

PERMA Δ -ZYME[®]

B I O - C O M P A C T O R

PERMA Δ -ZYME.
PLATINUM BG ALLIANCE LTD.

SUBSTRATA
SOLUTIONS POWERED BY ENZYMES

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CONTENTS

Most people look at the pavement and think "ROAD" because that is what shows that is what they see and feel. With this attitude the end result is that they end up relying too much on the pavement without considering the other more important aspects that should go into any road project. We would like to reiterate the fact that WE are not looking at the road being a pavement. A road is a system of which the pavement is the top part much like the roof on a house is the top of a complete system of foundation, frame, walls, roof, etc that make up the whole.

What we set out to achieve is that the selected kind of roads will have good functionality and good lifespan for this we need first to ensure good base and good drainage, thus we do NOT rely on the pavement for strength but rather for consolidation of the surface aggregate such that there is no mud in the wet season and no dust in the dry season.

Also we understand the bearing surface to be paved or unpaved requires better load bearing, which can be accomplished using PermaZyme Bio-Compactor.

Product Review	2
Dirt Road Construction	3
Paved Road Construction	4
Road Construction Process	5
Road Construction Process(cont.)	6
Key Applications	7
Cost Comparison	8
Project Proposal	9
Pictorama	10
Test Results	11



Product Overview

Reduce Construction Costs

The original Perma-Zyme is a soil stabilizer that produces bonded, high-density dirt road surfaces with lifespans exceeding 10 years. Perma-Zyme uses native soils, therefore it reduces the need to import material and reduces project costs to a fraction of that associated with conventional road construction when used as the foundation in surface dressing or asphalt-based roads.

Perma-Zyme is a user- and environmentally-friendly compound that requires no special tools to apply. Perma-Zyme's unique permentation™ process occurs on its own—all you need is a blade, mixer/reclaimer, water truck, and roller. And, because native soil can be used, there's no need to import additional material.

Enzyme-Driven Catalytic Bonding

Perma-Zyme is an enzyme based soil stabilizer designed to harden soil particles into cement-like material while improving dust control. When mixed with water and applied during compaction, Perma-Zyme acts upon the soil's organic fines and produces a strong cementation effect to produce a durable, water-resistant mix that can be used as a sub-base or primary surface.

Eco-Friendly

Perma-Zyme is a natural soil stabilizer, it is manufactured with organic compounds that treat and solidify soil in an environmentally-conscious manner. It's completely non-toxic, organic, 100% natural, and roads last longer than when using traditional materials. Perma-Zyme will aide in dust control when used on dirt roads thus decreasing the dust in the environment.



Properties modified by the stabilization process:

- o Increased compressive strength: the PermaZyme acts as a catalyst to accelerate and strengthen road material bonding. The PermaZyme creates a denser, more cohesive and stable soil.
- o Reduced compaction effort and improved soil workability: Lubricates the soil particles. This makes the soil easier to grade and allows the compactor to achieve targeted soil density with fewer passes.
- o Increased soil density: Helps reduce voids between soil particles by altering electrochemical attraction in soil particles and releasing bound water. The result is a tighter, dryer, denser road foundation.
- o Lowered water permeability: A tighter soil configuration reduces the migration of water that normally occurs in the voids between particles. It produces a greater resistance to water penetration deterioration.

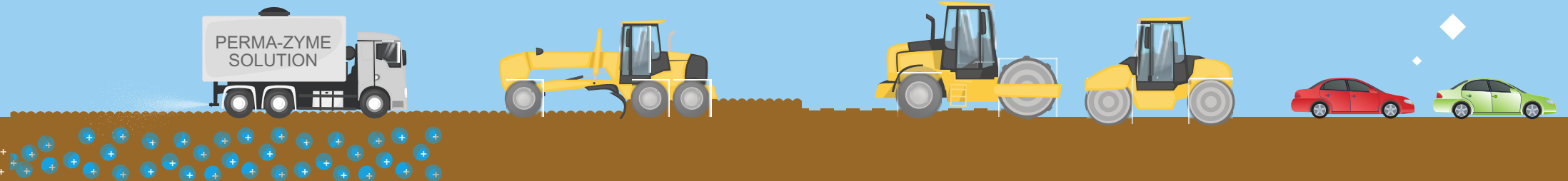
DIRT ROAD CONSTRUCTION WITH

PERMA-ZYME[®]

B I O - C O M P A C T O R

Perma-Zyme is known for its ability to harden clay particles, thus creating a concrete-like surface perfect for dirt roads that has a long lifetime, often in excess of 10 years. Perma-Zyme's proprietary permentation™ process works by bonding the clay particles in a way available nowhere else on the market today.

