 13/Sep/23  
**INSTRUCTIONS RECEIVED:** 13/Sep/23  
**DATE OF REPORT:** 14/Sep/23  
**STATUS OF REPORT:** FINAL  
**ANALYSIS COMPLETE:** 14/Sep/23  
**PREPARATION CODE:** CRUSH-01, 02; MILL-01  
**ANALYSIS CODE:** 1; COKING COAL; CSN  
 TM, ASH, MOB, VOL.,  
 TSUL, CKIN

**APPROVED BY:** Laboratory Manager

Quality Manager  
 CHECKED BY: 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										DRY BASIS										DRY, ASH-FREE BASIS										Cecile Swelling Number (CSN)	Coal Caking Index (CKIN)	
		Total Moisture (TM)	Ash (ASH)	Volatiles Matter (VOL)	Fixed Carbon (FC)	Total Sulphur (TSUL)	Moisture (MOIS)	Ash (ASH)	Volatiles Matter (VOL)	Fixed Carbon (FC)	Total Sulphur (TSUL)	Ash (ASH)	Volatiles Matter (VOL)	Fixed Carbon (FC)	Total Sulphur (TSUL)	Ash (ASH)	Volatiles Matter (VOL)	Fixed Carbon (FC)	Total Sulphur (TSUL)	Ash (ASH)	Volatiles Matter (VOL)	Fixed Carbon (FC)	Total Sulphur (TSUL)	Ash (ASH)	Volatiles Matter (VOL)	Fixed Carbon (FC)	Total Sulphur (TSUL)	5:1	3:3															
1	ETT_SP_20012-1A	2.67	15.25	28.31	53.77	0.75	0.73	15.33	28.87	54.84	0.77	15.67	29.09	55.24	0.77	34.49	65.51	0.92	6.0	76	-	-																						
2	ETT_SP_20012-1B	2.26	13.23	28.78	55.73	0.67	0.71	13.44	29.24	56.62	0.68	13.54	29.44	57.02	0.69	34.05	65.95	0.79	6.5	79	-	-																						
3	ETT_SP_20012-1C	2.30	13.80	28.48	55.42	0.77	0.65	14.03	28.96	56.36	0.78	14.12	29.15	56.72	0.79	33.95	66.05	0.92	6.5	77	-	-																						
4	ETT_SP_20012-2A	6.22	15.24	26.54	52.00	0.96	1.04	16.08	28.01	54.87	1.01	16.25	28.30	55.45	1.02	33.79	66.21	1.22	5.0	63	-	-																						
5	ETT_SP_20012-2B	5.04	15.96	27.77	51.23	1.40	0.98	16.65	28.95	53.42	1.46	16.81	29.24	53.95	1.48	35.15	64.85	1.77	6.0	71	-	-																						
6	ETT_SP_20012-2C	4.13	13.47	27.78	54.61	0.94	0.95	13.92	28.71	56.42	0.97	14.06	28.98	56.96	0.98	33.72	66.28	1.14	5.5	67	-	-																						
7	ETT_SP_20012-3A	4.01	11.74	27.90	56.35	0.73	0.87	12.13	28.81	58.19	0.75	12.23	29.06	58.70	0.76	33.12	66.88	0.87	6.0	72	-	-																						
8	ETT_SP_20012-3B	3.98	13.91	26.57	55.54	0.84	0.91	14.36	27.42	57.31	0.86	14.49	27.67	57.64	0.87	32.36	67.64	1.02	5.0	65	-	-																						
9	ETT_SP_20012-3C	4.15	11.66	27.45	56.53	0.73	0.93	12.26	28.37	58.43	0.76	12.38	28.64	58.98	0.76	32.69	67.31	0.97	5.5	68	-	-																						
10	ETT_SP_20012-4A	3.23	13.88	26.84	56.05	1.05	0.78	14.23	27.52	57.47	1.07	14.34	27.74	57.92	1.08	32.38	67.62	1.26	6.0	70	-	-																						
11	ETT_SP_20012-4B	3.21	13.33	27.83	55.44	0.90	0.76	13.66	28.32	57.05	0.92	13.77	28.75	57.48	0.93	33.34	66.65	1.08	6.0	74	-	-																						
12	ETT_SP_20012-4C	3.24	18.92	25.82	52.01	1.05	0.81	15.40	28.48	53.32	1.08	15.56	28.69	53.75	1.09	33.18	66.82	1.35	3.5	49	-	-																						
13	ETT_SP_20012-5A	2.93	14.31	28.69	54.06	0.60	0.75	14.63	29.34	55.28	0.62	14.75	29.54	55.70	0.62	34.67	65.33	0.73	6.0	72	-	-																						
14	ETT_SP_20012-5B	3.35	15.48	28.16	53.02	0.51	0.79	15.89	28.91	54.42	0.52	16.01	29.14	54.85	0.53	34.69	65.31	0.63	6.0	69	-	-																						
15	ETT_SP_20012-5C	4.22	14.26	28.62	52.90	0.59	0.79	14.77	29.85	54.80	0.61	14.89	29.88	55.23	0.61	35.11	64.89	0.72	6.0	73	-	-																						

