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GROWSEAL™ Deep Porous Sealer

A Revolution in Concrete Preservation and Moisture Barrier System

Introduction

GROWSEAL™ DPS solution was originated in Nevada, U.S.A., in early 1910. The aim at that era was designed to protect concrete from the airborne chemicals (salts) used in the deicing procedures in the northern United States.

Subsequently its performance as a waterproofing product, as a concrete sealer and hardener, as well as its ability to protect concrete from airborne pollutants and chemicals harmful to the long life of concrete, has made **GROWSEAL™ DPS** unique in its price/performance when compared with traditional alternatives.

Its ease of use in many and varied applications has made it economical in its initial application, and when used as part of a system approach, detailed later, it becomes easy to maintain in an open system environment.

GROWSEAL™ DPS is a colourless, odourless, non-toxic, non-caustic, non-flammable, deep penetrating concrete treatment.

Its technology is such that it replaces, and out-performs many of the existing sealers, membranes and coatings in most applications.

GROWSEAL™ DPS simply enhances concrete's own capabilities. It does not try to compete with materials such as epoxy screeds, which are expensive, but provides a low cost alternative where the objectives of the end user can be met at the right price.

GROWSEAL™ DPS Main Features

- Penetrates normal concrete by more than 20mm.
- Hardens the penetrated concrete from 6 to 8 on the Moh scale of hardness (8 is equivalent to granite).
- Protects the concrete from deterioration by chlorides and airborne pollutants.
- No change to the features of the concrete, i.e. slip resistance and aesthetics.
- Inhibits the ingress of oils, greases and light acids.
- Is User and Environmentally friendly.
- Has a life expectancy similar to concrete.

Physical Specification

Toxicity	Nil
Odour	Nil
Flammability	Nil
Boiling Point	100 deg. C
Freezing Point	0 deg. C
Thinning	Not necessary
Solubility	100% in water
Viscosity	approx. 7 centipose
PH value	10.3
Specific Gravity	1.13 at 25 deg. C
Vapours	water only
Colour	transparent, colourless after drying
Elements Present	Na, Si, Fe, Ni, Cu, Zn, Zr.
Major constituent	sodium silicate
Hazard Data	No flash point, non-explosive, dassed non flammable, Hazardous chemical – sodium silicate 74%
Health Hazards	Oral: none, Skin: some irritation over long exposure, Eye: severe irritation (wash immediately), Inhalation: none

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Scope of Use

GROWSEAL™ DPS is used in each of the following applications. To achieve a total system result to meet the user objectives, ancillary products are used, but are not discussed in this brochure. These ancillary products are of a similar high quality and carry similar warranties of performance.

Car Parks

GROWSEAL™ DPS will seal thermal stress cracks up to 2mm wide, harden the surface to that of granite to the depth of penetration, will stand high levels of thermal stress. One example is concrete temperature of 65°C dropping to 18°C with rain within a 30 minute period. The concrete was power float finished and no additional material was used.

How Does It Work

Whilst there are many sealant available in the market, some which sound similar, there is a history to **GROWSEAL™ DPS** which has proven the claims made for this product to have substance in the long term. The design concept of the product has given **GROWSEAL™ DPS** a multiplicity of applications. Where, with other systems a number of products have to be used to achieve an objective, **GROWSEAL™ DPS** can achieve most objectives with one application. As well as penetrating deeply into the concrete, it sets up a long term pore blocking action which creates its own hydrophobic barrier to water penetration. At the same time it bonds with the particles of the penetrated concrete causing the penetrated area to harden. By the pore blocking action it densities the concrete without affecting the strength characteristics of the original concrete design.
No visible change takes place to the surface, therefore the application of aesthetic finishes such as tiles, paint or screeds are not affected.

Cost Effectiveness

GROWSEAL™ DPS application costs are well below those of reasonable quality membranes and have the added advantage that no protective screed is required. This creates quite interesting price differences, resulting in cost savings in the structure.
This different approach has enabled small design changes in certain structures which also contribute, substantially, to the overall cost savings.

Application Method

GROWSEAL™ DPS is applied by brush, roller or most preferred is the spray method, at a rate of $3m^2$ per litre, to a slightly damp surface. The surface should be pre-wetted when it was too dry. It is normally applied to the hydrostatic side. It can also be applied on the negative pressure side. For best performance, the concrete should be at least 7 to 28 days old, to achieve optimum penetration.

After application it is allowed to dry for at least 2 – 4 hours and is then watered thoroughly.

