



# FLEXI-C-MENT

Super-modified Cement



**Flexi-C-Ment** is a uniquely designed co-polymer additive that improves cement, creating a more flexible, water resistant pavement.

Flexi-C-Ment is successfully used on Highways, Unsealed Roads, Forestry roads, Haul Roads, and Dairy Races.



The life of Flexi-C-Ment versus Portland cement is **1.5 to 3 times greater**

Verified by independent Laboratory testing



## Exceptional Performance

6-15kgs per sqm will provide long term stabilization



## Flexi-C-Ment Lasts Longer

- Provides a strong water resistant pavement
- Creates a high-performance pavement, both sealed and unsealed



## Flexi-C-Ment is easy to use

Can treat up to 1 km per day using standard stabilization equipment

Proud to be supplying the roading industry with innovative solutions to real problems



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Call now for bulk rates

## Features and Benefits - outperforms standard cement

**Lasts 1.5-3 times longer than cement stabilized pavements :** Extremely strong and flexible , water resistant, long lasting, supplied as two-part blend, extremely cost effective

## What to expect when you stabilize your pavements with Flexi-C-Ment

Stronger, more flexible, longer lasting modified pavement



### Problem before treatment

Newly constructed, in poor condition

The entry onto Local authority road required paving

Site subject to flooding,

Soft subgrade



### Solution at 5 months

Maintenance and dust-free after 2,400 truck and trailer movements (35,000 tons)

Remained strong, well-bound with no loose aggregate

Pavement in excellent condition

Local authority accepted the entrance without paving



### Solution at 12 months

Maintenance and dust free after 3,500 truck and trailer movements (50,000 tons)

Remained strong, well-bound with no loose aggregate

Pavement in excellent condition

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Disclaimer ,The data presented in this brochure are in accordance with the present state of our knowledge, but do not absolve the user from carefully checking all test results by their own trials . We reserve the right to alter product constants within the scope of technical progress or new developments. Any recommendations made in our literature should be checked by preliminary trials because of conditions during application over which we have no control, especially where raw materials are also being used. The recommendations do not absolve the user from the obligation of investigating the possibility of infringement of third parties' rights and, if necessary, clarifying the position. Recommendations for use do not constitute a warranty, either express or implied, of the fitness or suitability of the products for a particular purpose



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## Letter of Introduction

Gravel Lock NZ Ltd is the innovator and manufacturer of GLNZ Ltd soil and aggregate stabilizers. Gravel Lock's Flexi-C-Ment product is eco-friendly and stabilizes most aggregates.

Gravel Lock's R&D department continues to develop and improve products for the civil construction marketplace. Flexi-C-Ment allows the use of low grade aggregate in the production of strong, long life pavements, whilst maximising durability, tensile and compressive strengths. In addition minimising the effects of weathering and moisture ingress. Flexi-C-Ment achieves 1.5 to 3 times the life of unmodified cement stabilized pavements.

Flexi-C-Ment – Gravel Lock NZ Ltd's proprietary co-polymer is an additive to Portland cement that improves performance and creates a more water resistant, flexible pavement. Flexi-C-Ment is the perfect solution to highway construction, giving extended life to your roads!

As a liquid additive mixture Flexi-C-Ment is blended with Portland cement and can be applied by either the grader or milled methods. Application methodologies are available on our website at [www.gravellock.co.nz](http://www.gravellock.co.nz) or by email at [info@gravellock.co.nz](mailto:info@gravellock.co.nz). No specialized equipment is required, standard construction equipment can be used for the application of Flexi-C-Ment.

Once applied to the aggregate, Flexi-C-Ment forms bonds between the aggregate or aggregate particles. The key advantage of Flexi-C-Ment is that it improves tensile strength and flexibility of treated pavements. Flexi-C-Ment is suitable for the modification of sub-bases and base courses. Flexi-C-Ment contains waterproofing agents and long chain polymers with Nano technology creating a durable and a water resistant matrix of flexible pavement. Once cured, Flexi-C-Ment produces a strong, wear resistant unsealed pavement.

Flexi-C-Ment results depend on the application rate used. Low doses of Flexi-C-Ment can be used to modify pavement but it also has the ability to be applied in much higher dose rates than conventional cement stabilization. In high percentages it will create a high strength pavement that can be left unsealed. Flexi-C-Ment provides stronger pavements than ordinary cement at similar application rates.