QUALITY ASSURANCE/QUALITY CONTROL DATA

STDA15W3-30/21	ASH	VOL	TSUL
Certified Value	13.33	23.33	0.608
Standard Deviation	0.059	0.234	0.0155
Limit	%	%	%
Analyzed value	10.68	20.37	0.607

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. COPY RIGHT PROTECTED DOCUMENT

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CERTIFICATE OF ANALYSIS  
23E07; 23E108; 23E115; 23E135; 23F74; 23F145; 23J252-TT

**CLIENT:** Erdenes Tavan Tolgoi JSC  
**ADDRESS:** Finance Center, Jigjidjav-8  
1st khoroov, Chingelhel District  
Ulaanbaatar, Mongolia  
**ATTN:** Galzaya.B  
**PROJECT NO.** xxx  
**LAB. JOB NO.** 23E07; 23E108; 23E115; 23E135; 23F74; 23F145; 23J252-TT  
**NO. SAMPLES:** 16  
**Notes/Comments:** xxx

**SAMPLES RECEIVED:** 2023/05/02/2023/10/31  
**INSTRUCTIONS RECEIVED:** 2023/05/03/2023/10/31  
**DATE OF REPORT:** 2023/05/03/2023/10/31  
**STATUS OF REPORT:** FINAL  
**ANALYSIS COMPLETE:** 2023/05/03/2023/10/31  
**PREPARATION CODE:** CRUSH-01.02; MILL-01  
**ANALYSIS CODE:** 1.1\_COKING COAL  
TM, ASH, MOIS, VOL,  
TSUL, CSN, CKN

