WETCE-HOLDINGS
REG NR: 2024/358914/07

WETCE-HOLDINGS: WSA14 – THE GAME CHANGER

WSA14 Eco Safe Formula

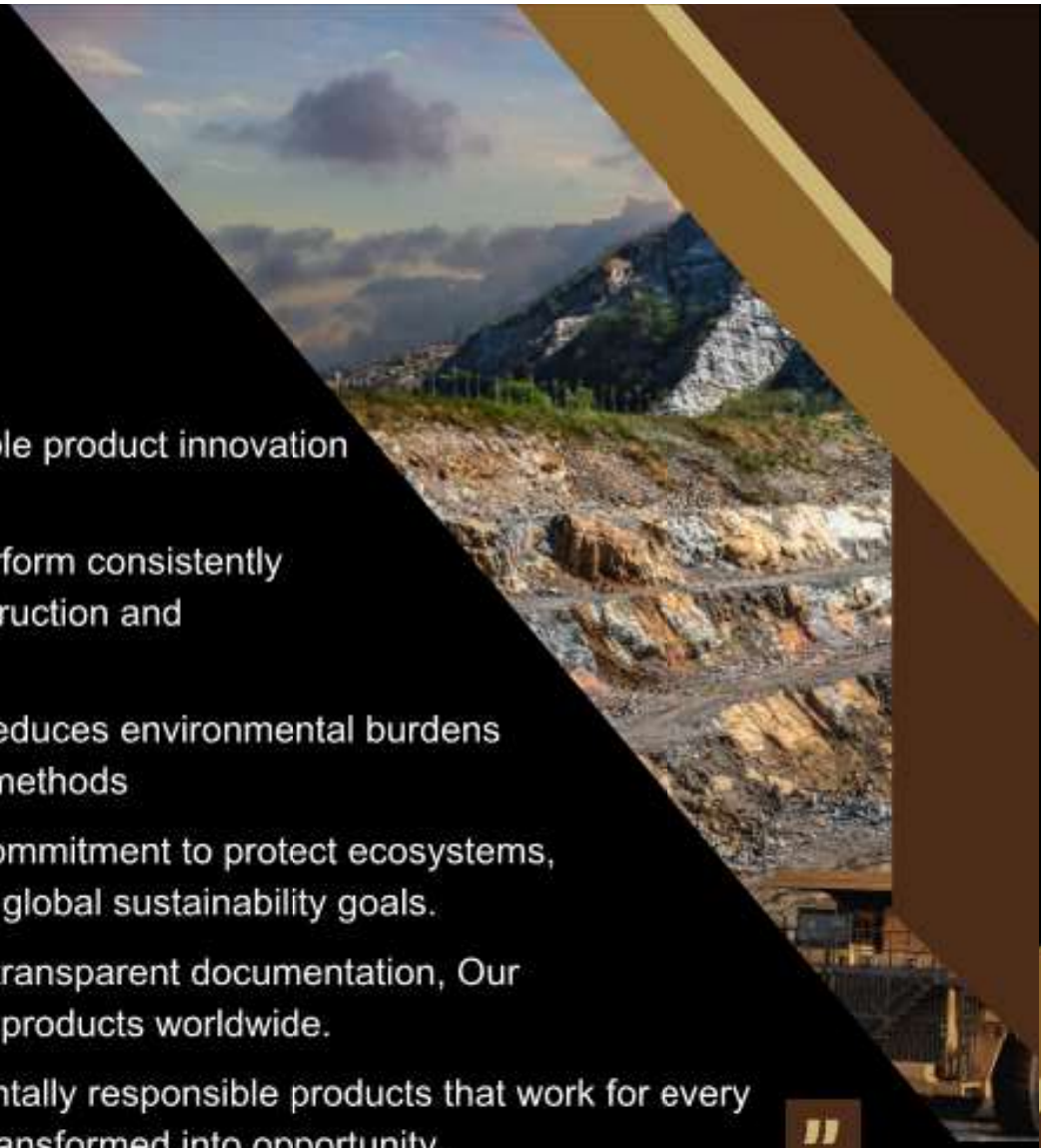
- Biochemical Soil Stabilizer
- Eco-friendly.
- Climate Smart.
- Site-Specific.

ECO FRIENDLY

Presented By :
WILLEM HEYMANS

Date :
05 Dec 2025

PRODUCT OVERVIEW: WSA14



- We are committed to advancing infrastructure through sustainable product innovation and circular economy practices.
- **Product Excellence:** WSA14 soil stabilizer is engineered to perform consistently across varied conditions, making it a universal solution for construction and development projects
- **Circular Economy:** By reusing waste materials, the company reduces environmental burdens while creating scalable, cost-effective alternatives to traditional methods
- **Environmental Passion:** Every innovation is driven by a commitment to protect ecosystems, lower carbon footprints, and deliver solutions that align with global sustainability goals.
- Global Trust: With robust compliance systems and transparent documentation, Our Suppliers ensure smooth adoption and export of its products worldwide.
- **Our vision is clear:** to deliver environmentally responsible products that work for every project, while proving that waste can be transformed into opportunity.

