



Lab Report

Florida Road Base Stabilization and Dust Control Project
Andrew McDaniel, Technical Sales and Field Service
April 15, 2015

Mctron Technical Facility
1806 Perimeter Road
Greenville, SC 29605

Lab Report for Florida road base stabilization and dust control project.
04-15-2015

Mctron Technical Facility
1806 Perimeter Road
Greenville, SC 29605

Technicians: Andrew McDaniel, Kyle McMahan

Procedure and Data for the Florida project:

Soil samples were received into the Mctron Technologies lab and were analyzed for Unconfined Compressive Strength via Marshall Test on Humboldt Equipment.

The soil was received in 2 boxes that contained various size pieces on compacted soil up to the size of a softball. This soil was broken down into material less than .25 inches to replicate the manual manipulation of soil in the field. The soil tested for proctor compaction and good wet cohesion at approximately 5.5% moisture.

One batch of soil was prepared at 5.5% moisture and remolded 800g samples were determined to not be self-compacting. The soil would not adhere to form a pill. Because of this soil without Polymer additive could not be tested for UCS, and the baseline UCS is determined to be 0 (zero) lbs.

One batch of soil was amended to contain 1% wet polymer, by weight; at 5.5% total moisture, by weight. These samples were hand blended until visual and tactile consistency was achieved. These samples were then loaded into proctor molds at a total weight of 800g/pill. 4 pills were remolded at 800g/ea.

Samples tested as follows:

1% Marshall Load, in Pounds:

Sample 1: 4916

Sample 2: 4342

Sample 3: 5298

Sample 4: 5854

One batch of soil was amended to contain 2% wet polymer, by weight; at 5.5% total moisture, by weight. These samples were hand blended until visual and tactile consistency was achieved. These samples were then loaded into proctor molds at a total weight of 800g/pill. 4 pills were remolded at 800g/ea.

Samples tested as follows:

2% Marshall Load, in Pounds:

Sample 1: 8391

Sample 2: 7403

Sample 3: 8402

Sample 4: 6156

One batch of soil was amended to contain 3% wet polymer, by weight; at 5.5% total moisture, by weight. These samples were hand blended until visual and tactile consistency was achieved. These samples were then loaded into proctor molds at a total weight of 800g/pill. 4 pills were remolded at 800g/ea.

Samples tested as follows:

3% Marshall Load, in Pounds:

Sample 1: 14082

Sample 2: 13799

Sample 3: 11297

Sample 4: 12488

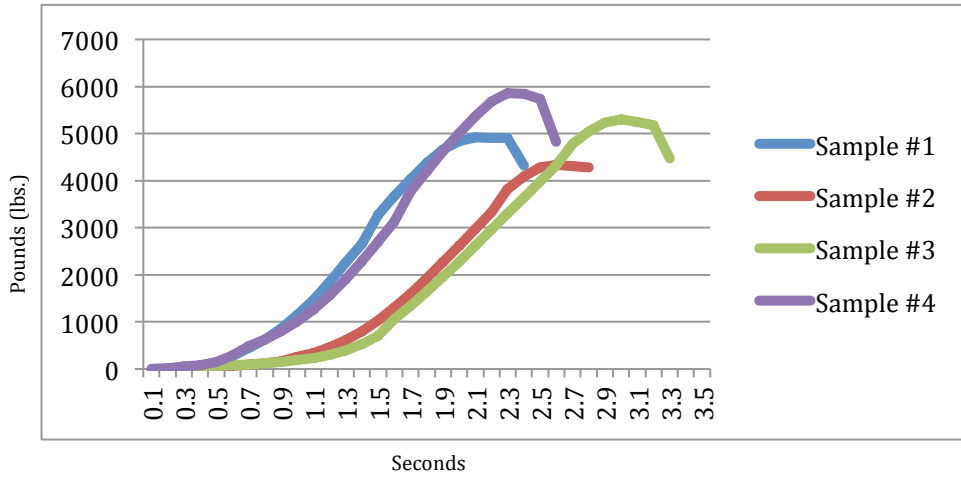
Technician observations and opinions:

