INTRODUCING AXION INNOVATIVE PRODUCTS FOR ROAD AND BUILDING CONSTRUCTION

ABOUT US

Axion Nigeria, a subsidiary of Axion Canada is the leader in the development, distribution and application of organic liquid monomer formulations for the global road and building construction industries.

Axion Technologies' products, initially developed by the U.S. military for swiftly deploying airstrips during the Gulf War, have transitioned to commercial use, maintaining their military-grade standards

25yrs

We have been in operation for 25 years, and over 20 years in Africa.

We have presence in over 75 countries in the world.

99%

In Nigeria, our products have been tested and approved by local and federal authorities, and we have all the required certifications for building and road construction.

Our Vision & Mission

Our vision is to be a Leading, Cutting-edge and Innovative Engineering Company, supplying the building/Civil Engineering industry (governments, real estate developers, oil & gas sector) with efficient and cost-effective construction materials for buildings and roads.

Our Mission is to continuously provide our customers with high quality, cost-effective, efficient and environmental-friendly products to solve problems facing the global building and construction industry.

Our Products

- AXION SOLID BASE STABILIZER (SBS)
- AXION BITUMEN BOOSTER (PMB)
- AXION TUFFCRETE ORGANIC POLYMER
- AXION TUFFCRETE CEMENT
- AXION TOTAL-CRETE CEMENT
- HYDROSHIELD POLYMERIZED SCREEDING BOND
- AXION ELASTOMERIC LIQUID RUBBER
- AXTRA QUICK FIX ASPHALTIC CONCRETE LIQUID BINDER (COLD ASPHALT)

WE PROVIDE ENVIRONMENTAL FRIENDLY CONSTRUCTION TECHNOLOGIES

- Road Base Stabilizer and Polymer Modified Bitumen.
- 100% Waterproof Concrete Technology.
- Engineered Precast and Specialized Concrete Products.
- Our products are made of high quality innovative road and building construction materials which ensure durable and cost effective construction.

Axion Solid Base Stabilizer (SBS)

This is a powerful molecular binding agent used in soil stabilization and earth-work installation. It does not require coarse aggregate as it merely strengthens and improves the natural soil enabling it to achieve load bearing capacities that meet and exceeds international compaction requirements. The Axion Solid Base Stabilizer results in approximately 60% cost savings in construction and maintenance costs.

PRODUCT FEATURES/ ADVANTAGES:

- Strengthens and improves the natural soil enabling it to achieve higher load bearing capacity
- Eliminates the cost of removing and replacing the topsoil .
- Eliminates the use of expensive aggregate plus the cost of compacting it.
- Simply stabilizes the natural soil to achieve CBR levels of up to 200%

Axion Bitumen Booster Refiner (PMB)

Bitumen is the preferred glue that holds aggregate together in road construction, the higher the quality of the glue, the greater adhesiveness. Axion Bitumen Booster (PMB) increases the bitumen by 30% and the asphalt by 20% while stabilizing and improving the elasticity from 6% to 79% over a wide range of temperature that allows the asphalt to withstand temperatures ranging between -22^{o}C to +82^{o}C. The benefit of this is that the thickness of Asphalt can be reduced from the standard 6cm to 3cm, producing the same strength and yielding cost savings in the construction.

PRODUCT FEATURES/ ADVANTAGES:

- Eliminates Hair Line Cracks
- Increases Bitumen Volume by over 30%
- 350% Increase in The Asphalt Layers' Life Expectancy
- Solution to Rutting problem as it reduces it by up to 84.8%
- Water Resistant
- Reduces Execution Time
- 100°C Effective Range

Axion Tuffcrete Liquid Polymer

This is a chemical resistant formulation that offers high tensile strength, with great adhesion to essential construction materials (Steel, Traditional Concrete etc.) yielding roads with a load-bearing capacity of 4,000 tons per square meter. Axion Tuffcrete Liquid polymer provides cost saving of about 30% compared to conventional concrete and is 100% waterproof, fireproof, anti-fungal, damp-proof and prevents capillary actions.

PRODUCT USES:

- Used as a concrete ad-mixture for waterproofing and improving the tensile strength of concrete
- Casting of slabs, roof decks, concrete floors, swimming pools, water treatment tanks, swage tanks, etc.
- Improvement of all concrete works
- Plastering, Block moulding and Tiling
- Crack resistant concrete

PRODUCT FEATURES/ ADVANTAGES:

- Waterproof & Fireproof
- Longer Life Expectancy
- Neutralizes Salinity in Sea Water (Salt Resistant)
- More Load Bearing Capacity
- Save on Steel Reinforcement Costs
- Asphalt Layers Can Be Added To It
- Not Affected By Oil And Fuel Spillage
- Repair Old Damaged Concrete
- Flexibility

AXTRA QUICK FIX
Asphaltic Concrete Liquid Binder (Cold Asphalt)

Axion introduces Axtra Quick Fix Asphaltic Concrete Liquid Binder (Cold Asphalt), a revolutionary technology designed for the construction of long-lasting and stable roads. This innovative product is used as a super binder in making cold asphalt for patching of pot holes. It can also be used in stabilization of all types of soil.