WHY WSA14?

: ≥70% renewable/ recycled input

- Suitable for ALL soil types
- Resistant to PH variations, Salinity, ORP, and EC
- Extended shelf life of 12 months
- Stable within a temperature range of 45-50 °C

IMPORTANCE OF CONTINUOUS SOIL TESTING

- Soil types vary significantly across different locations
- Testing at each site is crucial for effective stabilisation
- Formulation must be adjusted based on soil conditions

OVERVIEW OF WSA-14

Every road stabilization project is a distinct challenge, requiring a **tailored approach.**

- Through **extensive testing,**

  environmental analysis and custimized

  formulations we deliver **long-lasting,**

  high-performance solutions that meet

  the demands of each unique site.

"Source: WETCE HOLDINGS (PTY) LTD — WSA 14. Used under licence."

EXAMPLE:

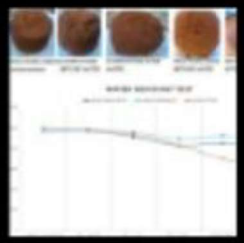
WSA14+MATRIX “BA” for High Plasticity Clay Soils

Formulation for Clay Soils

The WSA14 formulation is engineered for high plasticity clay soils, targeting their unique structural needs.

Cracking Reduction

This formulation significantly reduces cracking in high plasticity clay enhancing soil durability and performance.



Improved Drainage

By improving drainage, WSA14-XBS/9 enhances the overall stability of high plasticity clay soils, preventing waterlogging.

Labco

sanas T0227

Email: info@labco.co.za ■ www.labco.co.za

Phone: +27 (0)41 364 1290 ■ Fax: +27 (0)41 364 1291

Port Elizabeth (Head Office) ■ 538 Pickering Street, Newton Park, 6045. ■ PO Box 10114 Linton Grange 6015

“Source: WETCE HOLDINGS (PTY) LTD – WSA 14. Used under licence.”

Job Card No: P9299

Page No. : 2 of 2

Laboratory No.	P9299/1	P9299/2
Field Number	-	
Client Reference	Sand Test	PA
Depth (m)	-	
Position	Treated Material	Un-Treated Material
Coordinates	-	-
	-	-
Description	Clayey Material	Clayey Material
Atterberg Limits	<0.425mm	<0.425mm
Liquid Limit (%)	32	34
Plasticity Index (%)	7	14
Linear Shrinkage (%)	3.0	5.0

3. Conclusion

Après analyse des matériaux stabilisés avec le produit, nous sommes arrivées en déduire que l'amélioration de la portance est de 42.4%, que ce dernier est acceptable dans le domaine de génie civil.

Fait à Lubumbashi, le 02 /09/2025

DJENE MAMBWE Franck	Michel MALONDA MAYELE
Tech en charge de Rech. Géotech.	Chef d'Antenne Laboratoire

LABORATOIRE NATIONAL DES TRAVAUX PUBLICS
ANTENNE DE LUBUMBASHI
PROVINCE DU HAUT-KATANGA

OR

DOSSIER N° OR/A.L.N.T.P/ 032 /2025

ETUDE EXPERIMENTALE DU PRODUIT
VENANT DE L'AFRIQUE DU SUD

SEPT 2025

ESSAI CBR

Client: OFFICE DES ROUTES
Chantier: EXPERIENCE LABO
Echantillon: LATERITE JAUNATRE
Date de l'essai: 02/09/2025

[illegible]	55	25	10
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
Gonflement (%)	[illegible]	[illegible]	[illegible]
Indice C.B.R	75	71	61
Densité sèche	[illegible]	[illegible]	[illegible]

Densité maximale	[illegible]
95 % de l'OPM	[illegible]
Indice C.B.R. à 95 % de l'OPM	[illegible]

CONGO TEST

"Source: WETCE HOLDINGS (PTY) LTD — WSA 14. Used under licence."

Congo: Recognition in the Media

Grandeur News Magazine (Edition 078, Jan 2026) — Kasenga Road Project featuring WETCE-Holdings' soil stabilization product.

- *Grandeur News Magazine* (Edition 078, January 2026, pp. 14–20) reported on the Kasenga road rehabilitation project.
- The article highlighted the role of South Africans using **WETCE-Holdings' soil stabilization product**.
  - Direct quote: *"The South Africans are on the ground in Kasenga, working with their product to stabilize the road."*
- This acknowledgment reinforces our contribution to sustainable infrastructure development in the DRC.

