

Technical application manual

TERRABIND MAX



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1. Product description and composition

Terrabind Max is a 100% biological dust suppressant and road stabiliser that biocements loose soil into a solid structure, offering a natural alternative to lignosulfonates, salts, and synthetic polymers. Terrabind Max stands out with its rapid onsite solubility, which means quicker application times and less downtime for your operations. Its superior solidification process results in robust, high-compressive-strength roads that withstand the harshest conditions, reducing maintenance needs and extending the lifespan of your infrastructure.



Environmental
Benefits

No crude oil
No plastics

100% biological
ingredients

Safe for equipment
and personnel

Biologically
safe

Terrabind Max is delivered as a powder, must be dissolved in water and applied as a spray-on application with a water truck. To effectively apply the product to your primary haul road and to make the most out of it, follow the instructions.

2. Dose rates and calculations for product applications

Terrabind Max is applied as a spray-on application for the initial establishment of the road and for maintenance applications.

The quantities are ranges that our clients are using. Those depend on the soil substrate, climate conditions and traffic.

	Establishment*	Maintenance**
	Spray-on [L/m ²]	Spray-on per month
Product quantity (powder)	100-120 g/m ²	120 g/m ²
Volume of product dissolved in water	0.25-0.375 L/m ²	0.3 L/m ²

* establishment is normally applied on a single day.

** maintenance amount is applied usually in 5 to 10 applications per month depending on external factors. The volume given is the monthly total.

2.1. Calculation of the required product quantity for road establishment

For the initial establishment of your haul road, the recommended **quantity per m² is 120 g (0.12 kg)**.

To calculate the total amount of product required, calculate the total surface (m²) you want to treat:

$$f \text{ Road length (m) x Road width (m) = Total area (m}^2\text{).}$$

$$f \text{ Total area (m}^2\text{) x 0.12 kg/m}^2\text{ = Total product quantity (kg).}$$

Example:

To establish a 10 km road that is 10 m wide, then your total area is 100,000 m² (10,000 m x 10 m).

$$100,000 \text{ m}^2 \times 0.12 \text{ kg/m}^2 = 12,000 \text{ kg (12 tonnes).}$$

2.2. Calculation of the total volume of product solution for road establishment

The road establishment spray-on application is typically submitted within a single day. For this, Terrabind Max is dissolved in water, with a recommended volume of 2 L/m².

To calculate the total volume (L), use:

$$\text{Total volume (L)} = \text{Total area (m}^2\text{)} \times 2 \text{ L/m}^2.$$

Example:

For 100,000 m², the total volume required is: 100,000 m² x 2 L/m² = 200,000 L.

$$200,000 \text{ L} / \text{water truck volume (L)} = \text{number of trips}.$$

Example:

A water truck with a capacity of 20,000 L will require 10 trips: 200,000 L / 20,000 L = 10 trips.

Each trip will need 1.2 tonnes of Terrabind Max: 12,000 kg / 10 trips = 1,200 kg per trip.

Therefore, dissolve 1.2 tonnes of Terrabind Max in each 20,000 L water truck.

For a step-by-step guide on road establishment spray-on application, refer to **chapter 3**.

Please note that the exact dose rates must be determined onsite. Parameters such as climate, haul road substrate, and traffic volume & load determine the efficacy. A small substrate pre-test can be performed. Bind-X assists with that.

2.3. Calculation of the monthly required product quantity for road maintenance

To achieve optimal product performance, apply Terrabind Max every third day.

Monthly product requirement: 120 g/m².

Calculate the total area (m²):

$$\text{Road length (m)} \times \text{Road width (m)} = \text{Total area (m}^2\text{)}.$$

Total product quantity (kg):

$$\text{Total area (m}^2\text{)} \times 0.12 \text{ kg/m}^2 = \text{Total product quantity (kg)}.$$

Example:

A 10 km road, 10 m wide: Total area = 100,000 m².

Product required = 12,000 kg (12 tonnes).

2.4. Calculation of the total volume of product solution for road maintenance

To maintain the road, apply Terrabind Max every third day using a water spray truck. This results in approximately 10 maintenance applications per month.

Required product per application:

$$f 0.12 \text{ kg/m}^2 / 10 \text{ applications} = 0.012 \text{ kg/m}^2 \text{ per application.}$$

Recommended product solution volume per application: 2 L/m².

To calculate the required volume of product solution per application:

$$f \text{ Total area (m}^2\text{) } \times 2 \text{ L/m}^2 = \text{Total volume (L).}$$

Example for a total area of 100,000 m² and a 20,000 L water truck:

Total volume = 100,000 m² x 2 L/m² = 200,000 L per application is required.

