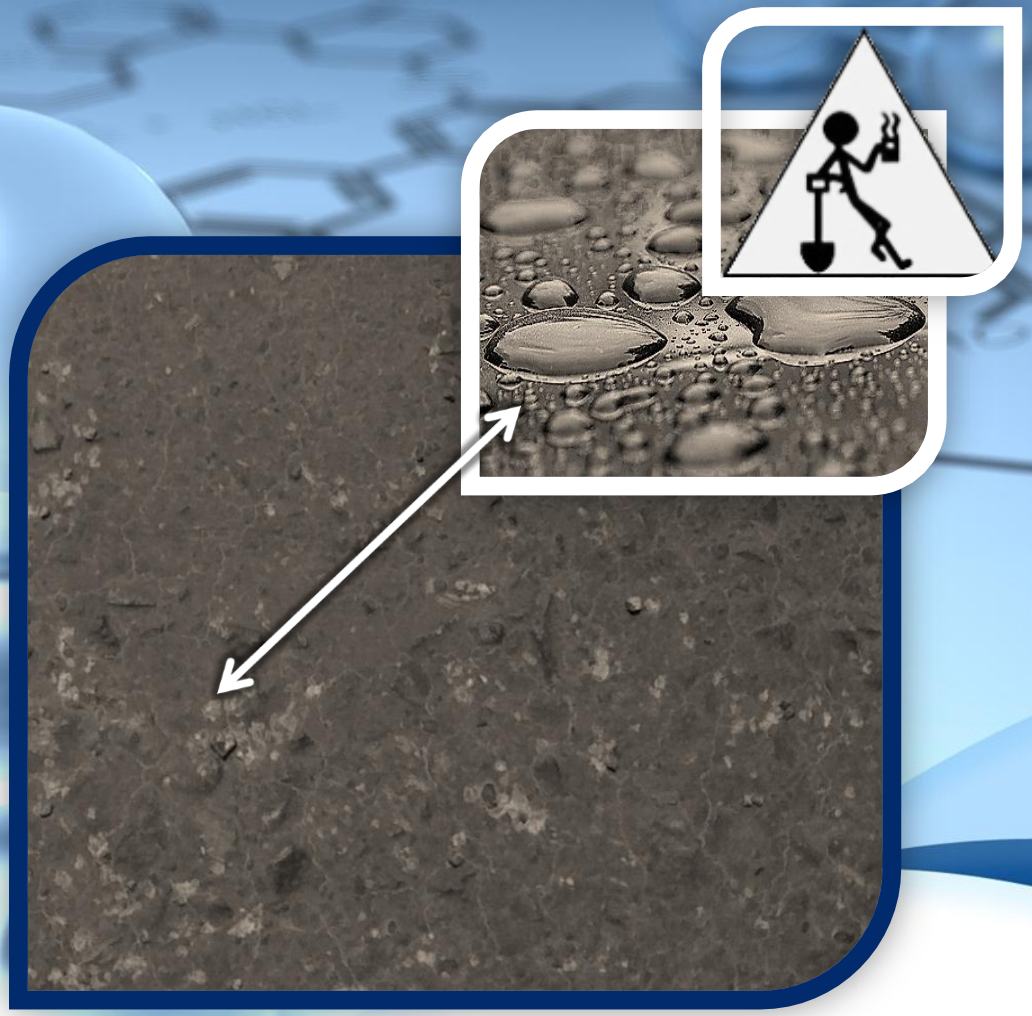
Gravel Lock

HSC

- Soil Science
- Stops Dust
- Reduces Maintenance



HSC-Reduces Maintenance Costs

Binary Hydroscopic Soil Cement

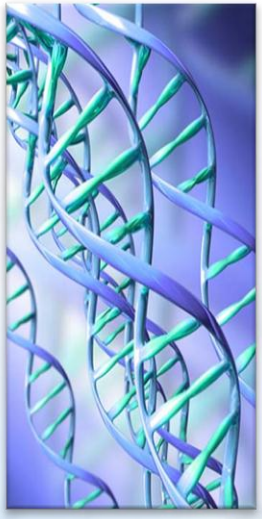
Patent Pending

How HSC Hydroscopic Soil Cement works

Creates a strong, hydroscopic, flexible pavement

Features & Benefits

- Stabilizes all materials
- Keeps road moist
- Flexible yet strong
- Re-healing
- The gravels are held tightly bound
- Minimises potholes
- Minimises corrugations
- Minimises washboards
- Reduces maintenance
- Can be ripped & re-graded
- Controlled setting times
- Controlled set strengths



Patented

Comes Pre-Mixed

Graded/Milled in

Draws in Moisture

GravelLock

HSC

What councils are saying

Save money on maintenance.