BOTSWANA SAND AND DESERT SOILS: VISIT BY ROADS DEPARTMENT - BOTSWANA

TEL: 3958500
Website: www.gov.bw
FAX No: 3913303

DEPARTMENT OF ROADS
MAINTENACE
PRIVATE BAG 0026
GABORONE
BOTSWANA

MINISTRY OF TRANSPORT AND INFRASTRUCTURE

Date: 4th September 2025

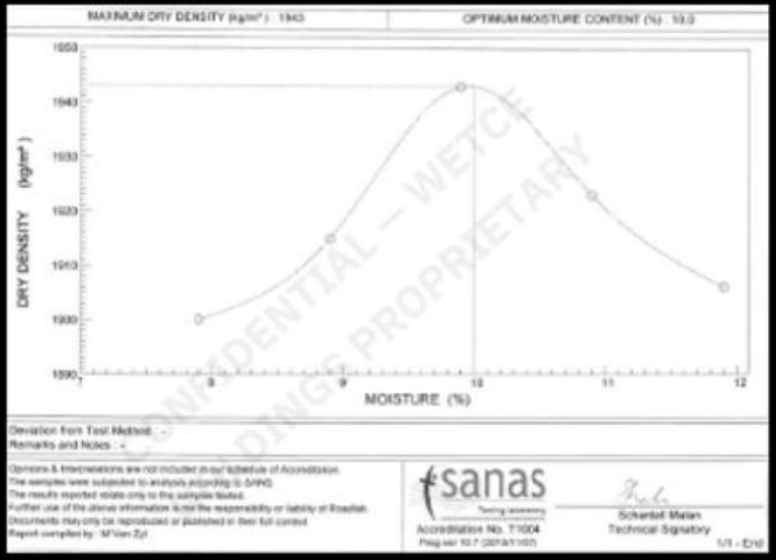
TO: The Managing Director
Consortium Trito (Pty) Ltd
P. O. Box 444
Ramotswa

TEL: 71334499

Dear Sir

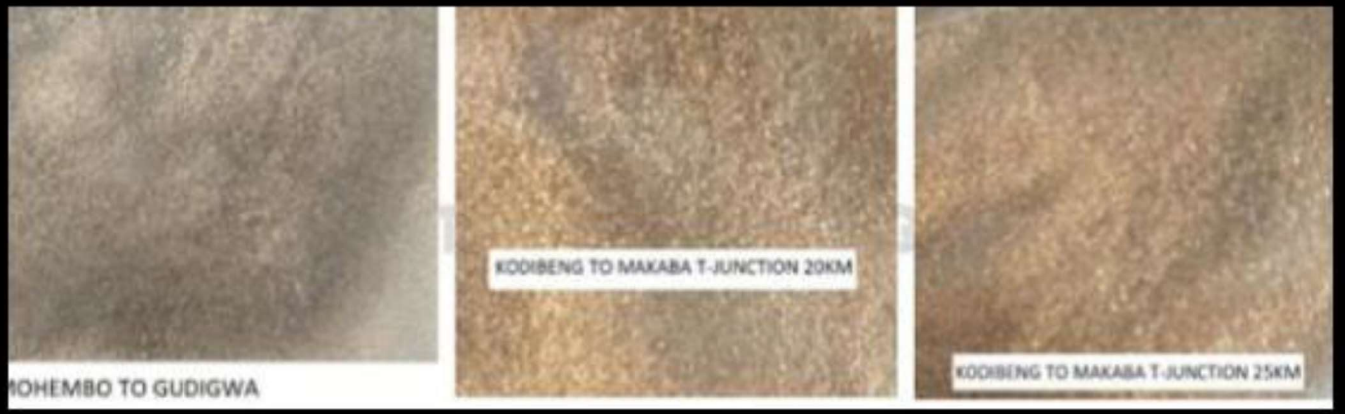
INVITATION OF ROADS MAINTENANCE OFFICERS TO APPRECIATE CONSTRUCTION SITE ON GRAVEL STABILIZING AGENTS

We refer to our meeting held on the 4th September



"Source: WETCE HOLDINGS (PTY) LTD — WSA 14. Used under licence."

BOTSWANA SAND SOIL TESTS



"Source: WETCE HOLDINGS (PTY) LTD – WSA 14. Used under licence."

SAND STABILIZATION

NEW IMPROVED WSA14TSB FORMULA

FROM SAND

ALMOST A BRICK

A BRICK BUT FRAGILE

BRICK WITH WSA14Tsb

IMPROVED BRICK WITH
WSA14Tsb + MATRIX

WSA14
ECO SAFE
FORMULA

Independent Government Reference:

NORTHERN CAPE ROADS & PUBLIC WORKS

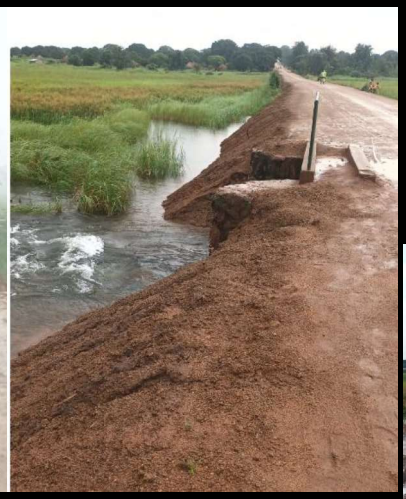
✓ *"During the evaluation, both Terrazyme and the unknown stabillzing agent... failed to withstand the environmental stresses, showing deterioration within 2–5 weeks of application. In contrast, WETCE WSA14 demonstrated exceptional resilience, maintaining strength and durability throughout the testing period."* – Blessing Pitso PR. Techni. Eng MSAICE)

