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To: Executive Director  
NEMA, Kampala.



Dec. 27, 2013

Dear Sir,

Re: Letter of Approval

We submit herewith the Report of Analysis conducted by the DIRECTORATE OF GOVERNMENT ANALYTICAL LABORATORY, Wandegaya.

The material under consideration is a Soil Hardener, under the commercial name "ISONEM SS", to be used, in a diluted form, on maram roads or any other dirt road, to achieve a hard dust free surface compatible for the use of vehicles. This material seals and hardens the soil within 5 to 15 cm. deep preventing water absorption after rain and the formation of potholes, so common in Uganda. Compared to the conventional maram/dirt roads method used today in Uganda, which necessitates attention and repair on a frequent basis, we propose the latest state of the art method to construct maram/dirt roads which will last 4 years maintenance free. This treatment of roads surfacing, shall undoubtedly, improve the quality of life for all living adjacent, in the cities as well as in rural areas, and enhance a dust free environment.

We kindly ask your approval for "ISONEM SS" SOIL HARDENER to be used in the industry as a safe and environment friendly product.

Sincerely yours,

Mr. Wilson Kashaya,  
Managing Director

*Building Contractors & Engineers*

*A member of Uganda National Association of Building & Civil Engineering Contractors (UNABCEC)*

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In any Correspondence on  
 this subject please  
 quote No. **GE147/13**



**DIRECTORATE OF GOVERNMENT  
 ANALYTICAL LABORATORY**  
 MINISTRY OF INTERNAL AFFAIRS  
 Plot No. 2 Lourdel Road  
 Wandegaya,  
 P.O.Box 2174  
 Kampala - Uganda

**REPORT OF ANALYSIS**

**Description of Sample**

One soil stabilizing product labeled 'ISONEM SS' Soil Hardener was received from Prime Contractors Ltd, P.O. Box 10441, Kampala on 19<sup>th</sup> December 2013 for profiling for environmental safety

**Methods of Analysis**

pH was determined using a pH Meter. Metal ions were quantified from an acidified ashed sample, at respective wavelengths, using Atomic Absorption Spectrometry technique, Shimadzu 6300. Aflatoxins were determined by HPLC technique, Shimadzu A10. *Mycobacterium tuberculosis* and Anthrax were determined using sensitivity test techniques. Chlorides were determined by UV-VIS Spectrometry technique, Shimadzu, 1601 at respective absorption wavelengths. Skin sensitivity test was done using patch test. All determinations were done in triplicate.

**Results of Analysis**

The mean analysis values are as below:

Parameter	Result
<b>Physico-Chemical</b>	
pH	4.7
Active Ingredient	Polyvinyl acetate
<b>Heavy Metals</b>	
Arsenic (mg/l)	0.02
Cadmium (mg/l)	≤0.01*
Copper (mg/L)	1.4
Cobalt (mg/L)	≤0.01*
Chromium (mg/l)	≤0.01*
Lead (mg/l)	≤0.001*
Mercury (mg/l)	≤0.001*
<b>Microbiology</b>	
Aflatoxins (ppb)	
B <sub>1</sub>	≤0.001**
B <sub>2</sub>	≤0.001**
G <sub>1</sub>	≤0.001**
G <sub>2</sub>	≤0.001**
<i>Mycobacterium tuberculosis</i>	None Reactive
Anthrax	None Reactive
<b>Radioactivity</b>	
Gross a (pci/l)	0.12
Gross b (pci/l)	0.14
Ra-226 (pci/l)	0.01
Ra-228 (pci/l)	0.01
<b>Sensitivity</b>	
Patch Skin Test	Mild Irritant

**Remarks**

1. -Detection limit, Atomic Absorption Technique, Shimadzu, 6300      \*\*      Detection limit, HPLC technique, Shimadzu, A10
2. The radioactivity levels are within normal background radiations of 10 Max Total for Gross a & b and 5 Max for Ra 226 & 228 respectively
3. Product MUST be used in accordance with label instructions
4. Results relate to sample as it is reported on as received basis

Justus Mike Ocom  
 Senior Government Analyst