In conducting the UCS testing on this soil one particular thing stood out. The soil, as received was very firmly compacted and difficult to break up. However, the soil would not, without amendment, form a cohesive pill that could be tested. The normal cause for this would be a road that has had the surface undisturbed for a length of time suitable to allow compaction, even though the soil is not immediately bonding to itself in the way that a clay containing soil might. This leads me to believe that this road would respond well to polymer stabilization and should perform well in the long term. Longevity of stabilization should not be a concern, but a proper top-coating schedule would be advised to minimize traffic dust, because of the very small size of the aggregate.

Lab Report prepared by Andrew McDaniel, 04-15-2015

Maxxseal 100 Soil Samples
 Project: Florida
 04/15/2015

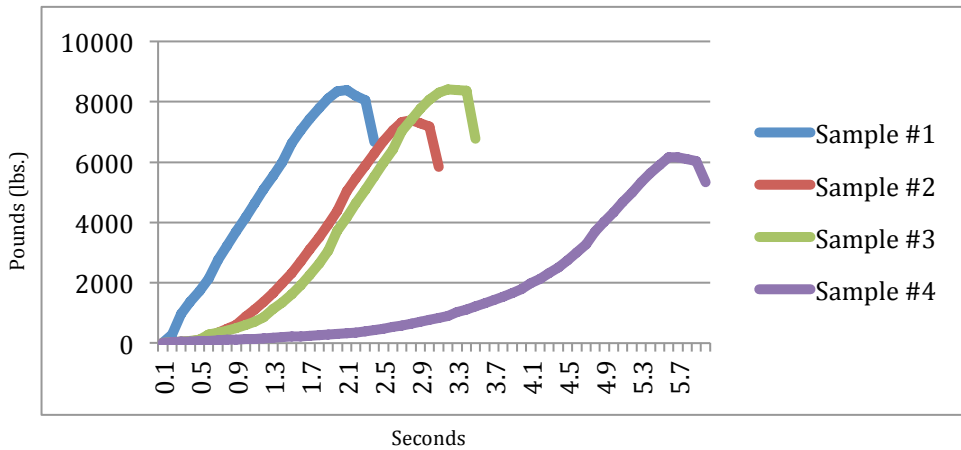
1 % Maxxseal 100



Peak Point:

- #1: 4916
- #2: 4342
- #3: 5298
- #4: 5854

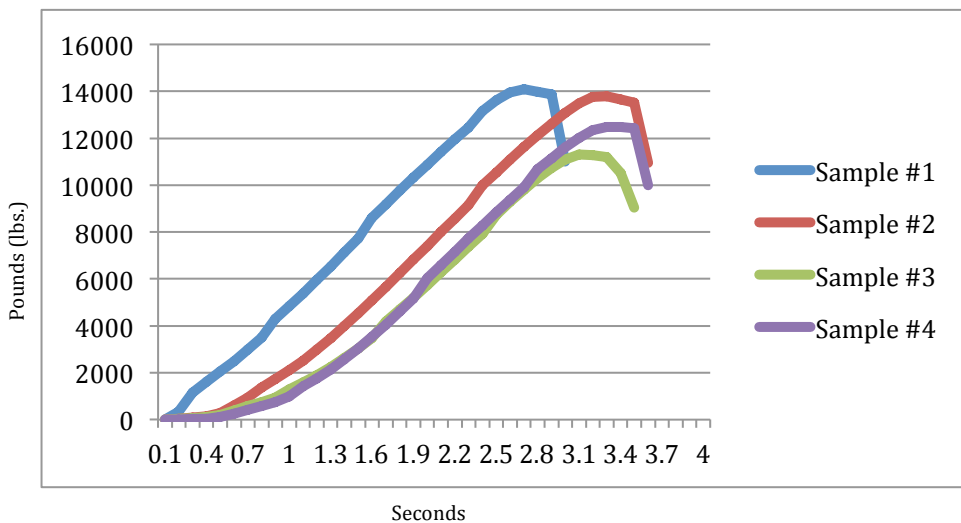
2 % Maxxseal 100



Peak Point:

- #1: 8391
- #2: 7403
- #3: 8402
- #4: 6156

3 % Maxxseal 100



Peak Point:

- #1: 14082
- #2: 13799
- #3: 11297
- #4: 12488



Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: <http://www.settek.com>

February 06, 2015

Andrew McDaniel
Mctron Technologies
1806 Perimeter Road
Greenville, SC 29605
TEL: (864) 380-9233
FAX:

RE: Maxxseal 100

Dear Andrew McDaniel:

Order No.: 15020321

Summit Environmental Technologies, Inc. received 1 sample(s) on 2/4/2015 for the analyses presented in the following report.

There were no problems with the analytical events associated with this report unless noted in the Case Narrative.

Quality control data is within laboratory defined or method specified acceptance limits except where noted.

If you have any questions regarding these tests results, please feel free to call the laboratory.

Sincerely,

Dr. Mo Osman

Project Manager

3310 Win St.
Cuyahoga Falls, Ohio 44223

A2LA 0724.01, Alabama 41600, Arizona AZ0788, Arkansas 88-0735, California 07256CA, Colorado, Connecticut PH-0105, Delaware, Florida NELAC E87688, Georgia E87688 and 943, Idaho OH00923, Illinois 200061 and Reg.5, Indiana C-OH-13, Kansas E-10347, Kentucky (Underground Storage Tank) 3, Kentucky 90146, Louisiana 04061 and LA12004, Maine 2012015, Maryland 339, Massachusetts M-OPH923, Minnesota 409711, Montana CERT0099, New Hampshire 2996, New Jersey OH006, New York 11777, North Carolina 39705 and 631, Ohio Drinking Water 4170, Ohio VAP CL0052, Oklahoma 9940, Oregon OH200001, Pennsylvania 68-01335, Rhode Island LA000317, South Carolina 92016001, Tennessee TN04018, Texas T104704466-11-5, Region 8 8TMS-L, USDA/APHIS P330-11-00244, Utah OH009232011-1, Vermont VT-87688, Virginia 00440 and 1581, Washington C891, West Virginia 248 and 9957C and E87688, Wisconsin 399013010



Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: <http://www.settek.com>

Workorder
Sample Summary
WO#: **15020321**
06-Feb-15

CLIENT: Mctron Technologies
Project: Maxxseal 100

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
15020321-001	Maxxseal 100		2/2/2015 10:00:00 AM	2/4/2015 10:45:00 AM	Solid



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3310 Win St.
Cuyahoga Falls, Ohio 44223
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Website: <http://www.settek.com>

Case Narrative

WO#: 15020321
Date: 2/6/2015

CLIENT: Mctron Technologies
Project: Maxxseal 100

This report in its entirety consists of the documents listed below. All documents contain the Summit Environmental Technologies, Inc., Work Order Number assigned to this report.

Paginated Report including Cover Letter, Case Narrative, Analytical Results, Applicable Quality Control Summary Reports, and copies of the Chain of Custody Documents are supplied with this sample set.

Concentrations reported with a J-Flag in the Qualifier Field are values below the Limit of Quantitation (LOQ) but greater than the established Method Detection Limit (MDL).

Method numbers, unless specified as SM (Standard Methods) or ASTM, are EPA methods.

Estimated uncertainty values are available upon request.

All results for Solid Samples are reported on an "as received" or "wet weight" basis unless indicated as "dry weight" using the "-dry" designation on the reporting units.

Summit Environmental Technologies, Inc., holds the accreditations/certifications listed at the bottom of the cover letter that may or may not pertain to this report.