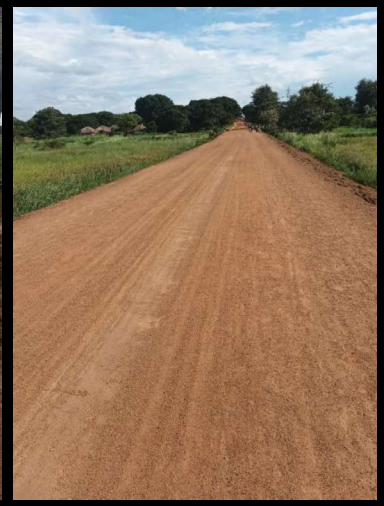
✓ *"WETCE WSA14 is now the sole product recommended for use in our project, owing to its proven ability to perform reliably under diverse and challenging conditions."*


WSA14
PROJECTS COMPLETED
ROAD STABILIZING

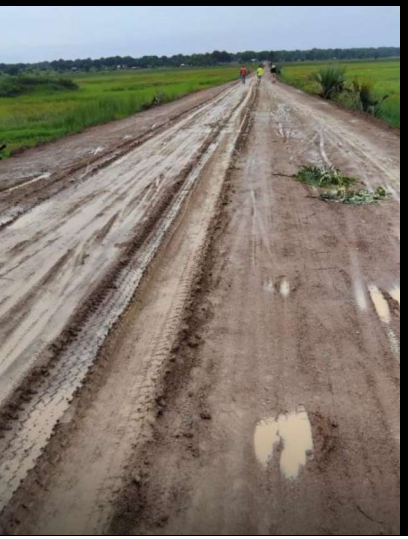
WETLANDS



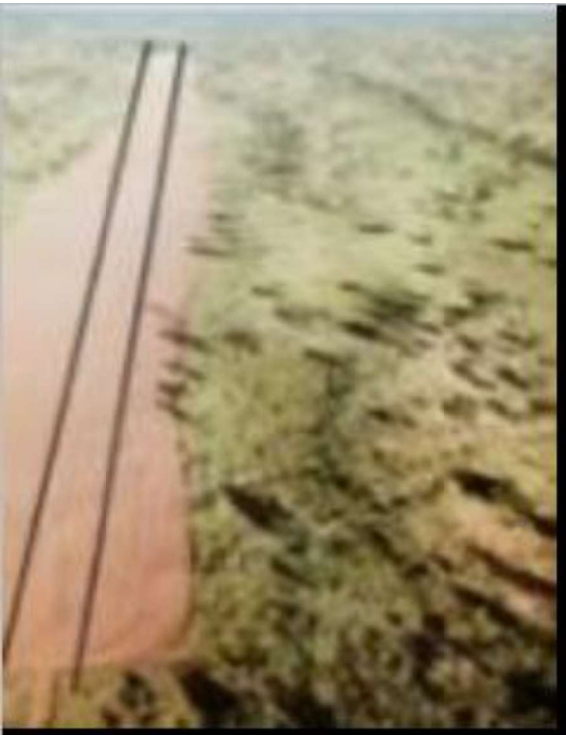




"Source: WETCE HOLDINGS (PTY) LTD – WSA14. Used under licence."







SAND SOILS CHALLENGES INCLUDE:

- Sandy and clay-rich soils –
- Seasonal rainfall and flash flooding
- Wet and dry conditions
- Heat and cold conditions
- Dust control in dry months
- Expansive clays

"Source: WETCE HOLDINGS (PTY) LTD – WSA 14. Used under licence."

RESOLVED AIRSTRIP FAILURE AND DEFORMING

- The application of WSA-14

significantly improved road stability, reduced maintenance costs, and extended the lifespan of the airstrip 1. This demonstrates the effectiveness of WSA-14 in stabilizing sandy soils and enhancing infrastructure durability 1.

WSA14
ECO SAFE FORMULA

SAND ROADS STABILIZING






"Source: WETCE HOLDINGS (PTY) LTD – WSA 14. Used under licence."

