




REUSE
REDUCE
RECYCLE

ECOBOND

Eco Friendly Roads

**Effective
Soil Stabilization
& Dust Control
For Roads**





Stabilized Water Repellent Road Surfaces

Bio-enzyme as a Soil Stabiliser

This introduction is not intended as a detailed explanation but merely serves to give a fundamental understanding of bio-enzymatic soil stabilizer and the effect it has on a large number of soil types.

Bio-enzymatic soil stabiliser suitable for improving marginal or substandard materials or soils for use in the construction of roads. This is suitable for use in both the construction of sealed pavement structures or for improvement in the performance of un-surfaced roadways. The addition of soil stabilizer to a suitable material improves compacted densities and bearing capacities and enables the constructed layer to maintain these increased densities under wet conditions reduction of material loss from the road surface retarding the formation of associated defects, potholes, corrugations etc. Overall required maintenance is also reduced while treatment will not affect normal gravel road maintenance procedures.

The use of soil stabilizer requires no specialised machinery and is supplied in concentrated liquid form using standard water browser with spray bar to apply diluted solutions to the area under construction.

This bio-enzyme based soil stabilizer mixed with water, used in the direct construction of rural roads and to give stable preparations for other types of road constructions. Method to

improve soil structure by traditional ways are becoming costlier day by day with reducing resources, mining restrictions, increased transportation cost and increased labour. This aspect opens a great opportunity to develop soil stabilizers with improved effect and reduced cost to the overall stabilization process.

Soil stabilization technology has been repeatedly proven effective in comprehensive studies this new technology is successfully in use in more than 30 countries worldwide

ECOBOND Product Description

ECOBOND works on the principle of polyhedral enzyme or effective referred to as bio-enzyme soil stabilization.

There are three process taking place in this kind of stabilization, firstly the clay part of the soil (less than 0.75 microns) is stabilized where the clay particle double layer is broken which causes the clay to loose static water (charged or adhered to clay particles.) This causes segregation among the clay particles.

Next the most important part enzymes form a superficial layer over the clay particles and bonds them together chemically to form micro structures that are relatively flexible in nature and can take increased load.

Lastly during the chemical bonding carbon dioxide gases are liberated which causes voids



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in the soil structure, which is more effectively compacted with machines superior compaction above 100 can be achieved by AASHTO method.

ECOBOND is more effective economically than other soil stabilizers for unpaved village roads; the cost savings are as high as 60%.

This stupendous cost savings is achieved through many factors, some of them are given below

- Since local resources are used (soil & water) material costs are negligible
- Soil stabilizing enzyme is a small percentage of the OMC used.
- Minimum labor and time required

ECOBOND Application

- Gravel or dirt roads
- Surfaced roads
- Low cost urban and rural roads
- Mine haulage and open pit roads
- Bus and access routes
- Parking areas and loading yards
- Forestry haul roads

Environmental Impact of Using ECOBOND

ECOBOND is environmentally friendly and has no long term adverse impact on the environment and is safe to handle. It is non-toxic and non-hazardous.

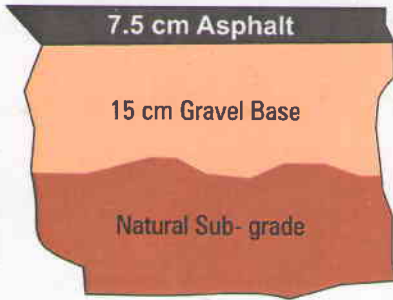
TECHNOKOTES Solutions is proud to introduce the most advanced technology in soil stabilisation and dust suppression.

Advantages of Using ECOBOND

- Improved road standards
- ECOBOND reduces the normal defects such as rutting, potholes, mud, dust.
- Cost-effectiveness
- Requires the minimum construction and roadpreparation efforts to create a positive life cycle/cost ratio
- Easy application
- Spray with standard spray equipment, without the necessity of specialised Equipment
- Easy and affordable maintenance
- Normal maintenance to the surface can be achieved with the minimum expertise and standard equipment. No rejuvenation needed.
- No curing period
- Roads can be opened to traffic immediately

Design Roads for High Strength and Low Cost with Ecobond

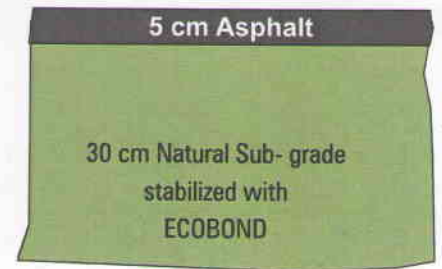
Structure Strength = 100%
Construction Cost = 100%



Structure Strength = 100%
Construction Cost = 80%

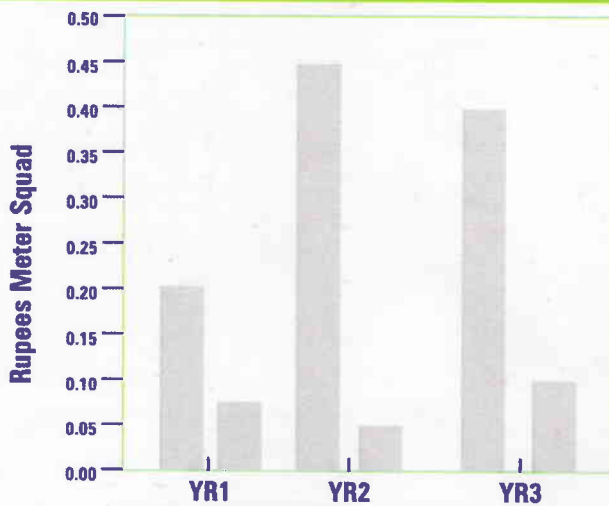


Structure Strength = 100%
Construction Cost = 60%



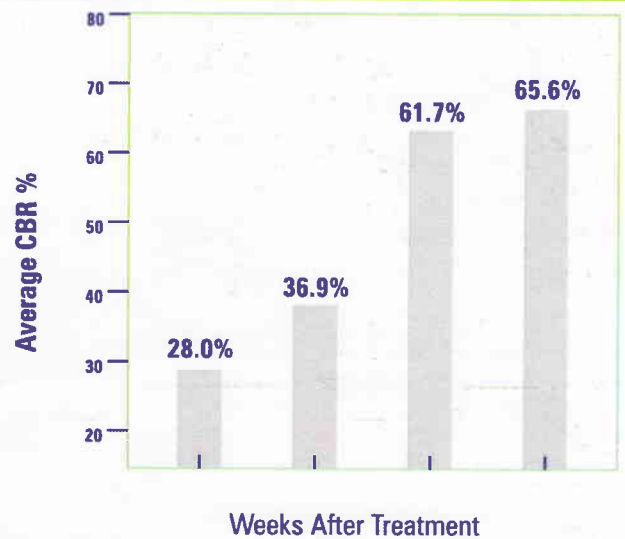
These three road models maintain the same structure strength at dramatically different costs. ECOBOND improves low quality local soils and reduces imported materials and construction costs.

Maintenance Cost Reductions Untreated vs. ECOBOND



ECOBOND stabilization of plantation roads reduced road surface maintenance by 75%

Road Strength Improvements after ECOBOND Stabilization



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PROACTIVE PROTECTION

B - 26 Goodwill Snskruthi, Bhairavnagar, Dhanori, Pune - 411 015

PH : + 91-20-27172043 / 27172249 / 27171412 | Fax : +91-20-26132297

Web : www.technokotes.com E-mail : info@technokotes.com