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FACT SHEET

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PAINTING CONCRETE FOR FLOORS

Concrete is a very durable, hard wearing substrate that can sometimes be difficult to decorate. The need to paint concrete has generally been based on aesthetics or to improve slip resistance when wet. For over 30 years we have been supplying a single pack polyurethane solvent based paving paint that has excellent durability and has withstood the test of time.

Resin technology now allows us to make a water based paving paint that has a similar performance but has the many features and benefits associated with a water based paint. The performance and selection of a paving paint depends on the concrete, its preparation, interior or exterior use and expectations.

The following information is provided to answer some questions about concrete and to offer guidelines to select the right paint for your application.

WHAT IS CONCRETE

*Concrete is made by mixing **cement**, **water**, coarse and fine **aggregates** and **addmixtures** (if required). The quantity of each material used affects the properties of the hardened concrete.*

***Cement** is a mixture of limestone, sand, iron oxide, shale and clay which has been heated to 1450 C and rapidly cooled. When it is mixed with **water** in forms a paste which acts like a glue and holds and bonds the aggregate together.*

The water to cement ratio will primarily determine the concrete strength. The lower the ratio the stronger the strength.

*Water Cement Ratio - 1 Compressive Strength is approx 10 MPa
-0.75 Compressive Strength is approx 20 MPa
-0.5 Compresssive Strength is approx 35 MPa*

The higher the MPa the higher the concrete strength.

*The correct selection of **aggregates** will allow a cohesive mixture and also determine the quality of the finished concrete.*

Concrete must cure slowly (ie retain moisture) to achieve its maximum strength. As a general rule concrete will cure completely at a rate of one month per 3cm of concrete thickness. Concrete is very alkaline and contains alkaline soluble salts which can come to the surface during the curing stage. This is commonly known as efflorescence. These salts must be eliminated before painting otherwise the paint may saponify(dissolve) and flake off.

The quality of concrete can vary depending on the above factors and these will effect the paint finish. It is important to be aware of these factors so that correct surface preparation and paint application techniques are used to achieve the best result.

NEW CONCRETE

New concrete will accept paint and have no longterm adhesion problems if

1. *The concrete is 25 Mpa or above.*
2. *The concrete is cured completely.*
3. *The surface is cleaned of efflorescence, surface dust and acid etched.*
4. *A steel trowelled surface is mechanically roughened and acid etched.*
5. *The concrete surface is sound ie it does not crumble or dust when brushed during or prior to application. If this happens it should be reported to your concrete supplier.*

The main chemical cause of failure of paving paint on new concrete is caused by efflorescence. These soluble salts can continue to come to the surface if the concrete is of poor strength (below 20 mPa) allowing moisture movement through the concrete, or if the curing time is not sufficient (3 months minimum).

If efflorescence is a potential problem then a coat of Vipond's Acrylic Concrete Prep is recommended before applying Vipond's Paving Paint. This sealer is resistant to soluble alkaline salts and will form a barrier coat stopping the efflorescence moving to the surface. It is recommended to acid etch or at least high pressure wash the concrete before applying the Concrete Prep to the dry surface..

The main physical cause of lack of adhesion is due to surface impermeability. This occurs if concrete is very strong (35 mPa and above) or it has been steel trowelled to a smooth impervious finish then it can be difficult for paving paint to adhere. It should be mechanically sanded and acid etched to beak the surface to allow the paint to penetrate and bond. Apply one coat of concrete prep followed by the paint system.

OLD CONCRETE

Old concrete is concrete that is completely cured. It may be shiny and smooth, contain oil, grease and road grime from tyre traffic or be dusty and crumbling and the aggregates showing through the concrete.

Shiny and smooth concrete must be mechanically sanded and acid etched to break the surface to allow the paint to penetrate the bond.

Concrete must be completely clean of oil, grease, road grime and rubber impregnated from tyre traffic otherwise adhesion could be a problem.

Dusty and crumbling concrete will be difficult to paint because the surface is not stable and the paint will not bond. Such concrete may require resurfacing.

If the above factors are relevant then the correct surface preparation is important. Remove all oil and grease with a concrete cleaner, wire brush loose and powdery concrete then acid etch. Treat mould with Viponds Stop Mould. Heavily stained areas or worn areas from tyre traffic impregnated with rubber and oil that cannot be cleaned sufficiently should not be painted because of potential adhesion problems. On very smooth steel trowelled concrete mechanical sanding is recommended and acid etch.

*The use of **Acrylic Concrete Prep** is recommended over all new concrete and on old concrete when using Ecopave. It must be noted that concrete prep is not a finishing coat and should always be overcoated with an appropriate topcoat.*

PAINT SELECTION

The following table compares some essential properties between Vipond's Paving Paint and Vipond's Ecopave

Property	Paving Paint (solvent based)	Ecopave (waterbased)
Durability	Excellent	Excellent
Interior or exterior	Yes	Yes
Ease of application	Easy to apply	Easy to apply
Clean Up	Mineral Turps	Water
Drying Time	Recoat 16 hours	Recoat 2 hours
Foot Traffic	12 hours	2 hours
Gloss Level	High	Satin
Slip Resistance	Poor (add anti skid)	Excellent
Cleaning the painted surface	Easy	Difficult
Recoat	Anytime after a clean and degloss	Anytime after a clean
Colour Range	Unlimited	Unlimited
Hot Tyre resistance	Good	Excellent
Chemical Resistant	Limited	Limited
Environment Friendly	No	Yes

Vipond's Ecopave has the superior features and benefits and should be the preferred selection except if the requirement is a gloss finish and the finished surface needs to be easily cleaned. The satin finish on the Ecopave tends to hold more dirt and more effort is required to clean it.

The speed of application and drying time of Ecopave means the job can be completed in one day. Solvent based systems can take more than two days.

These type of coatings are maintenance coatings and will require a touch up depending on the traffic. Ecopave can be recoated at anytime after a simple clean.

Ecopave is much more environmentally friendly with low VOC's.

Both of these products can be applied to timber and metal if they are correctly primed.

The cost of these two products is very similar.

If a chemical resistant finish is required such as a mechanics workshop then a two pack system should be considered. We can offer an outsourced product and specification for this requirement.

The above facts are supplied to ensure that the best results are achieved when using Vipond's Products on concrete. This information relies on over 50 years of practical experience.

Please refer to the label and colour card for application information, but if you require a detailed product information sheet or details on purchasing these products please call Vipond's Customer Service on 03 93504188.