

FOUNDATION INDICATOR						Sheet Ref: R-STL-011-Rev02	
Grading & Hydrometer Analysis (Particle Size (mm) & % Passing)				Atterberg Limits & Classification			
Sample	RAS Coarse Tails	E1654 / - 45µm	E1414 / - 45µm	Sample	RAS Coarse Tails	E1654 / - 45µm	E1414 / - 45µm
Lab No	EPO-19-69	EPO-19-70	EPO-19-71	Lab No	EPO-19-69	EPO-19-70	EPO-19-71
53.0	100	100	100	Liquid Limit (%)	-	53	54
37.5	100	100	100	Plastic Limit (%)	-	44	18
26.5	100	100	100	Plasticity Index (%)	NP	9	36
19.0	100	100	100	Linear Shrinkage (%)	0.0	3.0	1.0
13.2	100	100	100	PI of whole sample	-	9	36
9.5	100	100	100				
6.7	100	100	100	% Gravel	1	0	0
4.75	100	100	100	% Sand	-	-	-
2.00	99	100	100	% Silt	-	-	-
1.00	98	100	100	% Clay	-	-	-
0.425	94	100	100	Activity	-	-	-
0.250	40	100	100				
0.150	5	99	99	% Soil Mortar	99	100	100
0.075	3	99	99				
0.060	-	-	-	Grading Modulus	1.04	0.01	0.01
0.050	-	-	-	Moisture Content (%)	N / T	N / T	N / T
0.035	-	-	-	Relative Density (SG)*	2.615	2.65	2.634
0.020	-	-	-				
0.006	-	-	-	Unified (ASTM D2487)	-	-	-
0.002	-	-	-	AASHTO (M145-91)	A - 3	A - 5	A - 7 - 6
Remarks: *: Assumed							
N / T: Not Tested							
Although everything possible is done to ensure testing is performed accurately, neither Specialised Testing Laboratory (Pty) Ltd nor any of its directors, managers, employees or contractors can be held liable for any damages whatsoever arising from any error made in performing any tests, nor from any conclusions drawn therefrom. Test results are to be published in full. Samples will be kept for 1 month after the submission of test results due to limited storage space, unless other arrangements are in place.							



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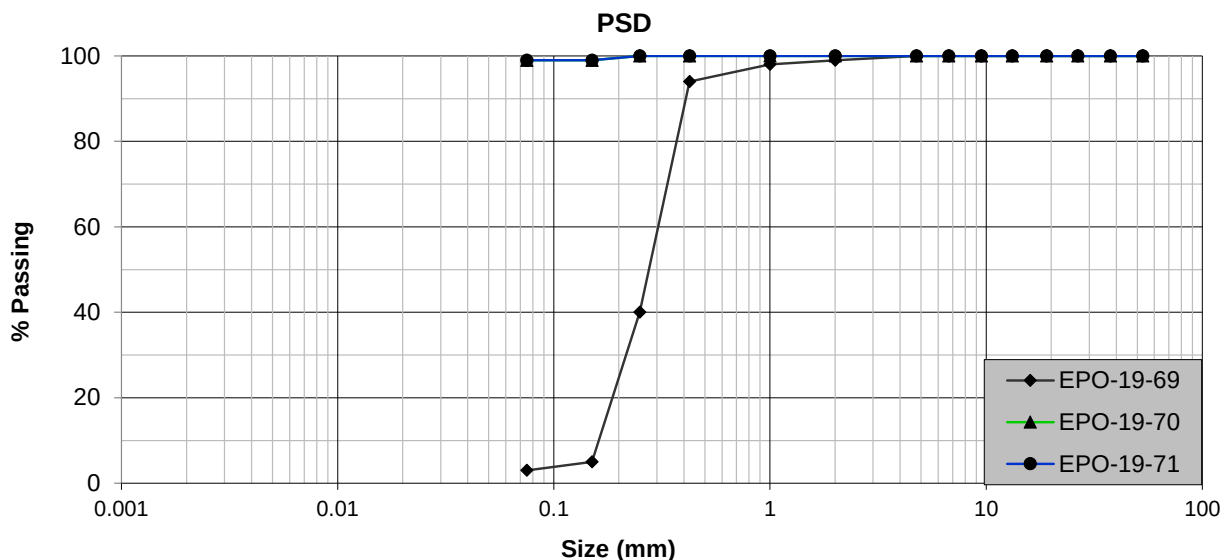
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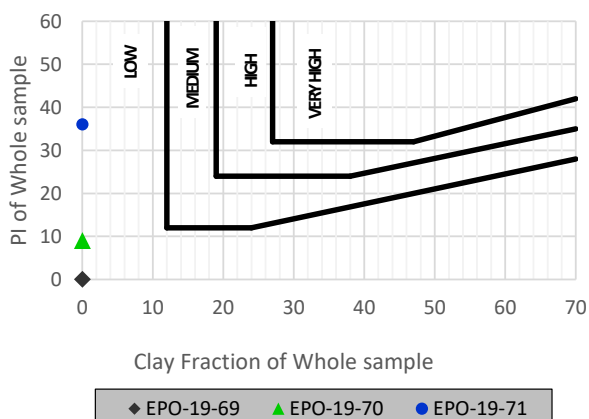
Client Name: Epoch Resources
Project Name: Tronox Tailings
Job Number: EPO-19
Date: 2020-11-04
Method: SANS 3001 GR1, GR3, GR10 GR12 & BS 1377 (where applicable)

FOUNDATION INDICATOR

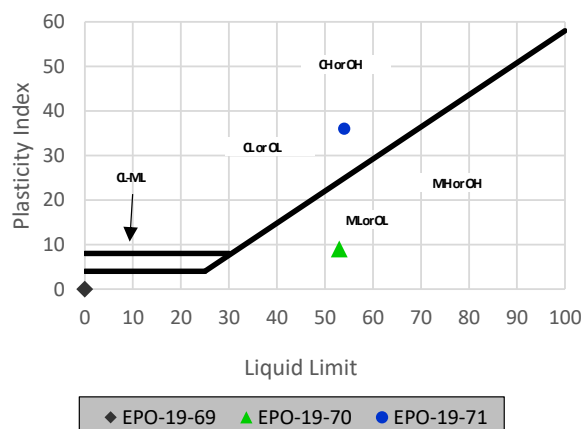
Sheet Ref:
R-STL-011-Rev02



Potential Expansiveness



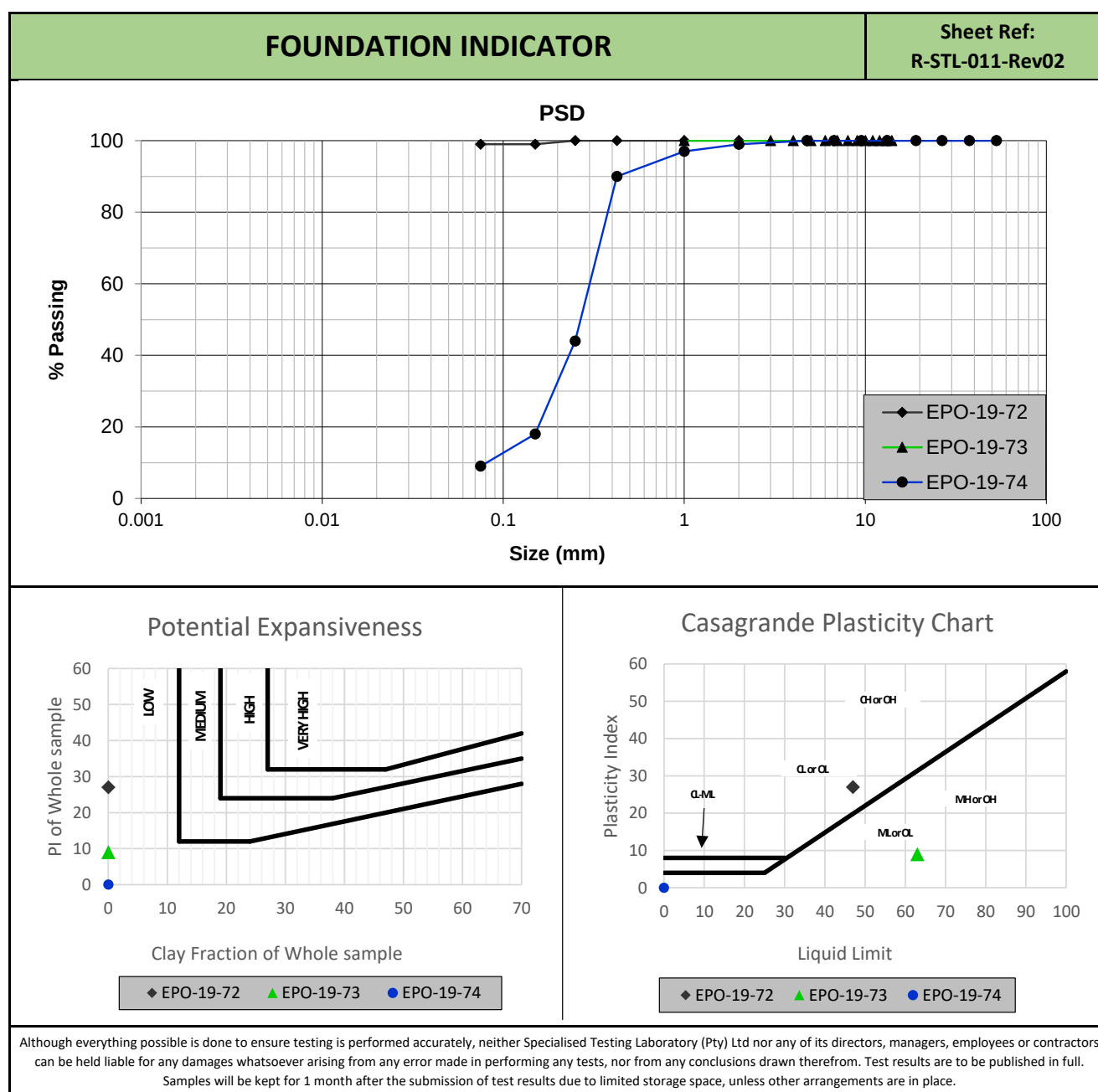
Casagrande Plasticity Chart



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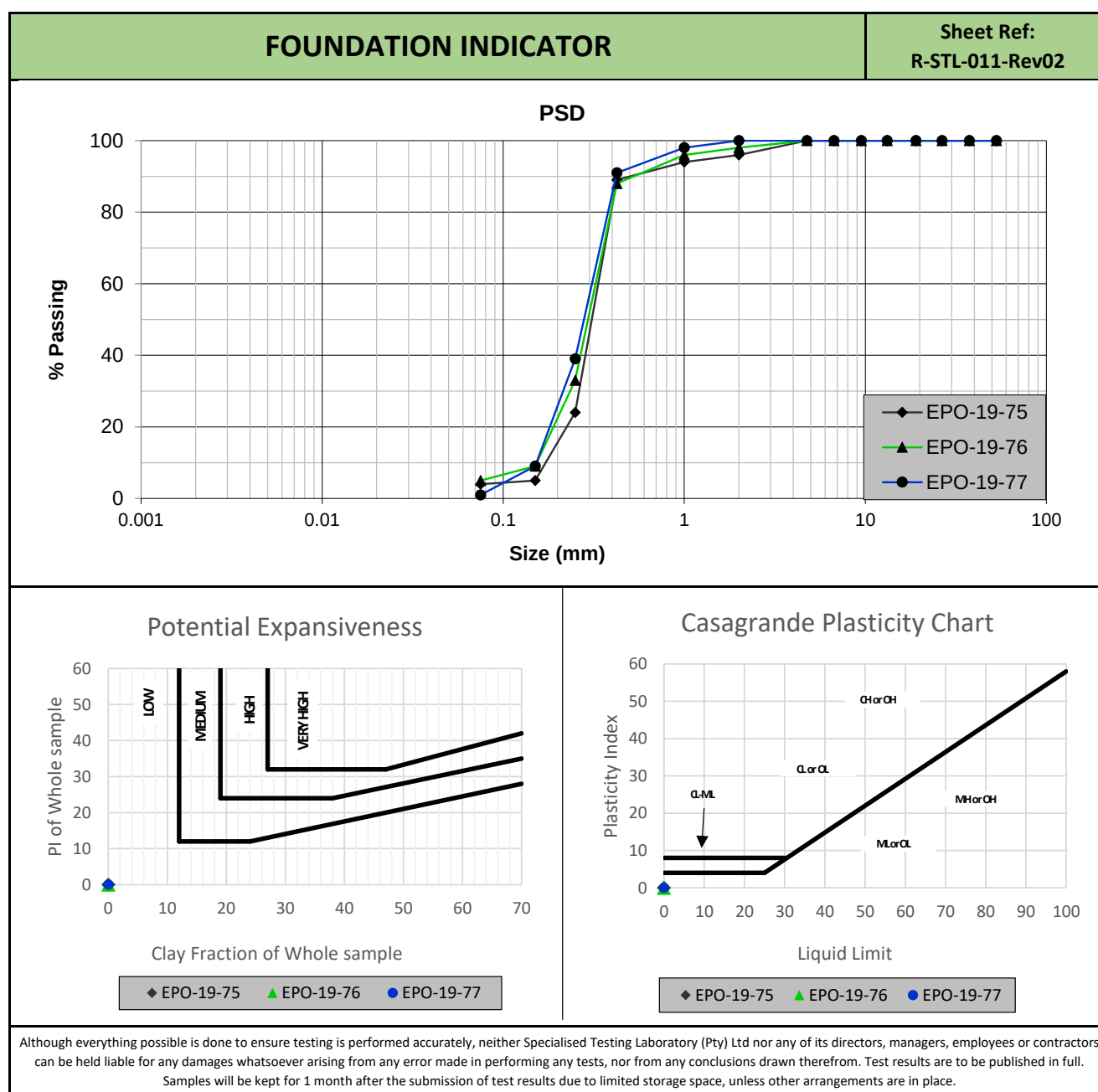
FOUNDATION INDICATOR						Sheet Ref: R-STL-011-Rev02	
Grading & Hydrometer Analysis (Particle Size (mm) & % Passing)				Atterberg Limits & Classification			
Sample	E2293 Fines	EOFS Fines Residue	E1654 / +45µm	Sample	E2293 Fines	EOFS Fines Residue	E1654 / +45µm
Lab No	EPO-19-72	EPO-19-73	EPO-19-74	Lab No	EPO-19-72	EPO-19-73	EPO-19-74
53.0	100	100	100	Liquid Limit (%)	47	63	-
37.5	100	100	100	Plastic Limit (%)	20	54	-
26.5	100	100	100	Plasticity Index (%)	27	9	NP
19.0	100	100	100	Linear Shrinkage (%)	1.0	2.5	0.0
13.2	100	100	100	PI of whole sample	27	9	-
9.5	100	100	100				
6.7	100	100	100	% Gravel	0	0	1
4.75	100	100	100	% Sand	-	-	-
2.00	100	100	99	% Silt	-	-	-
1.00	100	100	97	% Clay	-	-	-
0.425	100	100	90	Activity	-	-	-
0.250	100	100	44				
0.150	99	100	18	% Soil Mortar	100	100	99
0.075	99	100	9				
0.060	-	-	-	Grading Modulus	0.01	0.00	1.02
0.050	-	-	-	Moisture Content (%)	N / T	N / T	N / T
0.035	-	-	-	Relative Density (SG)*	2.59	2.65	2.64
0.020	-	-	-				
0.006	-	-	-	Unified (ASTM D2487)	-	-	-
0.002	-	-	-	AASHTO (M145-91)	A - 7 - 6	A - 5	A - 3
Remarks: *: Determined							
N / T: Not Tested							
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Client Name: Epoch Resources
Project Name: Tronox Tailings
Job Number: EPO-19
Date: 2020-11-04
Method: SANS 3001 GR1, GR3, GR10 GR12 & BS 1377 (where applicable)