GRAVEL ROADS – STABILIZING GRAVEL ROADS OF DIFFERENT CBR GRADINGS AND INDICATORS

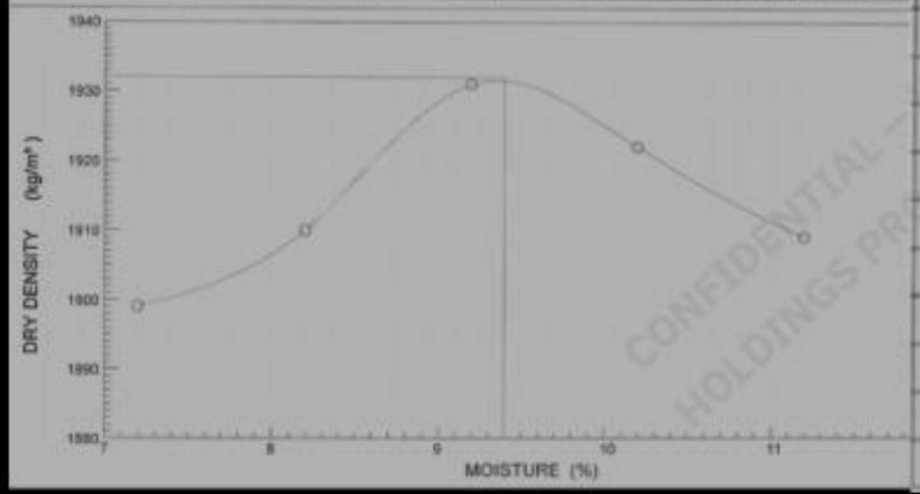
"Source: WETCE HOLDINGS (PTY) LTD – WSA 14. Used under licence."

CALCRETE

"Source: WETCE HOLDINGS (PTY) LTD — WSA 14. Used under licence."

DRY DENSITY (kg/m³)	1899	1910	1931	1922	1909
MOISTURE (%)	7.2	8.2	9.2	10.2	11.2

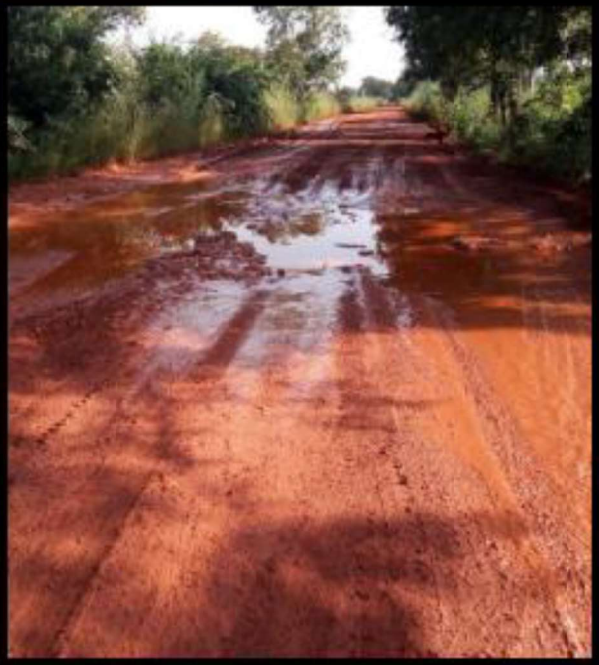
MAXIMUM DRY DENSITY (kg/m³) : 1932 — OPTIMUM MOISTURE CONTENT (%) : 9.4



SS13551B	
Sampling bags	
80kg	
Slightly Moist	
Borrow Pit & Base Layer	
White Silty Sand & Calcrete Stones	
SV0.05 & CNT	
Askham 25km Road & Flikties Farm	
01/08/2025	
01/08/2025	
-	
White Silty Sand & Calcrete Stones	

CLAY ROADS

BEFORE AND AFTER



GRAVEL ROADS

"Source: WETCE HOLDINGS (PTY) LTD — WSA 14. Used under licence."

WSA14 STABILIZING FOR SURFACE ROADS – Cape seal and Ashphalt roads

"Source: WETCE HOLDINGS (PTY) LTD — WSA 14. Used under licence."

2. Application

Process Panels

Step 1: Scarify & pre-wet

Step 2: Spray WSA-14

Step 3: Mix with grader

Step 4: Compact

Optional:

