

Conundrum Holdings Pty Ltd Product Specification

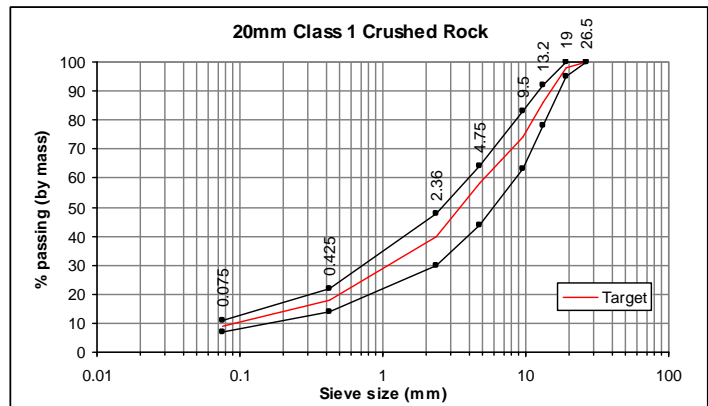
Northern Quarries 20mm Class 1 Crushed Rock

PRODUCT CODE: 073-001-t **SOURCE ROCK TYPE:** Basalt
CUSTOMER: Standard Product

Product Grading

AS1289.3.6.1

Sieve Size AS (mm)	Limits of Grading		Target Grading (% Passing)
	% Passing	% Retained	
26.5	100	0	100
19.0	95 – 100	0 – 5	98
13.2	78 – 92	7 – 18	86
9.50	63 – 83	10 – 16	74
6.7	-	-	66
4.75	44 – 64	14 – 24	58
2.36	30 – 48	10 – 20	40
0.425	14 – 22	14 – 28	18
0.075	7 – 11	6 – 13	9



Tests Carried Out For Product Quality Control Purposes

Sampling Method: AS1141.3.1

Test	Method	Frequency	Requirements	Reference
Unit Mass Density	AS1141.4	1 per 3 Years	N/A - For reference purposes only	N/A
Maximum Dry Density / Optimum Moisture Content	AS1289.5.2	1 per Year	N/A - For reference purposes only	N/A
Plastic Index (PI)	AS1289.3.3.1	1 per 2,500t	2-6	VicRoads 812
Liquid Limit (as part of PI test)	AS1289.3.1.1	1 per 2,500t	30%	VicRoads 812
Flakiness Index (FI)	AS1141.15 / RC302.11	1 per 10,000t	35%	VicRoads 812
Permeability (Perm)	AS1289.6.7.1	1 per 10,000t	5×10^{-8} m/sec	VicRoads 812
Unsound stone count by visual assessment	AS1141.30 / RC372.01	1 per 500t	Unsound 5% Marginal + Unsound 10%	VicRoads 812
Moisture Content (MC) – Dry Product	AS1289.2.1.6 (Hotplate method)	1 per 500t	4%	VicRoads 812
MC – Wet Mixed (WM) or Cement Treated (CT) Product	AS1289.2.1.6 (Hotplate method)	1 per production day then 1 per 500t	-1.0% to +0.5% of MC nominated by customer	VicRoads 812
Cement Content – CT Product	AS5101.3.3	1 per production day then 1 per 250t ¹	±0.3% of specified cement content	VicRoads 815
Unconfined Compression Strength (UCS) – CT Product	AS5101.4 & AS5104.4	On request ²	As per customer requirements	VicRoads 815
Particle size distribution (Grading)	AS1289.3.6.1	1 per 500t	See table and graph above	VicRoads 812

¹ Cement content tests will not be carried out for orders less than 100 tonnes unless specified by the customer

² Charges may apply

Relevant Tests Carried Out On Source Rock

Test	Method	Frequency	Requirements	Reference
Los Angeles (LA) Value	AS1141.23	VicRoads Issue	30	VicRoads 801
Preparation of Reference Specimens	AS1141.30 Appendix A	VicRoads Issue	See below for sound and marginal classifications	VicRoads 801
Accelerated Soundness by Reflux	AS1141.29	VicRoads Issue	Sound 94% Marginal 90-93%	VicRoads 801
Secondary Mineral Content	AS1141.26	VicRoads Issue	Sound 25% Marginal 26-30%	VicRoads 801