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## Letter of Introduction - continued

Flexi-C-Ment has been rigorously evaluated by New Zealand's Councils and Engineers. Its performance has been verified by Road Science New Zealand and Opus Consultants against the industry's traditional top performing traditional aggregate stabilizers and dust control agents. When compared to Portland Cement it has a higher tensile strength and increased flexibility. As a result, Flexi-C-Ment has found a strong market place in stabilising roads, unsealed public networks, hard stands, high dust sensitive areas, and in maintaining gravel roads, offering a low cost solution to sealed and unsealed networks globally. Flexi-C-Ment has the ability to bring substandard materials to a higher specification that can be designed into pavements by Engineers. Flexi-C-Ment T offers faster and cheaper construction methods, For example, Flexi-C-Ment has the potential to replace foam bitumen stabilizing which requires expensive specialised equipment. It also has the ability of lowering pavement depths-using less aggregate, creating less impact on already diminishing aggregate sources and creating extreme pavement strengths, making it more cost effective than traditional methods. Flexi-C-Ment can be applied with a standard water cart.

Flexi-C-Ment's patented advanced nanotechnology is modernizing the way we stabilize aggregates in addition to controlling dust and modifying pavements with incredible performance for a whole new generation. Flexi-C-Ment applications are extensive, ranging from walkways to freeways, construction sites to heavy-lift military cargo runways and global transportation infrastructures. It has found a great marketplace in the mining industry where haul roads carrying extreme loads are required.

Gravel Lock NZ Ltd is dedicated to economically solving aggregate stabilization challenges throughout the world's residential, commercial, industrial and military markets. For more information about Flexi-C-Ment, please visit us online at [www.gravellock.co.nz](http://www.gravellock.co.nz).

Respectfully

Gravel Lock NZ Ltd

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## Features and Benefits

Has designed as an additive to Portland cement and our uniquely designed co-polymer additive that improves the cement creating a more flexible, water resistant pavement.

## Uses & Application

### Uses & Application

High ways –Freeways  
Local body council unsealed roads  
Mine roads ,Haul roads  
Dairy  
Car parks  
Forestry roads  
Dust control  
Runways  
Rail  
Driveways  
Construction sites  
Cycle ways

### Recommendations

The recommended application rate is from 4 -12 kgs per square metre at 100mm deep , generally applied using the milled method or with large graders.

### Features & Benefits

Extremely strong and flexible  
water resistant,  
long lasting  
supplied as concentrated liquid and blended with readily available Portland cement  
Increases CBR strengths  
Easy to use  
Safe Not heated lie foam bitumen methods  
Can be designed by engineers

**FLEXI-C-MENT is environmentally safe to use when approved application methods are followed.**

FLEXI-C-MENT 's advanced technology is has been proven in large projects to stabilize insitu material  
FLEXI-C-MENT benefits are that you can increase the amount of cement without the worries of fatigue, brittleness, water ingress or cracking

