American Engineering Testing, Inc.
Wausau | Green Bay
4203 Schofield Ave, Ste 1 | 3194 Market St., Ste C
Schofield, WI 54476 | Green Bay, WI 54304
(715) 359-3534 | (920) 347-1286
Toll Free: (800) 972-6364
www.amengtest.com

Material Test Report

Report No: MAT:18-00430-S1
Issue No: 1

Client: KAFKA GRANITE, LLC
CC: Jeremy Bores
Tiffany Kafka

Project: 2018 CONSTRUCTION PROJECTS

,
Job No: 12-03046

Date of Issue: 1/17/2018
Reviewed By: Paul Michlig, CET
Construction Manager

Sample Details

Sample ID	18-00430-S1
Field Sample ID	3
Date Sampled	1/15/2018
Source	Kafka Granite
Material	Recycled Copper Slag 3/8" x 1/8"
Specification	No Specifications
Sampling Method	Sampled by Client
General Location	Mosinee, WI
Location	Kafka Granite
Date Submitted	1/16/2018

Test Results

Description	Method	Result	Limits
Specific Gravity (OD)	ASTM C 127	3.009	
Specific Gravity (SSD)		3.018	
Apparent Specific Gravity		3.038	
Absorption (%)		0.324	
Density Determined Without First Drying?		No	
Additional Notes			
Date Tested		1/17/2018	

Comments

N/A

AMERICAN ENGINEERING TESTING, INC.

CONSULTANTS
· ENVIRONMENTAL
· GEOTECHNICAL
· MATERIALS
· FORENSICS

February 1, 2018

Ms. Tiffany Kafka
Kafka Granite, LLC
550 East Highway 153
Mosinee, WI 54455

Re: Mohs Hardness Testing
2018 Construction Projects
Schofield, WI
AET Project No. 12-03046

Ms. Kafka:

This report presents the results of our Mohs hardness testing of one sample of stone submitted by you on January 17, 2018. The stone is to be referred to as “Recycled Copper Slag 3/8"x1/8”. Eleven stones were submitted to our laboratory and one was chosen for testing. The scope of our work in this report was confined to performing Mohs hardness testing on one stone sample.

Conclusions

Based on our observations and analysis our opinions are as follows:

1. The overall hardness of the “Recycled Copper Slag 3/8"x1/8"” stone is approximately 6.5 to 7 on the Mohs scale. The number is based upon testing values of the overall hardness of the rock using Mohs hardness picks.

2. The stone consisted of a manufactured material. A hardness value determination of the stone based upon the mineral assemblage was not conducted. Mohs picks with hardness 3 through 8 were used on the stone. The Mohs hardness picks determined an approximate overall hardness of 6.5 to 7. This hardness is a more consistent result then using the mineral assemblage because the Mohs hardness picks were drawn directly across a freshly lapped surface of the stone.

3. In general, rocks are not homogeneous with regards to Mohs mineral hardness. The best effort was made to accomplish the hardness analysis at a representative area within the stone selected. Because rocks can consist of several different minerals with different quantities and different hardness, and the Mohs scale represents the hardness of individual minerals, the Mohs scale should only be used as an approximation when determining the overall hardness of a rock.

Procedures

Our work was performed on January 26, 2018 and subsequent dates. The hardness testing was completed through the use of standard geologic Mohs hardness points and optical microscopy on a lapped hand sample. The review was performed in general accordance with Standard Operating Procedure 24-LAB-004, "Petrographic Examination of Aggregates for Concrete, ASTM C295." Observations were made using an Olympus SZX-12 stereo-zoom binocular microscope with magnification up to 160x.

Photographs are included to illustrate our work and conclusions.

Remarks

The sample will be retained for a period of at least sixty days from the date of this report. Unless further instructions are received by that time, the sample may be discarded. The geologic services for this project have been conducted in a manner consistent with that level of care and skill exercised by members of the profession currently practicing in this area under similar budget and time constraints. The results relate only to the sample analyzed. No warranty, express or implied, is made.

It has been a pleasure to serve you on this project. Should you have any questions on this report, please do not hesitate to call.

Respectfully,

American Engineering Testing, Inc.

Christopher J. Braaten, PG, CPG
Petrographer/Geologist
MN License #48312
Phone: 651-659-1352
cbraaten@amengtest.com

Reviewed by:
American Engineering Testing, Inc.