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Conundrum Holdings Pty Ltd Product Specification

Northern Quarries 14/10mm Class GP Aggregate

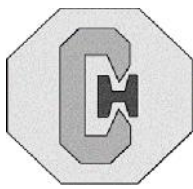
PRODUCT CODE: 073-005 **SOURCE ROCK TYPE:** Basalt

CUSTOMER: Standard Product

Product Grading AS1141.11 (washed)			
Sieve Size AS (mm)	Limits of Grading % Passing	Limits of Deviation %	Target Grading (% Passing)
19.0	100	-	100
13.2	85 – 100	±10	92
6.70	0 – 30	±15	10
2.36	0 – 5	-	1
0.075	0 – 2	-	1

Tests Carried Out For Product Quality Control Purposes				
Sampling Method: AS1141.3.1				
Test	Method	Frequency	Requirements	Reference
Unit Mass Density	AS1141.4	1 per 3 Years	N/A – For reference purposes only	N/A
Particle Density (Coarse Agg)	AS1141.6	1 per 3 Years	2.1t/m ³ , <3.2t/m ³	AS2758.1.7.1
Particle Shape by Proportional Calliper	AS1141.14	1 per year	10% using 3:1 ratio	AS2758.1.8.3
Flakiness Index (FI)	AS1141.15	1 per 9,600t	35%	AS2758.1.8.3
Unsound stone count by visual assessment	AS1141.30 / RC372.01	1 per 4,800t	Unsound 5% Marginal + Unsound 10%	AS2758.1.9.3.4
Particle size distribution (Grading)	AS1141.11 (washed)	1 per 2,400t	See table above	AS2758.1.8.1.2

Relevant Tests Carried Out On Source Rock				
Test	Method	Frequency	Requirements	Reference
Los Angeles (LA) Value	AS1141.23	VicRoads Issue	30	AS2758.1.9.3.3
Preparation of Reference Specimens	AS1141.30 Appendix A	VicRoads Issue	See below for sound and marginal classifications	VicRoads 801
Accelerated Soundness by Reflux	AS1141.29	VicRoads Issue	Sound 94% Marginal 90-93%	VicRoads 801
Secondary Mineral Content	AS1141.26	VicRoads Issue	Sound 25% Marginal 26-30%	VicRoads 801



Conundrum Holdings Pty Ltd Product Specification

Northern Quarries 40mm Class 3 Crushed Rock

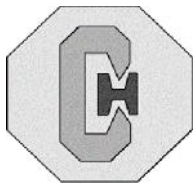
PRODUCT CODE: 073-019-t **SOURCE ROCK TYPE:** Basalt

CUSTOMER: Standard Product

Product Grading AS1289.3.6.1		
Sieve Size AS (mm)	Limits of Grading (% Passing)	Target Grading (% Passing)
53.0	100	100
37.5	95 – 100	98
26.5	75 – 95	85
19.0	64 – 90	77
9.50	42 – 78	60
4.75	27 – 64	46
2.36	20 – 50	35
0.425	10 – 23	17
0.075	6 – 12	9

Tests Carried Out For Product Quality Control Purposes				
Sampling Method: AS1141.3.1				
Test	Method	Frequency	Requirements	Reference
Unit Mass Density	AS1141.4	On initial introduction of product	N/A - For reference purposes only	N/A
Maximum Dry Density / Optimum Moisture Content	AS1289.5.2	As per customer requirements	N/A - For reference purposes only	N/A
Plastic Index (PI)	AS1289.3.3.1	As per customer requirements	0-10	VicRoads 812
Liquid Limit (as part of PI test)	AS1289.3.3.1	As per customer requirements	35%	VicRoads 812
Unsound stone count by visual assessment	AS1141.30 / RC372.01	As per customer requirements	Unsound 10% Marginal + Unsound 20%	VicRoads 812
Moisture Content (MC) – Dry Product	AS1289.2.1.6 (Hotplate method)	As per customer requirements	4%	VicRoads 812
Particle size distribution (Grading)	AS1289.3.6.1	As per customer requirements	See table and graph above	VicRoads 812