Any comments or problems with the analytical events associated with this report are noted below.



Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: <http://www.settek.com>

WO#: 15020321
Date Reported: 2/6/2015
Company: Mctron Technologies
Address: 1806 Perimeter Road
Greenville SC 29605
Received: 2/4/2015
Project#: Maxxseal 100

Client ID#	Lab ID#	Collected	Analyte	Result	Units	Matrix	Method	DF	RL	Run	Analyst
Maxxseal 100	001	2/2/2015	Arsenic(As)	ND	mg/Kg	Solid	EPA 6010 C	1	2.0	2/6/2015	VVK
Maxxseal 100	001	2/2/2015	Cadmium(Cd)	ND	mg/Kg	Solid	EPA 6010 C	1	1.0	2/6/2015	VVK
Maxxseal 100	001	2/2/2015	Chromium(Cr)	ND	mg/Kg	Solid	EPA 6010 C	1	5.0	2/6/2015	VVK
Maxxseal 100	001	2/2/2015	Lead(Pb)	ND	mg/Kg	Solid	EPA 6010 C	1	5.0	2/6/2015	VVK
Maxxseal 100	001	2/2/2015	Nickel(Ni)	ND	mg/Kg	Solid	EPA 6010 C	1	5.0	2/6/2015	VVK
Maxxseal 100	001	2/2/2015	Flashpoint (140°F)	>200	°F	Solid	EPA 1010	1		2/5/2015	TAH
Maxxseal 100	001	2/2/2015	Aroclor 1016	< 1.0	ppm	Solid	EPA 8082	1	1.0	2/5/2015	AKE
Maxxseal 100	001	2/2/2015	Aroclor 1016/1242	< 1.0	ppm	Solid	EPA 8082	1	1.0	2/5/2015	AKE
Maxxseal 100	001	2/2/2015	Aroclor 1221	< 1.0	ppm	Solid	EPA 8082	1	1.0	2/5/2015	AKE
Maxxseal 100	001	2/2/2015	Aroclor 1232	< 1.0	ppm	Solid	EPA 8082	1	1.0	2/5/2015	AKE
Maxxseal 100	001	2/2/2015	Aroclor 1242	< 1.0	ppm	Solid	EPA 8082	1	1.0	2/5/2015	AKE
Maxxseal 100	001	2/2/2015	Aroclor 1248	< 1.0	ppm	Solid	EPA 8082	1	1.0	2/5/2015	AKE
Maxxseal 100	001	2/2/2015	Aroclor 1254	< 1.0	ppm	Solid	EPA 8082	1	1.0	2/5/2015	AKE
Maxxseal 100	001	2/2/2015	Aroclor 1260	< 1.0	ppm	Solid	EPA 8082	1	1.0	2/5/2015	AKE
Maxxseal 100	001	2/2/2015	Aroclor 1262	< 1.0	ppm	Solid	EPA 8082	1	1.0	2/5/2015	AKE
Maxxseal 100	001	2/2/2015	Aroclor 1268	< 1.0	ppm	Solid	EPA 8082	1	1.0	2/5/2015	AKE
Maxxseal 100	001	2/2/2015	Total PCBs	< 1.0	ppm	Solid	EPA 8082	1	1.0	2/5/2015	AKE
Maxxseal 100	001	2/2/2015	Chloride	ND	mg/Kg	Solid	EPA 9056 A	1	74	2/6/2015	SG



SUMMIT
 ENVIRONMENTAL TECHNOLOGIES, INC.
 3310 Win Street
 Cuyahoga Falls, Ohio 44223
 800-278-0140

