Chembase Treatment System (CTS)

Application and treatment of wind farm road sub-base layers

Product: Chembase® C-SSSB1 | Research and development

“It costs you nothing to find out how much you can save.”

Wind farm construction: more than turbines

Access roads

Internal roads linking the public network to turbines and substations.

Crane pads

Hard-standing areas for the cranes that erect turbines.

Turbine foundations

The base that anchors each turbine.

Power collection network

Overhead and underground electrical cabling.

Substation

Connects the wind farm to the grid.

Meteorological mast

Measures wind conditions on site.

What damages wind farm roads

Poor drainage

Roads and tracks can erode badly in heavy rain and quickly become untrafficable or unsafe.

Wrong roadbed material

Incorrect material selection weakens internal roads, even without heavy traffic.

Poor design or construction

Erosion is usually the result of poor design or construction.

The ground challenge

CBR < 5

Internal roads are often built on soils with a low CBR

CBR < 2

and sometimes on soils with a very low CBR

20 years

Intended lifespan of a wind farm. Access roads must withstand construction traffic and heavy equipment.

Sites are chosen for wind, power distribution and land leasing, not for ground conditions. Soft subgrades have to be dealt with, and few wind energy sites can be developed without soil reinforcement.

One product, supplied in two parts

PART A

Polymer-Stabiliser

+

PART B

Activator

Chembase®
C-SSSB1

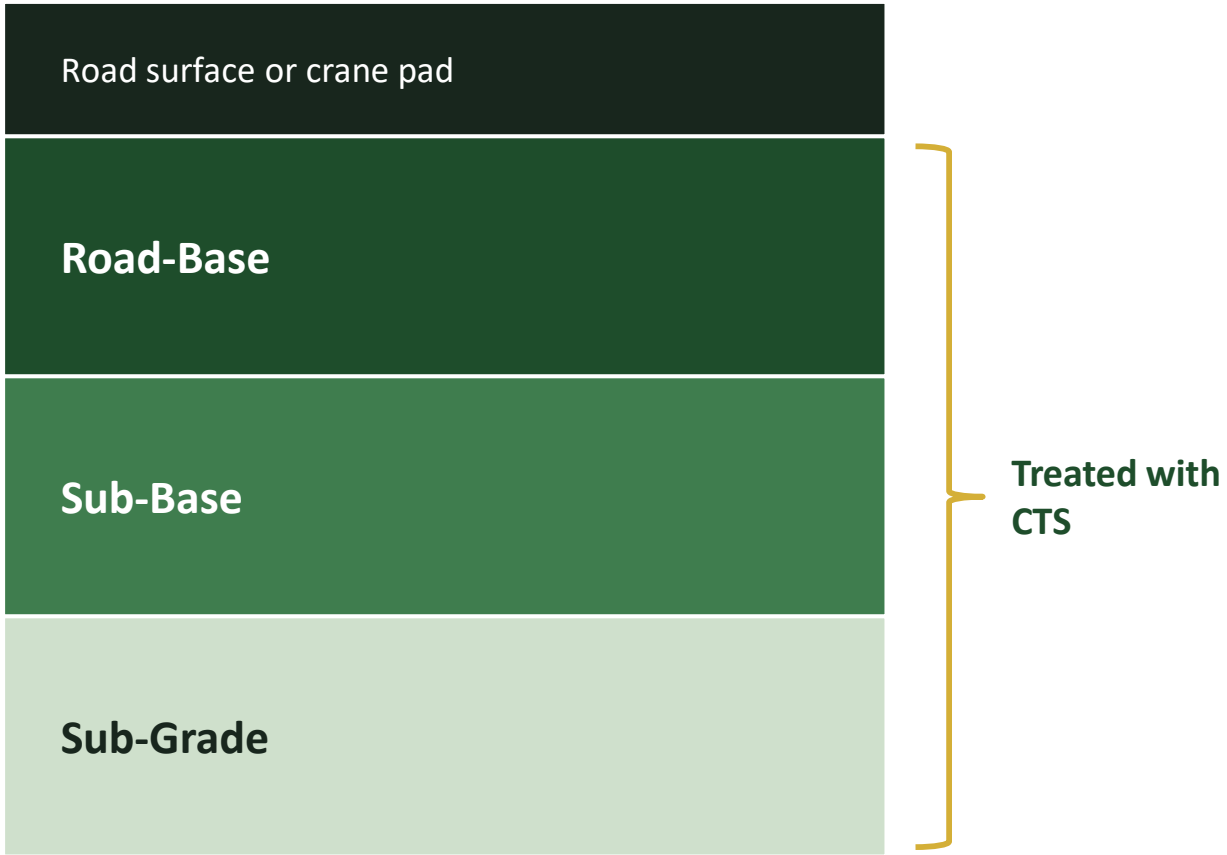
Five characteristics
combined in one product