Relevant Tests Carried Out On Source Rock				
Test	Method	Frequency	Requirements	Reference
Los Angeles (LA) Value	AS1141.23	VicRoads Issue	35	VicRoads 801
Preparation of Reference Specimens	AS1141.30 Appendix A	VicRoads Issue	See below for sound and marginal classifications	VicRoads 801
Accelerated Soundness by Reflux	AS1141.29	VicRoads Issue	Sound 94% Marginal 90-93%	VicRoads 801
Secondary Mineral Content	AS1141.26	VicRoads Issue	Sound 25% Marginal 26-30%	VicRoads 801



Conundrum Holdings Pty Ltd Product Specification

Northern Quarries 14mm Aggregate

PRODUCT CODE: 0635

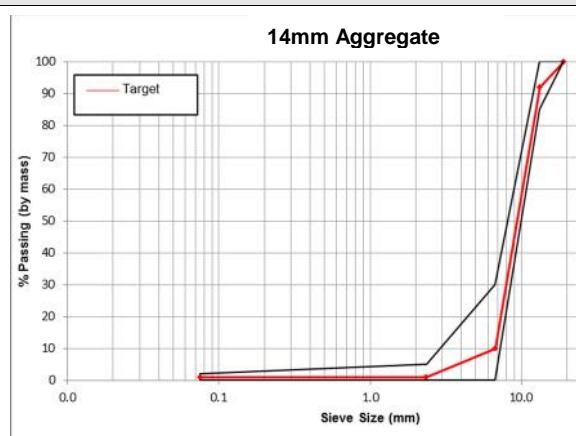
SOURCE ROCK TYPE: Basalt

CUSTOMER: Standard Product

Product Grading

AS1141.11 (washed)

Sieve Size AS (mm)	Limits of Grading (% Passing)	Limits of Deviation %	Target Grading (% Passing)
19.0	100	-	100
13.2	85 – 100	±10	92
9.50	-	±10	40
6.70	0 – 20	±5	10
4.75	-	-	2
2.36	0 – 5	-	1
0.075	0 – 2	-	1



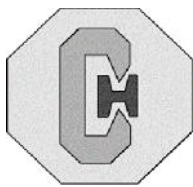
Tests Carried Out For Product Quality Control Purposes

Sampling Method: AS1141.3.1

Test	Method	Frequency	Requirements	Reference
Unit Mass Density	AS1141.4	On initial introduction of product	N/A – For reference purposes only	N/A
Particle Shape by Proportional Calliper	AS1141.14	As per customer requirements	As per customer requirements	AS2758.1.8.3
Flakiness Index (FI)	AS1141.15	As per customer requirements	As per customer requirements	AS2758.1.8.3
Unsound stone count by visual assessment	AS1141.30 / RC372.01	As per customer requirements	As per customer requirements	AS2758.1.9.3.4
Particle size distribution (Grading)	AS1141.11 (washed)	As per customer requirements	As per customer requirements	AS2758.1.8.1.2

Relevant Tests Carried Out On Source Rock

Test	Method	Frequency	Requirements	Reference
Los Angeles (LA) Value	AS1141.23	VicRoads Issue	30	AS2758.1.9.3.3
Preparation of Reference Specimens	AS1141.30 Appendix A	VicRoads Issue	See below for sound and marginal classifications	VicRoads 801
Accelerated Soundness by Reflux	AS1141.29	VicRoads Issue	Sound 94% Marginal 90-93%	VicRoads 801
Secondary Mineral Content	AS1141.26	VicRoads Issue	Sound 25% Marginal 26-30%	VicRoads 801