Analysis Request / Chain of Custody

For Summit Environmental Technologies, Inc. use only

Client Name Mctron Technologies		Project Identification Maxxseal 100		Page	of	SET No.																				
Client Address		Project Address		<table border="1"> <tr> <td>As, Cd, Cr, Pb, Ni</td> <td>Flash Point</td> <td>Halogens</td> <td>PCBs</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>			As, Cd, Cr, Pb, Ni	Flash Point	Halogens	PCBs																
As, Cd, Cr, Pb, Ni	Flash Point	Halogens	PCBs																							
1806 Perimeter Road Greenville, SC 29605		Report To																								
Client Phone 864-380-9233		EMMILY																								
Client Fax No. <input checked="" type="checkbox"/> to Receive Results by Fax		PO Number																								
Contact Person armodaniel@mctrontech.com <input checked="" type="checkbox"/>		Quote Number																								
Sampled By Andrew McDaniel		<input type="checkbox"/> if Ohio VAP Samples																								
1 16oz container of Maxxseal 100		02/02/15	10A	X	1																					
<p style="font-size: 2em; font-weight: bold;">15020321-001 CSU</p>																										
Andrew McDaniel 2/2/15		10-28#																								
SK Campbell 2/4/15		1045																								
Rush Requested: _____ Day(s) Must be approved by Lab Manager				Notes / Comments: Any questions call Michael.																						

**Summit Environmental Technologies, Inc.
Cooler Receipt Form**

Client: McTron Technologies Initials of person inspecting cooler and samples: SC
 Date Received: 2-4-15 Time Received: 1045 Order Number: _____
 Number of Coolers/Boxes: 1 Date cooler(s) opened and samples inspected: 2-4-15
 Shipper: FED EX UPS DHL Airborne US Postal Walk-in Pickup Other: _____
 Packaging: Peanuts Bubble Wrap Paper Foam None Other: _____
 Tape on cooler/box: N N/A
 Custody Seals intact N N/A
 C-O-C in plastic N N/A
 Ice _____ Blue ice _____ present / absent / melted N/A
 Sample Temperature IR Gun #16020459 CF 0.0 °C 17.3 °C Y N N/A
 Radiological Testing Instrument serial #35127 Y N N/A
 (see page 2 for scan results)
****Use 1 sheet per sample for Radiological Testing. If sample is HOT, the Radiological Safety Officer must be notified immediately.**
 C-O-C filled out properly N N/A
 Samples in separate bags Y N N/A
 Sample containers intact* N N/A
 *If no, list broken sample(s): _____
 Sample label(s) complete (ID, date, etc.) N N/A
 Label(s) agree with C-O-C N N/A
 Correct containers used N N/A
 Sufficient sample received N N/A
 Bubbles absent from 40 mL vials** Y N N/A
 ** Samples with bubbles <6mm are acceptable. Indicate bubble size if >6mm. _____
 Was client contacted about samples Y N
 Will client send new samples Y N
 Client contact: _____
 Date/Time: _____
 Logged in by: _____
 Comments: _____

Pavement Stability in Terms of Modulus of Stiffness Units of **psi**

In Canada, and in much of North America, paving mixture stability is expressed in **pounds** at 60°C (140°F) as determined by the **Marshall test**. In this paper, pavement stabilities will be expressed in moduli of stiffness expressed in units of **pounds** per square inch (**psi**), which are read from van der Poel's nomographs [3,4].

The following table will provide the reader with a very approximate relationship between Ontario's *minimum* **Marshall** stability requirements at 60°C (140°F) for three categories of traffic and the roughly corresponding values for van der Poel's moduli of stiffness in **psi**.

ONTARIO'S MINIMUM MARSHALL STABILITIES AT 60°C (140°F), LB	ROUGHLY CORRESPONDING MODULUS OF STIFFNESS, psi
Heavy traffic 2000 (907 kg)	20 000 (137 900 kPa)
Medium traffic 1500 (680 kg)	15 000 (103 425 kPa)
Light traffic 1000 (454 kg)	10 000 (68 950 kPa)

As shown, when compared very roughly, van der Poel's moduli of stiffness values in **psi** for each of these three categories of traffic are approximately ten times Ontario's corresponding minimum **Marshall** stability requirements in **pounds**.