



**GUDVANGEN
STEIN AS**
NORDIC MINING GROUP



MECHANICAL TEST

The test is conducted by Geological survey of Norway (NGU). NGU is the national institution for knowledge on bedrock, mineral resources, surficial deposits and groundwater.

Nordic Mining
Vika Atrium
Munkedamsveien 45
0250 OSLO

Date: 31.10.2008

TEST REPORT - DENSITY

Identification of the sample

Type of material:	Production sample	Certificate of sampling:	Not done
Preparation of sample:	Processed in plant	Laboratory Ref. No.:	2008057
Fraction of sample:	Hand specimen	Client Ref. No.:	-
Name of Source:	Gudvangen	Date of receipt:	12.06.2008
Sampled by:	Eyolf Erichsen	Date of testing:	28.07.2008
Date for sampling:	12.06.2008	Tested by:	Henry Vongraven

Testmethod

Reference test procedure:

1. NS 8012 (1982): Geoteknisk prøving. Laboratoriemetoder. Korndensitet. NSF, Oslo.
2. NS 8011 (1982): Geoteknisk prøving. Laboratoriemetoder. Densitet. NSF, Oslo.
3. Statens vegvesen (1997): Håndbok 014, Laboratorieundersøkelser. 14.422 Densitet for materiale større enn 4,0 mm. Veglaboratoriet, Oslo.

Deviation from the procedyre: No deviation.

Results

Fraction:

8,0-11,2mm

Weight sample: 500,0

Volume sample: 164,3

Density = Weight sample / Volume sample = 3,04 g/cm³

Signature:

Eyolf Erichsen

Nordic Mining
 Vika Atrium
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 0250 OSLO

Date: 31.10.2008

TEST REPORT - NORDIC TEST

Identification of the sample

Type of material:	Production sample	Certificate of sampling:	Not done
Preparation of sample:	Processed in plant	Laboratory Ref. No.:	2008057
Fraction of sample:	Hand specimen	Client Ref. No.:	-
Name of Source:	Gudvangen	Date of receipt:	12.06.2008
Sampled by:	Eyolf Erichsen	Date of testing:	25.08.2008
Date for sampling:	12.06.2008	Tested by:	Henry Vongraven

Testmethod

Reference test procedure: 1. NS-EN 1097-9 (1998): Test for mechanical and physical properties of aggregates.
 Part 9: Determination of the resistance to wear by abrasion form studded tyres.
 Nordic test.

Deviation from the procedyre: No deviation. In addition flakiness index has been measured

Results

Fraction: The total weight of the sample 33 628,0 g
 The fractions part of the samples total weight : 25,1 %

	Parallel				Average
	1	2	3	4	
Nordic abrasion value (A_N):	12,1	11,4			11,8
Flakiness index:					8

Signature: *Eyolf Erichsen*

Date: 31.10.2008

TEST REPORT - MICRO-DEVAL

Prøvemateriale

Type of material:	Production sample	Certificate of sampling:	Not done
Preparation of sample:	Processed in plant	Laboratory Ref. No.:	2008057
Fraction of sample:	Hand specimen	Client Ref. No.:	-
Name of Source:	Gudvangen	Date of receipt:	12.06.2008
Sampled by:	Eyolf Erichsen	Date of testing:	01.09.2008
Date for sampling:	12.06.2008	Tested by:	Henry Vongraven

Testmethod

Reference test procedure: 1. NS-EN 1097-1 (1996): Test for mechanical and physical properties of aggregates.
 Part 1: Determination of the resistance to wear (micro-Deval).

Deviation from the procedyre: No deviation. In addition flakiness index has been measured

Results

Fraction:	<input type="text" value="10,0-14,0mm"/>	The total weight of the sample	33 544,0 g
		The fractions part of the samples total weight :	26,1 %

	Parallel		Average
	1	2	
Micro-Deval koeffisient (M_{DE}):	12,7	11,9	12
Flakiness index:			29

Signature: *Eyolf Erichsen*

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TEST REPORT - LOS ANGELES TEST

Identification of the sample

Type of material:	Production sample	Certificate of sampling:	Not done
Preparation of sample:	Processed in plant	Laboratory Ref. No.:	2008057
Fraction of sample:	Hand specimen	Client Ref. No.:	-
Name of Source:	Gudvangen	Date of receipt:	12.06.2008
Sampled by:	Eyolf Erichsen	Date of testing:	01.09.2008
Date for sampling:	12.06.2008	Tested by:	Henry Vongraven

Testmethod

Reference test procedure: 1. NS-EN 1097-2 (1994): Test for mechanical and physical properties of aggregates.
 Part 2. Methods for the determination of resistance to fragmentation.

Deviation from the procedyre: No deviation. In addition flakiness index has been measured

Results

Fraction:	<input type="text" value="10,0-14,0mm"/>	The total weight of the sample	33 544,0 g
	<input type="text" value="▼"/>	The fractions part of the samples total weight :	26,1 %

Los Angeles value (LA): 13

Flakiness index: 21

Signature: 

Date: 31.10.2008

TEST REPORT - POLISHED STONE VALUE

Identification of the sample

Type of material:	Production sample	Certificate of sampling:	Not done
Preparation of sample:	Processed in plant	Laboratory Ref. No.:	2008057
Fraction of sample:	Hand specimen	Client Ref. No.:	-
Name of Source:	Gudvangen	Date of receipt:	12.06.2008
Sampled by:	Eyolf Erichsen	Date of testing:	25.09.2008
Date for sampling:	12.06.2008	Tested by:	Ivana Todorovic

Testmethod

Reference test procedure: 1. NS-EN 1097-8 (2000): Test for mechanical and physical properties of aggregates.
Part 8. Determination of the polished stone value.

Deviation from the procedyre: No deviation.

Results

Test specimen (S.)

Test run 1

Test specimen I:	59,7
Test specimen II	58,3
Mean (I+II):	59,0

Test run 2

Test specimen III:	57,3
Test specimen IV	57,0
Mean (III+IV):	57,2

Mean recorded value (S): 58,1

Control stone (C.)

Test run 1

Test specimen I:	53,0
Test specimen II	53,0
Mean (I+II):	53,0

Test run 2

Test specimen III:	52,3
Test specimen IV	53,0
Mean (III+IV):	52,7

Mean recorded value (C): 52,8

PSV = (S + 52,5 - C):

58

Signature: *Eyolf Erichsen*