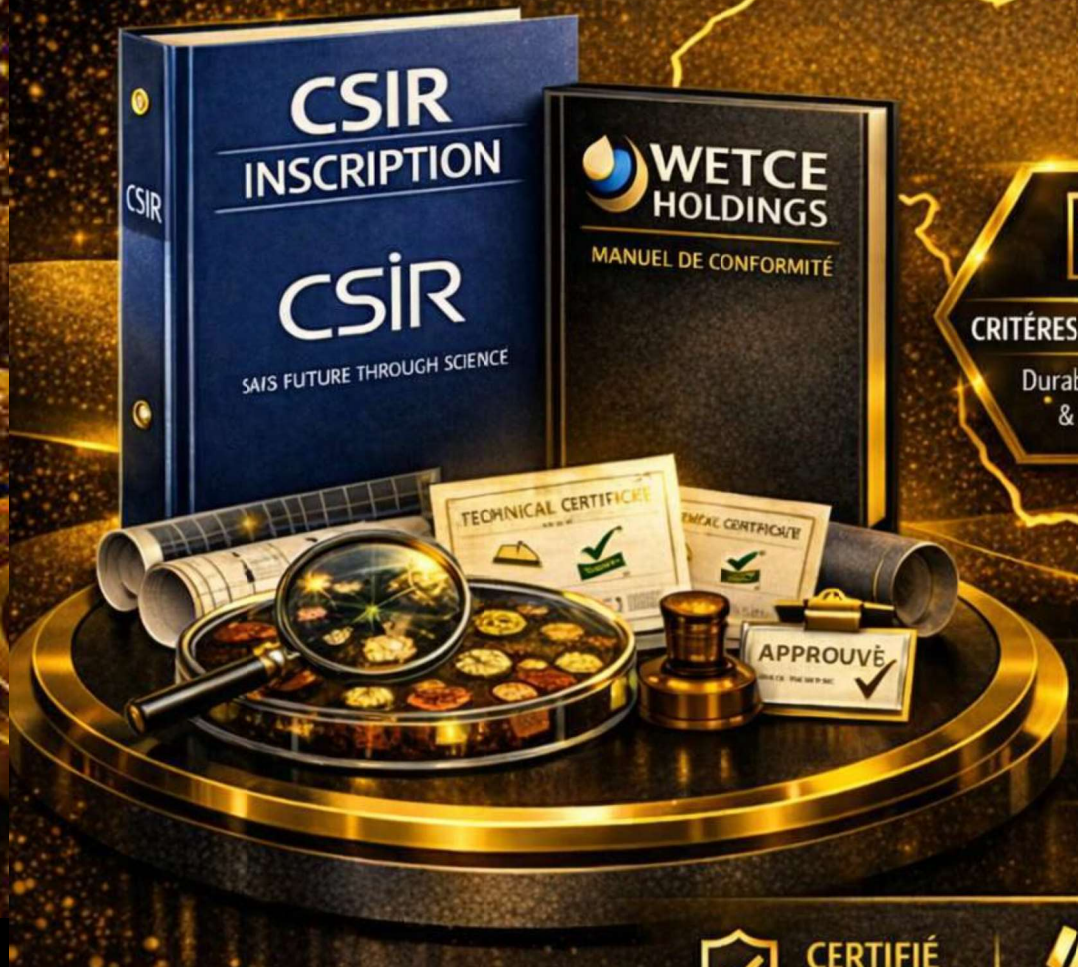
Method 1 : Water Boucher conventional mixing

Method 2 : Mechanical mixing with recycler


WSA14
ECO SAFE FORMULA
CERTIFICATION
TEST RESULTS

ACCORD CSIR AFRIQUE DU SUD

ALIGNEMENT DE CERTIFICATION



CRITÉRES DE PERFORMANCE
Durabilité, Sécurité & Compliancé

CRITERES DE PERFORMANCE
Durabilité, Sécurité & Complimite

SURVEILLANCE QUALITÉ
Audits & Inspections Reguliers

- ✓ Évaluation Technique
- ✓ Tests & Analyses Accrèditès CSIR
- ✓ Durabilité, Sécurité & Comformitè

CERTIFIÉ | INDUSTRIE | MARCHÉ

Geotechnical & Performance Testing

COMPACTION & CBR ANALYSIS

- Improved CBR Values
- Reduced Moisture Susceptibility
- Enhanced Layer Durability

PERFORMANCE CRITERIA

Consistent with CSIR / TMH

97.4% AVERAGE RELATIVE COMPACTION

DENSITY • MOISTURE STABILITY • BEARING CAPACITY

MICROBIOLOGICAL & HEAVY METAL

SAFETY TESTING

- Certificates: COA2026 56 & COA2026 57
- No E. coli, Salmonella, Pseudomonas, Yeast or Mould detected.
- All metals below quantification limits
  As, Cd, Cr, Cu, Pb, Hg, Ni, Se, Zn, Co)
- Manganese: All samples < 10 µg/L (Below Detection Limit)

NVIROTEK ADVANCED SCIENTIFIC
TALBOT LABORATORIES
sanas ACCREDITED


AQUATIC TOXICITY
ENVIRONMENTAL SAFETY TESTING
Certificates: COA2026 56 & COA2026 57
TU_a values confirm Class I – No Acute Hazard
0% mortality in fish and Daphnia
No algal inhibition: Stimulation observed
SANAS
SANAS
CERTIFICATE OF ANALYSIS
COA2026 56
COA2026 57
WSP
GROUP AFRICA
WSP
GROUP AFRICA
sanas
ACCREDITED

OFFICE DES ROUTES

OR

LABORATOIRE NATIONAL DES TP

PROVINCE DU KATANGA

PROTOCOLE D'ESSAI N°2025

Client : OFFICE DES ROUTE
Destination : EXPERIENCE
Intervention : Test sur la latérite
Essais demandés : PORTANCE.
Matériaux analysés : latérite jaunâtre.

1. Introduction

L'an deux mille vingt - cinq, deuxième jours du mois de septembre, l'Antenne du Laboratoire National des Travaux Publics/Haut-Katanga a procédé aux analyses des matériaux.