During one of the wettest winters for several years and after 6 months without grading or any addition of metal both test strips are still holding their surface shape and show only minor surface defects. Compared with the normal unsealed pavements at either end of each test strip the test strips are requiring much less maintenance and also produce negligible dust under traffic on dry days

To date the Gravel Lock HSC has performed much better than any other commercially available dust suppression product that I have seen and it has the added advantage of being a potential remedy for corrugations and pot holing. Providing that the cost of the product and the cost of applying it can be kept low it could become a very effective alternative to conventional seal extensions.

Richard Green

Richard Green
Manager Roads and Storm water
Infrastructure and Asset Management Department

Far North District Council
Te Kaunihera o Tai Tokerau Ki Te Raki

GravelLock HSC

Northland New Zealand test Road 3

Close up photos Spain's Road Awanui

Applicated on 28/2/2011
Inspected on 5/5/2011
Note date scratched in pavement

Sweeping fines 5/5/2011 to collect data for metal use

Inspection date 04/8/2011
Only minor defects to pavement

HSC Hydroscopic Soil Cement

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Northland New Zealand test Road 3

Road Photos Spain's Road Awanui

Applicated 28/2/2011

Inspection date 04/8/2011

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Northland New Zealand test Road 3

Gravel wear reduced. Pavement wearing uniformly.
The product can be graded if needed and will compact back down

HSC Hydroscopic Soil Cement

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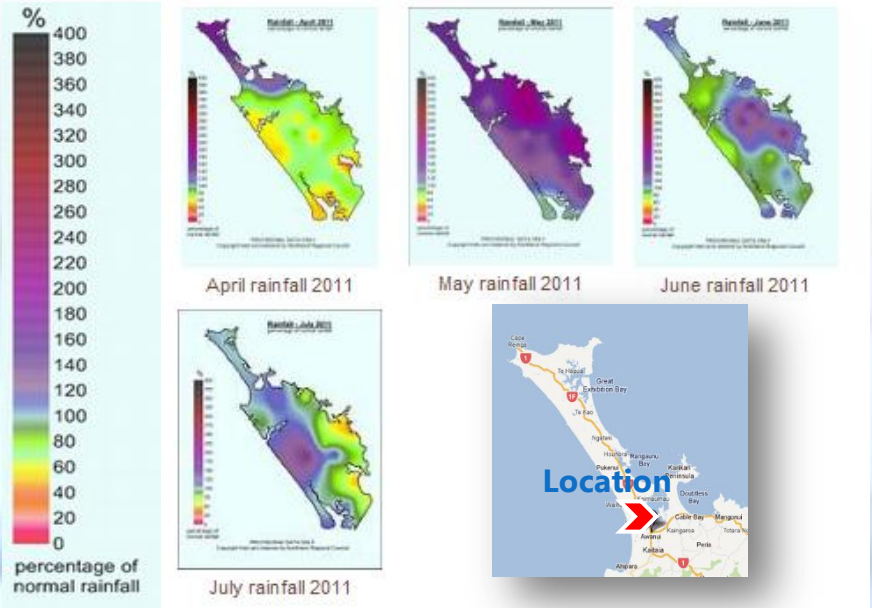
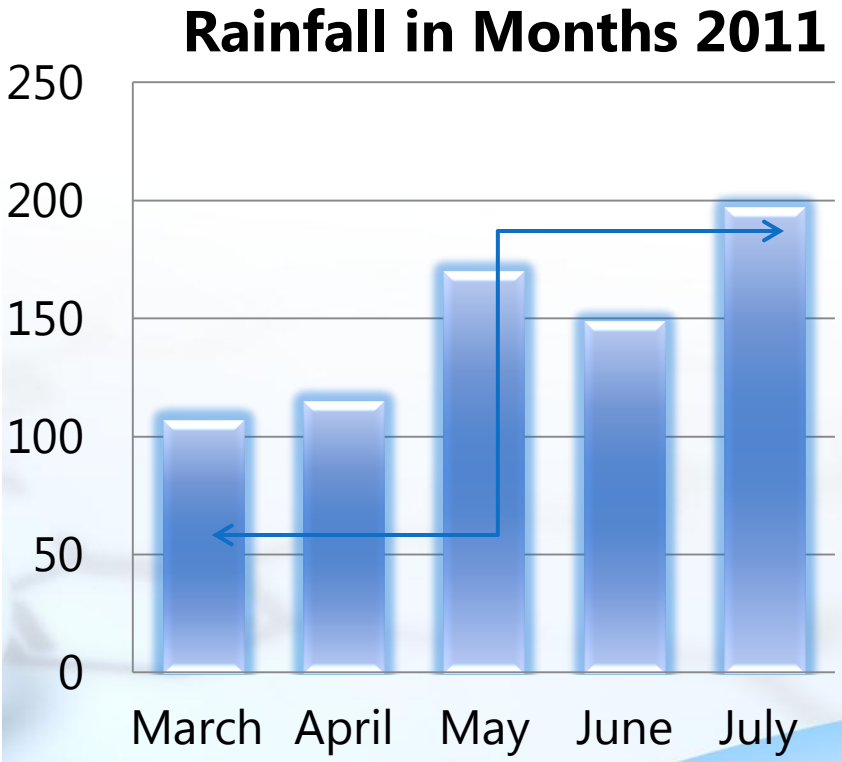
How did HSC perform over winter ?