Conundrum Holdings Pty Ltd Product Specification

Northern Quarries 20mm Class SS Aggregate

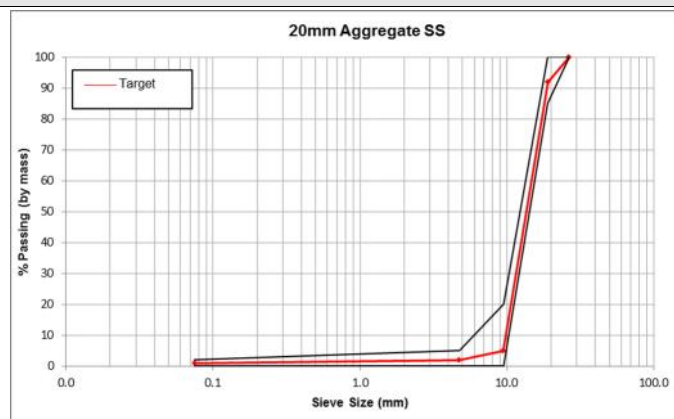
PRODUCT CODE: 073-045 **SOURCE ROCK TYPE:** Basalt

CUSTOMER: Standard Product

Product Grading

AS1141.11 (washed)

Sieve Size AS (mm)	Limits of Grading (% Passing)	Limits of Deviation %	Target Grading (% Passing)
26.5	100	-	100
19.0	85 – 100	±10	92
9.50	0 – 20	±10	5
4.75	0 – 5	-	2
0.075	0 – 2	-	1



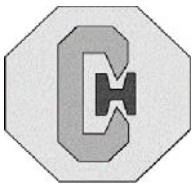
Tests Carried Out For Product Quality Control Purposes

Sampling Method: AS1141.3.1

Test	Method	Frequency	Requirements	Reference
Unit Mass Density	AS1141.4	1 per 3 Years	N/A – For reference purposes only	N/A
Particle Density (Coarse Agg)	AS1141.6	1 per 3 Years	2.1t/m ³ , <3.2t/m ³	AS2758.1.7.1
Particle Shape by Proportional Calliper	AS1141.14	1 per year	10% using 3:1 ratio	AS2758.1.8.3
Flakiness Index (FI)	AS1141.15	1 per 9,600t	35%	AS2758.1.8.3
Unsound stone count by visual assessment	AS1141.30 / RC372.01	1 per 4,800t	Unsound 5% Marginal + Unsound 10%	AS2758.1.9.3.4
Particle size distribution (Grading)	AS1141.11 (washed)	1 per 2,400t	See table above	AS2758.1.8.1.2

Relevant Tests Carried Out On Source Rock

Test	Method	Frequency	Requirements	Reference
Los Angeles (LA) Value	AS1141.23	VicRoads Issue	30	AS2758.1.9.3.3
Preparation of Reference Specimens	AS1141.30 Appendix A	VicRoads Issue	See below for sound and marginal classifications	VicRoads 801
Accelerated Soundness by Reflux	AS1141.29	VicRoads Issue	Sound 94% Marginal 90-93%	VicRoads 801
Secondary Mineral Content	AS1141.26	VicRoads Issue	Sound 25% Marginal 26-30%	VicRoads 801



Conundrum Holdings Pty Ltd Product Specification

Northern Quarries 20mm Class 2 Crushed Rock

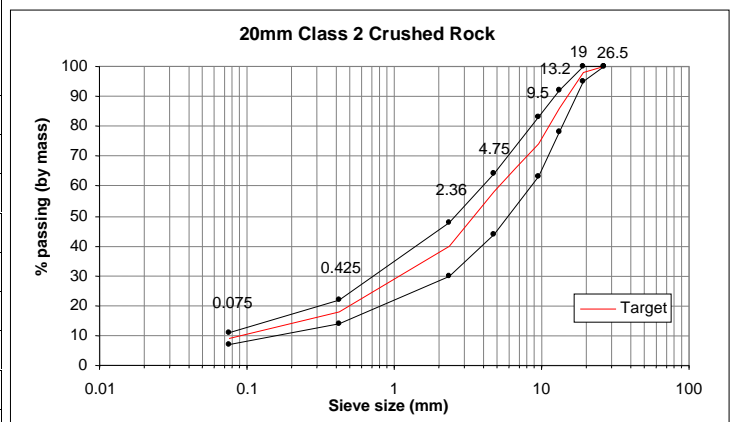
PRODUCT CODE: 073-011-t **SOURCE ROCK TYPE:** Basalt