APPROVED BY: Laboratory Manager



CHECKED BY: 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					DRY BASIS					Cruible Swelling Number (CSN)	Coal Caking Index (CKI)			
		Total Moisture (TM)	Ash (ASH)	Volatile Matter (VOL)	Fixed Carbon (FC)	Total Sulphur (TSUL)	Moisture (MOIS)	Ash (ASH)	Volatile Matter (VOL)	Fixed Carbon (FC)	Total Sulphur (TSUL)	Ash (ASH)	Volatile Matter (VOL)	Fixed Carbon (FC)	Total Sulphur (TSUL)	S1		S3			
1	ETT_SP_20009-1A	1.64	17.74	27.09	53.53	1.04	0.50	17.95	27.40	54.13	1.05	18.04	27.54	54.43	1.06	33.60	66.40	1.29	6.0	70	-
2	ETT_SP_20009-1B	2.03	18.43	25.74	53.80	1.58	0.38	18.74	26.17	54.71	1.61	18.81	26.27	54.92	1.62	32.36	67.64	1.99	6.0	68	-
3	ETT_SP_20009-1C	7.06	17.20	25.57	50.18	1.55	1.13	18.29	27.20	53.37	1.65	18.50	27.51	53.99	1.67	33.76	66.24	2.04	5.8	58	-
4	ETT_SP_20009-1D	2.92	15.94	27.66	53.39	0.75	0.87	16.26	28.42	54.46	0.77	16.40	28.66	54.94	0.77	34.29	65.71	0.93	7.9	-	-
5	ETT_SP_20009-1E	2.43	16.85	27.40	53.33	0.75	0.94	17.11	27.81	54.14	0.76	17.27	28.08	54.65	0.77	33.94	66.06	0.93	7.7	-	-
6	ETT_SP_20009-1F	2.47	15.44	26.99	55.10	0.61	0.92	15.89	27.42	55.99	0.62	15.83	27.67	56.50	0.62	32.88	67.12	0.74	7.2	-	-
7	ETT_SP_20009-1G	2.34	15.68	27.03	54.95	0.71	0.88	15.91	27.44	55.77	0.72	16.05	27.68	56.27	0.72	32.97	67.03	0.86	7.0	-	-
8	ETT_SP_20009-2A	4.47	17.10	25.21	53.23	0.62	0.79	17.76	26.18	55.28	0.65	17.90	26.39	55.72	0.65	32.14	67.86	0.79	6.0	75	-
9	ETT_SP_20009-2B	4.83	13.79	26.94	54.44	0.40	0.97	14.35	28.03	56.65	0.42	14.49	28.30	57.21	0.42	33.10	66.90	0.49	5.5	64	-
10	ETT_SP_20009-2C	1.08	16.16	27.70	54.50	0.53	0.58	16.84	27.83	54.75	0.53	16.93	27.99	55.07	0.54	33.70	66.30	0.65	6.2	-	-
11	ETT_SP_20009-2D	3.67	16.64	27.09	52.40	1.11	0.66	17.16	27.94	54.25	1.14	17.27	28.12	54.60	1.15	33.99	66.01	1.39	6.3	-	-
12	ETT_SP_20009-WB	2.64	18.12	27.03	52.21	0.73	0.98	18.43	27.50	53.10	0.74	18.61	27.77	53.63	0.75	34.11	65.89	0.92	5.0	58	-
13	ETT_SP_20009-WOC	1.95	20.37	26.27	51.41	0.74	0.67	20.63	26.61	52.08	0.75	20.77	26.79	52.64	0.75	33.82	66.18	0.95	5.0	56	-
14	ETT_SP_20009-E3A	2.78	16.01	28.44	52.78	0.85	0.69	16.35	29.05	53.91	0.86	16.46	29.25	54.29	0.87	35.01	64.99	1.04	6.0	71	-
15	ETT_SP_20009-E3B	1.95	19.62	28.00	51.83	0.89	0.57	19.29	28.39	51.75	0.90	19.40	28.55	52.04	0.91	35.43	64.57	1.13	5.5	64	-
16	ETT_SP_20009-E3C	2.18	18.99	27.14	51.69	0.78	0.60	19.30	27.58	52.52	0.80	19.42	27.75	52.84	0.80	34.43	65.57	1.00	5.0	55	-

QUALITY ASSURANCE/QUALITY CONTROL DATA

STDAISWS-23/20	ASH	VOL	TSUL
Certified Value	18.15	18.19	0.615
Standard Deviation	0.65	0.16	0.017
Unit	%	%	%
Analyzed value	18.86	18.22	0.615

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CERTIFICATE OF ANALYSIS  
23J194; 23J216; 23J236; 23J242; 23K04-TT

**CLIENT:** Erdenes Tavan Tolgoi JSC  
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1st khoroov, Chingelhel District  
Ulaanbaatar, Mongolia  
**ATTN:** Bekbat.P  
**PROJECT NO.** xxx  
**LAB. JOB NO.** 23J194; 23J216; 23J236; 23J242; 23K04-TT  
**NO. SAMPLES:** 9  
**Notes/Comments:** xxx

