#### **GLASS BEADS TEST REPORT**

Project No.: 2240

wood.

To:

To: Alberta Transportation Technical Standards Branch 2nd Floor, Twin Atria Building 4999 - 98 Ave Edmonton, AB T6B 2X3 Attn:Rishi Adhikari, P.Eng. Distribution Addressee: Wood Environment & Infrastructure Solutions 5671 - 70 Street Edmonton, AB Canada T6B 3P6 Tel +1 (780) 436-2152 Fax +1 (780) 377-3599

Lab Number	Date Received	Date Reported	Lot Number	Roundness (%)	Reflective (%)	Moisture Resistance			e Analys Passing			Supplier	With Paint Batch Number
2019	2019	2019					800	630	315	160	80		2019
GB1	May-17	Jun-7	111618-G	69.9*	67.6*	Pass	99.6*	93.4	31.7	0.2	0.0	Swarco	B1&B2
GB2	May-23	Jun-7	MJ-H-101317			Pass	98.6*	87.7	25.4	2.1	0.0	POTTERS	B3 & B4
GB3	May-24	Jun-7	MJ-H-103017	81.0	79.0	Pass	99.9*	93.9	30.2	2.5	0.19*	POTTERS	B5 & B6
GB4	May-24	Jun-7	M-H-J-20818			Pass	99.6*	92.2	28.4	0.1	0.0	POTTERS	B9 &B10
	Spec	ification		Min. 75	Min. 70	Pass	100	75-95	15-35	0-5	0		<u> </u>
*	8		e tolerance limits Iberta Transport				PER:	- -	A		h	Ai	7-Jun-19
							ed By:			V	X		DATE

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To: To: Alberta Transportation **Technical Standards Branch** 2nd Floor, Twin Atria Building 4999 - 98 Ave Edmonton, AB T6B 2X3 Attn:Rishi Adhikari, P.Eng.

Distribution Addressee: Wood Environment & Infrastructure Solutions 5671 - 70 Street Edmonton, AB Canada T6B 3P6 Tel +1 (780) 436-2152 Fax +1 (780) 377-3599

Lab Number	Date Received	Date Reported		Roundness (%)	Reflective (%)	Moisture Resistance			ve Analy Passing			Supplier	With Paint Batch Number
2019	2019	2019					800	630	315	160	80		2019
GB5	May-30	Jun-25	MJ-H-51719	81.9	79.5	Pass	100.0	93.6	31.0	1.1	0.1*	POTTERS	B13 &B14
GB6	May-31	Jun-25	MJ-H-41319			Pass	99.6*	94.5	17.5	2.9	0.0	POTTERS	B17 &B 18
GB7	Jun-5	Jun-25	MJ-H-1114172	78.6	76.3	Pass	100.0	97.1*	34.9	3.5	0.0	POTTERS	B25 &B 26
GB8	Jun-10	Jun-25	MJ-H-103017			Pass	99.6*	95.0	33.3	2.7	0.19*	POTTERS	B31 &B32
													******
	Specification			Min. 75	Min. 70	Pass	100	75-95	15-35	0-5	0		

\* Indicates result outside tolerance limits.

Test not required by Alberta Transportation

PER: 25-Jun-19 DATE **Reviewed By:** 

### **GLASS BEADS TEST REPORT**

Date

2019

Jun-11

Jun-14

Jun-18

Jun-19

Project No.: EA16335

To:

Lab

Number

2019

GB9

**GB10** 

**GB11** 

**GB12** 

# Mood

To: Alberta Transportation **Technical Standards Branch** 2nd Floor, Twin Atria Building 4999 - 98 Ave Edmonton, AB T6B 2X3