PRODUCT FEATURES/ ADVANTAGES:

- It does not require construction professionals or expensive contractors to implement.
- Creates job opportunities for youths just after a day's training.
- It does not require any special material or design to make an asphaltic concrete Road.
- Must not use expensive construction equipment (asphalt Plant) for mixing.
- Hot Asphalts are quite hazardous and requires lots of workers and machineries to implement.
- It is cost effective

Total-Crete /Tuffcrete Cement & Hydroshield Polymerized Screeding Bond Combo

This product combination is a chemical formulation specially designed for tiling and screeding. It is 100% water proof and does not require the addition of any other product (Tile Gum, Cement or Top Bond) for its application

Axion Total-crete/Tuffcrete cement & Hydroshield Polymerized Screeding Bond combo can also be used for All-in-one Screed Plastering, Water Proofing, Antifungal, Crack Proof, Fireproof, Foundation protection(DPC), Swimming Pools, Outside Decks, Tile Gum, Grouting, Damp Treatments, etc.

PRODUCT FEATURES/ ADVANTAGES:

- 100% Waterproof, Damp-proof & Anti-Fungi
- Longer Life Expectancy
- Does not require any other products for its application (Tile Gum, Cement, or Top Bond)
- Covers an area of over 30square meters per bag
- Saves cost

Exterior Screeding

Interior Screeding

Axion Elastomeric Liquid Rubber

Axion Liquid Rubber is a polymer modified elastomeric emulsion specifically formulated to be applied by brush, roller or specially designed spray equipment. Liquid Rubber is a cold applied single component product designed for a wide range of protective coating applications. The product technology used in AE Liquid Rubber provides a solvent-free, quick-setting coating that produces the ultimate seamless waterproof membrane with excellent strength and flexibility. AE Liquid Rubber is an environmentally friendly waterproofing product that can be applied indoors and outdoors with no special protective equipment.

PRODUCT FEATURES/ ADVANTAGES:

- Non-toxic
- VOC and solvent free
- Easy to use and repair
- Odorless and non-flammable
- Excellent adhesion
- Good chemical resistance
- Extremely strong and flexible
- Water based
- Suitable for interior or exterior use
- Permanently flexible

Axion Elastomeric Liquid Rubber

PRODUCT USES:

- Used as a protective coating to prevent water ingress and corrosion damage
- It can be used for corrosion protection of ferrous materials
- AELR is effective for noise and vibration reduction
- AELR can be applied to roofs, tanks, troughs, retaining walls, planter boxes, slabs, wet areas and decks.
- It can be used in painting and protection of block walls without the need for plastering before placing aluminum composite panels.

Solid Base Stabilizer (SBS) Test Result

NAIRDA

CALIFORNIA BEARING RATIO TEST

Project: Kalamuli Site Location:

Chainage: Boring No. Sample No.

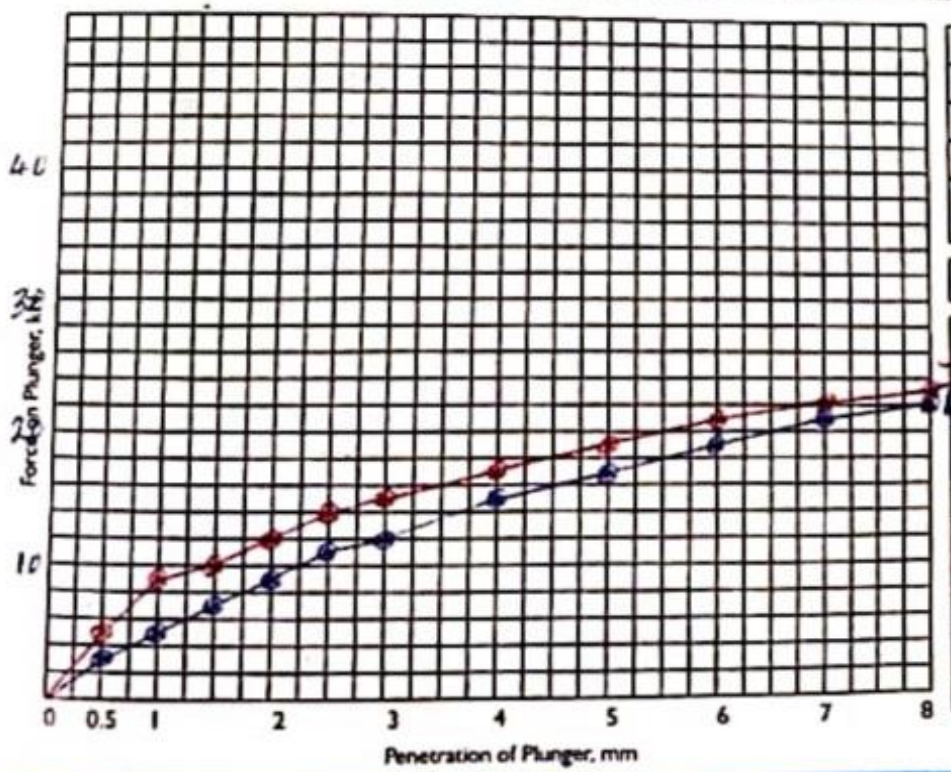
Description of Soil: Stabilized natural with AXION Stabilizer