2. Résultat

Il a été réalisé les essais suivants :

1) Proctor Modifié (1)
2) Californian Barang Ratio (2)
3) Limite d Atterberg (1)
4) Analyse granulométrie (1)

Les résultats des essais de Laboratoire sont consignés dans le tableau ci-dessous :

Complété par les graphiques en annexes n° 1 à 4 du présent protocole

Provenance	Labo
Nature du matériau	Latérite jaunâtre
Compactage -Densité sèche max. (T/m³) -Teneur en eau OPM (%)	 1.97 13.31
Portance -Densité max à 30 % de l'OPM (T/m) -Indice CBR à 30 % de l'OPM à 24h l'air libre Sans produit Indice CBR à 30 % de l'OPM à 24h l'air libre Avec produit	 1.87 32.3 76.2
Limite d Atterberg Indice de plasticité	 21.13
Analyse granulométrie % de fine	 25

3. Conclusion

Après analyse des matériaux stabilisés avec le produit, nous sommes arrivées en déduire que l'amélioration de la portance est de 42.4%, que ce dernier est acceptable dans le domaine de génie civil.

Fait à Lubumbashi, le 02 /09/2025

DJENE MAMBWE Franck
Tech en charge de Rech. Géotech.

Michel MALONDA MAYELE
Chef d'Antenne Laboratoire

TELEPHONE: 3657900
FAX: 3918983

DEPARTMENT OF ROADS
MAINTENANCE
PRIVATE BAG 0026
GABORONE

MINISTRY OF TRANSPORT AND INFRASTRUCTURE

REF: RD 4/2/1 LXXXI (175) 5 November 2025

Consortium Trito (Pty) Ltd
P O Box 444
Ramotswa

Dear Sir,

USE OF STABILIZED CALCRETE AS ROAD BUILDING MATERIAL

Calcrete is a calcium carbonate-rich material commonly found in arid and semi-arid regions. It forms through the precipitation of calcium carbonate within the soil profile, resulting in hardened layers or nodules. While calcrete is abundant and locally available in many regions, its engineering performance as a road or construction material is often limited due to variable strength, plasticity, and durability.

To improve its mechanical properties, stabilisation techniques are employed—transforming naturally weak calcrete into a strong, durable material suitable for road base, subbase, or building applications. Trito Consortium (Pty) Ltd introduced WAS14/BA advanced soil stabilizer chemicals as a solution to increase the marginalized soil such as calcrete properties. The stabilizer has the capabilities of improving strength and bearing capacity as well as enhancing durability against weathering and water ingress. This will result in an increase in resistance to traffic loads in pavement applications.

The use of powder calcrete in road construction normally classified as G6 to G10 in Botswana is associated with several performance challenges. Powder calcrete often have high plasticity index, moisture-sensitive, and is highly variable in quality across different borrow pits. This could result in pavement failures such as rutting, loss of shape, and early distress, especially under heavy traffic loads and seasonal rains. Powder calcrete sample (G6) was given to Trito Consortium (Pty) Ltd for analysis with the possibility of strength enhancement. The test was done, and the UCS test results were indicated under Table 1.

UCS test results

Curing period	Results (MPa)	Class
7 days	0.76	C4

Table 2: DCP Test results for some selected sections along Askham road

Age	DN/base	CBR %
5 days	2.30	142
3 months	1.01	298
2 years	0.49	419

The unpaved road was subjected to the DCP test and the results were as Table 2. The tested sections performed exceptionally well and there were to two weeks, a month and two years. The results suggest that the stabilizer gains strength with time. The agents could even perform far much better if used to stabilize the G5 calcrete since such calcrete could be improved material could be at C2 as per TRH 14 catalog.

Yours Sincerely,

Mphetang Mmolawa
Acting Director

ROADLAB

Kathu
8 Kalk Street
P.O. Box 827, Kathu
Tel: 053 723 1802 Fax:
Email: [illegible]@roadlab.co.za
Web: www.roadlab.co.za

Job Request No.: RS15007
WETCE Holdings
1467 Kinston Road
Marina Martinique
Jeffreys Bay
Attention: Willem Heymans

Client Ref No.: -

Date Reported: 21/08/2025

Project: Askham 25km Road

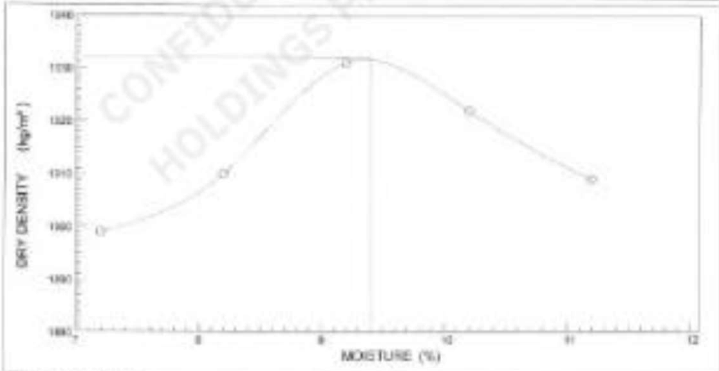
Test Report: Determination of Maximum Dry Density and Optimum Moisture Content