Canada T6B 3P6 Tel +1 (780) 436-2152 Attn:Rishi Adhikari, P.Eng. Fax +1 (780) 377-3599 Roundness Reflective Date Lot Moisture Sieve Analysis With Paint Reported Received Number (%) (%) Resistance % Passing **Batch Number** Supplier 2019 2019 800 630 315 160 80 Jul-15 MJ-H-42419 83.3 80.3 Pass 100.0 90.5 23.0 POTTERS 0.8 0.00 B35 & B36 Jul-15 MJ-H-92418 Pass 99.7\* 89.9 29.7 3.4 0.00 POTTERS B41 & B42 Jul-15 MJ-H-110318 82.7 79.9 99.5\* POTTERS B44 & B45 Pass 89.9 2.3 30.1 0.18\*

Distribution Addressee: Wood Environment & Infrastructure Solutions

5671 - 70 Street

Edmonton, AB

\* Indicates result outside tolerance limits.

Jul-15

Specification

Test not required by Alberta Transportation

MJ-H-110318

Min. 75

Min. 70

PER:

99.6

100

85.0

75-95

25.0

15-35

2.6

0-5

0.00

0

15-Jul-19 DATE

B49 & B50

POTTERS

**Reviewed By:** 

Reporting of these results constitutes a testing service only. Engineering Interpretation or evaluation of the test results is provided only on written request.

Pass

Pass

To:

# wood

To: Alberta Transportation **Technical Standards Branch** 2nd Floor, Twin Atria Building 4999 - 98 Ave Edmonton, AB T6B 2X3 Attn:Rishi Adhikari, P.Eng.

Distribution Addressee: Wood Environment & Infrastructure Solutions 5671 - 70 Street Edmonton, AB Canada T6B 3P6 Tel +1 (780) 436-2152 Fax +1 (780) 377-3599

Lab Number		Date Reported	Lot Number	Roundness (%)	Reflective (%)	Moisture Resistance			e Analy Passing			Supplier	With Paint Batch Number
2019	2019	2019					800	630	315	160	80		2019
GB13	Jun-21	Aug-6	MJ-H-103018	87.2	84.4	Pass	99.8*	90.5	25.3	2.4	0.00	POTTERS	B55 & B56
GB14	Jun-26	Aug-6	MJ-H-92718			Pass	99.8*	88.1	24.6	1.2	0.00	POTTERS	
GB15	Jul-2	Aug-6	MJ-H-92718	83.4	80.2	Pass	99.6*	89.2	32.8	5.0	0.08*	POTTERS	B63 & B64
GB16	Jul-10	Aug-6	MJ-H-102318			Pass	99.4	86.5	22.0	3.7	0.04*	POTTERS	B69 & B70
	Spec	ification		Min. 75	Min. 70	Pass	100	75-95	15-35	0-5	0	,	
*			e tolerance limits Iberta Transport				PER:			A	fing		6-Aug-19 DATE

**Reviewed By:** 

# wood.

With Paint

Batch Number

2019

B75 & B76

B79 & B80

B83 & B84

B87 & B88

16-Aug-19 DATE

Supplier

POTTERS

POTTERS

POTTERS

POTTERS

To: To: Alberta Transportation Technical Standards Branch 2nd Floor, Twin Atria Building 4999 - 98 Ave Edmonton, AB T6B 2X3

Attn:Rishi Adhikari, P.Eng.

Distribution Addressee: Wood Environment & Infrastructure Solutions 5671 - 70 Street Edmonton, AB Canada T6B 3P6 Tel +1 (780) 436-2152 Fax +1 (780) 377-3599

Date Lab Date Lot Roundness Reflective Moisture Sieve Analysis Received Reported Number (%) Number (%) Resistance % Passing 2019 2019 2019 800 630 315 160 80 MJ-H-11417-2 **GB17** Jul-15 Aug-16 82.9 79.8 99.7\* 95.0 Pass 29.2 2.7 0.00 **GB18** Jul-16 MJ-H-51719 Aug-16 99.8\* Pass 91.8 35.0 0.20\* 4.4 **GB19** MJ-H-20619-1 Jul-19 Aug-16 0.22\* 83.5 80.8 Pass 99.8\* 89.3 26.0 1.8 **GB20** Jul-23 MJ-H-92918-1 Aug-16 Pass 99.8\* 90.6 32.0 6.5\* 0.04\* Specification Min. 75 Min. 70 100 75-95 15-35 0-5 Pass 0 \* Indicates result outside tolerance limits.