Test Performed by: Date of Test: 21-5-2013

TEST DATA

Density Determination		Moistrure Content			Proctor Information	
Mold No	11	Can No	47	69	Method	
Wt. of Wet Soil + mould (g)	12507	Wt. of Soil + Can	95.1	95.4	OMC	
Wt. of Mould (g)	7686	Wt. of Dry Soil + Can	86.8	87.1	MDD	
Wt. of wet sample (g)	4821	Wt. of Water	8.3	8.3		
Volume of Mould (cm³)	2302	Wt. of Can	36.1	36.3	PRF	0.222
Wet Density (g/cm³)	2.09	Wt. of Dry sample	50.8	50.8	Piston Area	19.4
Moisture Content %	16.3	Moisture content	16.3	16.2		
Dry Density (g/dm³)	1.80					

Penetration mm.		0.5	1	1.5	2	2.5	3	4	5	6	7	8
Top	Dial Reading	13.9	22.4	31.2	40.0	49.8	55.6	66.1	76.4	84.6	92.5	99.6
	Force KN	5.66	9.47	6.52	8.33	11.1	12.3	14.7	17.0	18.8	20.5	22.1
Bottom	Dial Reading	21.3	38.4	45.6	55.0	63.5	68.4	77.6	85.5	92.6	98.0	105.0
	Force KN	6.73	8.52	10.1	12.2	14.1	15.3	17.2	19.0	20.5	21.8	23.3



Expansion After Soak	
Intial Reading	
Final Reading	
Expansion	
Expansion After Soak %	

Period of Soaking	

Results		
Moist. Cont. before Soaking %		
Moist. Cont. after Soaking %		
Dry Density g/cm3		
Expansion after Soaking %	T.P	
C.B.R @ 2.5 mm	93.8	106.5
C.B.R @ 5.0 mm	85.2	95.2
Av. C.B.R	166.5	

6/13 — Date

ADS — Tested by

Checked by

Client Rep.

Solid Base Stabilizer (SBS) Test Result by Dantata & Sawoe Construction Company

TYPE OF MARTERIAL	SAMPLED AT	LL	PI	SIEVE 200	Soil Class	CBR UNSOAKED		% Increased	CBR UNSOAKED AFTER 7 DAYS(with Stabiliser)
						WITHOUT STABILISER	WITH STABILISER		
BASE COURSE	BORROW PIT	28	6.6	18	A-2	88.7	104.5	15.8	
FILL MATERIAL	SITE	30.2	11.7	30.6	A-2	11	42.1	31.1	109.7

- Two types of materials were tested to determine the effect of Base stabiliser in CBR. One is base and the other is fill quality.
- CBR of these materials were determined in Unsoaked condition since the intended usage of the materials are for Base layer.
- As shown in the table above, the CBR value of the base material without Stabiliser already met the required CBR value of base course which is min of 80% whilst the Fill material has 11% only.
- After treating both materials with Base Stabiliser with a dosage of 1liters Stabiliser to 300liters of water, CBR value increased by 16% to 31%.
- Manufacturer gave instruction that material treated with stabiliser must be tested for CBR at 28days in unsoaked condition which we deemed too long that's why we come up testing it after 7days

Note:

1.) No doubt that there is positive effect in CBR after treating the materials with Base stabiliser, even achieving more than 80% CBR after 7 days in unsoaked condition. However, testing CBR after 7days in unsoaked condition is not part of Nigerian Specification unless it is required by Engrs or recommended by the manufacturer with written approval of Engr representative

Axion Bitumen Booster (ABB) Test Result

CMT ENGINEERING LABORATORIES

Construction • Materials • Technologies
Geotechnical, Environmental, & Materials Engineering/Testing/Research

CMT ID: AE 448

Patrick O'keke,Esq.
Axion Global Engineering Ltd/
Federal ministry of works,
Mabuchi, Abuja. Nigeria

Project Info: Rheological property determination of different blends of PG 64-22 with given polymers

Gentlemen,

CMT Engineering Laboratories was requested to perform a binder design utilizing Axion Bitumen Booster (P) and (L). The intent was to design a binder with a top end PG grading on 64 minimum, an elastic recovery of 50% minimum and to pass a Hamburg Rutting test on 10mm maximum. An unmodified binder was selected from a local supplier to begin this process, please reference the test data for the material performance.