FOUNDATION INDICATOR						Sheet Ref: R-STL-011-Rev02	
Grading & Hydrometer Analysis (Particle Size (mm) & % Passing)				Atterberg Limits & Classification			
Sample	E1414 / +45µm	E2293 / +45µm	E0619 / +45µm	Sample	E1414 / +45µm	E2293 / +45µm	E0619 / +45µm
Lab No	EPO-19-75	EPO-19-76	EPO-19-77	Lab No	EPO-19-75	EPO-19-76	EPO-19-77
53.0	100	100	100	Liquid Limit (%)	-	-	-
37.5	100	100	100	Plastic Limit (%)	-	-	-
26.5	100	100	100	Plasticity Index (%)	NP	NP	NP
19.0	100	100	100	Linear Shrinkage (%)	0.0	0.0	0.0
13.2	100	100	100	PI of whole sample	-	-	-
9.5	100	100	100				
6.7	100	100	100	% Gravel	4	2	0
4.75	100	100	100	% Sand	-	-	-
2.00	96	98	100	% Silt	-	-	-
1.00	94	96	98	% Clay	-	-	-
0.425	89	88	91	Activity	-	-	-
0.250	24	33	39				
0.150	5	9	9	% Soil Mortar	96	98	100
0.075	4	5	1				
0.060	-	-	-	Grading Modulus	1.11	1.09	1.08
0.050	-	-	-	Moisture Content (%)	N / T	N / T	N / T
0.035	-	-	-	Relative Density (SG)*	2.666	2.642	2.699
0.020	-	-	-				
0.006	-	-	-	Unified (ASTM D2487)	-	-	-
0.002	-	-	-	AASHTO (M145-91)	A - 3	A - 3	A - 3
Remarks: *: Determined							
N / T: Not Tested							
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Client Name: Epoch Resources
Project Name: Tronox Tailings
Job Number: EPO-19
Date: 2020-10-27
Method: SANS 3001 GR1, GR3, GR10 GR12 & BS 1377 (where applicable)



E0619 Laser Diffraction			
Sieve Size	Percentage Passing	Sieve Size	Percentage Passing
1000.0	100.0	10.0	82.7
912.0	100.0	9.1	80.3
832.0	100.0	8.3	77.8
759.0	100.0	7.6	75.1
692.0	100.0	6.9	72.1
631.0	100.0	6.3	68.9
575.0	100.0	5.8	65.5
525.0	100.0	5.3	62.1
479.0	100.0	4.8	58.5
437.0	100.0	4.4	54.9
398.0	100.0	4.0	51.1
363.0	100.0	3.6	47.4
331.0	100.0	3.3	43.7
302.0	100.0	3.0	40.0
275.0	100.0	2.8	36.3
251.0	100.0	2.5	32.8
229.0	100.0	2.3	29.4
209.0	100.0	2.1	26.2
191.0	100.0	1.9	23.2
174.0	100.0	1.7	20.4
158.0	100.0	1.6	17.7
145.0	100.0	1.5	15.4
132.0	100.0	1.3	13.2
120.0	100.0	1.2	11.1
110.0	99.9	1.1	9.4
100.0	99.9	1.0	7.7
91.2	99.8	0.9	6.2
83.2	99.7	0.8	4.9
75.0	99.5	0.8	3.7
69.2	99.4	0.7	2.7
63.1	99.2	0.6	1.9
57.5	99.0	0.6	1.2
52.5	98.8	0.5	0.7
47.9	98.6	0.5	0.4
45.0	98.4	0.4	0.2
39.8	97.9	0.4	0.1
36.3	97.5	0.4	0.1
33.1	97.1	0.3	0.1
30.2	96.6	0.3	0.1
27.5	96.0	0.3	0.1
25.0	95.4	0.3	0.1
22.9	94.7	0.2	0.1
20.9	94.0	0.2	0.1
19.1	93.1	0.2	0.1
17.4	92.1	0.2	0.1
15.8	90.9	0.2	0.1
14.5	89.7	0.1	0.1
13.2	88.2	0.1	0.1
12.0	86.5	0.1	0.1
11.0	84.8	0.1	0.1

E1414 Laser Diffraction			
Sieve Size	Percentage Passing	Sieve Size	Percentage Passing
1000.0	100.0	10.0	67.1
912.0	100.0	9.1	64.9
832.0	100.0	8.3	62.5
759.0	100.0	7.6	60.1
692.0	100.0	6.9	57.6
631.0	100.0	6.3	55.1
575.0	100.0	5.8	52.5
525.0	100.0	5.3	49.9
479.0	100.0	4.8	47.2
437.0	100.0	4.4	44.6
398.0	100.0	4.0	41.8
363.0	100.0	3.6	39.1
331.0	100.0	3.3	36.4
302.0	100.0	3.0	33.8
275.0	100.0	2.8	31.0
251.0	100.0	2.5	28.4
229.0	100.0	2.3	25.8
209.0	100.0	2.1	23.2
191.0	100.0	1.9	20.8
174.0	100.0	1.7	18.4
158.0	100.0	1.6	16.1
145.0	100.0	1.5	14.1
132.0	100.0	1.3	12.1
120.0	100.0	1.2	10.3
110.0	100.0	1.1	8.7
100.0	100.0	1.0	7.1
91.2	100.0	0.9	5.8
83.2	100.0	0.8	4.5
75.0	99.9	0.8	3.4
69.2	99.8	0.7	2.5
63.1	99.6	0.6	1.7
57.5	99.2	0.6	1.1
52.5	98.7	0.5	0.6
47.9	98.0	0.5	0.3
45.0	97.4	0.4	0.1
39.8	96.0	0.4	0.0
36.3	94.6	0.4	0.0
33.1	93.1	0.3	0.0
30.2	91.4	0.3	0.0
27.5	89.6	0.3	0.0
25.0	87.6	0.3	0.0
22.9	85.8	0.2	0.0
20.9	83.8	0.2	0.0
19.1	81.8	0.2	0.0
17.4	79.8	0.2	0.0
15.8	77.6	0.2	0.0
14.5	75.7	0.1	0.0
13.2	73.6	0.1	0.0
12.0	71.4	0.1	0.0
11.0	69.4	0.1	0.0

E1651 Laser Diffraction			
Sieve Size	Percentage Passing	Sieve Size	Percentage Passing
1000.0	100.0	10.0	65.7
912.0	100.0	9.1	63.4
832.0	100.0	8.3	61.0
759.0	100.0	7.6	58.6
692.0	100.0	6.9	56.0
631.0	100.0	6.3	53.5
575.0	100.0	5.8	50.8
525.0	100.0	5.3	48.2
479.0	100.0	4.8	45.5
437.0	100.0	4.4	42.8
398.0	100.0	4.0	40.1
363.0	100.0	3.6	37.4
331.0	100.0	3.3	34.7
302.0	100.0	3.0	32.0
275.0	100.0	2.8	29.3
251.0	100.0	2.5	26.7
229.0	100.0	2.3	24.1
209.0	100.0	2.1	21.7
191.0	100.0	1.9	19.4
174.0	100.0	1.7	17.1
158.0	100.0	1.6	14.9
145.0	100.0	1.5	13.1
132.0	100.0	1.3	11.3
120.0	100.0	1.2	9.6
110.0	100.0	1.1	8.2
100.0	100.0	1.0	6.7
91.2	100.0	0.9	5.5
83.2	100.0	0.8	4.3
75.0	100.0	0.8	3.3
69.2	100.0	0.7	2.4
63.1	99.9	0.6	1.6
57.5	99.6	0.6	1.0
52.5	99.2	0.5	0.6
47.9	98.5	0.5	0.3
45.0	98.0	0.4	0.1
39.8	96.6	0.4	0.0
36.3	95.2	0.4	0.0
33.1	93.7	0.3	0.0
30.2	91.9	0.3	0.0
27.5	90.0	0.3	0.0
25.0	87.9	0.3	0.0
22.9	85.9	0.2	0.0
20.9	83.7	0.2	0.0
19.1	81.6	0.2	0.0
17.4	79.3	0.2	0.0
15.8	77.0	0.2	0.0
14.5	74.9	0.1	0.0
13.2	72.6	0.1	0.0
12.0	70.3	0.1	0.0
11.0	68.1	0.1	0.0

E2293 Laser Diffraction				
Sieve Size	Percentage Passing		Sieve Size	Percentage Passing
1000.0	100.0		10.0	71.5
912.0	100.0		9.1	69.5
832.0	100.0		8.3	67.4
759.0	100.0		7.6	65.2
692.0	100.0		6.9	62.9
631.0	100.0		6.3	60.4
575.0	100.0		5.8	57.9
525.0	100.0		5.3	55.3
479.0	100.0		4.8	52.6
437.0	100.0		4.4	49.8
398.0	100.0		4.0	46.9
363.0	100.0		3.6	43.9
331.0	100.0		3.3	40.9
302.0	100.0		3.0	37.8
275.0	100.0		2.8	34.7
251.0	100.0		2.5	31.5
229.0	100.0		2.3	28.4
209.0	100.0		2.1	25.4
191.0	100.0		1.9	22.5
174.0	100.0		1.7	19.7
158.0	100.0		1.6	16.9
145.0	100.0		1.5	14.5
132.0	100.0		1.3	12.2
120.0	100.0		1.2	10.1
110.0	100.0		1.1	8.4
100.0	100.0		1.0	6.6
91.2	99.9		0.9	5.2
83.2	99.7		0.8	4.0
75.0	99.3		0.8	2.9
69.2	98.8		0.7	2.0
63.1	98.2		0.6	1.3
57.5	97.5		0.6	0.8
52.5	96.7		0.5	0.4
47.9	95.7		0.5	0.2
45.0	94.9		0.4	0.1
39.8	93.4		0.4	0.0
36.3	92.1		0.4	0.0
33.1	90.8		0.3	0.0
30.2	89.5		0.3	0.0
27.5	88.1		0.3	0.0
25.0	86.7		0.3	0.0
22.9	85.4		0.2	0.0
20.9	84.0		0.2	0.0
19.1	82.7		0.2	0.0
17.4	81.2		0.2	0.0
15.8	79.7		0.2	0.0
14.5	78.3		0.1	0.0
13.2	76.7		0.1	0.0
12.0	75.0		0.1	0.0
11.0	73.4		0.1	0.0



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Client Name: Epoch Resources
Project Name: Tronox Tailings
Sample: RAS Coarse Tails
Depth: (m) -