0.012 kg/m² * 100,000 m² = 1,200 kg per application should be dissolved in this volume.

This works out to be 120 kg per 20,000 L spray truck.

3. Road establishment spray-on application

For initial application, we advise scheduling a site visit with one of our qualified biological dust control specialists. During this visit, they will assess the road conditions. Our experts will also conduct onsite trials to determine the optimal dose rate.

3.1. Required equipment for spray-on applications

Terrabind Max is a powder product that must be dissolved in water. This can either happen directly in the spray truck or in a dosing unit system.

To apply Terrabind Max as spray-on application, we recommend using the following equipment:

- › A water spray truck including operator
- › A pumping system to handle the biological dust control liquid
- › A crane / lifter for the product sacks
- › Optional: a dosing unit system to mix the powder with the water
- › The working dilution can be prepared in a separate holding tank or directly in the water truck tank
- › A mechanical broom
- › A grader

3.2. Step-by-step guide spray-on application

1

Blade, sweep, and if necessary pre-wet haul road surface.



2

Fill the calculated amount of product and water into the spraytruck. Add 1/3 of the water first, add then the powder and finally add the remaining 2/3 of water.



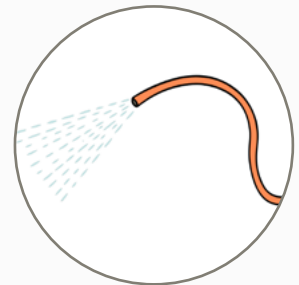
3

Over multiple spray passes apply the calculated volume of the dilute Terrabind Max solution on the whole area.



4

After completed application, clean the tank by flushing with clean water.



Note for Step 1: Pre-wetting the area/road is not always necessary. You should assess the area/road first. Things to consider will be the moisture content and temperature. If the area has sufficient natural moisture content due to rain, watering or high humidity, pre-wetting may be redundant. Apart from that, the type of road material plays a role, because materials react differently to moisture. Certain gravel or dirt roads may seldom require pre-wetting, while others may need it more frequently.

4. Maintenance applications

Climate, haul road substrate and traffic volume determine the frequency of maintenance application. Monitor the road and re-apply at first signs of dust.

5. Cleaning of equipment

No special equipment is needed to clean your equipment after the application of Terrabind Max. Normal cleaning procedures with water or water and a detergent can be used. Biological dust control products do not clog machinery, unlike polymers or bitumen emulsions.

6. Storage and handling

Terrabind Max powder is stable for more than 12 months under normal conditions. It is not highly temperature-sensitive and can be stored in a shelter with temperatures exceeding 40°C. However, it is recommended to store it in ambient conditions in the shade.

FAQ FOR TERRABIND MAX

How quickly does the product need to be used after final dilution in spraying concentration?

The product dilution should ideally be used within 24 hours.

Are there specific requirements for water quality?

No, any regular potable or non-potable water can be used, including brackish water.

How do I store Terrabind Max?

Store the powder in the bulk bags in a dry place. Although it is not highly temperature-sensitive, we recommend to store it in ambient conditions in the shade.

How long can I store the Terrabind Max powder?

You can store it at least for 24 months.

How soon can roads be used after applying the product?

Most surfaces can be used immediately after application.

How is the product applied?

Terrabind is typically diluted to specified concentrations and applied using a water bowser. Refer to the instructions provided in the step-by-step guide.

Does the road need to be prepared before spraying the product on the road?

In the best-case scenario, the road is first brushed and freed of loose material.

Will rain during the application affect the performance?

Yes, it will, as proper water content is crucial, and the road must be completely dry for optimal results.

Is proper drainage required?

A well-drained road profile is crucial for road construction. Effective drainage systems like ditches, table drains, and culverts direct runoff away from the road. As water can dissolve and erode most materials, managing its flow is vital for the road's durability and success.

What sets Terrabind products apart from most other road stabilising products on the market?

Terrabind is a complete biological product that performs a natural process. Thus, it has no negative effects on the environment. Rehabilitation is much easier afterwards.

YOUR CUSTOMISED CALCULATIONS

Road establishment with Terrabind Max



Establishment spray-on

Maintenance spray-on

Treated area (m²):

Product quantity (kg):

Water truck volume (L):

Product quantity dissolved per spray-truck trip (kg):

Maintenance spray-on application with Terrabind Max

Treated area (m²):

Product quantity (kg):

Water truck volume (L):

Product quantity dissolved per spray-truck trip (kg):

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