Wettest winter in several years

Rainfall data collected at Awanui, Northland. Over 730mm rainfall since applicated





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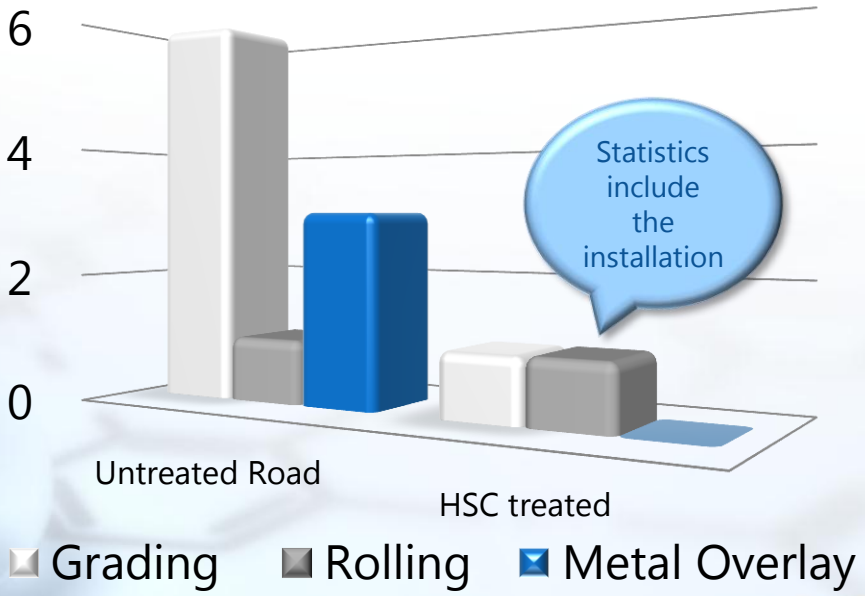
HSC Saves Maintenance

HSC Minimises Maintenance, Potholes and Washboarding



HSC Hydroscopic Soil Cement

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How to applicate Gravel Lock HSC

Grader, Water Cart and Roller (no milling required)

1. Order HSC
2. Applicate powder at required rate
3. Grade mix or mill in -water
4. Roll

HSC Hydroscopic Soil Cement

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WHAT IS Gravel Lock HSC

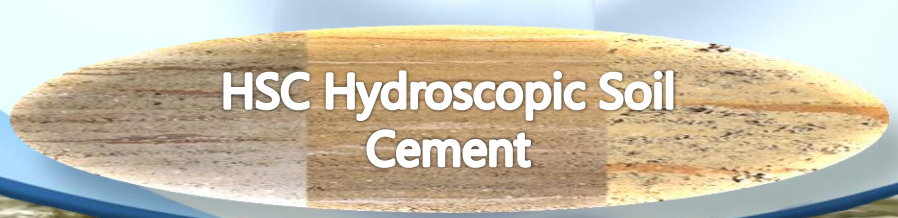
- **Gravel Lock HSC ®**as developed by Gravel Lock NZ Ltd, is a powdered product designed to lock gravel and achieve maximum dust control .

WHAT DOES HSC® DO?

- HSC® is an excellent solution for dust control and soil stabilization problems. When you apply HSC® to roads and bare soil areas it immediately goes to work by providing:
- 1) An inexpensive, smooth, firm, driving surface, which increases vehicle productivity & decreases fuel consumption.
- 2) Money-saving opportunities ranging from vehicle and road maintenance expenditures **(such as grading, watering and gravel replacement)** to improving the engineering properties of soil. HSC has proven that it can eliminate the cost of grading unpaved roads.
- 3) Greater safety by increasing driver visibility and decreasing risks caused by loose gravel, soft spots, road roughness and flying rocks.
- 4) Stabilizing the soil preventing destructive wind erosion.
- 5) Cleaner air, which leads to better health, better visibility and much cleaner vehicles, property, vegetation and living sites.