Test not required by Alberta Transportation



PER:

# wood.

To: To: Alberta Transportation Technical Standards Branch 2nd Floor, Twin Atria Building 4999 - 98 Ave Edmonton, AB T6B 2X3 Attn:Rishi Adhikari, P.Eng.

Distribution Addressee: Wood Environment & Infrastructure Solutions 5671 - 70 Street Edmonton, AB Canada T6B 3P6 Tel +1 (780) 436-2152

Fax +1 (780) 377-3599

Lab Number		•	Lot Number	Roundness (%)	Reflective (%)	Moisture Resistance			e Analys Passing			Supplier	With Paint Batch Number
2019	2019	2019					800	630	315	160	80		2019
GB21	Jul-24	Oct-4	MJ-H-10719-1	81.2	79.0	Pass	99.8*	90.6	24.6	1.9	0.0	POTTERS	B89 &B90
GB22	Jul-25	Oct-4	MJ-H-51719	78.8	76.0	Pass	99.4*	81.9	25.1	3.7	0.0	POTTERS	B91&B92
GB23	Jul-25	Oct-4	MJ-H-93018-1	77.1	74.7	Pass	99.6*	87.8	27.3	3.7	0.13*	POTTERS	B93&B94
GB24	Jul-29	Oct-4	MJ-H-101818-2	84.1	81.4	Pass	99.0*	90.4	30.4	3.6	0.0	POTTERS	B95&B96&B97
	Specification         Min. 75         Min. 70         Pass         100         75-95         15-35         0-5         0											1	
100000000000000000000000000000000000000	Indicates result outside tolerance limits.  Test not required by Alberta Transportation PER:												4-Oct-19
	Reviewed By:											/	DATE
Re	eporting of th	ese results c	constitutes a testin	g service only.	Engineering	Interpretation	or evalua	ation of the	e test rés	ults is p	provided	only on written	request.

To:

# wood.

15-Oct-19 DATE

To: Alberta Transportation Technical Standards Branch 2nd Floor, Twin Atria Building 4999 - 98 Ave Distribution Addressee: Wood Environment & Infrastructure Solutions 5671 - 70 Street Edmonton, AB Canada T6B 3P6 Tel +1 (780) 436-2152 Fax +1 (780) 377-3599

Edmonton, AB T6B 2X3 Attn:Rishi Adhikari, P.Eng.

Lab Number	Date Received	Date Reported	Lot Number	Roundness (%)	Reflective (%)	Moisture Resistance			e Analy Passing			Supplier	With Paint Batch Number
2019	2019	2019					800	630	315	160	80	.,	2019
GB25	Jul-29	Oct-15	MJ-H-10918	79.1	76.5	Pass	99.2*	91.1	30.3	3.8	0.07*	POTTERS	B98
GB26	Aug-7	Oct-15	MJ-H-12617	81.4	78.6	Pass	99.8*	87.5	27.5	1.4	0.0	POTTERS	B99&B100
GB27	Aug-8	Oct-15	MJ-H-72419	79.3	76.7	Pass	99.9*	95.6	23.6	2.2	0.11*	POTTERS	B101&B102
GB28	Aug-8	Oct-15	MJ-H-12119	83.3	75.4	Pass	99.9*	93.8	28.3	1.3	0.0	POTTERS	B103&B104
	Spec	ification		Min. 75	Min. 70	Pass	100	75-95	15-35	0-5	0		·

\* Indicates result outside tolerance limits.

