

Universal Inspection Group, LLC



Chloride, Sulfate and Nitrate Testing of Sharp-Shot Abrasive

October 19, 2010

**To: Mr. Michael D. Vick
President
Minerals Research & Recovery, Inc.**

**Mrs. Danielli Quintero
Chevron Corrosion Engineer
Base Business**

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Chevron Corrosion Representative**

**Testing Completed and Submitted by:
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Senior Project Manager**

On October 19, 2010, UIG performed random Chloride, Sulfate and Nitrate (CSN) testing on two un-opened bags of Sharp-Shot 30/60 abrasive with an Elcometer Chlor *Test "A" abrasive test kit. Testing was performed on a bare steel plate without abrasive blasting as well as testing was performed on a blasted steel plate. Testing was concluded with the same plate of steel being washed with a solution of Chlo-rid and deionized water. The steel was washed and allowed to dry for approximately one hour and thirty minutes prior to resuming final testing of the abrasive.

The tests were performed according to the Chlor*Test CSN Salt Kit Testing Standards. This test corresponds to the ISO 8502-5, NACE Publication 6G186, and SSPC-Guide TU 15. Field Method for Retrieval and Analysis of Soluble Salts on Steel and other Non-porous Substrates. All testing was done in the presence of the Chevron Corrosion Representative, Larry Bashor Painting Company, and key representatives from Minerals Research & Recovery, Inc.

The following results represent testing from un-opened bags of abrasive, testing on un-blasted steel, testing on the blasted steel surface, testing after wire brush

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surface preparation, and final testing on Chlo-rid and De-ionized water washed steel surfaces:

ABRASIVE TEST RESULTS

Test #1 **First Random Bag**

Chlorides 0% ppm, Sulfates 28% ppm, Nitrates 0% ppm

Test #2 **Second Random Bag**

Chlorides 0% ppm, Sulfates 38% ppm, Nitrates 0% ppm

CSN TESTING ON UN-BLASTED STEEL PANEL

Chlorides 0% ppm, Sulfates 8% ppm, Nitrates 0% ppm

CSN TESTING ON ABRASIVE BLASTED STEEL PANEL USING SHARP-SHOT BEFORE CHLO-RID AND DE-IONIZED WATER WASH:

Test #1 Chlorides 0% ppm, Sulfates 10% ppm, Nitrates 0% ppm.

Test #2 Chlorides 0% ppm, Sulfates 13% ppm, Nitrates 0% ppm.

Test #3 Chlorides 0% ppm, Sulfates 3% ppm, Nitrates 0% ppm.

Test #4 Tests voided due to sulfate reagent solution added before zero calibration of test meter.

Test #5 Chlorides 0% ppm, Sulfates 0%ppm, Nitrates 0% ppm.

CSN TESTING ON ABRASIVE BLASTED PANEL AFTER CHLO-RID WASH USING WIRE BRUSH:

Test #1 Chloride 0% ppm, Sulfate 0% ppm, Nitrates 0% ppm.

Test #2 Chlorides 0% ppm, Sulfates 1% ppm, Nitrates 0% ppm.

**CSN TESTING ON ABRASIVE BLASTED STEEL PANEL AFTER CHLO-RID WASH
USING SHARP-SHOT ABRASIVE:**

Test #1 Chlorides 0% ppm, Sulfates 0% ppm, Nitrates 0%ppm

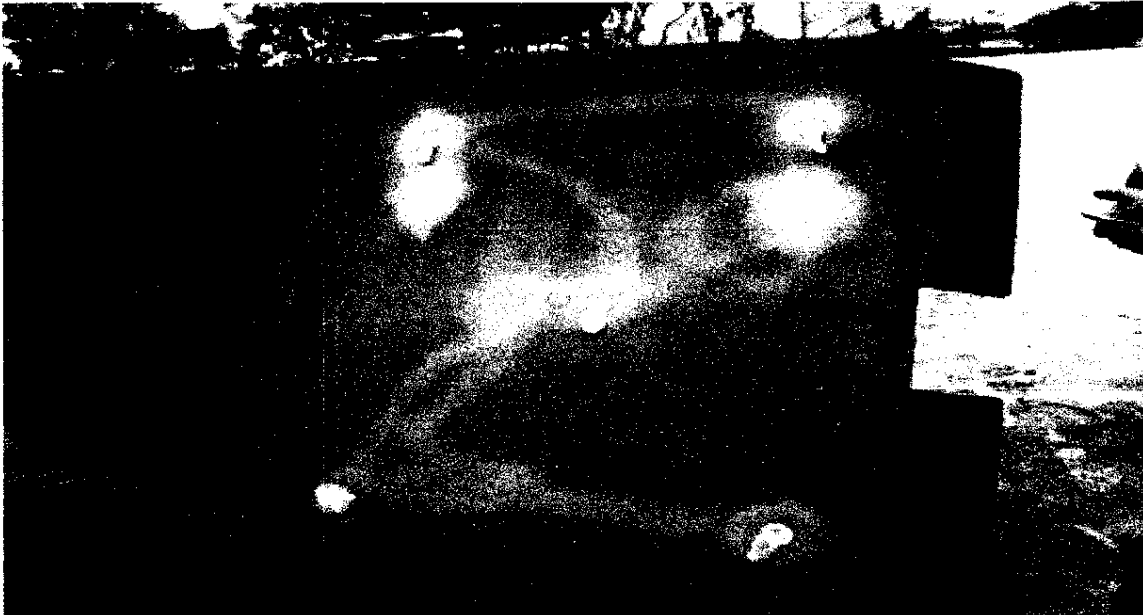
Test #2 Chlorides 0% ppm, Sulfates 0% ppm, Nitrates 0% ppm.

Test #3 Chlorides 0% ppm, Sulfates 0% ppm, Nitrates 0% ppm.

Test #4 Chlorides 0% ppm, Sulfates 1% ppm, Nitrates 0% ppm.

Test #5 Chlorides 0% ppm, Sulfates 0% ppm, Nitrates 0% ppm.

Based on the above chloride, sulfate and nitrate testing results for the sharp-shot abrasive manufactured by Minerals Research & Recovery, this abrasive meet Chevron specifications of 0% ppm chlorides, <3% ppm sulfates, and <3% ppm nitrates. This abrasive is acceptable for abrasive blasting of Chevron's tanks, pipelines and other projects.



Respectfully,
Freddie Hogan Jr.
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