Gerard Moulzolf, PG
Vice President/Principal Petrographer
MN License #30023
Phone: 651-659-1346
gmoulzolf@amengtest.com

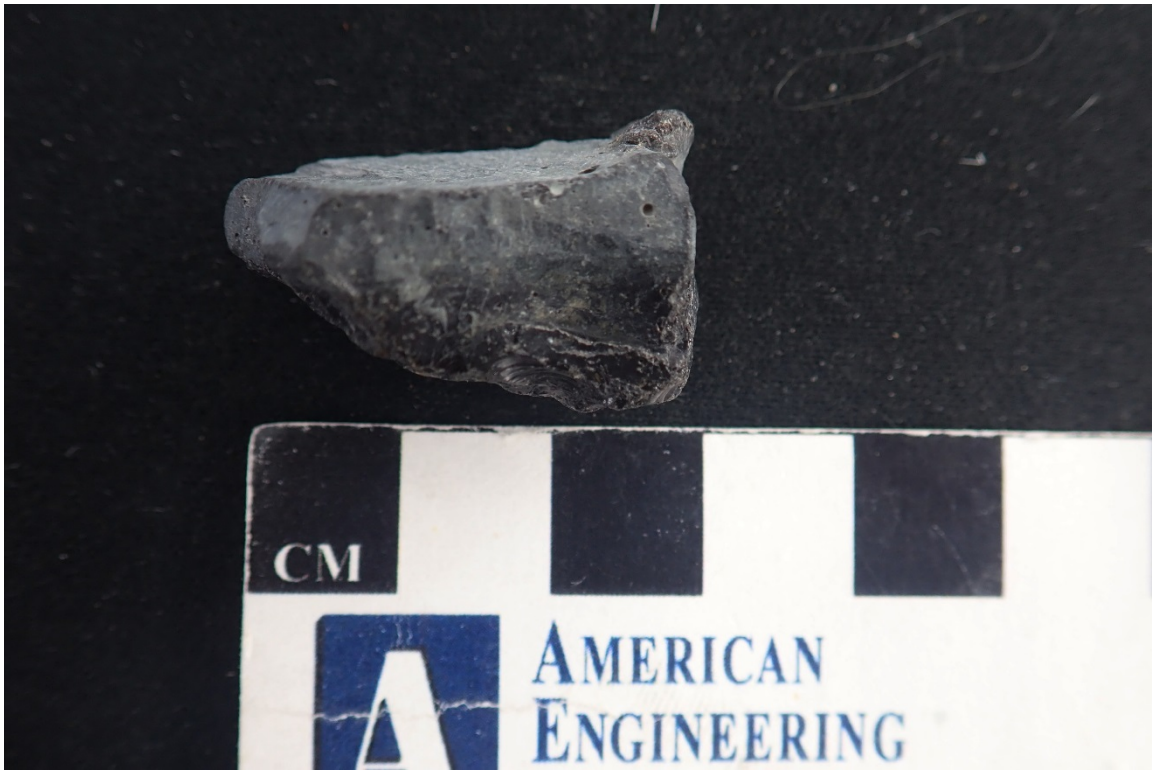
AET PROJECT NO: 12-03046 **DATE:** February 1, 2018

PROJECT: 2018 Construction Projects
Scholfield, WI

PHOTO: 1

SAMPLE ID: Recycled Copper Slag **DESCRIPTION:** Overall view of the sample as received.

PHOTO: 2



SAMPLE ID: Recycled Copper Slag **DESCRIPTION:** View of the stone selected for hardness testing.

AET PROJECT NO: 12-03046 **DATE:** February 1, 2018
PROJECT: 2018 Construction Projects
Scholfield, WI

PHOTO: 3

SAMPLE ID: Recycled Copper Slag **DESCRIPTION:** View of the lapped cross section of the stone.
MAG: 10x

PHOTO: 4

SAMPLE ID: Recycled Copper Slag **DESCRIPTION:** View of the lapped cross section of the stone after Mohs hardness testing. Note that hardness picks 3 through 6 did not scratch, hardness pick 7 scratched a few minerals, and hardness pick 8 scratched all minerals. The general Mohs hardness would be approximately 6.5 to 7.
MAG: 10x

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