

**Coarse Aggregate Micro-Deval Abrasion  
ASTM D6928**



Client: Ministry of Transportation  
Project No.: KX05000A.352  
Project Name: Highway 37N

Date Sampled: 20-Jul-20  
Sampled By: D. Amor  
Tested By: S. McMahon  
Date Tested: 31-Aug-20

Grading	Sample ID	Initial Mass of Sample (g) A	Final Mass of Sample (g) B	Loss of Mass (g) A - B	DM (CA) % Loss (A-B)*100/A
8.2	Bell II	1502.6	1365.6	137.0	9.1
8.2	Control	1502.8	1303.6	199.2	13.3

**Average Loss of Drain Brothers Control Sample is 13.1%. The acceptable range is 11.4% to 14.8%.**

**Comments:**

- Refer to BCMoT 2016 Standard Specifications for Highway Construction;
- Section 202, Table 202-B for acceptable values of coarse aggregate for :
    - HFSA, 25mm and 50mm base course, IGSB and OGSB is 25 or less
    - SGSB and BEF is 30 or less
    - 75mm base course is 17 or less
  - Section 502, Table 502-B for acceptable value of coarse aggregate for :
    - Superpave and Class 1 aggregates is 18 or less
    - Class 2 aggregates is 20 or less.
  - A petrographic analysis may be required if material fails to meet these specifications.

Reviewed by: \_\_\_\_\_

  
Brian McLeod  
Wood Environment & Infrastructure Solutions  
Prince George, BC

**Sand Equivalent Test  
ASTM D2419**



Client:	Ministry of Transportation	Date Sampled:	20-Jul-20
Project No.:	KX05000A.352	Sampled By:	D. Amor
Project Name:	Highway 37N	Tested By:	S. McMahon
Test Pit Number:	Bell II South Quarry	Date Tested:	31-Aug-20
Bag Number:	Face		

Trial #	1	2	3	Average
Clay Height (mm):	4.8	4.7	4.9	
Sediment Period:	20 mins	20 mins	20 mins	
Sand Height (mm):	3.3	3.4	3.5	
Sand Equivalent (SE):	69	73	72	<b>72</b>

Calculation: Sand Equivalent (SE) = (Sand Height / Clay Height) x 100

**Comments:** Refer to BCMoT 2016 Standard Specifications for Highway Construction;

- Section 202, Table 202-B for acceptable values for :
  - any base course is 40 or greater
  - HFSA, SGSB, IGSB, OGSB and BEF is 20 or greater
- Section 502.06.05 for acceptable values of:
  - not less than 40 for regular paving aggregates
  - not less than 45 for Superpave mixes
- A petrographic analysis may be required if material fails to meet these specifications.

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 Wood Environment & Infrastructure Solutions  
 Prince George, BC

# Bulk Relative Density of Aggregates



Client: Ministry of Transportation  
 Project No.: KX05000A.352  
 Project Name: Highway 37N  
 Test Pit Number: Bell II South Quarry  
 Bag Number: Face  
 Depth:

Date Sampled: 20-Jul-20  
 Sampled By: D. Amor  
 Coarse Tested By: S. McMahon  
 Coarse Tested: 01-Sep-20  
 Fine Tested By: S. McMahon  
 Fine Tested: 01-Sep-20

## Coarse Aggregate - ASTM C127

Sample was dried, washed and soaked for 24 +/- 4 hrs

## Retained on the 4.75mm sieve

Mass of Pan in Air		391.3	394.9	385.2	
Sat. Surf. Dry Mass Agg. + Pan in Air		1774.1	1967.1	1631.5	
Sat. Surf. Dry Mass in Water	(C)	869.3	988.6	783.8	
Dry Mass Agg. + Pan in Air		1764.4	1955.5	1622.4	
Sat. Surf. Dry Mass Agg. in Air	(B)	1382.8	1572.2	1246.3	
Mass of Dry Agg. in Air	(A <sub>c</sub> )	1373.1	1560.6	1237.2	
Diff. in SS Mass		513.5	583.6	462.5	
Mass Absorbed Water		859.6	977.0	774.7	
<b>Bulk Relative Density</b>	<b>A<sub>c</sub>/(B-C)</b>	2.674	2.674	2.675	<b>2.674</b>
<b>Percent Water Absorption</b>	<b>(B-A<sub>c</sub>/A<sub>c</sub>) * 100</b>	0.71	0.74	0.74	<b>0.73</b>

(C<sub>abs</sub>)

## Fine Aggregate - ASTM C128

Sample was dried, washed and soaked for 24 +/- 4 hrs

## Passing the 4.75mm sieve

Mass of Water to Calibrate Flask	(W <sub>c</sub> )	499.49	499.44		
Mass of Flask	(X)	171.89	174.24		
Mass of Flask & Water		233.20	254.95		
Mass of SS Dry Aggregate	(Y)	501.76	502.35		
Mass of Flask + SS Dry Agg. + Water	(Z)	985.64	988.30		
Mass of Pan in Air		281.72	271.00		
Mass of Dry Agg. + Pan in Air		778.57	768.24		
Mass of Added Water	(Z - Y)	(W <sub>a</sub> )	311.99	311.71	
Mass of Dry Agg. in Air	(A <sub>f</sub> )	496.85	497.24		
Diff. in Water Mass	(W <sub>c</sub> - W <sub>a</sub> )	187.50	187.73		
Mass Absorbed Water	(Y - X - A <sub>f</sub> )	4.91	5.11		
<b>Bulk Relative Density</b>	<b>A<sub>f</sub>/(W<sub>c</sub> - W<sub>a</sub>)</b>	2.650	2.649		<b>2.649</b>
<b>Percent Water Absorption</b>	<b>(Y - X - A<sub>f</sub>)/A<sub>f</sub> * 100</b>	0.99	1.03		<b>1.01</b>

(F<sub>abs</sub>)

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 Wood Environment & Infrastructure Solutions  
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