Test not required by Alberta Transportation

Reviewed By:

PER:

### wood.

Distribution Addressee: Wood Environment & Infrastructure Solutions 5671 - 70 Street Edmonton, AB Canada T6B 3P6 Tel +1 (780) 436-2152 Fax +1 (780) 377-3599

To: To: Alberta Transportation Technical Standards Branch 2nd Floor, Twin Atria Building 4999 - 98 Ave Edmonton, AB T6B 2X3 <u>Attn:Rishi Adhikari, P.Eng.</u>

Lab Number	Date Received	Date Reported	Lot Number	Roundness (%)	Reflective (%)	Moisture Resistance			e Analy Passing			Supplier	With Paint Batch Number
2019	2019	2019					800	630	315	160	80		2019
GB29	Aug-11	Oct-21	MJ-H-12418	77.3	74.2	Pass	99.6*	93.8	18.7	1.5	0.0	POTTERS	B105&B106
GB30	Aug-16	Oct-21	MJ-H-72414	78.7	75.8	Pass	99.4*	87.0	26.4	4.0	0.0	POTTERS	B107&B108
GB31	Aug-19	Oct-21	MJ-H-103018	82.8	79.6	Pass	99.7*	88.1	27.3	3.2	0.0	POTTERS	B109&B110
GB32	Aug-19	Oct-21	MJ-H-120718	81.8	78.3	Pass	99.5*	88.3	26.0	2.5	0.0	POTTERS	B111&B112
	Spec	ification		Min. 75	Min. 70	Pass	100	75-95	15-35	0-5	0		
*			e tolerance limits Iberta Transporta			PER:		<u> </u>	Afr	~/	K	21-Oct-19	
						Review	od Byr		V	Y	$\mathcal{A}$		DATE

Reviewed By:

wood.

To: To: Alberta Transportation Technical Standards Branch 2nd Floor, Twin Atria Building 4999 - 98 Ave Edmonton, AB T6B 2X3 Attn:Rishi Adhikari, P.Eng. Distribution Addressee: Wood Environment & Infrastructure Solutions 5671 - 70 Street Edmonton, AB Canada T6B 3P6 Tel +1 (780) 436-2152 Fax +1 (780) 377-3599

Lab Number	Date Received	Date Reported	Lot Number	Roundness (%)	Reflective (%)	Moisture Resistance			e Analy Passing			Supplier	With Paint Batch Number
2019	2019	2019					800	630	315	160	80		2019
GB33	Aug-19	Oct-28	MJ-H-122718-1	82.1	78.6	Pass	99.8*	85.9	27.3	2.4	0.0	POTTERS	B113&B114
GB34	Aug-20	Oct-28	MJ-H-124912-1	82.0	78.1	Pass	99.7*	89.3	24.3	2.9	0.0	POTTERS	B115&B116
GB35	Aug-21	Oct-28	MJ-H-N/A	77.0	74.0	Pass	99.1*	90.3	32.6	6.4*	0.19*	POTTERS	B117&B118
GB36	Aug-22	Oct-28	MJ-H-72419	80.4	77.0	Pass	99.7*	88.7	28.6	3.4	0.36*	POTTERS	B119&B120
	Spec	ification		Min. 75	Min. 70	Pass	100	75-95	15-35	0-5	0		· · · · · · · · · · · · · · · · · · ·
*	* Indicates result outside tolerance limit Test not required by Alberta Transpor						PER:			A	Ym	$\mathbf{k}$	28-Oct-19 DATE

Reporting of these results constitutes a testing service only. Engineering Interpretation or evaluation of the test results is provided only on written request.

