

SOILFORM NANO-TECHNOLOGIES (PTY) LTD

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ROAD CONSTRUCTION
USING NANO-TECHNOLOGY



PAVEMENT LIFE EXTENDER

'Our pavement seal of approval'

NANO-SIL

PAVEMENT LIFE EXTENDER

NANO-SIL is an affordable **nano-technology** organosilane pavement seal, designed specifically to extend the life of new and older pavements. All pavements, even new pavements will have either pin holes, or some form of fatigue manifesting as surface cracks, which ultimately will be the cause of potholes or other pavement damage.

'**Pavement life Extender**' will seal pavements with a clear, initially water soluble, breathable 'Nano organosilane' and nano polymer mixture' that seals the road surface, greatly reducing water permeability, while remaining breathable. The oxidation rate of the bitumen in the asphalt is therefore reduced keeping the asphalt from becoming brittle and susceptible to fatigue cracking.

Breathability is paramount to future longevity of any pavement. Water that has permeated into the pavement is still able to evaporate in the form of vapor, but water particles or droplets cannot penetrate. Therefore the continual existing 'Wet/Dry' cycles experienced in current pavements is reduced.

The asphalt, chip seal or Cape seal surface as well as base and sub base courses can now be protected from water ingress.

Flexible pavements benefit from timeous maintenance interventions to prevent water ingress into the pavement layers, leading to accelerated pavement damage. **NANO-SIL** can be used as a cost effective maintenance treatment or holding action to seal and waterproof surface cracks, thereby extending the pavement life.

Features:

- Extends the life of any pavement reducing the ingress of surface moisture.
- Reduces the frequency of road maintenance interventions.
- Remains breathable, therefore allowing water within the pavement to escape in vapour form.
- UV resistant and heat resistant.
- Clear seal which will not blacken road markings, curbs, vegetation or other road features.
- Water soluble – 'solution will follow the path of the diluted 'Water diluted spray' and seal on drying.
- Spray run-offs protect road sidings or edges.
- Does not reduce skid resistance.
- Easily applied with water cart, knapsack sprayers or similar.
- No detours required.
- Will seal and protect existing areas of road surface fatigue manifested in map cracks, surface aging and raveling, allowing more time to plan and budget for repairs.
- Chemically converts water absorbing silanol groups to water resistant alkyl-siloxane surfaces at room temperature.
- Si-O-Si bonds (as in sand) survive for centuries.
- Non leachable, safe chemistry (*REACH and **TSCA registered).
- Affordable.
- **Nano-technology** patented in 165 countries worldwide.

* REACH is a regulation of the European Union (EU), adopted to improve the protection of human health and the environment from the risks that can be posed by chemicals.

** TSCA is the Toxic Substances Control Act passed by the United States Congress in 1976 and administered by the United States Environmental Protection Agency. It regulates the introduction of existing and new chemicals.

APPLICATION RATES

Dilution Rate:	1,5 parts Nano-Sil to 200 parts water.
Application Rate (of diluted solution):	1,0 l/sm (0.0075 l/sm for the concentrate as supplied to site)
Initial Treatment:	1 No. Application.
Maintenance Treatment:	1lt per m ² required per annum.
Method of Application:	Watering cans, knapsack sprayers, mobile water tankers with spray bars.

PRE-PAVEMENT SEAL TREATMENT CONTROL TEST:



Non-treated test area.



Water seepage into the layer finding its way through the cracked seal.



Water level after 20 mins.

Approximate water ingress (ml) after 7 mins was 25ml, after 15 mins was 40ml, after 20 mins was 50ml.

POST-PAVEMENT SEAL - NANO-SIL TREATMENT TEST:



Area after Pavement seal has dried.



No water seepage into cracked seal.



Water level after 20 mins.

Approximate water ingress (ml) after 7 mins was 0ml, after 15 mins was 2ml, after 20 min was 3ml.