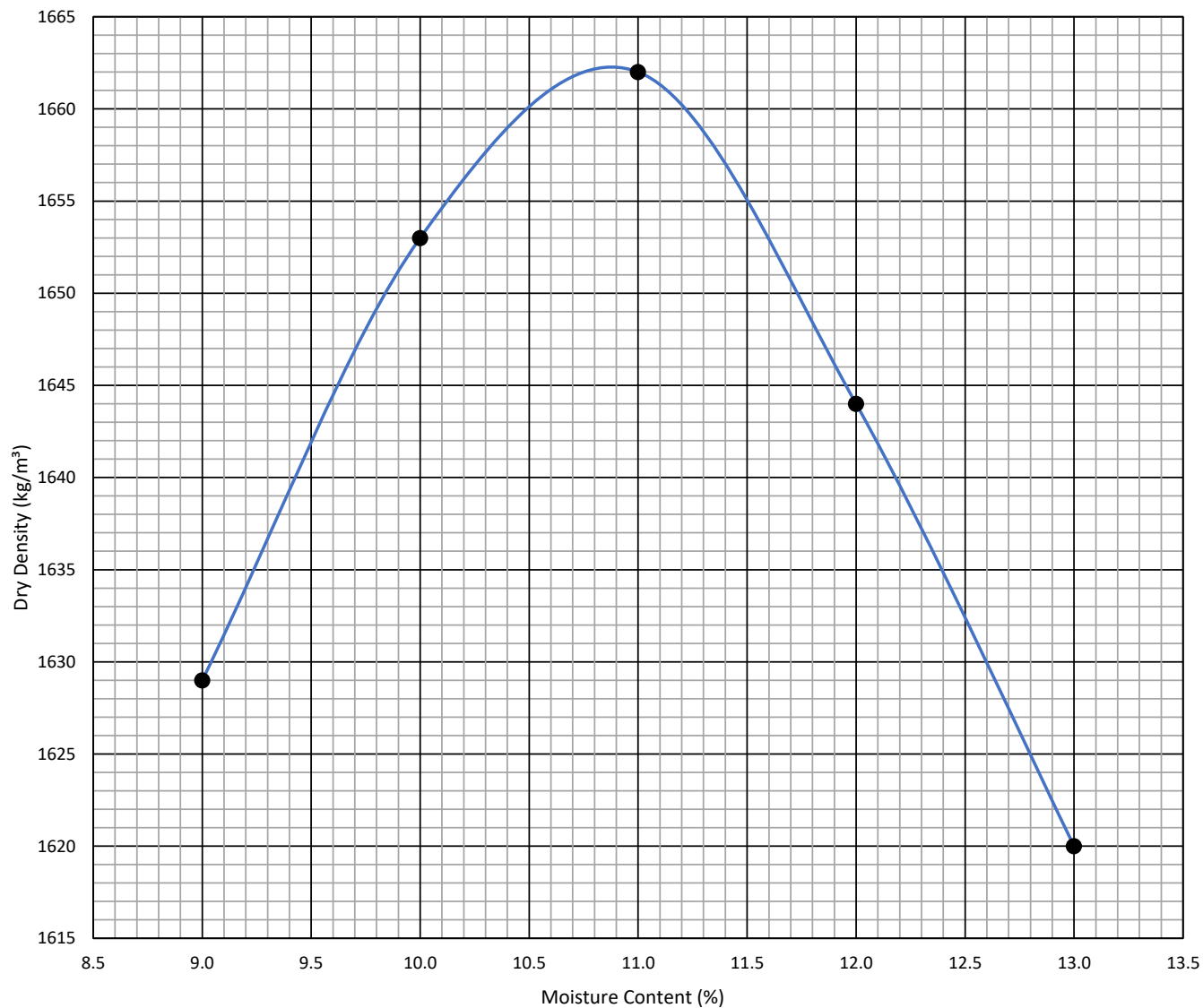
Job Number: EPO-19
Lab Number: EPO-19-69
Method: SANS 3001 GR30
Date: 27-Oct-20

MDD & OMC DETERMINATION (Std. Proctor)

Maximum Dry Density: **1664** kg/m³

Optimum Moisture Content: **10.9** %

Moisture Content (%):	9.0	10.0	11.0	12.0	13.0			
Dry Density (kg/m ³)	1629	1653	1662	1644	1620			



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Client Name: Epoch Resources
Project Name: Tronox Tailings
Sample: E0619 / +45 μ m
Depth: (m) -

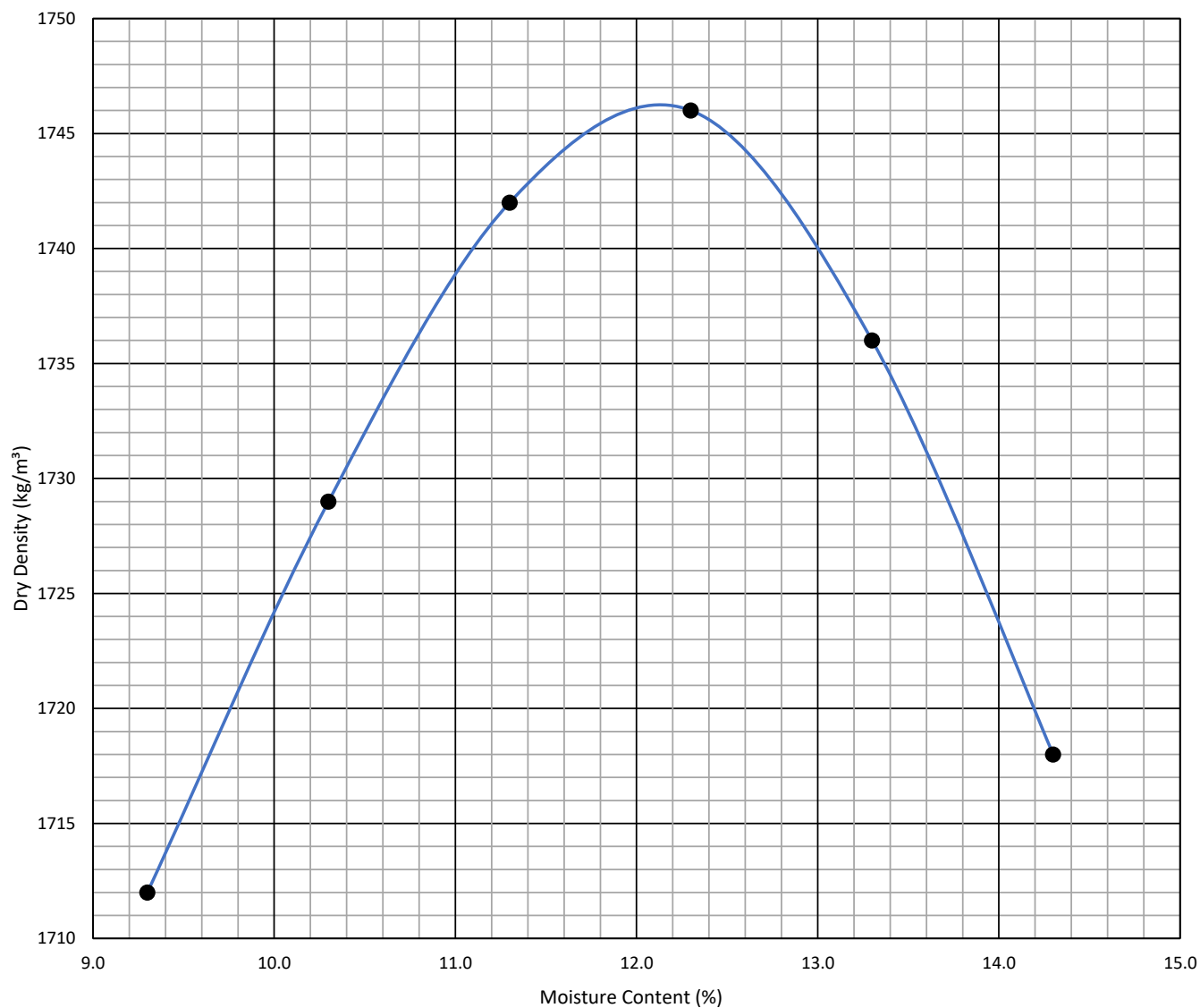
Job Number: EPO-19
Lab Number: EPO-19-77
Method: SANS 3001 GR30
Date: 04-Nov-20

MDD & OMC DETERMINATION (Std. Proctor)

Maximum Dry Density: **1748** kg/m³

Optimum Moisture Content: **12.1** %

Moisture Content (%):	9.3	10.3	11.3	12.3	13.3	14.3		
Dry Density (kg/m ³)	1712	1729	1742	1746	1736	1718		



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Civil Engineering

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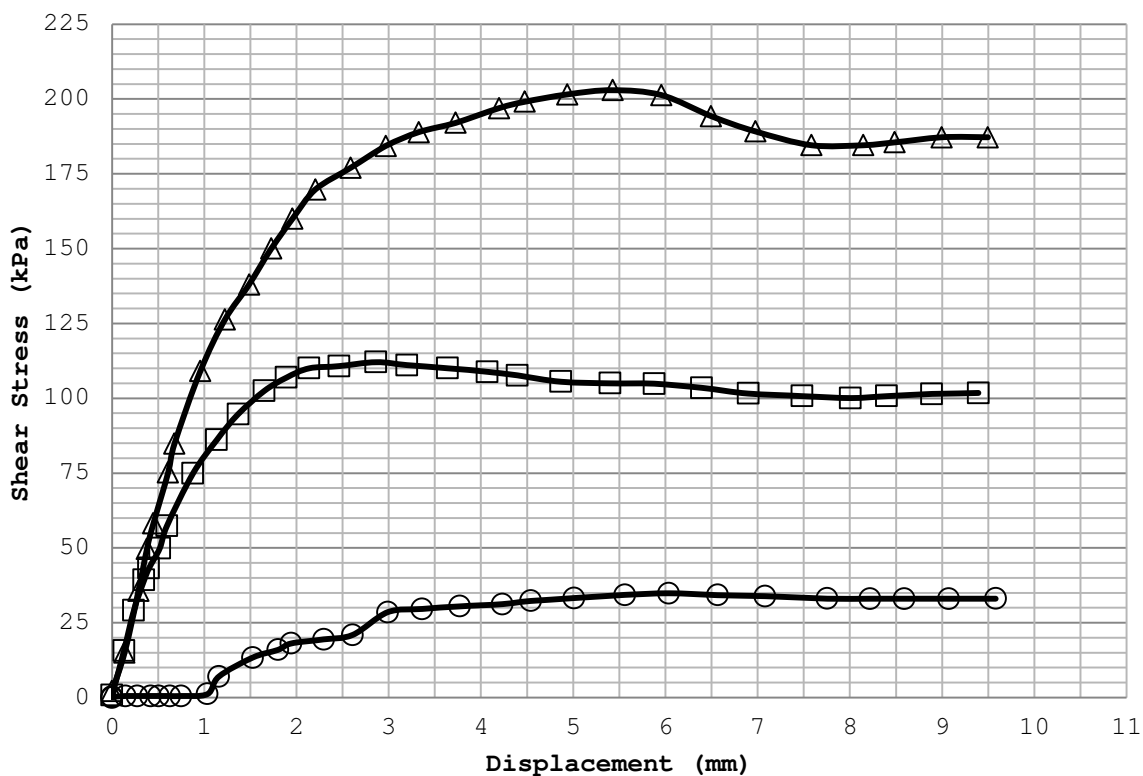
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0105

P1/2

Project:	Tronox Tailings
Sample Number:	E0619/+45 micron
Sample Position:	-
Test:	DIRECT SHEAR TEST
Preparation:	Remoulded
Lab Number:	20/458
Test Date:	30-Nov-20



Normal Stress (kPa)	50.0	150.0	300.0
Shear Stress (kPa)	34.8	112.1	203.0
Displacement (mm)	6.0	2.9	5.4



du Plessis
Civil Engineering

Reg. No: cc 20000483323

250 ORION Ave
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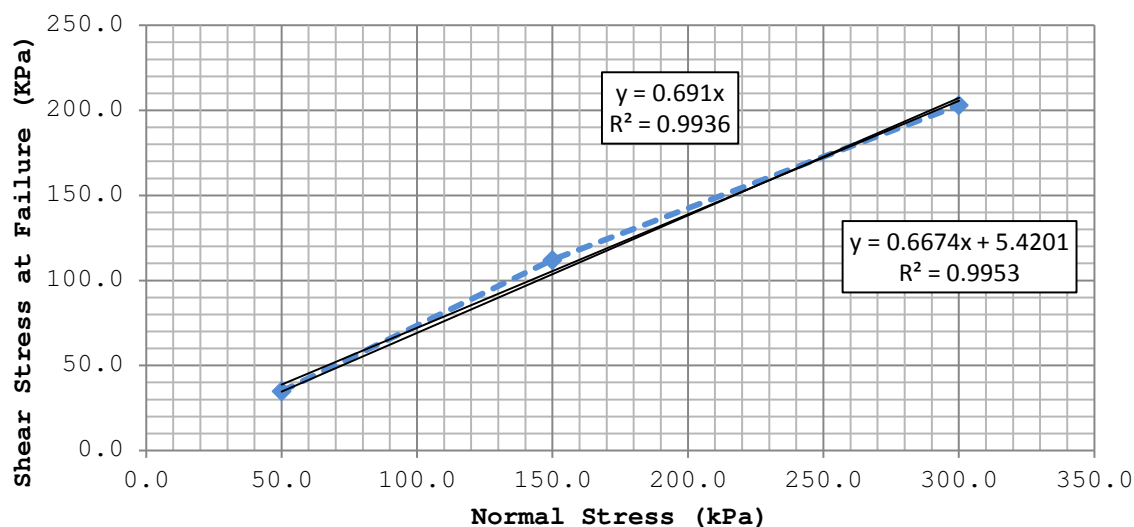
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P2/2