Reviewed By:

# wood.

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Lab Number	Date Received	Date Reported	Lot Number	Roundness (%)	Reflective (%)	Moisture Resistance			ve Analys Passing			Supplier	With Paint Batch Number
2019	2019	2019					800	630	315	160	80		2019
GB37	Aug-24	Nov-8	MJ-H-80119	79.9	76.6	Pass	99.5*	87.9	29.5	3.0	0.0	POTTERS	B123 & B124
GB38	Aug-27	Nov-8	MJ-H-71219	81.8	78.6	Pass	98.3*	86.1	21.4	0.2	0.0	POTTERS	B125 & B126
GB39	Aug-27	Nov-8	MJ-H-71219	78.4	75.4	Pass	96.7*	76.7*	20.2	1.7	0.0	POTTERS	B127 & B 128
GB40	Aug-30	Nov-8	MJ-H-71219	81.0	76.5	Pass	96.7	75.6*	18.5	1.3	0.0	POTTERS	B129 & B130
	Spec	ification		Min. 75	Min. 70	Pass	100	75-95	15-35	0-5	0		
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\* Indicates result outside tolerance limits.

Test not required by Alberta Transportation

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Reviewed By:	VV

8-Nov-19 DATE

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To: To: Alberta Transportation Technical Standards Branch 2nd Floor, Twin Atria Building 4999 - 98 Ave Edmonton, AB T6B 2X3 Attn:Rishi Adhikari, P.Eng.

Lab Number	Date Received	Date Reported	Lot Number	Roundness (%)	Reflective (%)	Moisture Resistance			e Analy Passing			Supplier	With Paint Batch Number
2019	2019	2019					800	630	315	160	80		2019
GB41	Sep-3	Nov-15	MJ-H-12117	78.4	75.3	Pass	99.8*	88.7	24.5	2.3	0.0	POTTERS	B131&7B134
GB42	Sep-3	Nov-15	MJ-H-90518	82.6	78.2	Pass	99.7*	91.4	31.0	3.4	0.0	POTTERS	B132 & B133
GB43	Sep-3	Nov-15	MJ-H-81219	76.0	71.6	Pass	98.3*	86.3	24.8	2.5	0.0	POTTERS	B135 & B136
GB44	Sep-3	Nov-15	MJ-H-81419	77.7	73.5	Pass	98.6*	88.7	33.1	2.8	0.0	POTTERS	B137 & B138
GB45	Sep-5	Nov-15	MJ-H-81219-3	77.2	74.8	Pass	95.6*	91.5	28.7	0.9	0.0	POTTERS	B139 & B140
GB46	Sep-5	Nov-15	MJ-H-80719-4	86.3	82.5	Pass	98.8*	90.8	27.9	2.8	0.0	POTTERS	B143 & B144
GB47	Sep-5	Nov-15	MJ-H-122718	81.7	78.5	Pass	99.6*	87.1	21.7	1.0	0.0	POTTERS	B145 & B146
GB48	Sep-6	Nov-15	MJ-H-51319-1	80.3	77.1	Pass	99.6*	82.4	17.3	1.3	0.0	POTTERS	B147 & B148
GB49	Sep-17	Nov-15	DSCB061719	72.7*	70.1	Pass	100.0	86.2	21.7	0.5	0.0	ISP	B149& B150
GB50	Sep-17	Nov-15	MJ-H-82119	83.0	79.9	Pass	98.4*	86.5	30.0	3.0	0.0	POTTERS	B151 & B152
	Spec	ification		Min. 75	Min. 70	Pass	100	75-95	15-35	0-5	0		
*			e tolerance limits Iberta Transporta				PER:			NA	y~	V	15-Nov-19
						Review	ed By:				$\frac{1}{2}$	J-	DATE

Distribution Addressee: Wood Environment & Infrastructure Solutions

5671 - 70 Street

Canada T6B 3P6

Tel +1 (780) 436-2152

Fax +1 (780) 377-3599

Edmonton, AB

# wood.

To: To: Alberta Transportation Technical Standards Branch 2nd Floor, Twin Atria Building 4999 - 98 Ave Edmonton, AB T6B 2X3 Attn:Rishi Adhikari, P.Eng.