Test Required:

1. Prepare Polymer Modified Blends of Unmodified PG 64-22 with Axion Bitumen Booster (P) and (L) in following proportions;
   A. PG 64-22 + 3% Axion Bitumen Booster (P)
   B. PG 64-22 + 3% Axion Bitumen Booster (P) + 0.25% Axion Bitumen Booster (L)
   C. PG 64-22 + 3% Axion Bitumen Booster (P) + 0.50% Axion Bitumen Booster (L)
2. Perform DSR Original (AASHTO T 315) on PG 64-22 and three Polymer modified blends
3. Perform Elastic Recovery (AASHTO T301) on RTFO Aged Residues (AASHTO T 240)

TEST	Temp	Method	SPECIFICATION	REPORT	RESULT
ORIGINAL BINDER					
BASE ASPHALT PG 64-22					
Dynamic Shear, G*/sin δ, 10 rad/sec	64° C	T315	Min. 1.0 kPa	1.25	Pass
Dynamic Shear, G*/sin δ, 10 rad/sec	70° C	T315	Min. 1.0 kPa	0.592	Fail
Tc (High) Original = 65.8 °C					
PG 64-22 + 3% AXION BITUMEN BOOSTER (P)					
Dynamic Shear, G*/sin δ, 10 rad/sec	64° C	T315	Min. 1.0 kPa	3.17	Pass
Dynamic Shear, G*/sin δ, 10 rad/sec	70° C	T315	Min. 1.0 kPa	1.64	Pass
Dynamic Shear, G*/sin δ, 10 rad/sec	76° C	T315	Min. 1.0 kPa	0.887	Fail
Tc (High) Original = 74.8 °C					
PG 64-22 + 3% AXION BITUMEN BOOSTER (P) + 0.25% AXION BITUMEN BOOSTER (L)					

Dynamic Shear, G*/sin δ, 10 rad/sec	64°C	T315	Min. 1.0 kPa	3.89	Pass
Dynamic Shear, G*/sin δ, 10 rad/sec	70°C	T315	Min. 1.0 kPa	2.09	Pass
Dynamic Shear, G*/sin δ, 10 rad/sec	76°C	T315	Min. 1.0 kPa	1.16	Pass
Dynamic Shear, G*/sin δ, 10 rad/sec	82°C	T315	Min. 1.0 kPa	0.676	Fail

Tc (High) Original = 77.7 °C

PG 64-22 + 3% AXION BITUMEN BOOSTER (P) + 0.5% AXION BITUMEN BOOSTER (L)

Dynamic Shear, G*/sin δ, 10 rad/sec	64°C	T315	Min. 1.0 kPa	4.77	Pass
Dynamic Shear, G*/sin δ, 10 rad/sec	70°C	T315	Min. 1.0 kPa	2.60	Pass
Dynamic Shear, G*/sin δ, 10 rad/sec	76°C	T315	Min. 1.0 kPa	1.46	Pass
Dynamic Shear, G*/sin δ, 10 rad/sec	82°C	T315	Min. 1.0 kPa	0.843	Fail

Tc (High) Original = 80.1 °C

ROLLING THIN FILM OVEN(T240)

BASE ASPHALT PG 64-22

Elastic Recovery, %	25°C	T301	6.0

PG 64-22 + 3% AXION BITUMEN BOOSTER (P)

Elastic Recovery, %	25°C	T301	75.0

PG 64-22 + 3% AXION BITUMEN BOOSTER (P) + 0.25% AXION BITUMEN BOOSTER (L)

Elastic Recovery, %	25°C	T301	79.0

PG 64-22 + 3% AXION BITUMEN BOOSTER (P) + 0.5% AXION BITUMEN BOOSTER (L)

Elastic Recovery, %	25°C	T301	79.0

REPORT AND ANALYSIS:

1. Based on Original DSR,
   a) PG 64-22 is graded at PG 64-XX. The True Grade is 65.8°C
   b) PG 64-22 + 3% Axion Bitumen Booster (P) is graded at PG 70-XX. The true grade is 74.8°C
   c) PG 64-22 + 3% Axion Bitumen Booster (P) + 0.25% Axion Bitumen Booster (L) is graded at PG 76-XX. The true grade is 77.7°C
   d) PG 64-22 + 3% Axion Bitumen Booster (P) + 0.50% Axion Bitumen Booster (L) is grade at PG 76-XX. The true grade is 80.1 °C.

