Chembase Treatment System (CTS)

Dust suppression applied to the surface layer

Product: Chembase® C-SSDSSB1 | Research and development

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

What is dust suppression?

Managing airborne dust

The management of dust from mining, civil and construction work and any unsealed area.

Liquid that captures dust

Liquid is applied to stop fine particles spreading, often as a fine mist of water.

Safety, health, environment

Dust control reduces site emissions and helps protect employees.

DUST HAS TWO SOURCES

- **Natural forces, such as wind**
- **Man-made, such as haul trucks on unsealed roads**

Dust and droplets: the sizes that matter

> 1 µm

Dust is solid particles larger than 1 micron in mean diameter

< 10 µm

The most dangerous particles: they can enter the respiratory system

20–100 µm

Fine-mist droplets that best capture airborne dust

100–250 µm

Fine-drizzle droplets used in wet suppression systems

Collision is most likely when droplets and dust particles are similar in size. Droplets that are too large miss the finest dust; droplets that are too small evaporate.

Two kinds of spray system

Wet suppression

Adds moisture to the material, stationary or moving, so dust does not become airborne. Uses a fine drizzle of 100 to 250 µm drops.

Airborne capture

Very fine water drops collide with dust already in the air, forming clumps too heavy to stay airborne.

The cost of dust on construction sites

- Stricter safety gear is needed, and operator risk is higher
- Dust accelerates wear on expensive equipment
- It gets into moving parts and causes breakages
- People living near construction zones are affected
- Most methods are costly or need constant re-application

Water sprays are the classic example of a method that needs consistent re-application.

Dust control techniques

On unsealed roads

1. Reduce the traffic
2. Reduce the speed
3. Improve road design
4. Water the road
5. Cover the road with gravel
6. Increase surface moisture content
7. Bind the road particles together
8. Seal unpaved roads

On construction sites

1. Identify fugitive dust sources
2. Develop a plan
3. Use dust suppressants
4. Reduce speed
5. Limit soil disturbance
6. Use vegetation
7. Use a dust collection system

One product, supplied in two parts

PART A

Polymer-Stabiliser

+

PART B

Activator

Chembase®
C-SSDSSB1

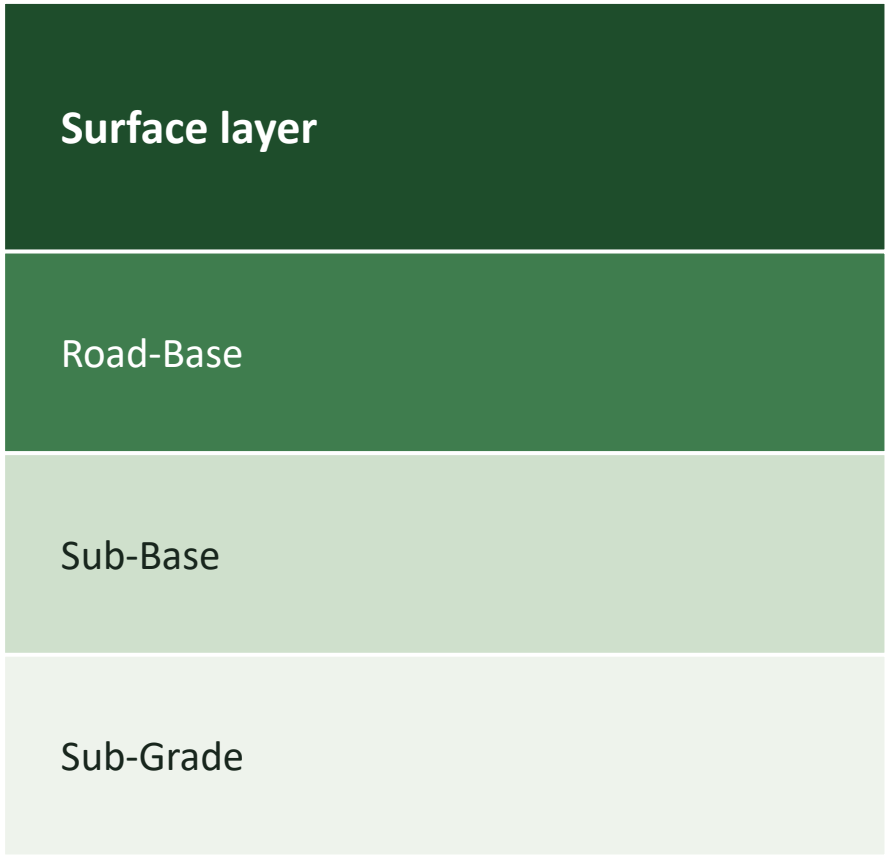
Five characteristics
combined in one product

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 surface layer



Indicative cross-section

CTS creates a surface layer that binds dust particles together and stabilises the soil.

Binds dust particles

Waterproofs the surface layer

Long-lasting dust control

Chembase and conventional road construction work together.

From dust control to lower costs

1 Bound surface layer

CTS binds dust particles and stabilises the soil.

2 Less airborne dust

The layer stops dust from becoming airborne.

3 Less maintenance

The treated area needs less ongoing attention.

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.

Where CTS dust suppression is used

- Construction sites
- Mine roads
- Farm roads
- Cattle feedlots
- Quarries
- Anywhere with high dust risk

CTS can be used on the wearing surface of unsealed roads or shoulders as a dust suppressant.

What CTS does for dust control

Binds the surface

CTS creates a surface layer that binds dust particles and stabilises the soil, so dust cannot become airborne.

Waterproofs

The Chembase stabiliser waterproofs the surface layer of roads.

Outlasts water

CTS lasts longer than conventional methods, such as importing thousands of litres of water, and is more cost-effective.

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

Talk to Chembase about long-lasting dust control for your site.

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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