Project:	Tronox Tailings
Sample Number:	E0619/+45 micron
Sample Position:	-
Test:	DIRECT SHEAR TEST
Preparation:	Remoulded
Lab Number:	20/458
Test Date:	30-Nov-20

Shear Strength



Linear trendline fit intersecting zero:

Apparent Cohesion Intersect : 0.0
Angle of Shear Resistance ϕ : 34.6 °

Linear trendline fit intersecting 3 data points:

Apparent Cohesion Intersect : 5.4
Angle of Shear Resistance ϕ : 33.7 °

Sample:	1	2	3
Initial Moisture:	12.4%	12.4%	12.6%
Initial Bulk Density (kg/m ³):	1875.1	1867.1	1877.9
Initial Dry Density (kg/m ³):	1668.7	1661.1	1667.9



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P1/2

Project:

Tronox Tailings

Sample Number:

RAS Coarse Tails

Sample Position:

-

Test:

DIRECT SHEAR TEST

Preparation:

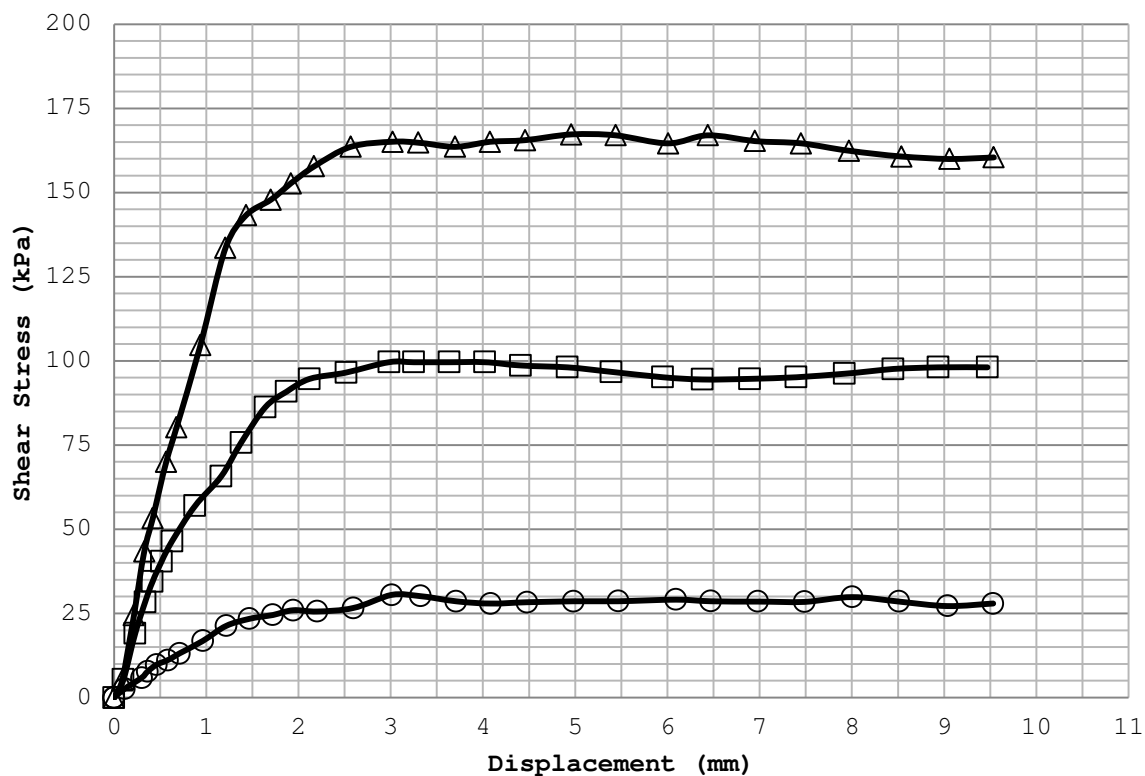
Remoulded

Lab Number:

20/455

Test Date:

27-Nov-20



Normal Stress (kPa)	50.0	150.0	300.0
Shear Stress (kPa)	30.5	99.7	167.3
Displacement (mm)	3.0	3.0	9.5



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P2/2

Project:

Tronox Tailings

Sample Number:

RAS Coarse Tails

Sample Position:

-

Test:

DIRECT SHEAR TEST

Preparation:

Remoulded

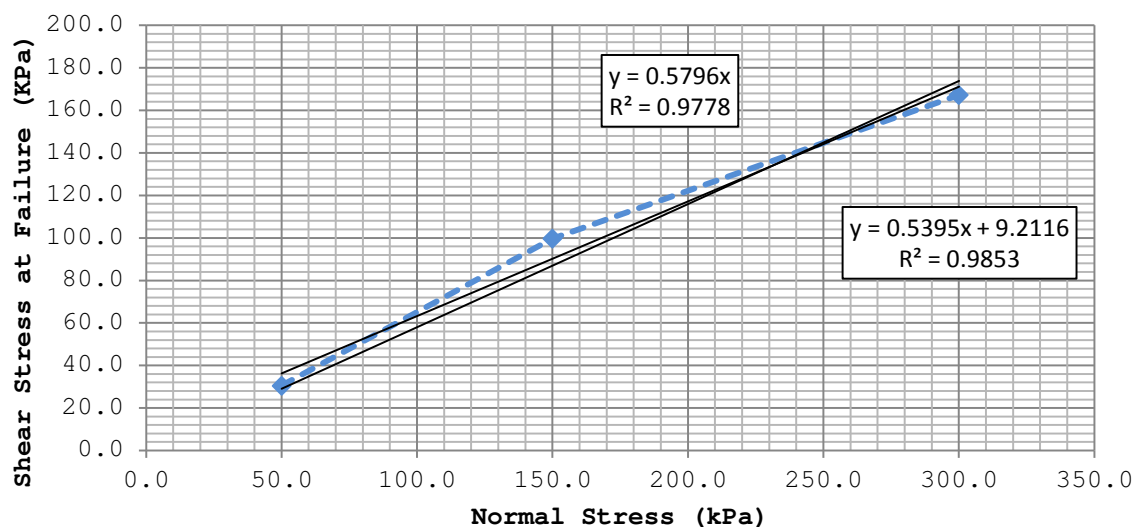
Lab Number:

20/455

Test Date:

27-Nov-20

Shear Strength



Linear trendline fit intersecting zero:

Apparent Cohesion Intercept : 0.0
Angle of Shear Resistance ϕ : 30.1 °

Linear trendline fit intersecting 3 data points:

Apparent Cohesion Intercept : 9.2
Angle of Shear Resistance ϕ : 28.3 °

Sample:	1	2	3
Initial Moisture:	10.1%	10.6%	10.9%
Initial Bulk Density (kg/m ³):	1791.8	1772.9	1781.8
Initial Dry Density (kg/m ³):	1627.8	1602.4	1607.3



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Tel. : 012-800 1299
Fax. : 012-800 3034
Email : lizette.breiting@sgs.com

TEST RESULTS

Client:

EPOCH RESOURCES

Attention: Georgia Wills-Vagis

Project : TRONOX TAILINGS

Your Ref :

Our Ref : 40918

Date Reported : 23/11/2020

FALLING HEAD PERMEABILITY

TEST METHOD: KH HEAD Volume 2

SAMPLE	Lab No.	Depth (m)	STD. Proctor Dry Density	Compaction Effort	Dry Density	Actual Moisture Content %	Permeability (cm/s)
E0619 / +45µm	G20-0343	-	1748	95%	1669	11.57	1.72E-03
RAS COARSE TAILS	G20-0345	-	1664	95%	1584	10.71	2.36E-03

Remarks :

Form: C1 Program ver 2.4

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**MATROLAB****SHEAR TESTS: BOX SHEAR****KH Head**

Client EPOCH RESOURCES **Project** TRONOX TAILINGS
Sample no RAS COARSE TAILS **Depth (m)** -
Lab no G20-0345

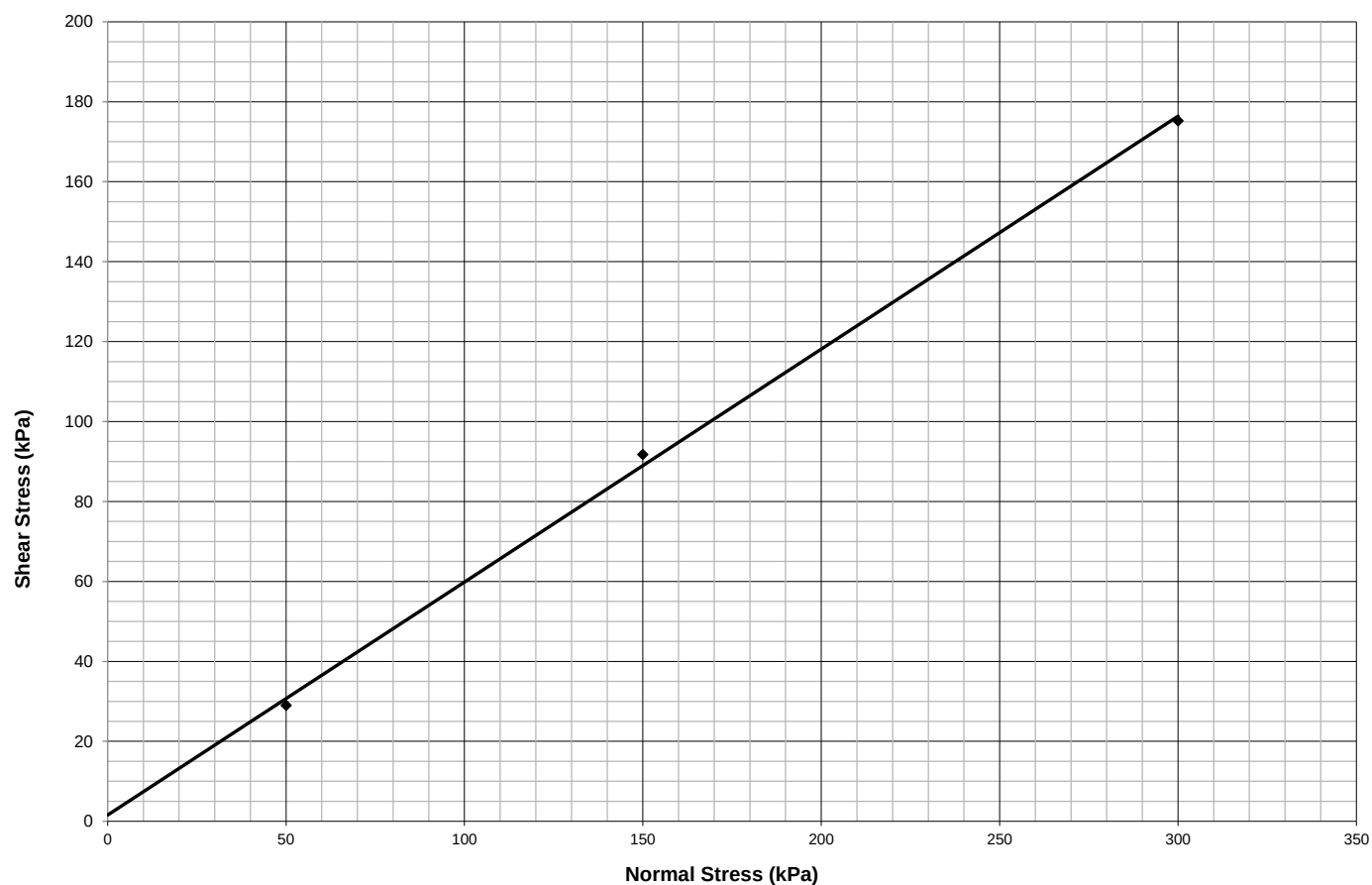
Job no 40918
Date 11/11/2020

Test Information

Test Type	-	Slow Drained, SOAKED
Sample Condition	-	Remoulded by hand to 95% PROCTOR MDD
Normal Stresses	kPa	50, 150, 300
Rate of Strain	mm/min	0.0060

Initial Sample Parameters	Unit	Test 1	Test 2	Test 3	Remarks
Moisture Content	%	10.6	10.6	10.4	Complete test specimen
Dry Density	Kg/m ³	1580	1582	1585	
Void Ratio	-	0.695	0.693	0.690	
Degree of Saturation	%	41.0	41.1	40.5	
Relative Density (SG)	-	2.678			Determined

Final Sample Parameters	Unit	Test 1	Test 2	Test 3	Remarks
Moisture Content	%	21.2	20.4	20.4	
Normal Stress	kPa	50	150	300	
Shear Stress	kPa	29	92	175	
Residual Stress	kPa	Not Tested	Not Tested	Not Tested	
Angle of Internal Friction	Deg.	30			Peak
Cohesion	kPa	2			Peak