2800 South Redwood Road, West Valley, Utah 84119
Office: 801-908-5859 Fax: 801-972-9074
www.cmtlaboratories.com

The finished blend was delivered to the laboratory to be blended into asphalt for Hamburg testing, the following is an outline of the material properties:

A local aggregate was selected that has failed the Hamburg test in the past, this aggregate was chosen because we wanted to avoid an asphalt mixture which would have passed without any modification.

The following is an outline of the asphalt properties as tested:

Blender Content	=5.3% by wt. of mix	
RAP Content	=None	
Air Void Content	=7.3%	Pass
Average Rutting Depth	=3.10mm	Pass

Gradation

Screen	Percent Passing
¾"	100
½"	99
3/8"	82
#4	48
#8	34
#16	17
#30	11
#50	9.1
#100	7.7
#200	5.3

If you have any questions, please don't hesitate to contact me.

Sincerely

Douglas W...
President

2800 South Redwood Road, West Valley, Utah 84119
Office: 801-908-5859 Fax: 801-972-9074
www.cmtlaboratories.com

Axion Tuffcrete Cube Compression Test Result

LAFARGE READY MIX NIGERIA

CUBE COMPRESSION TEST REPORT

(Method:BS EN 12390-2000)

Project: Trail mix	
Client:	Site:
Contractor:	Location:
Date of Pour: 11-Feb-21	
Mix No.: Black Axion Powder	Mix Grade: C30
Placing Method	Cube curing
☐ Pump ☐ Chute ☐ Bucket ☐ Others	☐ Curing agent ■ Water cured ☐ Dry cured ☐ Others
SLUMP (mm):	

7 Days — AREA (mm^2):22500

Mark on cubes	Date of Testing	Age (Days)	Size of cube(mm)	Weight (Kg)	Density (Kg/m^3)	Load (KN)	Strength (N/mm^2)
1	18-Feb-21	7	150x150x150	8.15	2415	418.5	18.6
2	18-Feb-21	7	150x150x150				
3	18-Feb-21	7	150x150x150				
Average			150x150x150	8.15	2415	418.5	18.6

28 Days

Mark on cubes	Date of Testing	Age (Days)	Size of cube(mm)	Weight (Kg)	Density (Kg/m^3)	Load (KN)	Strength (N/mm^2)
4	11-Mar-21	28	150x150x150	8.23	2439	738.0	32.8
5	11-Mar-21	28	150x150x150				
6	11-Mar-21	28	150x150x150				
Average			150x150x150	8.23	2439	738.0	32.8

Cube Cast by:
Mr Ogunjobi

LAFARGE

A member of LafargeHolcim

Concrete Cube Compression Test Report - EN 12390:3

Customer Name	AXION
Project Name	TM 1 (PLANT)
Project Address	DANGOTE RIFINERY ROAD

Mix Code		**Commercial Name**	C28/35-S1-22mm			
Cast Date	April 5, 2024	**Structural Member**	ROAD PAVEMENT			
Identity No		**Slump (mm)**	45-60	**Flow (mm)**	N/A	
Sampling Location	HITEC REFINERY	**Spot Sample**		**Composite Sample**		
Curing Method	Water Immersion					

Sample Number	Testing Date	Age (Days)	Cube Size (mm)	Weight (kg)	Density (kg/m3)	Load (KN)	Strength (N/mm2)
PT 56455	12-Apr-24	7	150x150x150	8.300	2459	527.59	23.5
PT 56456	12-Apr-24		150x150x150	8.270	2450	640.68	28.5
PT 56457	12-Apr-24		150x150x150	8.330	2468	594.65	26.5
Average				**8.30**	**2459**	**587.64**	**26.2**

Sample Number	Testing Date	Age (Days)	Cube Size (mm)	Weight (kg)	Density (kg/m3)	Load (KN)	Strength (N/mm2)
PT 56458	3-May-24	28	150x150x150	8.190	2427	798.31	35.5
PT 56459	3-May-24		150x150x150	8.250	2444	884.75	39.5
PT 56460	3-May-24		150x150x150	8.200	2430	859.32	38.0
Average				**8.21**	**2434**	**847.46**	**37.67**

Tested By:

Name	Signature	Date

LF08.5.1.21 v1

LAFARGE

A member of LafargeHolcim

Concrete Cube Compression Test Report - EN 12390:3

Customer Name	AXION
Project Name	TM 3 (BABY MIXER,WITH AXION PRODUCT)
Project Address	DANGOTE RIFINERY ROAD