A simplified range

- Five different chemistry characteristics are now combined into a single Chembase product.
- The application and treatment methods stay the same.
- The same characteristics, benefits and advantages are retained.

Naming: CTS stands for Chembase Treatment System. Chembase is also known as Chembase International and Chembase International Group.

Where CTS works: beneath the road surface



Indicative cross-section

CTS modifies the properties of the existing soil to improve performance and durability.

- **Greater strength**
- **Higher load-bearing capacity**
- **Resistance to moisture-related issues**

Chembase and conventional road construction work together.

From stabilised layers to lower costs

1. **Stabilised base layers**
   CTS stabilises the road-base, sub-base and sub-grade.

2. **Less water, fewer potholes**
   Water leakage and potholes are reduced in the treated area.

3. **Less maintenance**
   The treated area needs less ongoing repair.

4. **Lower cost, longer life**
   Reduced costs and greater longevity for the treated area.

Performance benefits of treated layers

CBR increase

Raises the California Bearing Ratio (CBR), a standard measure of soil strength.

Water resistance

Treated layers resist water, limiting moisture-related damage.

Liquefaction resistant

Treated soil resists liquefaction, the loss of strength in saturated ground.

Freezing-condition tolerance

Tolerates freezing conditions.

Oil and petroleum barrier

Prevents oil and petroleum penetrating the treated soil.

Longevity

A long service life for the treated area.

Practical and environmental benefits

On site

Workable in any weather
Application is not held up by conditions.

Stable once diluted
The diluted product will not oxidise.

Re-compactable
Treated soil can be re-compacted (20 years).

Savings
Less maintenance and reduced costs.

Safety and sustainability

Safe to use
Product-safe and environmentally safe.

Waste plastic and glass
Shredded plastic or stained glass added to treated soil increases CBR.

Ash waste
Ash added to treated soil increases CBR.

Saltwater
Saltwater can replace fresh water, and increases CBR.

Brick pavements
Can be used in brick pavement manufacturing.

How CTS supports wind farm roads

CTS soil stabilisation is a powerful, cost-effective technology for site development projects.

- Improves subgrade shear strength
- Controls shrink-swell properties
- Gives higher load-bearing capacity and uniform consistency
- Adds strength to almost any soil under a hard-surface pavement or structural fill zone
- Suits the road every turbine needs: cost savings and a long life

Think of it as an insurance policy against water, weather and heavy delivery loads.

Adapting roads for oversize transport

1. **Find the problem**
   A curve too tight, a crest too sharp, or both.
2. **Simulate the truck path**
   Swept-path software shows where the blade trailer runs.
3. **Check the sections**
   Long and cross sections show where the trailer touches.
4. **Adjust the levels**
   Raise or lower points, then recheck slope and clearance.
5. **Send to site**
   Export the model and profiles for the surveyor to implement.

Wind farm siting facts

Best locations

Coastal areas, rounded hilltops, open plains and mountain gaps.

Hilltop advantage

Ideally 20–40 m above surrounding hills, clear of trees.

Land use

About 2 to 40 acres per megawatt; little of it for turbines and roads.

Setbacks

Four times turbine height from homes: 600 m for a 150 m turbine.

Maintenance

Preventative check-ups two to three times a year.

Blade life

20–25 years, though many are replaced after 10.

It costs you nothing to find out how much you can save

Talk to Chembase about treating your road-base, sub-base and sub-grade layers.

INDEPENDENT UNIVERSITY REPORTS

Reports from The University of Sydney and UNSW (University of New South Wales) are available at www.chembase.com.au

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