WHERE SHOULD HSC® BE USED?

- HSC® works to control dust and stabilize aggregate and dirt surfaces on virtually any type of road. For example, it can be used on mine, construction site and forest/timber haul roads, as well as military, agriculture, industrial and council roads. Private and rural roads, parking lot surfaces, industrial and construction staging areas and airfield helicopter pads are also appropriate surfaces for HSC applications. HSC is good for stabilizing road bases and shoulders. HSC helps in road base stabilization by increasing base strength and reducing compaction costs. On road shoulders, HSC® will maintain a firm, tight surface increasing shoulder safety and reducing maintenance costs.



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HOW DOES HSC ® WORK?

One application of HSC® on soil or unpaved roads puts four stabilizing mechanisms to work simultaneously:

- 1) Hydroscopicity of the cement additives activates high surface tension strength.
- 2) Particle charge bonding adds strength to the fine ground soil particles.
- 3) Adhesive polymer and cement properties work to bind the soil particles together.
- 4) Chemical composition increases surface compaction, providing the soil particles with greater interlocking strength. Because of these mechanisms, HSC ® is highly effective under most road conditions, in low relative humidity as well as high.
- *Curing* -HSC has extreme longevity by re-healing itself through a continuous curing process. The purpose of curing is to minimise moisture transfer from the blended materials and to enable a satisfactory binder reaction to proceed to give strength and durability properties.

WHAT IS THE APPLICATION RATE ?

- We recommend applying HSC PRE MIX from 4 .2 kgs @ 75mm deep square meter. Our application procedures will minimize runoff and obtain deep, even penetration. Other application rates can be used for greater strength , but the basic rate is best for first time applications and for the longest length of dust control. The basic rate usually provides six months of dust control and stabilization for twelve to twenty four months without reapplication the more traffic the road get the better it performs .
- Our HSC maintenance programme will prevent loss of the fine grained soil particles and protect your investment in HSC road surfacing. The amount of residual dust remaining in the surface often allows very low rates to be used for reapplication. Gravel Lock NZ can assist in the selection of application rates to suit different traffic and weather conditions .

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HOW SHOULD I PREPARE MY ROAD FOR APPLICATION?

- Prior to surface preparation, it is extremely important to shape the road correctly. The better the conditions, the more successful the HSC stabilizing & dust control application will be. If the surface is permeable, smooth, firm and shaped for drainage, it's ready for application. Before applying HSC® make sure that any ruts, washboards, potholes, drainage problems, gravel segregation and hard impervious areas have been rectified. While correct surface preparation need not be difficult, it is very important in the overall success of the dust and stabilization control treatment to shed the water in the winter months.
- *GRADING* will take care of problems like ruts, potholes, wash-boarding and gravel segregation and will provide a smooth, well-drained surface. It may not even be necessary if the surface is already smooth, shaped and evenly mixed.
- *COMPACTING* should be performed if grading loosens the surface. Don't forget to water the HSC up to the OMC before compacting. This produces a dense, tight very hard surface.
- *PRE-WATERING* (ideally to a depth of 3 to 4 inches) will break the surface tension and allow maximum penetration before applying HSC. If the surface is too tight for easy water penetration, it should be bladed and re-compacted, creating a firm but easily penetrated surface.
- For best results, the surface should be pre-watered several hours before the HSC application. If an extensive area is to be covered, it can be pre-watered the afternoon or evening before application. Regardless of when the pre-watering is done, the surface should be damp at the time of application to extend the life of the application

HOW DO I GET THE BEST RESULTS?

- HSC® performs best when applied to a soil or gravel road surface that is smooth, firm and shaped for drainage. The road should graded with a Grader to a depth of 75mm mixing the fines throughout the bony metal then mixing in the powders and wetting and rolling. A pneumatic roller is preferred but steel drums will work if kept wet.

GravelLock

HSC

Private Roads

Council Roads

Hard Stands

Forestry Roads

Military Needs

Hydroscopic Soil Cement

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BEFORE IN WINTER
3 MONTHS OLD
6 MONTHS OLD. NO GRADING, METAL OR MAINTENANCE NEEDED
HSC Hydroscopic Soil Cement
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HSC