CUSTOMER: Standard Product

Product Grading

AS1289.3.6.1

Sieve Size AS (mm)	Limits of Grading		Target Grading (% Passing)
	% Passing	% Retained	
26.5	100	0	100
19.0	95 – 100	0 – 5	98
13.2	78 – 92	7 – 18	86
9.50	63 – 83	10 – 16	74
6.7	-	-	66
4.75	44 – 64	14 – 24	58
2.36	30 – 48	10 – 20	40
0.425	14 – 22	14 – 28	18
0.075	7 – 11	6 – 13	9



Tests Carried Out For Product Quality Control Purposes

Sampling Method: AS1141.3.1

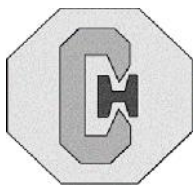
Test	Method	Frequency	Requirements	Reference
Unit Mass Density	AS1141.4	1 per 3 Years	N/A - For reference purposes only	N/A
Maximum Dry Density / Optimum Moisture Content	AS1289.5.2	1 per Year	N/A - For reference purposes only	N/A
Plastic Index (PI)	AS1289.3.3.1	1 per 5,000t	0-6	VicRoads 812
Liquid Limit (as part of PI test)	AS1289.3.1.1	1 per 5,000t	30%	VicRoads 812
Flakiness Index (FI)	AS1141.15 / RC302.11	1 per 10,000t	35%	VicRoads 812
Unsound stone count by visual assessment	AS1141.30 / RC372.01	1 per 500t	Unsound 7% Marginal + Unsound 10%	VicRoads 812
Moisture Content (MC) – Dry Product	AS1289.2.1.6 (Hotplate method)	1 per 500t	4%	VicRoads 812
MC – Wet Mixed (WM) or Cement Treated (CT) Product	AS1289.2.1.6 (Hotplate method)	1 per production day then 1 per 500t	-1.0% to +0.5% of MC nominated by customer	VicRoads 812
Cement Content – CT Product	AS5101.3.3	1 per production day then 1 per 250t ¹	±0.3% of specified cement content	VicRoads 815
Unconfined Compression Strength (UCS) – CT Product	AS5101.4 & AS5104.4	On request ²	As per customer requirements	VicRoads 815
Particle size distribution (Grading)	AS1289.3.6.1	1 per 500t	See table and graph above	VicRoads 812

¹ Cement content tests will not be carried out for orders less than 100 tonnes unless specified by the customer

² Charges may apply

Relevant Tests Carried Out On Source Rock

Test	Method	Frequency	Requirements	Reference
Los Angeles (LA) Value	AS1141.23	VicRoads Issue	30	VicRoads 801
Preparation of Reference Specimens	AS1141.30 Appendix A	VicRoads Issue	See below for sound and marginal classifications	VicRoads 801
Accelerated Soundness by Reflux	AS1141.29	VicRoads Issue	Sound 94% Marginal 90-93%	VicRoads 801
Secondary Mineral Content	AS1141.26	VicRoads Issue	Sound 25% Marginal 26-30%	VicRoads 801



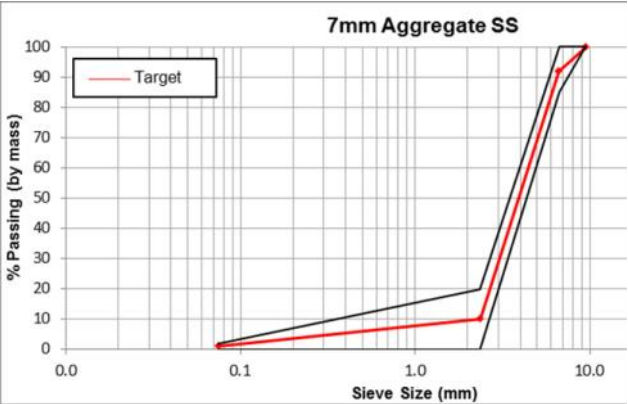
Conundrum Holdings Pty Ltd Product Specification