**SAMPLES RECEIVED:** 01/11-24/10/2023  
**INSTRUCTIONS RECEIVED:** 01/11-24/10/2023  
**DATE OF REPORT:** 02/11-25/10/2023  
**STATUS OF REPORT:** FINAL  
**ANALYSIS COMPLETE:** 02/11-25/10/2023  
**PREPARATION CODE:** CRUSH-01.03; MILL-01  
**ANALYSIS CODE:** 1\_COKING COAL, CSN  
TM, ASH, MOIS, VOL,  
TSUL, CKN

APPROVED BY: Laboratory Manager



CHECKED BY: Chief Chemist

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

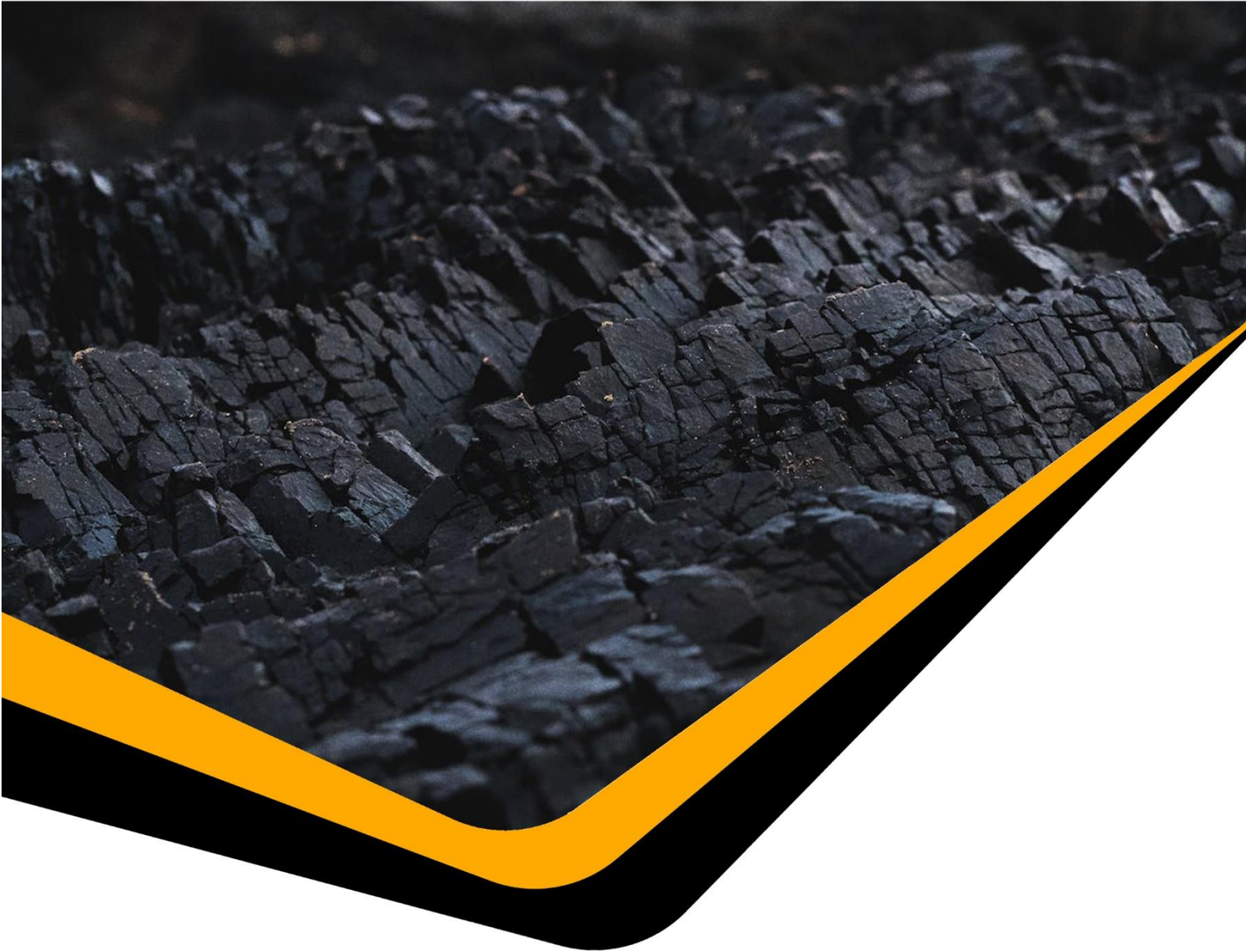
LAB NO.	SAMPLE NO.	AS RECEIVED BASIS					AIR DRIED BASIS					DRY BASIS					Cruible Swelling Number (CSN)	Coal Caking Index (CKI)			
		Total Moisture (TM)	Ash (ASH)	Volatile Matter (VOL)	Fixed Carbon (FC)	Total Sulphur (TSUL)	Moisture (MOIS)	Ash (ASH)	Volatile Matter (VOL)	Fixed Carbon (FC)	Total Sulphur (TSUL)	Ash (ASH)	Volatile Matter (VOL)	Fixed Carbon (FC)	Total Sulphur (TSUL)	S1		S3			
1	ETT_SP_20017-1A	2.33	16.68	27.71	53.28	0.96	0.64	16.26	28.19	54.20	0.97	17.07	28.38	54.35	0.98	34.22	65.78	1.18	6.0	74	-
2	ETT_SP_20017-1B	2.37	15.81	28.70	53.12	1.02	0.64	16.09	29.21	54.06	1.04	16.19	29.40	54.41	1.04	35.08	64.92	1.25	6.0	72	-
3	ETT_20017_1C-1	2.34	15.98	27.00	54.68	0.98	0.63	16.26	27.48	55.63	0.99	16.36	27.65	55.99	1.00	33.06	66.94	1.19	6.7	-	-
