WIBARI

Innovative Soil Stabilization Technology

A sustainable solution for your road problem

The Wibari soil stabilization solution has multiple applications involving the creation of strong surfaces able to withstand heavy loads, pressure and elements. The stabilized layer is waterproof and environmentally neutral. The layer's strength characteristics are custom-adjusted to the needs of each specific project. In case of road construction or rehabilitation, the stabilized soil acts best as a base for the wear-off layer.

- Stabilized layer is waterproof and environmentally neutral.
- Strength characteristics customized for each project.
- Ideal as a base layer for wear-off surfaces.
- Utilizes a 2-component catalyst consisting of powder and liquid.

We use a 2-component catalyst for soil stabilization – a solid (powder) and a liquid. This provides a truly versatile stabilization solution for soils of any type, with the exception of pure silica sand and soil containing organic matter.



Strengthens soil properties

Waterproofing and **bonding**

IMPROVEMENT OF MATERIAL PROPERTIES

Prevents soil from water penetration and resulting surface degradation.
Stabilized soil is capable of withstanding heavy rainy seasons.

Increases such characteristics as:
- California Bearing Ratio (CBR);
- maximum soil bulk density (BD);
- compaction density (Dry unit weight Yd);

Reduces permeability and capillary rise, plasticity index, optimizes moisture content and soil drying period, reduces swell and linear shrinkage.

Key benefits

The existing (in situ) subgrade material is used for stabilization eliminating the need to excavate and remove previous coatings, which simultaneously reduces project costs, CO2 emissions and the load on industrial waste landfills.

The uniqueness of our method lies in stimulating the natural ability of clays contained in the soil to petrify. The composition of local soils does not change during stabilization, which is beneficial for the environment.

The technology is applied in an extremely short time. The productivity of our method for road rehabilitation with a minimum set of equipment is ca. 2,000 sq. m per day (it can be further increased by a corresponding increase in the number of involved units of equipment). Within the mentioned timespan, the processed roadbed acquires the required calculated strength. Vehicles can drive on the stabilized section immediately after the completion of work.

Uses in situ material, reducing needs for excavation and transportation.

Decreases CO_2 emissions and landfill loads.

Fast application: 2,000 sq. m per shift*, vehicles can use stabilized sections immediately.

CO2 emissions reduced by up to

9546

ton per year*

Fast application up to

2000

m^2 per shift

Reducing time up to*



15%

Reducing costs up to*



27%

*Calculated based on previous experience and implemented projects

How we save your money?

15 - year warranty period for stabilized surfacesand more, offering direct cost savings over the long term.

No regular maintenance required. The more intense the subsequent traffic, the stronger the stabilized soil layer becomes.

Reliable year-round pavement reduces wear on vehicles and cuts fleet maintenance costs.

We deliver

Project supervision is carried out by Wibari engineers at all stages of preparation and implementation including project design, financial modelling, logistics, monitoring of work and training of local personnel in application methods, testing and performance assessment.

FLEXIBLE PRICING In order to achieve an optimal price-quality ratio, a preliminary calculation of the necessary and sufficient thickness of the stabilized layer is performed, depending on the needs of the Customer, as well as based on the composition of local soils and climatic conditions at a specific geographic location. A flexible pricing system is applied, individually for each project.



Technology sequence
(road rehabilitation application)**



1 Plough crashing old asphalt or any other pre-exiting layer



2 Stone-crusher transforms old asphalt into gravel-sand**



3 Introduction of liquid component to full calculated depth



4 Recycling of liquid component with prepared soil to full calculated depth



5 Soil humidification (to about 3-4 % higher than optimal moisture content OMC)



6 Introduction of the calculated solid component quantity



7 Mixing of soil with catalysts to full calculated depth



8 Compaction of soil with sheep's foot compactor



9 Adjust road profile with grader



10 Final compaction first with pad- followed by the flat vibro-compactors



11 (Optional) Apply bituminous emulsion or any other available top layer, including crushed construction rubble (50-60 mm)



12 (Optional - for asphalt top layer) Prepare road for marking

**Certain stages may be omitted/simplified in case of unpaved road rehabilitation

Where

the Wibari stabilisation system shows itself best


Tailings storage facilities


Port/container terminals


Parking lots, storage and trade malls


Lakes and ponds


Base layer for aircraft runways


Automobile roads


Temporary technical and auxiliary roads


Landfills

The Wibari stabilization system is very effective on weak and waterlogged soils. Especially on clays and loams, which lose strength when wet. It has shown excellent results on African and Middle-Eastern soils.

The Wibari stabilization system prevents road destruction during rainy seasons to maintain year-round traffic. This is achieved by creating a durable support layer for the road surface. Its characteristics meet the Customer's specific requirements for the passage of heavy trucks and other heavy equipment on wheels and tracks during the renovation and construction of access roads, laying technical passages along transportation routes, mining sites, intra-field, intra-plant, auxiliary and secondary, permanent and temporary routes, including roadbeds and subgrade layers for railways.

Wibari soil stabilization can also be used to shape in situ soil material into hydrophobic basins for storing industrial waste, including environmentally unsafe ones.

In order to preserve the environment, a special technology has been developed for converting the ruins of destroyed buildings and structures, construction debris and industrial waste of mineral origin into the load-bearing pavement for nearby roads.

Additional areas :

Major repairs and new construction: highways (general and special purpose), where increased load on the surface layers is expected, for example, inside and around logistics hubs; parking lots for trucks in industrial zones; container-storage areas in (dry) ports, railways and other terminals;

Reconstruction of transport infrastructure to protect against groundwater, erosion during rainy seasons and/or as a result of localized intense precipitation; strengthening of embankments; prompt elimination of the consequences of various damages to infrastructure facilities;

Strengthening of aircraft runways; Soil compaction in the foundations of warehouses and shopping centers; Creation of artificial reservoirs and irrigation canal beds.

Laying access routes to historical sites, ancient monuments, pilgrimage centers, tourism and recreation areas, which would blend in with the surrounding natural soil.

WIBARI Advisory&Trading BV
Rheastraat, 1076DS Amsterdam, Netherlands

www.wibari-at.com

+31 6 30 08 97 03
+31 6 16 66 12 75
office@wibari-at.com