Chembase Treatment System (CTS)

Sub-base layers: replacing fresh water with salt water

Research and development

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

Salt water and fresh water

Salt water

Water that contains a certain amount of salts. It is denser than fresh water because of its salt content.

Fresh water

Water with a dissolved salt concentration of less than 1%.

Where the salt comes from

Flowing water erodes minerals from rocks and carries them into the oceans.

KEY FIGURES

About 71% of the earth is covered by salt water

Fresh water holds under 1% dissolved salt

Any water source can be used

Sea water

Salt water can replace fresh water in the CTS product.

Rivers

Raw river water can dilute and mix Chembase with the soil.

Dams and lakes

Raw water from dams and lakes can be used in the same way.

Mine site water

Including the highly saline waters typically held on mine sites.

Salt water carries Chembase into the soil during stabilisation, reducing the use of fresh drinking water.

Four types of soil stabilisation

Cement

Cement is added to the soil to bind it.

Lime

Lime makes clay particles clump, so the soil is more friable.

Bitumen

Bitumen is used to stabilise soil and sand.

Chemical

Additives change the soil's properties. This is the CTS approach.

There are dozens of stabilisation methods: adding cement, adding chemicals, and mechanical methods such as compaction.

One product, supplied in two parts

PART A

Polymer-Stabiliser

+

PART B

Activator

**Chembase®
CTS**

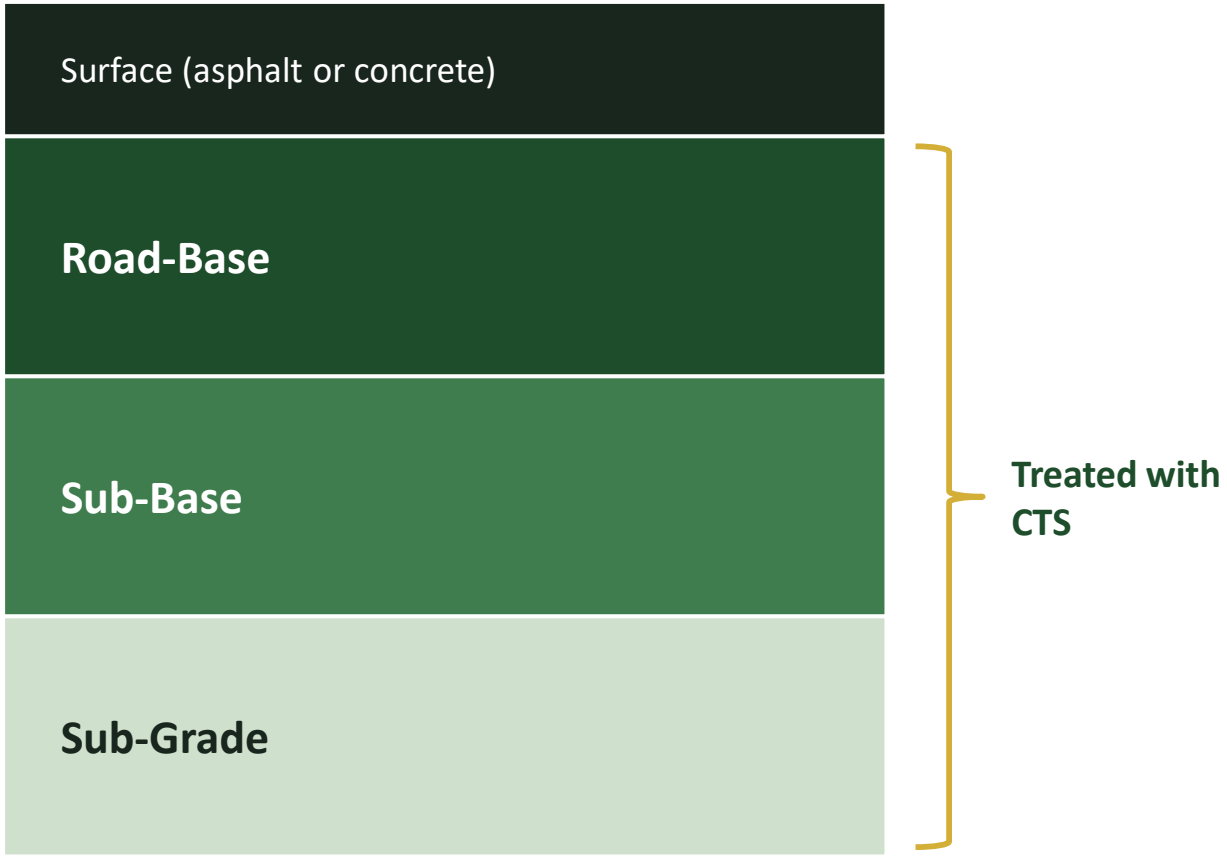
Five characteristics
combined in one product

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

Salt water replaces fresh water when CTS is mixed into the base layers, which increases the CBR.

- **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.

What CTS does with salt water

Replaces fresh water

Salt water is the vehicle that carries Chembase into the soil during stabilisation.

Higher CBR

A Chembase-stabilised road base made with salt water has an increased CBR.

Lower cost

The overall programme costs less because costly potable water is not required.

Works in remote areas

The Chembase system performs in remote areas where potable water is not available.

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

Talk to Chembase about stabilising your base layers without using drinking water.

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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