Mix Code		**Commercial Name**	C28/35-S1-22mm			
Cast Date	April 6, 2024	**Structural Member**	ROAD PAVEMENT			
Identity No		**Slump (mm)**	50	**Flow (mm)**	N/A	
Sampling Location	HITEC REFINERY	**Spot Sample**		**Composite Sample**		
Curing Method	Water Immersion					

Sample Number	Testing Date	Age (Days)	Cube Size (mm)	Weight (kg)	Density (kg/m3)	Load (KN)	Strength (N/mm2)
PT 56455	13-Apr-24	7	150x150x150	8.330	2468	777.92	34.5
PT 56456	13-Apr-24		150x150x150	8.300	2459	859.32	38.0
PT 56457	13-Apr-24		150x150x150	8.420	2495	920.52	41.0
Average				**8.35**	**2474**	**852.59**	**37.8**

Sample Number	Testing Date	Age (Days)	Cube Size (mm)	Weight (kg)	Density (kg/m3)	Load (KN)	Strength (N/mm2)
PT 56458	4-May-24	28	150x150x150	8.490	2516	1031	46.0
PT 56459	4-May-24		150x150x150	8.380	2483	1062.6	47.0
PT 56460	4-May-24		150x150x150	8.290	2456	1041.6	46.5
Average				**8.39**	**2485**	**1045.07**	**46.50**

Tested By:

Name	Signature:	Date

Hitech Construction

DEEP SEA PORT, SECTION 1
Hitech Construction
1682 Sanusi Fafunwa street
VI, Lagos
Nigeria

Request no : AXION A5
Client : Axion Africa
Dei-Dei International Building
Material. Market Abuja.
Opposite Panteka
Project : DANGOTE FERTILIZER TO ELEKO JUNCTION
Attention : **Axion Africa**

Date reported : 10-05-2024

Compressive Strength of Concrete Cubes [TMH1 - D1, D3, ASTM C293]

Date Received :	06-04-2024	Structure / Element :	CRCP
Date in Water :	07-04-2024	Location :	REFINERY SECTION 1 LABORATORY
Cubes Made By :		Concrete Supplier :	MIXER AT LABORATORY
Cubes Tested By :		Delivery Note No :	
Specified Strength (MPa) :	C35	Truck Reg. Number :	
Specified Slump :	60 mm	Environmental Condition :	SUNNY AND HOT
Measured Slump :	40 mm	Curing Tank Temp :	26 °C
Engineer's Specification :		Press Serial No :	Correction Factor 1.000
Balance Number :			

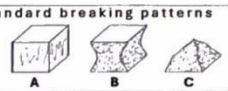
7 Day Compressive Strength

Lab Number	Cube Mark	Date Cast	Date Tested	Age Days	Break Pattern	Flatness	Mass	Apparent Density	Dimension Length	Dimension Width	Load	Compressive Strength
A	1	06-04-2024	13-04-2024	7	A		8211	2433	150.00	150.00	859	38.2
B	2	06-04-2024	13-04-2024	7	A		8175	2422	150.00	150.00	840	37.3
C	3	06-04-2024	13-04-2024	7	A		8130	2409	150.00	150.00	845	37.5
								Average	150.00	150.00	848 kN	**38.0 MPa**
								Standard Deviation	0.0	0.0	10.2	0.5

28 Day Compressive Strength

Lab Number	Cube Mark	Date Cast	Date Tested	Age Days	Break Pattern	Flatness	Mass	Apparent Density	Dimension Length	Dimension Width	Load	Compressive Strength
D	4	06-04-2024	04-05-2024	28	A		8194	2428	150.00	150.00	1021	45.4
E	5	06-04-2024	04-05-2024	28	A		8205	2431	150.00	150.00	995	44.2
F	6	06-04-2024	04-05-2024	28	A		8169	2420	150.00	150.00	997	44.3
								Average	150.00	150.00	1004 kN	**45.0 MPa**
								Standard Deviation	0.0	0.0	14.4	0.6

Standard breaking patterns



Unusual breaking patterns

Deviation from test method :

Remarks and notes : CRCP MIX DONE WITH AXION AFRICA LIQUID POLYMER ADDED

The samples were subjected to analysis according to (COLTO) (TMH1) (BS) (ASTM) (TMH5)

The test results reported relate to the sample tested.

Further use of the above information is not the responsibility or liability of Hitech Construction.