Northern Quarries 7mm Class SS Aggregate

PRODUCT CODE: 073-015 **SOURCE ROCK TYPE:** Basalt

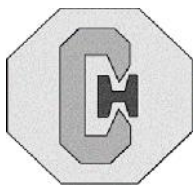
CUSTOMER: Standard Product

Product Grading AS1141.11 (washed)			
Sieve Size AS (mm)	Limits of Grading % Passing	Limits of Deviation %	Target Grading (% Passing)
9.50	100	-	100
6.70	85 – 100	±10	92
4.75	-	±10	50
2.36	0 – 20	±10	10
0.075	0 – 2	-	1



Tests Carried Out For Product Quality Control Purposes				
Sampling Method: AS1141.3.1				
Test	Method	Frequency	Requirements	Reference
Unit Mass Density	AS1141.4	On initial introduction of product	N/A – For reference purposes only	N/A
Unsound stone count by visual assessment	AS1141.30 / RC372.01	1 per 6 Months	Unsound 5% Marginal + Unsound 10%	AS2758.1.9.3.4
Particle size distribution (Grading)	AS1141.11 (washed)	1 per 6 Months	See table above	AS2758.1.8.1.2

Relevant Tests Carried Out On Source Rock				
Test	Method	Frequency	Requirements	Reference
Los Angeles (LA) Value	AS1141.23	VicRoads Issue	30	AS2758.1.9.3.3
Preparation of Reference Specimens	AS1141.30 Appendix A	VicRoads Issue	See below for sound and marginal classifications	VicRoads 801
Accelerated Soundness by Reflux	AS1141.29	VicRoads Issue	Sound 94% Marginal 90-93%	VicRoads 801
Secondary Mineral Content	AS1141.26	VicRoads Issue	Sound 25% Marginal 26-30%	VicRoads 801



Conundrum Holdings Pty Ltd Product Specification

Northern Quarries 20mm Class 4 Crushed Rock

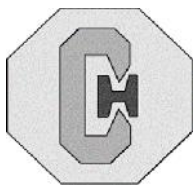
PRODUCT CODE: 074-107-t **SOURCE ROCK TYPE:** Basalt
CUSTOMER: Standard Product

Product Grading AS1289.3.6.1		
Sieve Size AS (mm)	Limits of Grading (% Passing)	Target Grading (%Passing)
26.5	100	100
4.75	42 – 76	59
0.425	10 – 28	21
0.075	2 – 14	10

Tests Carried Out For Product Quality Control Purposes				
Sampling Method: AS1141.3.1				
Test	Method	Frequency	Requirements	Reference
Unit Mass Density	AS1141.4	1 per 3 Years	N/A - For reference purposes only	N/A
Maximum Dry Density / Optimum Moisture Content	AS1289.5.2	1 per Year	N/A - For reference purposes only	N/A
Plastic Index (PI)	AS1289.3.3.1	1 per 5,000t	0-20	VicRoads 812
Liquid Limit (as part of PI test)	AS1289.3.1.1	1 per 5,000t	40%	VicRoads 812
California Bearing Ratio	AS 1289.6.1.1 RC 500.20	1 per 6 months	20	VicRoads 812
Permeability (Perm)	AS1289.6.7.1	On request ¹	As per customer requirements	VicRoads 812
Moisture Content (MC) – Dry Product	AS1289.2.1.6 (Hotplate method)	1 per 500t	4%	VicRoads 812
Particle size distribution (Grading)	AS1289.3.6.1	1 per 500t	See table and graph above	VicRoads 812

¹Charges may apply

Relevant Tests Carried Out On Source Rock				
Test	Method	Frequency	Requirements	Reference
Los Angeles (LA) Value	AS1141.23	VicRoads Issue	35	VicRoads 801
Preparation of Reference Specimens	AS1141.30 Appendix A	VicRoads Issue	See below for sound and marginal classifications	VicRoads 801
Accelerated Soundness by Reflux	AS1141.29	VicRoads Issue	Sound 94% Marginal 90-93%	VicRoads 801
Secondary Mineral Content	AS1141.26	VicRoads Issue	Sound 25% Marginal 26-30%	VicRoads 801