All glass, aluminum and wood stained areas should be protected during the spraying and watering procedures. Application should be avoided during high wind conditions.

Concrete Protection

Many walls in the building are allowed to stand for long periods before the paint is applied. This allows the ingress of pollutant, which will cause the paint to deteriorate. By applying **GROWSEAL™ DPS** to protect the concrete, this will have the effect of stopping the pollutants from permeating the concrete. The development of long life paints will give long-term cost / benefit performance.

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Flooring

Because of its ability to harden concrete to that of granite to a depth of 20 – 25mm **GROWSEAL™ DPS** makes an excellent hardener. Unlike most flooring system which place a hard material on the concrete or into the top 1 – 2mm, **GROWSEAL™ DPS** hardens the concrete itself. All other methods rely on the bonding ability of the flooring material. Concrete is good material in its own right.

Non-Standard Applications

GROWSEAL™ DPS has been used in many non-standard situations where the "fix" required is going to be very expensive or disruptive. The key to the chemical reaction of **GROWSEAL™ DPS** is the availability of free calcium ions. It is unusual for these not to be present. Together with these ions is the ability of the applicator to ascertain the path of the water. If both of these conditions can be met, it is likely that a result will be achieved. Some examples are, cracks underneath tiles, overflow drains in the swimming pools, retaining walls behind fill, concrete pipes inside beams are a few examples where **GROWSEAL™ DPS** has been successful.

The use of **GROWSEAL™ DPS** to rehabilitate "powdering" plaster, which is debonding, has a degree of success. Similarly with block walls where the quality of blocks has allowed leaking to occur.

The key to the success of these non-standard applications has been the ability to analyze the problem correctly.

Swimming Pools

GROWSEAL™ DPS has been used on both RC pools and Shotcrete (Gunnite) Pools. Special procedures at the comers and interfaces were instituted. Special grout was used when applying the tiles. A full water test must be done before the tiles are applied particularly when Shotcreting is used. The surrounding desk system has also been designed to give no problems. The use of chlorine in fresh water pools is often overlooked as the source of problems in the long term and this is the key to the success of the Pool System.

Tanks

This system covers water tanks, aquariums and other water holding vessels. Because **GROWSEAL™ DPS** is non-toxic, it is ideally suited for these vessels. Similar techniques as swimming pools are used. The outside of water tanks is often overlooked, and should be viewed from the concrete protection of view.

Roofs

Use of the **GROWSEAL™ DPS** System approach on flat RC roofs, has resulted in the cost savings of more than 30% than in the cost of the roof structure. **GROWSEAL™ DPS** has enabled small design changes to standard procedures that remove the potential for problems in the traditional approach. All elements of the roof such as the slab edges, interfaces, plinths, parapets and drains are included in the roof system.

Basements

The development of new technologies and construction design enabled the development of low cost basement system in water tables. Basements have the problem that once completed there is virtually no guaranteed way to fix them if something goes wrong. So special care has been taken in the design of the basement system.

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Bathroom / Toilets

A traditional source of pain for contractors and developers has been overcome by the development of a system, which guarantees no problems. All elements such as the slab and drains are treated to ensure success.

The Best result are achieved when used on reinforced concrete. Application to other materials should be discussed prior to application.

All oils, greases, paint or failed membranes and coatings should be completely removed prior to application. This can be done by the application of **GROWSEAL™ C P T Rust Converter** cleansing products such as **GROWSEAL™ C P T Rust Converter 5000, GROWSEAL™ C P T Rust Converter Degreaser and GROWSEAL™ C P T Rust Converter Clean**. **GROWSEAL™ DPS** should not be applied in temperatures lower than 5°C or higher than 45°C. In fact it should not be applied if there is a likelihood that because of concrete temperature the product may evaporate before it penetrates.

The only site interference is during the application and the first watering period. After this the surface is open to human or vehicular traffic.

Although **GROWSEAL™ DPS** has a wide range of uses, each structure has its own unique problem which will require the use of ancillary products to achieve the total result required. Area such as cold joints, expansion joints and shrinkage cracks at the slab / parapet interface are examples where a system approach would be required.

The application of **GROWSEAL™ DPS** is limited to Approved Applicators, and no guarantees will be issued unless done by currently Approved Applicators.

On normal concrete, **GROWSEAL™ DPS** should be successful within a seventy-two hour period. However some materials such as screeds, plaster, low quality concrete or concrete blocks may take a little longer to perform due to the size of the voids within the materials.