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Signature

Christiaan Jordaan
Ground / Field Manager

Report compiled by : Christiaan Jordaan

Report program v13.10.1 (01-04-2024)

Axion Tuffcrete Water Penetration Test Result

AXION TRIAL MIX					
ITB BAR-BEACH					
DATE : 20-4-2024					
CUBE No	3	3			
	WATER PENETRATION (mm)				
	18.23	22.90			
	20.95	16.04			
	17.11	15.42			
	15.53	13.61			
	17.43	10.55			
	16.46	9.81			
AVERAGE	17.62	14.72	0	0	

FEDERAL MINISTRY OF WORKS

MATERIALS, GEOTECHNICS & QUALITY CONTROL

15, AWOLOWO ROAD, IKOYI, LAGOS STATE

TEST SHEET FOR COMPRESSION TEST ON CONCRETE CUBES	REF NO:
DATE OF CASTING : 04/06/24	DESTINATION: OFFICE(Abuja)
WHERE USED: TRIAL MIX(NON – CHEMICAL)	
SAMPLE NO: DATE OF DELIVERY: 02/07/24 MIXING TIME: TIME CUBE MADE:	DATE IN WATER: 05/06/24 DATE OUT OF WATER: 02/07/24 AGE OF CUBE: 28 DAYS
DETAILS OF MIX:	
METHOD OF CURING:DIMENSION IN WATER	

CONCRETE CLASS: C-35	PSI =	N/MM²:35.2N/MM²

----------	ADESHOLA I	----------
Cubes made by	Officer Completing Test	Client

TEST RESULTS

Mark on Cubes	Date of testing	Age of Testing	Size of Cube(mm)	Weight of cubes (kg)	Density kg/m³	Crushed at KN	Strength N/mm²
1	02/06/24	28 DAYS	150X150X150mm	8.26	2.477	800	35.6
2				8.25	2.444	810	36.0
3				8.67	2.569	766	34.0

AVERAGE STRENGTH : 35.2 N/MM²	MINIMUM STRENGTH : 34.0N/MM²

----------	SATISFACTORY	----------
Approved by		Client

FEDERAL MINISTRY OF WORKS

MATERIALS, GEOTECHNICS & QUALITY CONTROL

15, AWOLOWO ROAD, IKOYI, LAGOS STATE

TEST SHEET FOR COMPRESSION TEST ON CONCRETE CUBES	REF NO:
DATE OF CASTING : **30/05/24**	CONTRACTOR: **AXION AFRICA**
DETAILS: **TRIAL MIX (WITH CHEMICAL).**	
SAMPLE NO: DATE OF DELIVERY: **13/06/24** MIXING TIME: TIME CUBE MADE:	DATE IN WATER: **31/05/24** DATE OUT OF WATER: **13/06/24** AGE OF CUBE: **14 DAYS**
DETAILS OF MIX:	
METHOD OF CURING: COMPLETE IMMERSSION IN WATER	

CONCRETE CLASS: C-35	PSI =	**N/MM²: 37.6N/MM²**

----------	ADESHOLA .I	----------
Cubes made by	Officer Completing Test	Client

TEST RESULTS

Mark on Cubes	Date of testing	Age of Testing	Size of Cube(mm)	Weight of cubes (kg)	Density kg/m³	Crushed at KN	Strength N/mm²
1	13/06/24	14 DAYS	150X150X150mm	8.68	2.572	830	36.9
2				8.15	2.415	807	35.9
3				8.02	2.316	900	40.0

AVERAGE STRENGTH : 37.6 N/MM²	**MINIMUM STRENGTH : 35.9N/MM²**

----------	**SATISFACTORY**	----------
Approved by		Client

FEDERAL MINISTRY OF WORKS

MATERIALS, GEOTECHNICS & QUALITY CONTROL

15, AWOLOWO ROAD, IKOYI, LAGOS STATE.

SUMMARY TABLE

CONCRETE GRADE 35(Mix ratio 1:1:5:3)

TRIAL MIX (WITH CHEMICAL)	AVERAGE STRENGTH(N/MM²)	TRIAL MIX (NON-CHEMICAL)	AVERAGE STRENGTH(N/MM²)
3 DAYS(14.0N/MM²)	31.9N/MM²	3 DAYS(14.0N/MM²)	24.0N/MM²
7 DAYS(22.75N/MM²)	36.0N/MM²	7 DAYS(22.75N/MM²)	28.2N/MM²
14 DAYS(31.5N/MM²)	37.6N/MM²	14 DAYS(31.5N/MM²)	30.7N/MM²
28 DAYS(35N/MM²)	43.2N/MM²	28 DAYS(35N/MM²)	35.2N/MM²
SLUMP(10-60)mm	20mm	SLUMP(10-60)mm	20mm

Axion Products Approval by Federal Ministry of Works

FEDERAL MINISTRY OF WORKS

COMMUNIQUÉ OF THE 21ST NATIONAL COUNCIL ON WORKS HELD AT THE DELTA STATE GOVERNMENT EVENT CENTRE, ASABA, DELTA STATE FROM OCTOBER 12 TO 17, 2014

(20) Council approved the use of stabilizers and bitumen booster already being implemented by the Federal Ministry of Works as a means of improving the durability of road pavement, as well as reducing cost of road construction in the country.