Stress Plot

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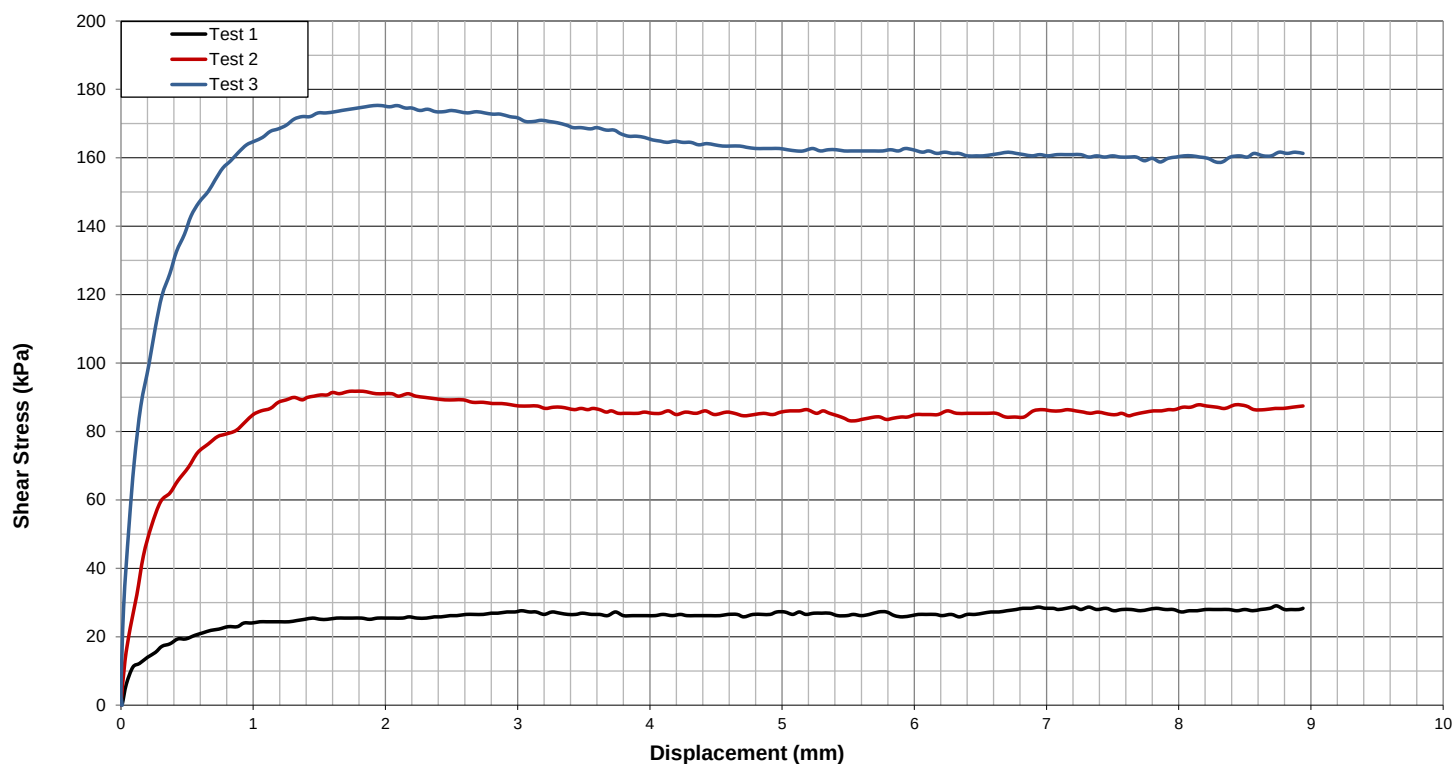
SHEAR TESTS: BOX SHEAR

KH Head

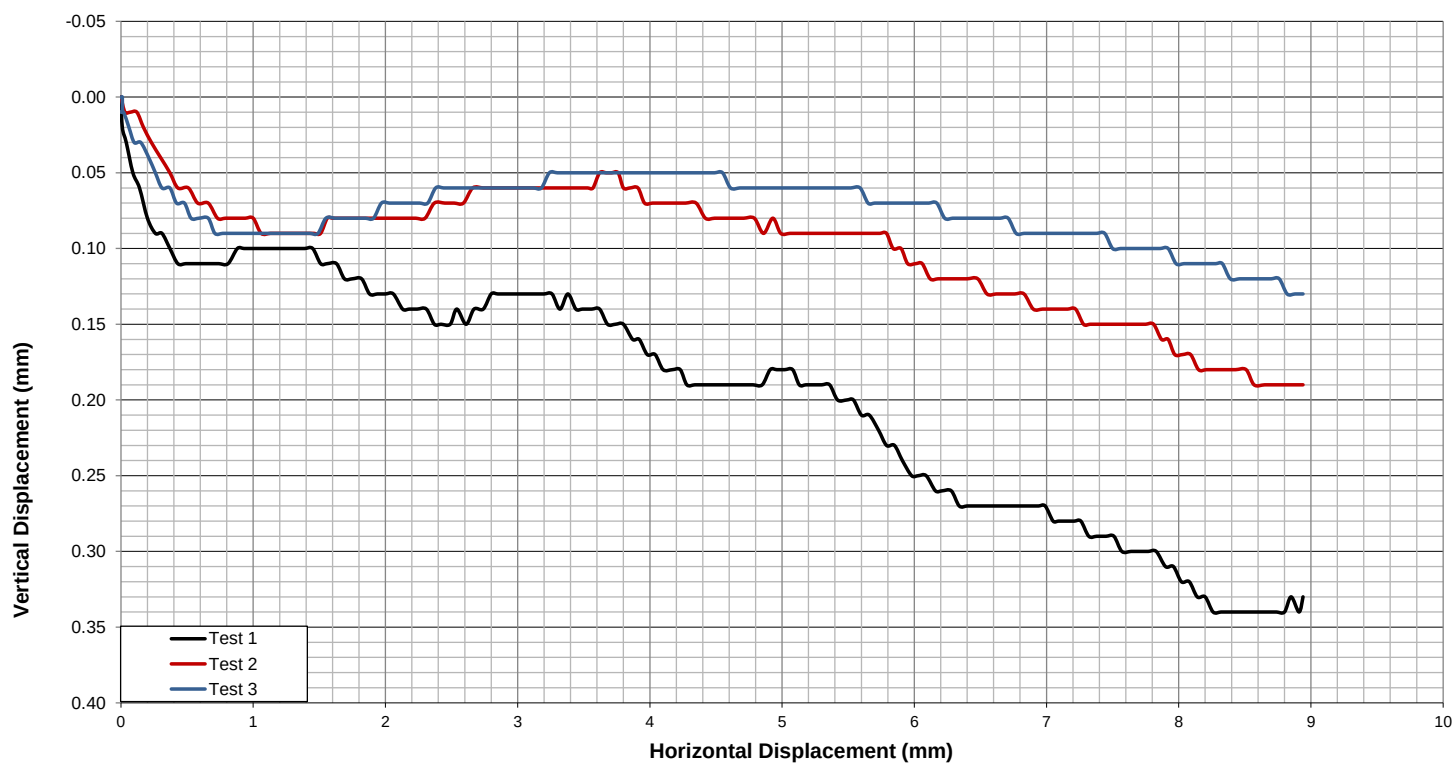
Client EPOCH RESOURCES Project TRONOX TAILINGS
Sample no RAS COARSE TAILS Depth (m) -
Lab no G20-0345

Job no 40918
Date 11/11/2020

Shear Stress



Displacement



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**MATROLAB****SHEAR TESTS: BOX SHEAR****KH Head**

Client EPOCH RESOURCES **Project** TRONOX TAILINGS
Sample no E0619 / +45µm **Depth (m)** -
Lab no G20-0343

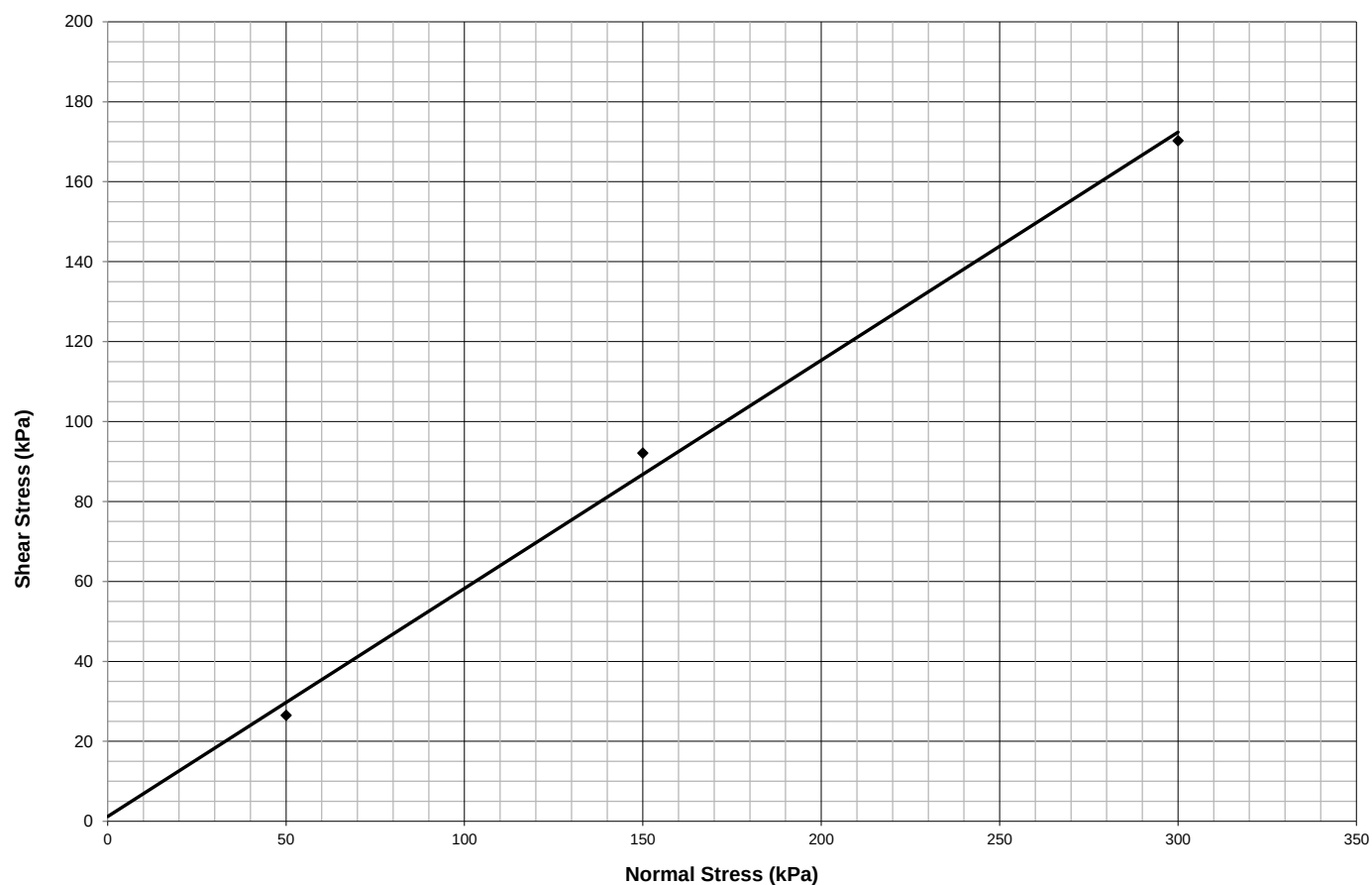
Job no 40918
Date 20/11/2020

Test Information

Test Type	-	Slow Drained, saturated
Sample Condition	-	Remoulded by hand to estimated OMC
Normal Stresses	kPa	50, 150, 300
Rate of Strain	mm/min	0.0060

Initial Sample Parameters	Unit	Test 1	Test 2	Test 3	Remarks
Moisture Content	%	11.7	11.8	11.8	Complete test specimen
Dry Density	Kg/m ³	1662	1661	1661	
Void Ratio	-	0.661	0.662	0.662	
Degree of Saturation	%	49.0	49.3	49.4	
Relative Density (SG)	-	2.761			Determined

Final Sample Parameters	Unit	Test 1	Test 2	Test 3	Remarks
Moisture Content	%	19.9	20.3	19.9	
Normal Stress	kPa	50	150	300	
Shear Stress	kPa	27	92	170	
Residual Stress	kPa	Not Tested	Not Tested	Not Tested	
Angle of Internal Friction	Deg.	30			Peak
Cohesion	kPa	1			Peak