Lab Date Date Lot Roundness Reflective Moisture Sieve Analysis With Paint Number Received Reported Number (%) (%) Resistance % Passing Supplier Batch Number 2019 2019 2019 2019 800 630 315 160 80 **GB51** Sep-17 Nov-22 MJ-H-80719-4 84.9 81.6 Pass 98.5\* 90.4 27.1 1.9 0.0 POTTERS B153 & B154 **GB52** Sep-19 Nov-22 MJ-H-80719-4 84.7 81.3 Pass 98.3\* 87.1 23.3 2.4 0.0 POTTERS B155 & B156 **GB53** Sep-20 Nov-22 DSCB061818 73.0\* 70.4 Pass 99.9\* 86.1 29.9 2.1 0.04\* ISP B159 & B160 **GB54** Sep-25 Nov-22 MJ-H-92818 82.5 79.2 Pass 98.9\* 91.8 38.2\* 4.8 .14\* POTTERS B161 & B162 **GB55** Oct-7 MJ-H-90419 Nov-22 83.0 79.6 Pass 98.7\* 87.5 24.8 4.2 0.05\* POTTERS B163 & B164 **GB56** Oct-24 Nov-22 MJ-H-92019-2 81.8 78.4 Pass 99.4\* 92.0 27.3 2.9 0.0 POTTERS B165 & B166 **GB57** Oct-24 Nov-22 MJ-H-92019-2 77.1 73.8 Pass 98.1\* 86.0 30.4 3.3 0.0 POTTERS B167 & B168 **GB58** Oct-28 Nov-22 MJ-H-11018 83.2 79.9 Pass 99.4\* 90.3 30.6 4.8 POTTERS 0.08\* B169 & B170 **GB59** Oct-29 Nov-22 DSCB061718 66.1\* 63.6\* Pass 100.0 90.5 30.7 8.0 0.0 ISP B171 & B172 **GB60** Nov-6 Nov-22 MJ-H-90419 85.6 82.3 Pass 99.2\* 90.5 27.9 4.2 POTTERS 0.0 B175 & B176 **GB61** Nov-6 Nov-22 MJ-H-11018 82.8 79.5 Pass 99.7\* 92.4 35.0 5.1\* 0.08\* POTTERS B177 & B178 Specification Min. 75 Min. 70 Pass 100 75-95 15-35 0-5 0 \* Indicates result outside tolerance limits. Test not required by Alberta Transportation PER: 22-Nov-19 DATE

Distribution Addressee: Wood Environment & Infrastructure Solutions

5671 - 70 Street

Canada T6B 3P6

Tel +1 (780) 436-2152

Fax +1 (780) 377-3599

Edmonton, AB

Reviewed By:

To:

wood

To: Alberta Transportation<br/>Technical Standards Branch<br/>2nd Floor, Twin Atria Building<br/>4999 - 98 Ave<br/>Edmonton, AB T6B 2X3Distribution Addressee: Wood Environment & Infrastructure Solutions<br/>5671 - 70 Street<br/>Edmonton, AB<br/>Tel +1 (780) 436-2152Attn:Rishi Adhikari, P.Eng.Fax +1 (780) 377-3599

Lab Number			Lot Number	Roundness (%)	Reflective (%)	Moisture Resistance			e Analy: Passing		· .	Supplier	With Paint Batch Number	
2019	2019	2019					800	630	315	160	80		2019	
GB62	Nov-12	Nov-29	MJ-H-80715	78.1	74.7	Pass	98.2*	85.8	20.0	2.0	0.0	POTTERS	B179 & B180	
GB63	Nov-12	Nov-29	MJ-H-80715	80.0	76.3	Pass	99.9*	90.7	20.5	1.1	0.0	POTTERS	B181 & B182	
	Spec	ification		Min. 75	Min. 70	Pass	100	75-95	15-35	0-5	0	1		
*			e tolerance limits berta Transporta				PER:			H-	~	1-	29-Nov-19	
					Reviewed By:			DATE DATE						
Re	porting of the	ese results c	onstitutes a testin	g service only.	Engineering	Interpretation	or evalu	ation of th	e test res	sults is	provided	only on writter	request.	

Page 1 of 1