- ★ Only standard road construction equipment required
- ★ Concrete-like surface when cured
- ★ Greatly reduces dust
- ★ Surface is capable of handling vehicles of all shapes, sizes, and weights
- ★ Compatible in a variety of climates
- ★ Very stable base, no shifting or failing
- ★ Top coats last exponentially longer
- ★ Use of native soil introduces large cost savings
- ★ Non-toxic, non-hazardous, environmentally friendly



PAVED ROAD CONSTRUCTION WITH

PERMA-ZYME[®]

B I O - C O M P A C T O R

One of the most expensive parts of traditional road construction is the base because the old material must be hauled out and new aggregate trucked in. By using Perma-Zyme you can use the native soil as the road base which reduces the cost up to 70 percent.

For paved roads, stabilizing the base and/or sub-base layer with PermaZyme:

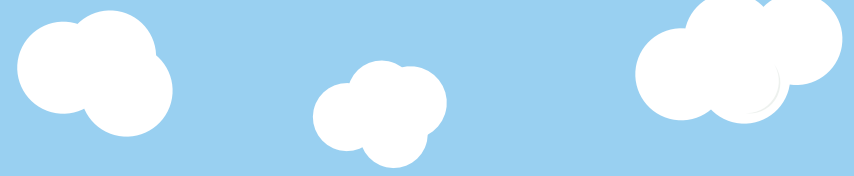
- a) Improves the soil structure sufficiently to achieve confirmed savings of greater than 50% in paved road construction costs.
- b) Strengthens the road structure of highways needing repaving and eliminates the need to remove and dispose of old asphalt. Recycling and stabilizing asphalt increases structure strength two to three times.
- c) Strengthens base layers and sub-base layers in preparation for surfacing operations.
- d) Increases the capacity of the road surface to support heavy traffic loads.
- e) Reduces such common road surface problems as cracking and surface loosening.
- f) Reduces the cost of purchasing and transporting construction materials for road reconditioning by reusing in-situ materials and upgrading and improving poorer quality local soils.
- g) Extends the useful life of asphalt and concrete road surfaces and stabilizes highway road shoulders.



ROAD CONSTRUCTION PROCESS WITH

PERMA-ZYME[®]

B I O - C O M P A C T O R



1 Soil Test



Ideal soils have at least a 15% clay content.

2 Calculate



33 Cu.M³

Typical roads constructed with Perma-Zyme are 150mm deep.

3 Supply/ Technical Assistance
Platinum BG Alliance Ltd

4 Commence Construction



45°F



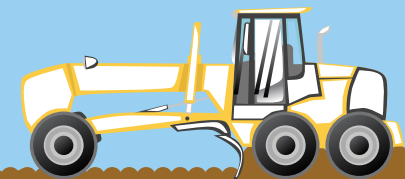
Excavate your future road by using a Grader to rip and mix the soil. Ensure the soil has been excavated to the desired depth of the road.

5 Apply Perma-Zyme

Apply Perma-Zyme on the soil using a water truck.

6 Mix The Soil

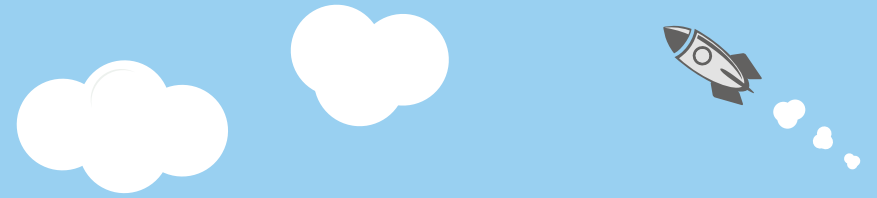
Use a blade attachment on a grader to mix and coat the soil with the Perma-Zyme solution.



ROAD CONSTRUCTION PROCESS WITH

PERMA-ZYME[®]

BIO-COMPACTOR



7 Compaction

Using a Compactor, compact the soil in 3-6" lifts. Once the soil has reached nearly optimum compaction, use a Drum Compactor to complete the compaction and leveling.