4	ETT_SP_20017-2A	3.19	14.09	28.63	54.09	0.91	0.51	14.48	29.42	55.59	0.93	14.56	29.57	55.87	0.94	34.61	65.39	1.10	6.5	77	-
5	ETT_SP_20017-2B	3.46	12.98	29.17	54.38	0.75	0.72	12.35	30.00	55.93	0.77	12.45	30.22	56.33	0.77	34.91	65.89	0.89	6.5	81	-
6	ETT_SP_20017-2C	2.89	15.17	27.92	54.01	0.78	0.70	15.51	28.56	55.23	0.80	15.62	28.76	55.62	0.80	34.08	65.92	0.95	6.5	72	-
7	ETT_SP_20017-3A	3.06	12.57	29.27	55.10	0.59	1.03	12.83	29.88	56.25	0.60	12.97	30.20	56.84	0.60	34.69	65.31	0.69	6.5	82	-
8	ETT_SP_20017-3B	3.43	13.19	29.08	54.30	0.61	1.00	13.52	29.81	55.67	0.63	13.65	30.11	56.23	0.63	34.87	65.13	0.73	6.5	82	-
9	ETT_SP_20017-3C	3.54	12.25	29.12	55.09	0.55	1.10	12.56	29.86	56.49	0.57	12.70	30.19	57.11	0.57	34.58	65.42	0.66	6.5	81	-

QUALITY ASSURANCE/QUALITY CONTROL DATA

STDAISBS-010-2022	ASH	VOL	TSUL
Certified Value	18.15	18.19	0.615
Standard Deviation	0.973	0.127	0.015
Unit	%	%	%
Analyzed value	16.43	19.81	0.613

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. COPY RIGHT PROTECTED DOCUMENT





ISO 45001:2018



ISO 9001:2015



ISO 14001:2015



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Чингэлтэй дүүрэг,  
Улаанбаатар хот

