Chembase Treatment System (CTS)

Mines, mine roads, coal storage and tailings dams: sub-base layers

Product: Chembase® C-SSSB1 | Research and development

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

Where CTS is applied on a mine site

- Mine sub-base layers
- Coal storage areas
- Roads to tailings dams
- Haulage roads
- Platforms for heavy vehicles
- Wherever soil needs stabilising

Three types of soil stabilisation

Biological

Using vegetation to hold the soil.

Physical

Compaction, drainage and blending of materials.

Chemical

Additives that control engineering properties such as moisture content. This is the CTS approach.

Stabilisation transforms a soil's physical properties to give long-term, permanent strength gains.

Seven ways to improve bearing capacity

1. Increase the depth of the foundation
2. Drain the soil
3. Compact the soil
4. Confine the soil
5. Replace the poor soil
6. Use grouting material
7. Stabilise the soil with chemicals

CTS can be used with these techniques, as the site conditions require.

One product, supplied in two parts

PART A

Polymer-Stabiliser

+

PART B

Activator

Chembase®
C-SSSB1

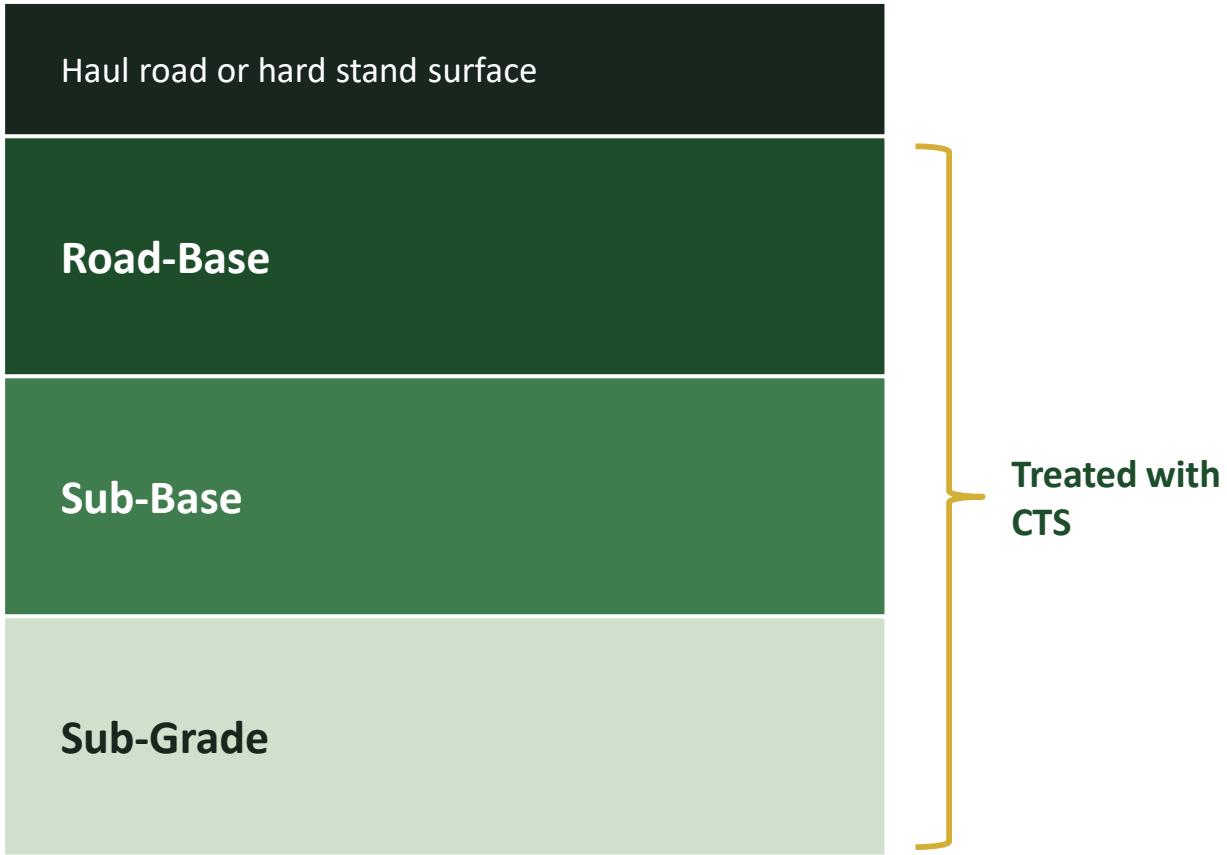
Five characteristics
combined in one product

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: the base layers



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.

CTS on mine sites: the numbers

65%+

Saving on road construction

75%+

Saving on road maintenance

−62 °C

Freezing-condition tolerance, protecting the soil from damage

38+ years

Minimum life span, with little to no maintenance

CBR increases from 8 to 100 (Middle Dural). Treated soil can be re-compacted without re-applying the Chembase polymer.

Figures as stated in the Chembase R&D brochure. Reports: University of Sydney, UNSW, Douglas Partners and Construction Scienœ.

What stabilisation means for a mine

Storage and roads

Hard stands that hold
Stabilised iron ore and coal pads stop product sinking into the sub-base, avoiding costly recovery.

Kinder haul roads
Less wear and tear on heavy earthmoving equipment and dump truck tyres.

Less dust
Fewer dust contaminants enter the moving and wearing parts of equipment.

Tailings and cost

Stable tailings
Surface stabilisation resists water and air erosion and helps stop heavy metals spreading.

Safer dam walls
Well-stabilised tailings dams are safer for people living below the dam wall.

Tyre costs
One large Chilean copper mine is cited as spending $360 million a year on dump truck tyres. Stabilised roads can cut this by up to 35%.

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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