8 Let the unique Permentation[™] Process Begin

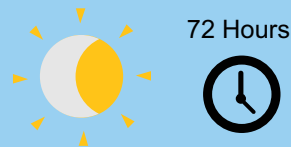
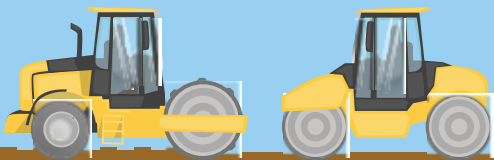
Once the soil has been compacted, the road is ready for light traffic. The soil will be cured within 72 hours.

9 Apply a Top Coat (Optional)

To apply a top layer to the road such as chipseal or asphalt, you would follow the traditional procedures for those products. Prior to the application, wet the soil lightly with a highly diluted (10,000 parts water to 1 part Perma-Zyme) mix.

10

Celebrate!



Key Applications

Anyone who wants to take advantage of cost savings, expedited road building, and lower environmental impact can benefit with PERMAZYME. It is easy to apply and highly suitable for a variety of road building applications.



Road Building

No matter what state the national economy is in, PERMAZYME provides the needed cost-savings solutions for local and broad infrastructure projects.



Rural Roads

For ecologically sensitive projects that seek environmentally safe product and cost saving processes to keep their projects green, PERMAZYME becomes an easy choice.



Real Estate Development

PERMAZYME provides deep value in accelerating building time, and reducing complexity and time to market, while making projects more attractive to buyers, investors and financial institutions.



Mining Roads

PERMAZYME makes it possible to build hard surface trafficable road ways in areas using only locally available natural materials and light construction equipments with a bearing capacity for heavy loads



GREEN ENERGY PROJECTS

With its reduced environmental footprint, cost savings and rapid road construction, PERMAZYME is the natural choice for access roads in the green energy market.



FARM ROADS

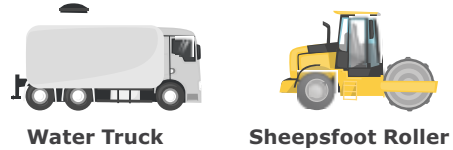
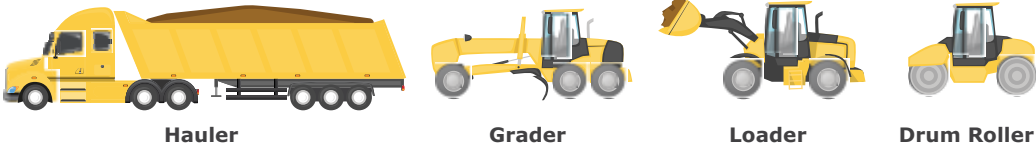
Farm roads provide the most important means of accessing farms for crop harvesting and movement to urban areas. They should be placed and maintained with extreme care to prevent any possible negative impact on soil or ecological balance.

This easy-to-apply product is especially appropriate for use at remote sites where supplies of road-building materials such as asphalt, tar, aggregate and concrete are not locally available. Roads will shed water, reduce dust, endure all kinds of weather conditions and limited maintenance. The target area for PermaZyme Bio-Compactor are satellite town access and secondary roads, council area roads, rural, dirt, unpaved road networks, trailer parks, car parking lots, real estate and private estate developments, land pavement, pedestrian pathways, access roads, airstrips, embankment strengthening, dam stabilization, ponds, landfills, dust reduction, large scale pavement, area stabilization, railroad, floor stabilization, pavement security and various other applications. - Construction of Trafficable - Roadways - Heliports - Landing Strips - Tennis Courts - Pond Liner CEB Brick.