Conundrum Holdings Pty Ltd Product Specification

Northern Quarries 20mm Class 3 Crushed Rock

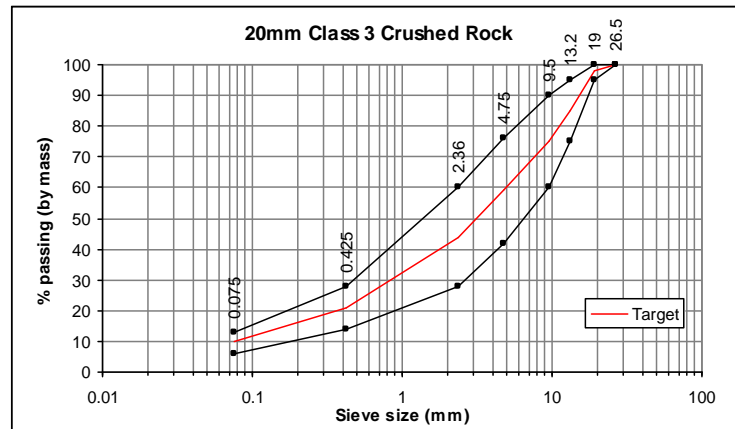
PRODUCT CODE: 073-021 **SOURCE ROCK TYPE:** Basalt

CUSTOMER: Standard Product

Product Grading

AS1289.3.6.1

Sieve Size AS (mm)	Limits of Grading (% Passing)	Target Grading (% Passing)
26.5	100	100
19.0	95 – 100	98
13.2	75 – 95	85
9.50	60 – 90	75
4.75	42 – 76	59
2.36	28 – 60	44
0.425	14 – 28	21
0.075	6 – 13	10



Tests Carried Out For Product Quality Control Purposes

Sampling Method: AS1141.3.1

Test	Method	Frequency	Requirements	Reference
Unit Mass Density	AS1141.4	1 per 3 Years	N/A - For reference purposes only	N/A
Maximum Dry Density / Optimum Moisture Content	AS1289.5.2	1 per Year	N/A - For reference purposes only	N/A
Plastic Index (PI)	AS1289.3.3.1	1 per 5,000t	0-10	VicRoads 812
Liquid Limit (as part of PI test)	AS1289.3.1.1	1 per 5,000t	35%	VicRoads 812
Permeability (Perm)	AS1289.6.7.1	On request ¹	As per customer requirements	VicRoads 812
Unsound stone count by visual assessment	AS1141.30 / RC372.01	1 per 500t	Unsound 10% Marginal + Unsound 20%	VicRoads 812
Moisture Content (MC) – Dry Product	AS1289.2.1.6 (Hotplate method)	1 per 500t	4%	VicRoads 812
MC – Wet Mixed (WM) or Cement Treated (CT) Product	AS1289.2.1.6 (Hotplate method)	1 per production day then 1 per 500t	-1.0% to +0.5% of MC nominated by customer	VicRoads 812
Cement Content – CT Product	AS5101.3.3	1 per production day then 1 per 250t ²	±0.3% of specified cement content	VicRoads 815
Unconfined Compression Strength (UCS) – CT Product	AS5101.4 & AS5104.4	On request ¹	As per customer requirements	VicRoads 815
Particle size distribution (Grading)	AS1289.3.6.1	1 per 500t	See table and graph above	VicRoads 812

¹ Charges may apply

² Cement content tests will not be carried out for orders less than 100 tonnes unless specified by the customer

Relevant Tests Carried Out On Source Rock

Test	Method	Frequency	Requirements	Reference
Los Angeles (LA) Value	AS1141.23	VicRoads Issue	35	VicRoads 801
Preparation of Reference Specimens	AS1141.30 Appendix A	VicRoads Issue	See below for sound and marginal classifications	VicRoads 801
Accelerated Soundness by Reflux	AS1141.29	VicRoads Issue	Sound 94% Marginal 90-93%	VicRoads 801
Secondary Mineral Content	AS1141.26	VicRoads Issue	Sound 25% Marginal 26-30%	VicRoads 801

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