Stress Plot

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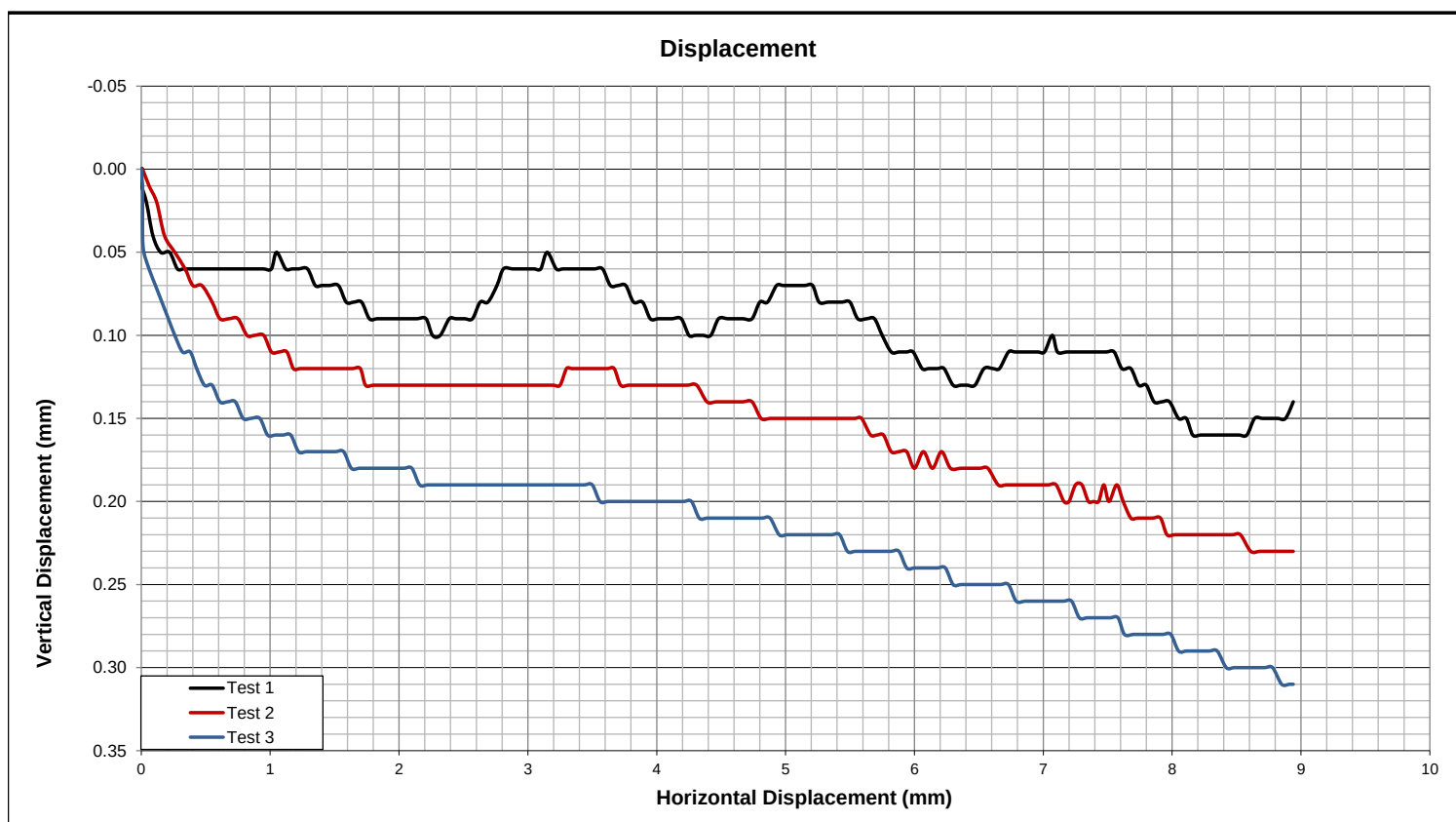
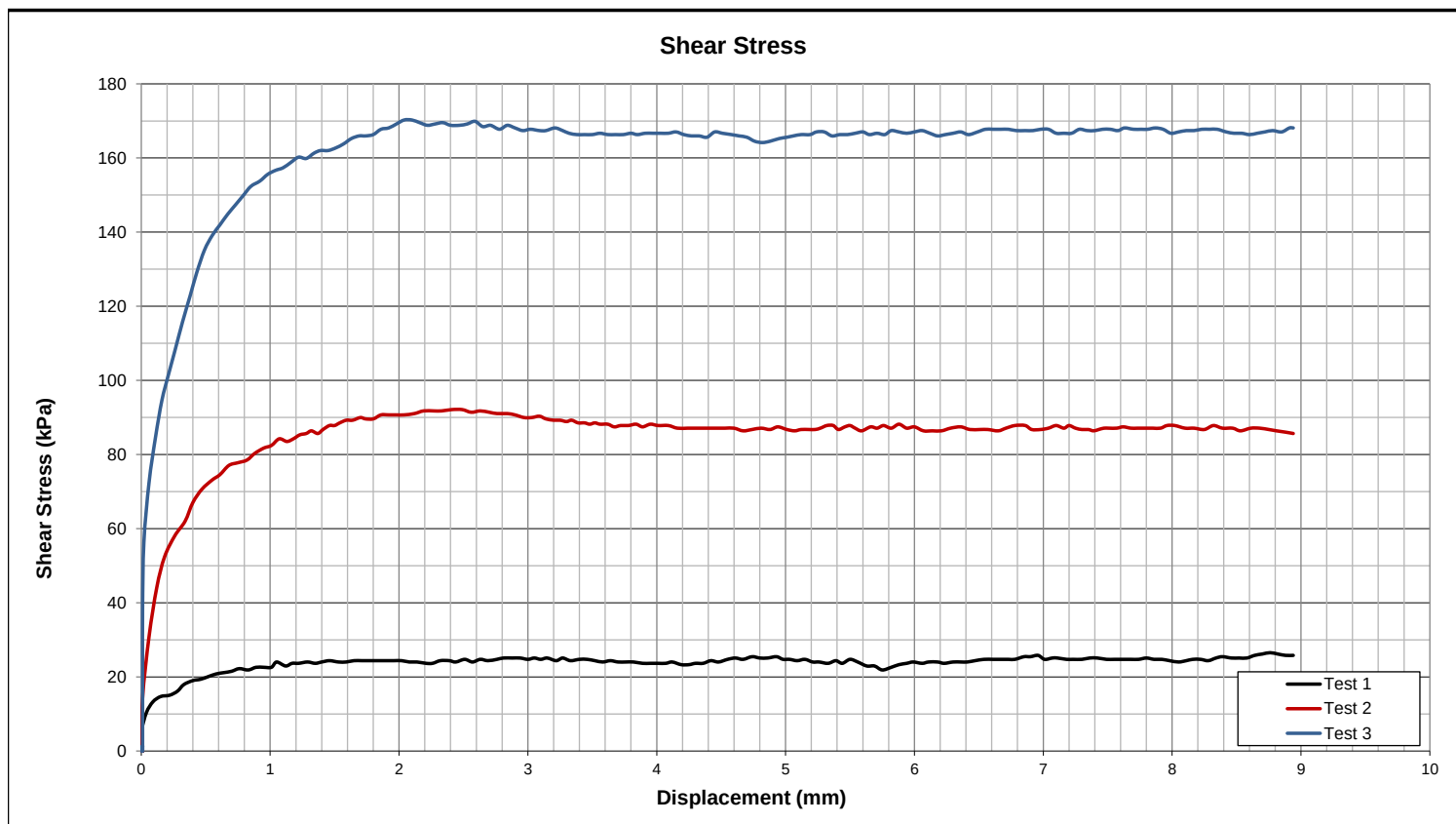
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SHEAR TESTS: BOX SHEAR

KH Head

Client EPOCH RESOURCES Project TRONOX TAILINGS
Sample no E0619 / +45 μ m Depth (m) -
Lab no G20-0343

Job no 40918
Date 20/11/2020



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Project: Tronox Tailings
Sample Number: E1414/-45 micron
Sample Position: -
Test: Settling Immediately Drained & Falling Head Permeability
Sample Date: -
Lab Number: 20/456
Test Date: 23-Nov-20

Preparation:

Total volume prepared (cm³): 510.0
Preparation moisture content of moist soil (%): 0.0
Target RD: 1.16
Gs: 2.63
Mass dry soil used (g): 129.9
Additional water added (g): 460.7
Total mass of solids and water (g): 590.6
Cylinder Number: 4
Cylinder Diameter (cm): 5.13

Settling during Drainage Data with Falling Head Permeability

Time (min)	Sediment Volume (cm ³)	Sediment Height (cm)	Void Ratio	Dry Density (g/cm ³)	Head (cm)	Perm. (cm/s)	Comments
0	500	24.20	9.14	0.260	24.2		Open Drain
3	489	23.67	8.92	0.266	24.2	0.00E+00	
12	441	21.33	7.94	0.295	23.7	7.22E-04	
33	364	17.59	6.37	0.357	22.7	5.84E-04	
76	249	12.05	4.05	0.522	21.9	1.73E-04	
110	224	10.84	3.54	0.580	21.4	1.19E-04	
187	195	9.43	2.95	0.667	20.8	6.11E-05	
256	179	8.65	2.62	0.727	20.2	5.94E-05	
310	174	8.41	2.52	0.748	19.8	5.04E-05	
360	164	7.92	2.32	0.794	19.6	3.26E-05	
1257	159	7.68	2.22	0.819	15.9	2.98E-05	
1417	159	7.68	2.22	0.819	15.2	3.50E-05	
1787	159	7.68	2.22	0.819	13.8	3.24E-05	
2684	159	7.68	2.22	0.819	10.6	3.82E-05	
3227	159	7.68	2.22	0.819	8.9	4.13E-05	closed open
4132	159	7.68	2.22	0.819	8.9	0.00E+00	
4292	159	7.68	2.22	0.819	8.4	4.50E-05	Interfaced
4387	159	7.68	2.22	0.819	8.2	3.95E-05	
4582	159	7.68	2.22	0.819	7.7	4.03E-05	closed open
4642	156	7.53	2.16	0.835			
4687	154	7.43	2.12	0.846			Final MC: 91.43%
5566	153	7.38	2.09	0.851			
5827	145	7.00	1.93	0.898			
10042	144	6.95	1.91	0.905			
13037	144	6.95	1.91	0.905			
14417	144	6.95	1.91	0.905			



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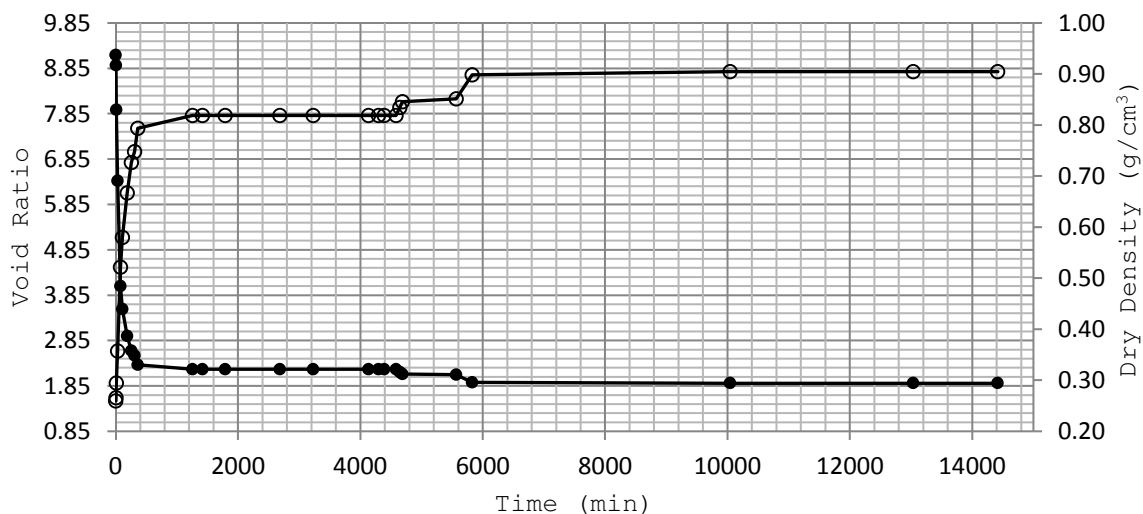
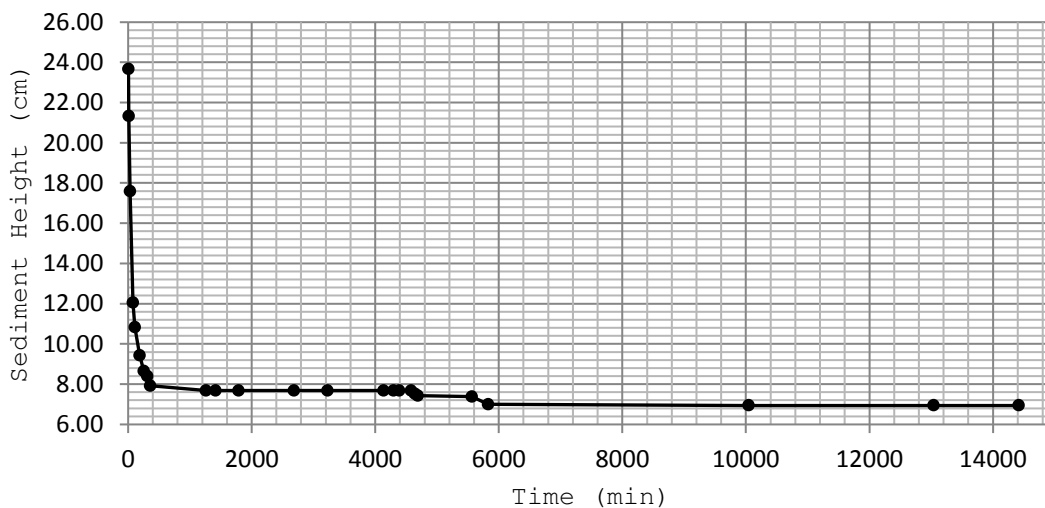
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Project:	Tronox Tailings
Sample Number:	E1414/-45 micron
Sample Position:	-
Test:	Settling Immediately Drained & Falling Head Permeability
Sample Date:	-
Lab Number:	20/456
Test Date:	23-Nov-20

Settling during Drainage: Graphs





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Project:	Tronox Tailings
Sample Number:	E1414/-45 micron
Sample Position:	
Test:	Sedimentation Settling Test
Sample Date:	-
Lab Number:	20/456
Test Date:	23-Nov-20

Preparation:

Total volume prepared (cm ³):	510.0
Preparation moisture content of moist soil (%):	0.0
Target RD:	1.16
Gs:	2.63
Mass dry soil used (g):	129.9
Additional water added (g):	460.7
Total mass of solids and water (g):	590.6
Cylinder Number:	3
Cylinder Diameter (cm):	5.13