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# FLEXI-C-MENT

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Applications -

Down load the product selection guide

Most suited



Local Body



Mines Haul roads



Forestry



Dairy



Car parks



Dust control



Run ways



Rail



Industrial Yard



Drive ways



Erosion control



vineyards - nursery's



Construction sites Car parks



Cycle ways -walk ways



Golf courses

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# FLEXI-C-MENT

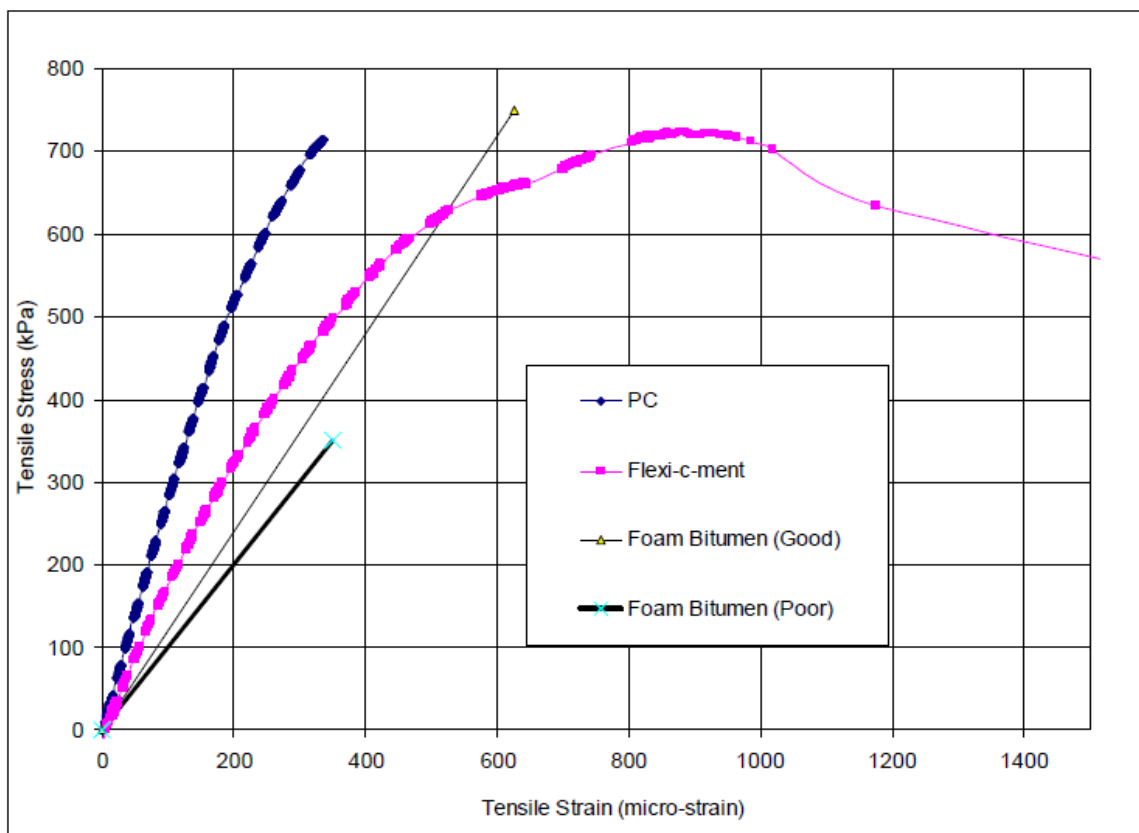
Super-modified Cement



When tested against Portland Cement & Foam Bitumen, Flexi-C-Ment Lasts Longer

Depending on the ground conditions, the additional life of the Flexi-c-Ment versus Portland cement is 1.5 times greater, and possibly up to 3 times more.

## Flexural Beam Breakage Plots



### Exceptional Performance

Test results available

### Flexi-C-Ment Lasts Longer

Tensile strength is fairly typical for the dose rate of 53 kg/m<sup>3</sup>. The addition of the polymer in the Portland cement reduces the elastic modulus, thus making this more flexible. So it retains its strength, but with greater flexibility.

For a pavement design, fatigue criteria would be:

$$N = (524.5/(\epsilon))^{\wedge 12}$$

### Flexi-C-Ment is easy to use

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Equipment required

Equipment needed - application manual available at [www.gravellock.co.nz](http://www.gravellock.co.nz)

Equipment Needed	Typically (Sprayed application)	Grader method Not Exceeding 75mm	Milled Up to 400mm	Batched Depth to design
				
				
				
				
				
				
		If available	If available	If available
				
				
				

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## Frequently asked questions

### **Liquid Products – Flexi-C-Ment Additive**

**Prices** Current prices for Flexi-C-Ment are available upon request.

**Payment Terms** Prepaid or Net 30 Days upon approved credit.

**Bids / Proposals** Formal bids and proposals are available upon request.

**Minimum Order** 1000Litre ICB Tote. Off shore New Zealand 20 foot container, containing 18 ICB Totes

**Availability** 1,000Litre Totes are normally stocked and available on an immediate basis within New Zealand

**Turnaround** 72 hours – upon availability

**Large Volumes and Exported Products** 3-14 day turnaround for loading container. Shipping and loading logistics at Purchasers cost.

**Production Limits** Flexi-C-Ment can be manufactured rapidly in unlimited volumes worldwide.

**Prime Material** Flexi-C-Ment is a “Prime” material, not blended or recycled.

**By-Products** Flexi-C-Ment is not an ultra-filtrate, by-product, of-spec or off-grade.

**Curing** Flexi-C-Ment does not cure chemically; it cures as the water evaporates.

**Cure Time – Grader or Milled Method** 24 hours initial set, 28 days curing time. Temperature and weather are the primary factors.

**Cold Weather** Will significantly increase cure time. The lower the temperature, the longer the cure time. Flexi-C-Ment products are not to be used below 10c.

**Freezing** Flexi-C-Ment cannot be stored below 0c.

**Shipping** National & International. Non-Hazardous and Non-Regulated. Worldwide production.

**Guarantee** Gravel Lock NZ Ltd guarantees each batch of Flexi-C-Ment meets the stated specifications.

**Normal Life Span** Depends on application rates.

**Shelf Life** 1 Year if stored in a cool dry place.

**Maintenance** Repairs may be needed where heavy traffic has been experienced.

**Soil Type** Any. Best with non-plastic materials with a well graded grain size distribution and fines.

**Rain / Precipitation** Once applied Flexi-C-Ment is not susceptible to weather.

**Uncured Cleaning** Rinse equipment immediately. Simply use water to rinse out any uncured product.

**Cured Cleaning** Very difficult to remove, steam cleaning is successful.

**Grey Water Dilution** Flexi-C-Ment can be diluted with almost any water including Grey water.

**Sea Water Dilution** Sea water dilution is not recommended for Flexi-C-Ment.

**Performance Factors** Application rate, soil type, dilution, compaction, traffic, penetration, climate & others.

**Harmonized Code** The common International HS Tariff Code is 3905.21.00.00 for the product Flexi-C-Ment.

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**OUR EXPERIENCE  
YOUR SUCCESS**

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