COST COMPARISON / TRADITIONAL

Construction with Asphalt (1 Km long)

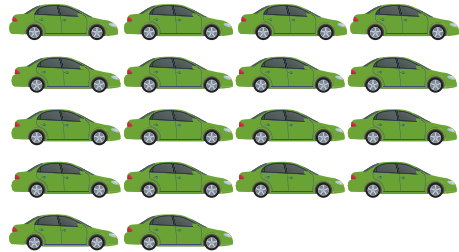
Equipment Required



Material Required
Aggregate



Days to Completion



18 Days

Cost



COST COMPARISON / PERMA-ZYME

Construction with Surface Dressing (1 Km long)

Equipment Required

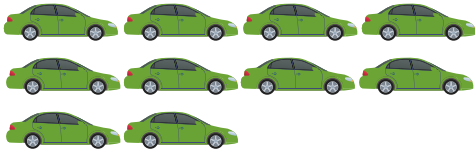


Materials Required

Perma-Zyme



Days to Completion



10 Days

Cost



PROJECT PROPOSALS

Once soil properties have been investigated and the required quantity of material has been determined, should a client desire to use the engineering services proposed, a pricing proposal can be developed and submitted for client evaluation. Projects can be priced by the kilometer or any other unit of measure like sq.m. In all cases, it will be in the best interest of the client to supply all construction equipment and on-site labour.

Platinum BG Alliance Ltd is engaged in the construction industry therefore we have available to us and can arrange for the support of a registered professional Roadway team including our Soil Consultants should a prospective client require technical assistance.

Our Sales Policy is a 100% payment for the product, application and plus a Client Service Assistance fee of within 7.5%-15%. Any sale of PermaZyme Bio-Compactor requires that either our team or some other type of road building expertise be utilized on each road-building project. This policy is to ensure the proper utilization of the product and to assure client satisfaction.

In order to insure a successful conclusion is reached on every project, company policy requires that we initially provide some type of engineering support service with each sale of material.

With the final compaction must be equal to or > 95% of the theoretical maximum soil density, for this reason, we are willing to provide prospective clients with the level of engineering assistance needed.

These field engineering services are provided by a well-qualified registered civil engineering team experienced in conventional methods of highway construction as well as in the use of the Bio-compactor.



Their expertise will reduce the possibility of error and will assure the achievement of the desired degree of compaction.

Along with the professional capability, our team has the ability to:

- Perform engineering laboratory analysis using equipment designed for on-site evaluations improvise and succeed under less than ideal field conditions
- Use antiquated and improvised equipment in remote locations
- Rework a less than well-prepared roadbed in a remote location
- Assure even distribution and achieve desired compaction of the roadbed
- Initiate efficiencies on site to reduce anticipated cost of construction
- Shorten construction time reducing scheduled man hours

JIGAWA



LAGOS



EKITI



PERMA-ZYME TESTING RESULTS

Native soil with Perma-Zyme

We are committed to providing all of the engineering data necessary to determine Perma-Zyme's applicability. We are always working on new tests and testing Perma-Zyme's use in new applications. All of our engineering data and testing results are provided by a third party, independent laboratory.

Lagos State Materials Testing Laboratory California Bearing Ratio Test

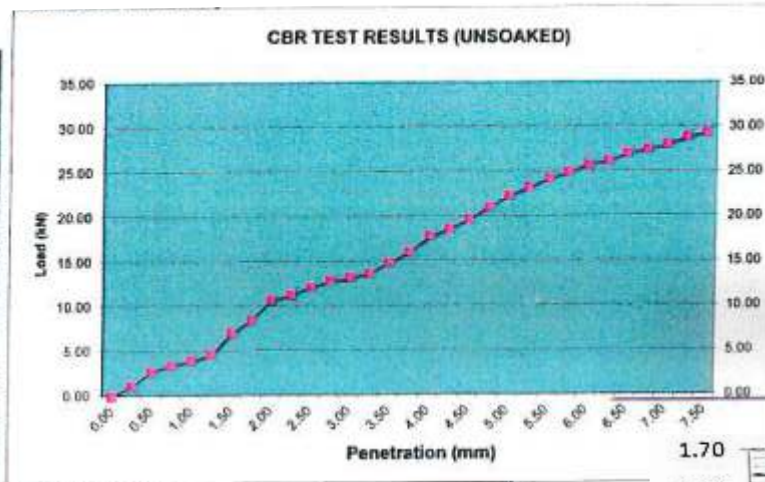
NAME: SUBSTRATA PLATINUM BG ALLIANCE LTD. DATE: 15/03/2021

LOCATION: OFFIN-ORETA RD. BY MOREKETE JUNCTION, IBOGBO-BAIYEKU LCDA, IKORODU, LAGOS STATE

LATERITE (STABILIZED SAMPLE)