Sedimentation Test: Data

Time (min)	Sediment volume (cm ³)	Sediment height (cm)	Void ratio	Dry density (g/cm ³)	Comments
0	510	24.7	9.35	0.255	
3	509	24.6	9.33	0.255	
5	494	23.9	9.02	0.263	
9	478	23.1	8.69	0.272	
15	457	22.1	8.27	0.284	
20	440	21.3	7.92	0.295	
36	371	17.9	6.51	0.351	
53	336	16.3	5.82	0.386	
80	319	15.5	5.48	0.407	
100	313	15.2	5.35	0.415	
135	299	14.5	5.07	0.434	
190	287	13.9	4.82	0.452	
220	283	13.7	4.74	0.459	
260	276	13.4	4.60	0.470	
313	273	13.2	4.54	0.476	
367	266	12.9	4.40	0.488	
1260	239	11.6	3.85	0.543	
1420	237	11.5	3.81	0.548	
1790	235	11.4	3.77	0.553	
2690	234	11.3	3.74	0.555	
3230	234	11.3	3.74	0.555	
4163	233	11.3	3.72	0.558	
5567	233	11.3	3.72	0.558	Settling Complete



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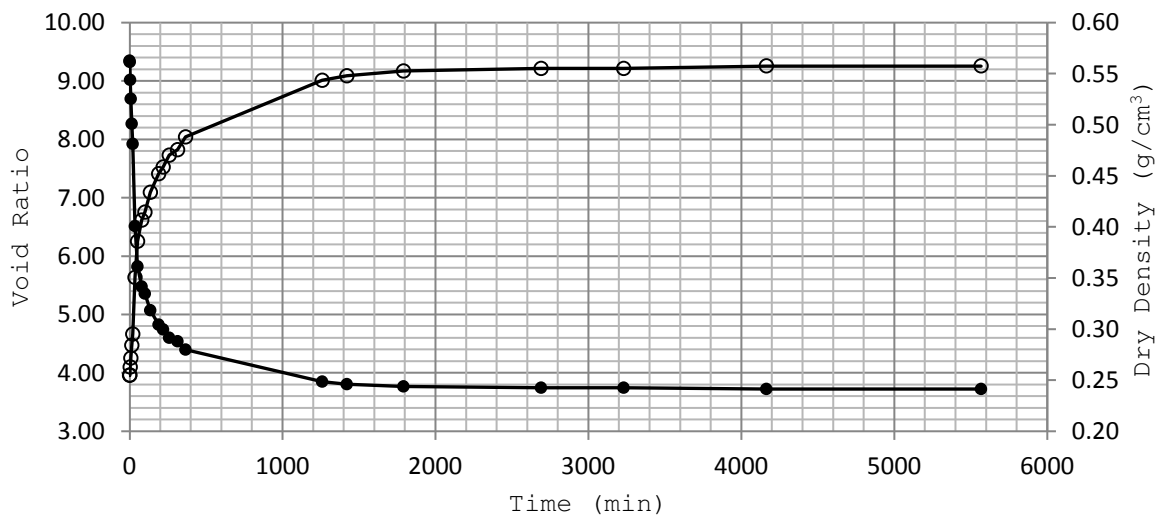
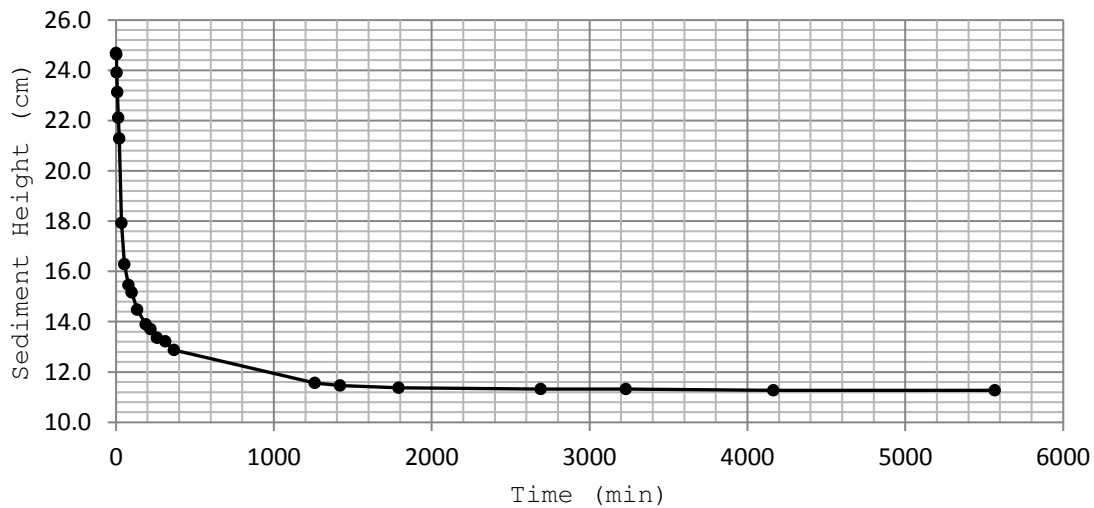
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Project:	Tronox Tailings
Sample Number:	E1414/-45 micron
Sample Position:	0
Test:	Sedimentation Settling Test
Sample Date:	-
Lab Number:	20/456
Test Date:	23-Nov-20

Sedimentation Test: Graphs





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Project: Tronox Tailings
Sample Number: EOFS Fines Residue
Sample Position: -
Test: Settling Immediately Drained & Falling Head Permeability
Sample Date: -
Lab Number: 20/457
Test Date: 2-Dec-20

Preparation:

Total volume prepared (cm³): 510.0
Preparation moisture content of moist soil (%): 0.0
Target RD: 1.16
Gs: 2.65
Mass dry soil used (g): 130.2
Additional water added (g): 460.9
Total mass of solids and water (g): 591.1
Cylinder Number: 2
Cylinder Diameter (cm): 5.13

Settling during Drainage Data with Falling Head Permeability

Time (min)	Sediment Volume (cm ³)	Sediment Height (cm)	Void Ratio	Dry Density (g/cm ³)	Head (cm)	Perm. (cm/s)	Comments
0	530	25.66	9.79	0.246	25.7		Foamed Open Drain
1	500	24.20	9.18	0.260	24.2	0.00E+00	
30	495	23.96	9.08	0.263	24.0	1.37E-04	
60	486	23.52	8.89	0.268	23.9	5.31E-05	
120	477	23.08	8.71	0.273	23.5	1.05E-04	
180	473	22.89	8.63	0.275	23.4	2.64E-05	
240	468	22.64	8.53	0.278	23.2	3.94E-05	
360	463	22.40	8.42	0.281	23.0	2.62E-05	
450	438	21.19	7.91	0.297	22.9	2.49E-05	
1545	425	20.56	7.65	0.306	21.5	1.92E-05	
1895	415	20.07	7.44	0.314	21.3	1.09E-05	
2883	400	19.34	7.14	0.326	20.7	9.07E-06	
3335	395	19.10	7.03	0.330	20.3	1.34E-05	
7095	370	17.88	6.52	0.352	18.1	9.03E-06	
7360	370	17.88	6.52	0.352	17.9	1.52E-05	Interfaced
7450	369	17.83	6.50	0.353			
8680	353	17.06	6.18	0.369			
9095	353	17.06	6.18	0.369			
10105	342	16.57	5.97	0.380			
10535	339	16.42	5.91	0.384			
11515	329	15.94	5.70	0.395			
12935	316	15.31	5.44	0.412			
17406	279	13.51	4.68	0.466			
19005	276	13.36	4.62	0.471			
21800	267	12.92	4.44	0.487			
27355	254	12.29	4.17	0.512			
30305	252	12.20	4.13	0.517			
38995	249	12.05	4.07	0.523			
47485	249	12.05	4.07	0.523			
49055	249	12.05	4.07	0.523			Final MC: Pending



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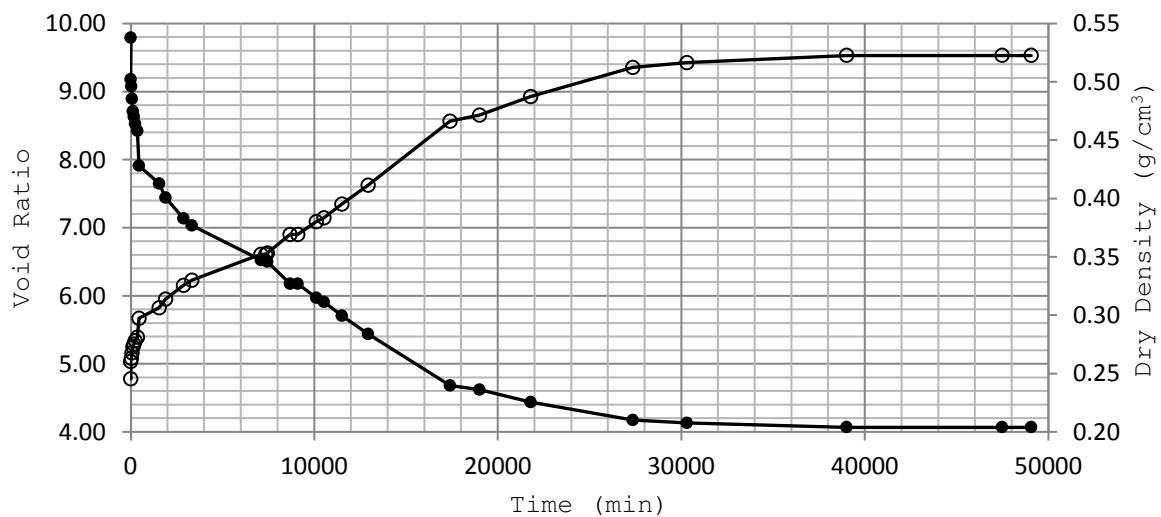
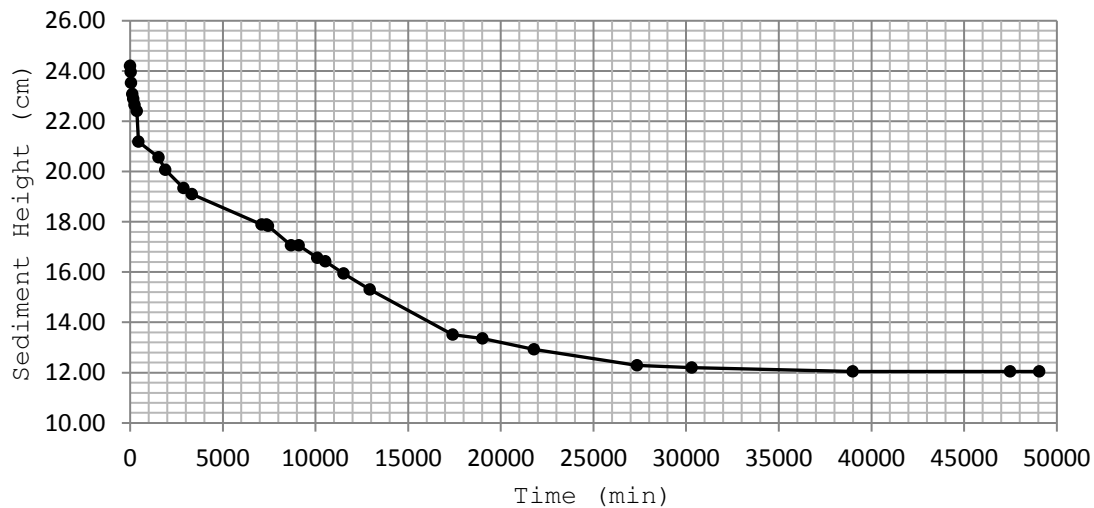
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Project:	Tronox Tailings
Sample Number:	EOFS Fines Residue
Sample Position:	-
Test:	Settling Immediately Drained & Falling Head Permeability
Sample Date:	-
Lab Number:	20/457
Test Date:	2-Dec-20

Settling during Drainage: Graphs





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Project:	Tronox Tailings
Sample Number:	EOFS Fines Residue
Sample Position:	
Test:	Sedimentation Settling Test
Sample Date:	-
Lab Number:	20/457
Test Date:	2-Dec-20

Preparation:

Total volume prepared (cm ³):	510.0
Preparation moisture content of moist soil (%):	0.0
Target RD:	1.16
Gs:	2.65
Mass dry soil used (g):	130.2
Additional water added (g):	460.9
Total mass of solids and water (g):	491.1
Cylinder Number:	1
Cylinder Diameter (cm):	5.12

Sedimentation Test: Data

Time (min)	Sediment volume (cm ³)	Sediment height (cm)	Void ratio	Dry density (g/cm ³)	Comments
0	521	25.3	9.60	0.250	
60	519	25.2	9.56	0.251	
120	518	25.2	9.54	0.251	
180	517	25.1	9.52	0.252	
240	517	25.1	9.52	0.252	
300	516	25.1	9.50	0.252	
420	515	25.0	9.48	0.253	
480	515	25.0	9.48	0.253	
1575	513	24.9	9.43	0.254	
1925	512	24.9	9.41	0.254	
2912	508	24.6	9.33	0.257	
3365	508	24.6	9.33	0.257	
7180	500	24.3	9.18	0.260	
8710	496	24.1	9.10	0.262	
9125	495	24.0	9.08	0.263	
10135	494	24.0	9.06	0.264	
10565	494	24.0	9.06	0.264	
11545	492	23.9	9.01	0.265	
12965	490	23.8	8.97	0.266	
17500	485	23.5	8.87	0.269	
19155	483	23.4	8.82	0.270	
21830	480	23.3	8.76	0.271	Water evaporated
27385	478	23.2	8.72	0.273	Water evaporated
30335	476	23.1	8.70	0.273	Water evaporated
39025	473	23.0	8.64	0.275	Water evaporated
47515	471	22.9	8.59	0.276	Water evaporated
49085	471	22.9	8.59	0.276	Water evaporated



