PRODUCT BROCHURE

TERRALOC

SOIL MODIFICATION

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TerraLoc Synthetic Resin Hydrocarbon Binder

Is used for the purposes of creating solid bonded soil and gravel.
The Synthetic Resin Hydrocarbon Binder is cold mixed on site through a chemical reaction by mixing bitumen emulsion, synthetic resin, water and a proprietary catalyst. The mixture is added to crushed stone, natural gravels or insitu material to form a water resistant, elastic and robust layer. The product improves the compressive, tensile and shear strength including abrasion and water resistance of the materials for cable protection. The product is insoluble in water and does not leach into the environment. TerraLoc is manufactured under license in South Africa under Agrement SA
Certification. Terraloc acts as a conductor and does not isolate the heat which is dissipated by the electrical cable. TerraLoc can be mixed with insitu or onsite material or imported soil and will achieve at least a C3 rating.

We can offer training and test case results if required.

TerraLoc can achieve Wet ITS strengths in excess of 250 in accordance with (TG2 2020 Bsm designs). TerraLoc has a shelf life of 3 months or more.

Cold in-situ stabilization

What is in-situ stabilization?

Stabilization is mixing binder agents into crushed stone, natural gravel or sand in order to prevent movement under loading and resist environmental effects. In-situ relates to using the materials that are already on site. The stabilized material is surfaced with a bitumen seal.

What can it do for your projects?

- Save Money – 30% or more vs conventional methods
- Save Time – up to 3 times faster curing
- Save the environment – less material transport means less greenhouse gasses, more efficient use of bitumen products.

Where can you use it?

- Rehabilitation of existing roads
- New road construction
- Underground asset protection
- Dust control
- Vegetation control

In-situ Recycling with TerraLoc

TerraLoc is a patented mixture of bitumen emulsion, synthetic resin and water. The resin evenly improves the strength and adhesion of the bitumen to aggregate, allowing less bitumen to be used.

This mixture is mixed into existing surfaced roads or the base course of new roads and then compacted. The road is then surfaced with a bituminous seal or asphalt.

The road is rehabilitated making maximum use of local materials and in many cases can be opened to traffic within 1 day of surfacing.

In-situ Recycling with TerraLoc

TerraLoc:
Getting more out of bitumen emulsion stabilization

It works with a variety of material sources; from sands for low volume roads, natural gravel for medium volume roads, crushed stone & reclaimed asphalt for high volume.

- It adds stiffness into the pavement structure from the base course down, often meaning faster construction.
- It can often use the materials that are in-situ, meaning less materials transport (especially in urban areas where traffic delays are problematic)
- Can be easier for contractors to build than other good base materials
- Good combination of strength, flexibility and water resistance makes for an excellent base course.
- it uses no cement, which allows for early trafficking of the roads (e.g. build Friday, prime and seal on Sunday, open to traffic on Monday).
- SAPEM 2013 and Agrémént created regulatory framework to allow use. Manuals are available for design and quality control.
- Can be used in roads from 0.3MESA to over 30MESA (has carried over 50MESA in practice) (MESA = Million Equivalent Standard Axles)
- It is cold applied and is the same hazard class as standard bitumen

Product Engineering Overview

TERRALOC
Underground Asset Protection

Material Description	BSM3	BSM2	BSM1
Suitable Material +-	PI <12	G7 or better	G4 or better
Design	TG2 / SAPEM 2013 / Wirtgen Design		
Guide	Manual (as bitumen emulsion stabilization)		
Where in Pavement Structure?	Base Sub Base	Base Sub Base	Base Sub Base
Example of Application % of MDD	1,5% to 2,5% (with Sand or NG)	1,5% to 2,35% (2% avg.) (with Natural Gravel)	1,8% to 3% (2,3% avg.) (with Crushed Stone)
Behaviour	**Stress Dependent Improved Granular Material**		
Strength type & Range	ITS (24hrs soak) 60-100kpa	ITS (24hrs Soak) 100-150kpa	ITS (24hrs Soak) >150kpa
	UCS 450-700kpa	UCS 700-1000kPa	UCS 1200-3500kPa
	Triaxial (STT) Cohesion (kPa) 50 to 100 Friction Angle (°) <30	**Triaxial (STT)** Cohesion (kPa) 100 to 250 Friction Angle (°) 30 to 40	**Triaxial (STT)** Cohesion (kPa) >250 Friction Angle (°) >40
Main Benefit (vs. conventional)	Stronger or lower cost BSMs (without sacrificing quality)		

SIGMALAB
Civil Engineering Testing Laboratories

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Website: www.sigmalab.co.za

TEST REPORT

Client:	**DC Civils & Construction**	**Client Reference:**	**TerraLoc**
	P.O. Box 89192	**Order Number:**	
	Heuweloord		
	Centurion		
	0173		
Attention:	**Will Dundas**	**Date Received:**	**2020/07/17**
E-mail:	**will@dccivils.co.za**	**Date Tested:**	**2020/07/09**
Project:	**TerraLoc**	**Date Reported:**	**2020/07/21**
Job:		**Report Status:**	**Final**

SANS 3001 - NG5: Determination of in situ density using a nuclear density gauge

Site Information

Operator:	**Mpho Ramokhanye**	**Date of Compaction:**	**N/A**
Layer:		**Material Description:**	**Reddish Brown**
Depth:		**Number of Counts:**	**3**

Field Reference			Moisture Density Relationship			Field Density Data		
Test Number	Position	Testing Depth (mm)	Lab. Sample Ref.	Maximum Dry Density (kg/m^3)	Optimum Moisture Content (%)	Dry Density (kg/m^3)	Moisture Content (%)	Compaction (%)
9	CH 793 RHS	0-150	155	2271	6,8	2389	2,8	105,2
10	CH 713 RHS	0-150	155	2271	6,8	2425	3,2	106,8
11	CH 633 RHS	0-150	155	2271	6,8	2326	2,4	102,4
12	CH 553 RHS	0-150	155	2271	6,8	2342	2,4	103,1
13	CH 473 RHS	0-150	155	2271	6,8	2356	2,0	103,7
14	CH 393 RHS	0-150	155	2271	6,8	2361	2,2	104,0
15	CH 313 RHS	0-150	155	2271	6,8	2346	2,6	103,3
16	CH 233 RHS	0-150	155	2271	6,8	2342	2,7	103,1

Remarks: The tests were in accordance with Method SANS 3001 NG5

Actual moisture content readings were reported as displayed by the machine.

Standard Count Data: Density = 1636 Moisture = 659 Machine No: 18850

Sketch:

The tests were executed according to test method SANS 3001 NG5.
The results reported relate only to the positions and depths tested.
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1	CH 40 LHS	0-150	155	2271	6,8	2370	4,1	104,4
2	CH 120 LHS	0-150	155	2271	6,8	2416	2,7	106,4
3	CH 200 LHS	0-150	155	2271	6,8	2272	2,6	100,1
4	CH 280 LHS	0-150	155	2271	6,8	2347	4,7	103,4
5	CH 360 LHS	0-150	155	2271	6,8	2379	3,4	104,8
6	CH 420 RHS	0-150	155	2271	6,8	2355	3,3	103,7
7	CH 460 RHS	0-150	155	2271	6,8	2381	5,3	104,8
8	CH 540 RHS	0-150	155	2271	6,8	2485	3,5	109,4

Remarks: The tests were in accordance with Method SANS 3001 NG5

Actual moisture content readings were reported as displayed by the machine.

Standard Count Data: Density = 1665 Moisture = 689 Machine No: 18850

Sketch:

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