(21) Council directed Ministries in charge of roads to collaborate with universities and Research centres towards utilization of research findings as well as to consciously refer to the office of the Surveyor General of the Federation and State Surveyor-General for permanent data. being the repository for such data.

The 21st Meeting of the National Council on Works with the theme "Funding Road Development In Nigeria: A Panacea for Economic Transformation" was held at the Delta State Government Event Centre, Asaba, Delta State, from Sunday 12th to Friday 17th October, 2014. The meeting was declared open by His Excellency, the Deputy Governor of Delta State, Prof. Amos Utuama (SAN) on behalf of His Excellency, Dr. Emmanuel Ewetu Uduaghan CON, Executive Governor of Delta State.

Meeting of the Technical Committees, as well as a meeting of the Permanent Secretaries preceded the Council Meeting which was presided over by Arc. Mike Oziegbe Onolememen, CON.

Present at the Council meetings were distinguished members of the National Assembly led by the Chairman, House Committee on Works, Hon. Oguwei Ozoingbachi; the Honourable Minister of Works, Arc. Mike Oziegbe Onolememen, CON; Permanent Secretary, Federal Ministry of Works, Dr. A. K. Muhammad, OON; Honourable Commissioners of Works and their Permanent Secretaries from the 36 States of the Federation. Others were the Directors in the Federal Ministry of Works, Directors/Officials of other Federal and State Ministries, Departments and Agencies (MDAs), as well as Stakeholders in the Road Sector.

(17) Council noted that the Contractor-Finance Model of funding road infrastructure has not been fully developed in the country and urged the use of this model for road projects and directed for the review of the provisions of the Construction Policy to promote greater participation of indigenous contractors in the road sector in line with the Local Content Policy.

(18) Council recognised the importance of data to planning for road development, and accordingly adopted the creation of Road Asset Management System (RAMS) as a tool for project planning, budgeting and prioritization.

(19) Council recognized tolling of roads and bridges as a veritable source of funding Road Development and noted that the Federal Ministry of Works had already carried out series of sensitization workshops to elicit stakeholders buy in.

(20) Council approved the use of stabilizers and bitumen booster already being implemented by the Federal Ministry of Works as a means of improving the durability of road pavement, as well as reducing cost of road construction in the country.

(21) Council directed Ministries in charge of roads to collaborate with Universities and Research Centres towards utilization of research findings, as well as to consciously refer to the Office of the Surveyor General of the Federation and State Surveyors-General for pertinent data, being the repository for such data.

MEMO NO. NCW(2014)DEL/17

USE OF STABILIZERS TO IMPROVE THE QUALITY AND COST OF ROADS

In pursuance to the improvement of the quality of federal road network, the federal ministry of works in collaboration with the Universities, Research Institutions and Consultants have tested and approved a number of Stabilizers to be incorporated in road construction. Some of these materials were successful in the stabilization of Black Cotton soil and other troublesome subgrade materials.

The tested materials :

i. **Axion Soil Stabilizer/Axion Bitumen Booster,**

Prayer

Council is invited to note the importance of the new stabilizers for road works as it improves the quality and cost road work: and approve the use of these Stabilizers for road construction in projects executed by the ministry of works in Nigeria.

FEDERAL MINISTRY OF WORKS

HIGHWAYS MATERIALS, GEOTECHNICS & QUALITY CONTROL DEPARTMENT

HEADQUARTERS, MABUSHI – ABUJA

P.M.B.111,GARKI

TELEGRAMS:.....HONWORKS

Ref. No. FMW/HMGQC/AXI/ADMIX/VOL.I/54

Date: 18th October, 2024

The Managing Director/CEO,
Messrs Axion Express Engineering Ltd,
10ATF Kuboye Road, Oniru Lekki Phase 1,
Lagos, Nigeria.

Sir,

USE OF BITUMEN BOOSTER, SOLID BASE STABILIZER AND TUFFCRETE POLYMER MATERIALS.

I am pleased to convey the Hon. Minister's approval for the Ministry to fully incorporate the application of the above mentioned materials in our Bill of Engineering Measurements and Evaluation (BEME) in the construction of both flexible and rigid pavements on roads and bridges in Nigeria.

2. You are therefore enjoined to ensure that the approved products are adequately supplied to meet possible large scale demand for use in the construction of our roads and bridges.

3. You are further advised to ensure that the materials being supplied continue to meet international standards.

Engr Francis A. Ejim
Deputy Director Highways (MG&QC)
For: Honourable Minister

THANK YOU!

CONTACT INFORMATION

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Port Harcourt : 08094917427

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CONSTRUCTION COMPANY LIMITED