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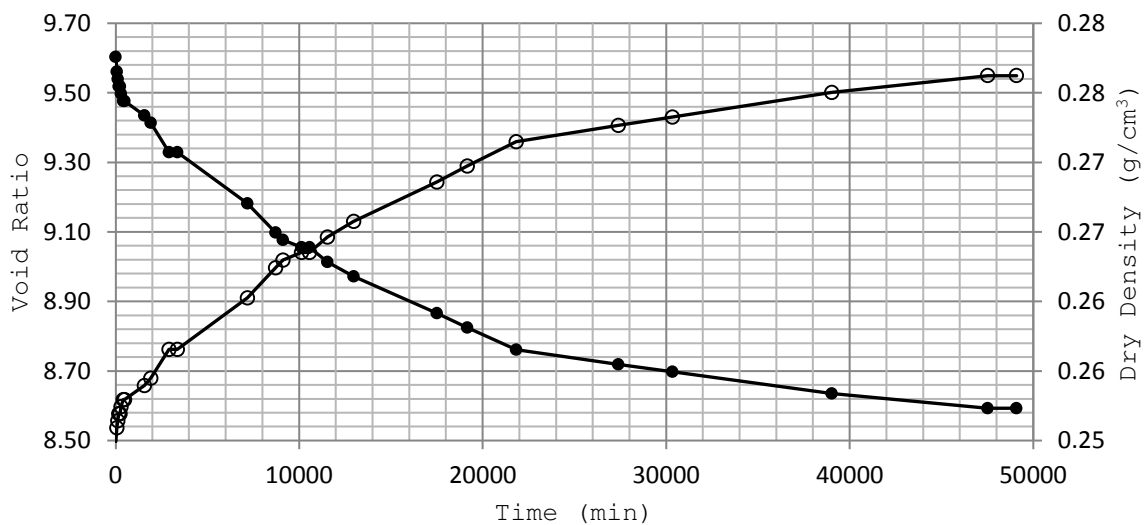
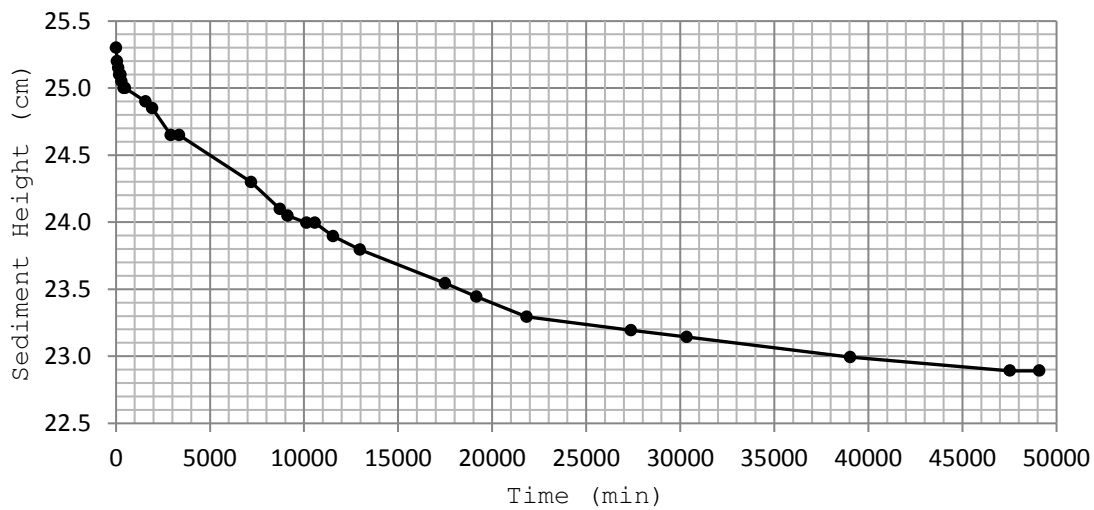
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Project:	Tronox Tailings
Sample Number:	EOFS Fines Residue
Sample Position:	0
Test:	Sedimentation Settling Test
Sample Date:	20/12/20
Lab Number:	
Test Date:	2-Dec-20

Sedimentation Test: Graphs



Project: Tronox Tailings

Client Sample Number: E1414-45mic_EPO-19-17

Lab Number: 20/456

Test: Ambient Slurry Drying Out

Test Start Date: 23-Nov-20



Reg. No: cc 200004833323

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Date Time	Temp. (°C)	Humidity (%)	Sample Moist weight (g)	Sample Dry Weight (g)	Water & Soil Bulk Density (kg/m3)	Crack Width (Circular) (mm)	Soil Only Material Volume (cm3)	Soil Only Bulk Density (kg/m3)	Soil Level Void Ratio (Vv/Vs)	Sample Moisture (g)	Sample Moisture Content (%)	Degree of Saturation (%) (Vw/Vv)	Water & Soil Dry Density (kg/m3)	Soil Level Dry Density (kg/m3)	Comments
11/23/20 10:20	21.1	62	5923	1286	1117	0.0	5305	1117	9.8	4637	360.5%	96.3%	243	242	
11/23/20 11:30	24.1	52	5915	1286	1117	0.0	2361	2506	3.8	4629	359.9%	247.3%	243	545	
11/23/20 13:51	26.8	62	5896	1286	1124	0.0	2137	2759	3.4	4610	358.4%	279.7%	245	602	
11/23/20 15:21	34.9	22	5858	1286	1122	0.0	2094	2798	3.3	4572	355.5%	284.9%	246	614	
11/24/20 8:52	23.5	55	5779	1286	1126	0.0	2006	2881	3.1	4493	349.3%	296.1%	251	641	Decant
11/24/20 8:59	23.9	55	2630	1286	1287	0.0	2006	1311	3.1	1344	104.5%	88.6%	629	641	Bleed water
11/24/20 14:54	27.9	52	2584	1286	1299	0.0	2006	1288	3.1	1298	100.9%	85.6%	646	641	Bleed water
11/25/20 8:31	23.4	52	2543	1286	1319	0.0	2006	1268	3.1	1257	97.7%	82.8%	667	641	Interfaced
11/25/20 15:35	26.1	39	2470	1286	-	0.0	1930	1280	2.9	1184	92.1%	82.1%	-	666	
11/26/20 7:27	21.6	52	2404	1286	-	0.0	1845	1303	2.8	1118	86.9%	82.5%	-	697	
11/26/20 15:38	25.9	41	2337	1286	-	0.0	1764	1325	2.6	1051	81.7%	82.4%	-	729	
11/27/20 9:14	24.6	51	2295	1286	-	0.0	1694	1355	2.5	1009	78.4%	83.7%	-	759	
11/27/20 15:11	27.9	35	2234	1286	-	0.0	1657	1348	2.4	948	73.7%	81.2%	-	776	
11/30/20 13:14	27.5	43	2215	1286	-	0.0	1658	1336	2.4	929	72.2%	79.4%	-	776	Exposed to some rain
12/1/20 12:20	24.4	52	2118	1286	-	0.3	1586	1336	2.2	832	64.7%	75.8%	-	811	Cracking Started
12/1/20 15:45	26.3	39	2071	1286	-	1.0	1561	1327	2.2	785	61.0%	73.2%	-	824	
12/2/20 9:30	22.9	43	2037	1286	-	1.1	1555	1310	2.2	751	58.4%	70.4%	-	827	
12/3/20 9:48	21.9	47	1915	1286	-	3.7	1555	1231	2.2	629	48.9%	59.0%	-	827	
12/4/20 12:46	26	39	1849	1286	-	8.1	1554	1190	2.2	563	43.8%	52.8%	-	828	
12/7/20 8:14	20.9	54	1673	1286	-	29.0	1264	1323	1.6	387	30.1%	49.9%	-	1017	
12/8/20 9:30	21.9	49	1607	1286	-	31.9	1249	1286	1.6	321	25.0%	42.2%	-	1029	
12/9/20 13:18	23.9	44	1555	1286	-	31.5	1247	1248	1.5	269	20.9%	35.5%	-	1032	
12/10/20 12:20	27.4	34	1502	1286	-	31.3	1239	1213	1.5	216	16.8%	28.8%	-	1038	
12/11/20 15:13	27.4	37	1435	1286	-	32.0	1223	1173	1.5	149	11.6%	20.3%	-	1051	
12/14/20 15:43	22.9	53	1430	1286	-	32.0	1220	1172	1.5	144	11.2%	19.7%	-	1054	
12/17/20 15:00	22.6	51	1423	1286	-	32.0	1220	1167	1.5	137	10.6%	18.7%	-	1054	



Project: Tronox Tailings

Client Sample Number: EOFS_Fines Residue_EPO-19-73

Lab Number: 20/457

Test: Ambient Slurry Drying Out

Test Start Date: 23-Nov-20



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Date Time	Temp. (°C)	Humidity (%)	Sample Moist weight (g)	Sample Dry Weight (g)	Water & Soil Bulk Density (kg/m3)	Crack Width (Circular) (mm)	Soil Only Material Volume (cm3)	Soil Only Bulk Density (kg/m3)	Soil Level Void Ratio (Vv/Vs)	Sample Moisture (g)	Sample Moisture Content (%)	Degree of Saturation (%) (Vw/Vv)	Water & Soil Dry Density (kg/m3)	Soil Level Dry Density (kg/m3)	Comments
11/23/20 10:20	21.1	62	5843	1290	1109	0.0	5267	1109	9.8	4553	353.0%	95.2%	245	245	
11/23/20 11:30	24.1	52	5838	1290	1111	0.0	3822	1527	6.9	4548	352.6%	136.3%	245	337	
11/23/20 13:51	26.8	62	5820	1290	1116	0.0	3432	1695	6.1	4530	351.2%	153.8%	247	376	
11/23/20 15:21	34.9	22	5791	1290	1117	0.0	3253	1780	5.7	4501	349.0%	162.7%	249	396	
11/24/20 8:52	23.5	55	5718	1290	1123	0.0	2716	2105	4.6	4428	343.3%	198.7%	253	475	
11/24/20 8:59	23.9	55	3287	1290	1194	0.0	2754	1194	4.7	1997	154.8%	88.1%	468	468	Decanted
11/24/20 14:54	27.9	52	3247	1290	1204	0.0	2537	1280	4.2	1957	151.7%	95.4%	478	508	Bleed water
11/25/20 8:31	23.4	52	3201	1290	1222	0.0	2430	1317	4.0	1911	148.2%	98.3%	493	531	Bleed water
11/25/20 15:35	26.1	39	3139	1290	1174	0.0	2400	1308	3.9	1849	143.3%	96.6%	482	537	Bleed water
11/26/20 7:27	21.6	52	3063	1290	1208	0.0	2365	1295	3.9	1773	137.5%	94.4%	509	545	Bleed water
11/26/20 15:38	25.9	41	3006	1290	1207	0.0	2345	1282	3.8	1716	133.0%	92.4%	518	550	Bleed water
11/27/20 9:14	24.6	51	2956	1290	1249	0.0	2331	1268	3.8	1666	129.2%	90.3%	545	553	Interfaced
11/27/20 15:11	27.9	35	2905	1290	-	0.0	2319	1253	3.8	1615	125.2%	88.1%	-	556	
11/30/20 13:14	27.5	43	2869	1290	-	0.0	2304	1245	3.7	1579	122.4%	86.9%	-	560	Exposed to some rain
12/1/20 12:20	24.4	52	2774	1290	-	0.0	2176	1274	3.5	1484	115.0%	87.8%	-	593	
12/1/20 15:45	26.3	39	2732	1290	-	0.0	2063	1324	3.2	1442	111.8%	91.5%	-	625	
12/2/20 9:30	22.9	43	2692	1290	-	0.0	2054	1311	3.2	1402	108.7%	89.5%	-	628	
12/3/20 9:48	21.9	47	2569	1290	-	0.0	1959	1311	3.0	1279	99.2%	86.8%	-	658	
12/4/20 12:46	26	39	2506	1290	-	0.0	1854	1352	2.8	1216	94.3%	88.9%	-	696	
12/7/20 8:14	20.9	54	2318	1290	-	0.0	1658	1398	2.4	1028	79.7%	87.7%	-	778	
12/8/20 9:30	21.9	49	2237	1290	-	7.2	1462	1529	2.0	947	73.4%	97.0%	-	882	Cracking Started
12/9/20 13:18	23.9	44	2169	1290	-	8.8	1406	1542	1.9	879	68.1%	95.6%	-	917	
12/10/20 12:20	27.4	34	2088	1290	-	11.0	1354	1541	1.8	798	61.9%	92.0%	-	952	
12/11/20 15:13	27.4	37	1959	1290	-	13.0	1226	1598	1.5	669	51.9%	90.5%	-	1052	
12/14/20 15:43	22.9	53	1874	1290	-	13.2	1200	1562	1.5	584	45.3%	81.9%	-	1075	
12/17/20 15:00	22.6	51	1827	1290	-	13.2	1200	1522	1.5	537	41.6%	75.3%	-	1075	