Plunger Penetration	Force Reading		Force on Plunger	
	Top	Bottom	Top	Bottom
0.00	0.00	0.00	0.00	0.00
0.25	0.55	0.63	1.02	1.16
0.50	1.45	1.50	2.68	2.77
0.75	1.77	1.85	3.27	3.42
1.00	2.00	2.15	3.70	3.97
1.25	2.35	2.50	4.34	4.62
1.50	3.60	3.80	6.65	7.02
1.75	4.50	4.60	8.32	8.50
2.00	5.67	5.80	10.48	10.72
2.25	6.00	6.11	11.09	11.29
2.50	6.50	6.60	12.01	12.20
2.75	6.80	6.99	12.57	12.92
3.00	7.00	7.15	12.94	13.21
3.25	7.35	7.40	13.58	13.68
3.50	8.00	8.05	14.78	14.88
3.75	8.56	8.70	15.82	16.08
4.00	9.45	9.65	17.46	17.83
4.25	10.00	10.10	18.48	18.66
4.50	10.56	10.70	19.51	19.77
4.75	11.30	11.40	20.88	21.07
5.00	12.00	12.09	22.18	22.34
5.25	12.45	12.60	23.01	23.28
5.50	12.99	13.09	24.01	24.19
5.75	13.35	13.50	24.67	24.95
6.00	13.88	13.95	25.65	25.78
6.25	14.10	14.20	26.06	26.24
6.50	14.50	14.65	26.80	27.07
6.75	14.79	14.90	27.33	27.54
7.00	15.05	15.20	27.81	28.09
7.25	15.42	15.65	28.50	28.92
7.50	15.79	15.90	29.18	29.38



Corrected Values		Top	Bottom
Offset		0	0
New 2.5 Point		0	0
New 5.0 Point		0	0
For 2.5			
Point Before		6.00	6.11
Point After		6.80	6.99
Average		6.4	6.55
Load		12.01	12.20
For 5.0			
Point Before		11.30	11.40
Point After		12.45	12.60
Average		11.875	12
Load		22.18	22.34

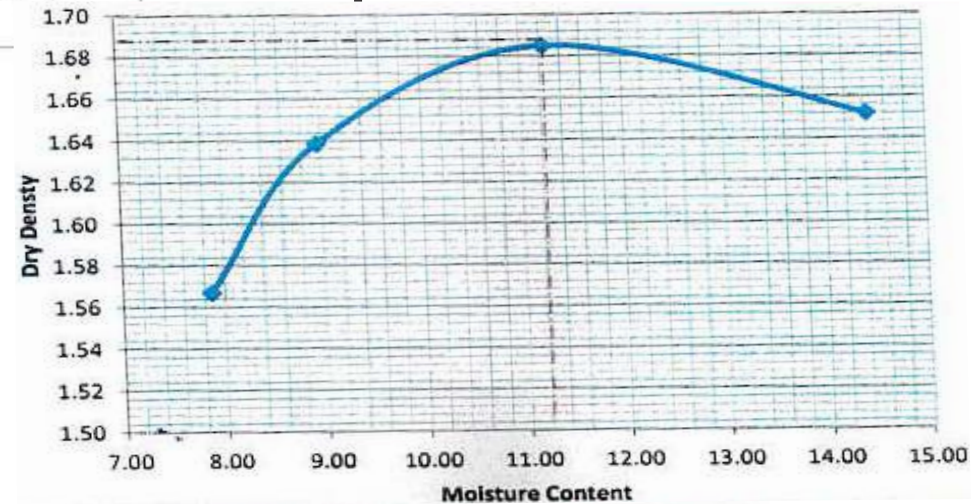
M.C = 11.40%

	Top	Bottom
At 2.5mm CBR1	91	92.4
At 5.0mm CBR2	111.10	111.94
Max CBR	111.1	111.94
Accepted C.B.R	111.52	

Dry Density Determination

	1	2	3	Column1	Column2	Column3
In-situ Wet Density (g/cm ³)	2.09	2.07	2.12			
(Laboratory Dry Density (g/cm ³))	1.8	1.8	1.80			
In-situ Dry Density (g/cm ³)	1.96	1.92	1.95			
(Relative Dry Density (g/cm ³))	108.96	106.81	108.27			
Relative Compaction (%)	108					

Compaction Test



Maximum Dry Density	1.69g/cm3
Optimum Moisture Content	11.23%



CONTACT US

WE DEPLOY NATIONWIDE

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