SANS3001: GR20, GR30

SAMPLE NO.	[illegible]
CONTAINER FOR SAMPLING	Sampling bags
SIZE / APPROX. MASS OF SAMPLE	60kg
MOISTURE CONDITION OF SAMPLE	Slightly Moist
LAYER TESTED / SAMPLED FROM	Borrow Pit & Base Layer
MATERIAL DESCRIPTION	White Silty Sand & Calcrete Stones
HOLE NO. / km / CHAINAGE	SV0.05 & CNT
ROAD NO.	Askham 25km Road & Yiekas Farm
DATE RECEIVED	01/08/2025
DATE SAMPLED	01/08/2025
CLIENT MARKING	
COLOUR AND TYPE	White Silty Sand & Calcrete Stones

POINT NO.	1	2	3	4	5			
DRY DENSITY (kg/m³)	1899	1910	1931	1922	1909			
MOISTURE (%)	7.2	8.7	9.2	10.2	11.2			

MAXIMUM DRY DENSITY (kg/m³): 1932 | OPTIMUM MOISTURE CONTENT (%): 9.4



Deviation from Test Method: -
Remarks and Notes: Stabilised with 45m/kg of Ulexos Stabilising agent. Client requested samples to be combined.

Opinions & Interpretations are not included in our scope of work. [illegible]

Scharnell Melan
Technical Signatory

Page 1 of 1 – End

ROADLAB

Kathu
8 Kalk Street
P.O. Box 827, Kathu
Tel: 053 723 1802 Fax:
Email: [illegible]@roadlab.co.za
Web: www.roadlab.co.za

Job Request No.: RS15007
WETCE Holdings
1467 Kinston Road
Marina Martinique
Jeffreys Bay
Attention: Willem Heymans

Client Ref No.: -

Date Reported: 21/08/2025

Project: Askham 25km Road

Test Report: Determination of Maximum Dry Density and Optimum Moisture Content

SANS3001: GR20, GR30

SAMPLE NO.	[illegible]
CONTAINER FOR SAMPLING	Sampling bags
SIZE / APPROX. MASS OF SAMPLE	30kg
MOISTURE CONDITION OF SAMPLE	Slightly Moist
LAYER TESTED / SAMPLED FROM	Borrow Pit & Base Layer
MATERIAL DESCRIPTION	White Silty Sand & Calcrete Stones
HOLE NO. / km / CHAINAGE	SV0.25 & CNT
ROAD NO.	Askham 25km Road & Yiekas Farm
DATE RECEIVED	01/08/2025
DATE SAMPLED	01/08/2025
CLIENT MARKING	-
COLOUR AND TYPE	White Silty Sand & Calcrete Stones

POINT NO.	1	2	3	4	5			
DRY DENSITY (kg/m³)	1900	1915	1940	1925	1908			
MOISTURE (%)	7.8	8.9	9.9	10.9	11.9			

MAXIMUM DRY DENSITY (kg/m³): 1940 | OPTIMUM MOISTURE CONTENT (%): 10.0

Deviation from Test Method: -
Remarks and Notes: -

Opinions & Interpretations are not included in our schedule of Accreditation. [illegible]

sanas
Accreditation No. T1004

Scharnell Melan
Technical Signatory

1/1 - End

Labco

Port Elizabeth (Head Office) ≡ 53B Pick

Job Card No: P9299

CALIFORNIA BEARING RATIO

Laboratory No.	P9299/1	P9299/2
Field Number	-	-
Client Reference	Sand Test	PA
Depth (m)	-	-
Position	Treated Material	Un-Treated Material
Coordinates	-	-
	-	-
Description	Clayey Material	Clayey Material
Additional information	-	-
Calcrete/Crushed	-	-
Stabilizing Agent	-	-

Sieve Analysis (Wet preparation)

Percentage Passing		
100 mm		
75 mm		
63 mm		
50 mm		
37.5 mm		
28 mm		
20 mm		
14 mm		
5 mm		
2 mm		
0.425 mm		
0.075 mm		
Grading Modulus		

Soil Mortar Analysis

Coarse Sand		
Coarse Fine Sand		
Medium Fine Sand		
Fine Fine Sand		
Silt and Clay		
Coarse Sand Ratio		

Atterberg Limits	<0.425mm	<0.425mm
Liquid Limit (%)	32	34
Plasticity Index (%)	7	14
Linear Shrinkage (%)	3.0	5.0

Contact & Call to Action

Buildsmarter, comply sustainably with
WETCE-Stabilizer WSA-14
Contact us for more information today!

WILLEM HEYMANS
Tel: +27 638472009
Email:
tender@wetce-holdings.co.za