TP Resin SF Technical Data

DESCRIPTION

TP RESIN SF is a high performance, two-component, UV stable resin binder for use in **TREE PIT SURFACING** and in **RESIN BOUND PAVING** in pedestrian areas. It can also be used to bind close graded stone designed to take the loading from occasional light vehicles.

This clear polyurethane resin has been formulated to achieve a binder with resilience and toughness with a degree of flexibility. It is supplied as either a single component together with a separate actuator or as 2 components. The cured material exhibits good strength and is non-yellowing.

DESIGN GUIDELINES

Resin Bound Paving / Tree Pit Surfacing mix proportions and layer thickness depend on many factors including superimposed loading, stone size and grading, stone type and the nature of the substrate.

Tree Pit Surfacing for example which sits directly over permeable stone and tree soil is usually 40 to 50mm thick with a TPSF binder content of between 4 & 5%. This would have to be increased if there is any significant loading. The stone used for a tree pit would be open graded to allow both water and air to reach the tree's roots and would be laid around any watering points and up to a tree collar.

Thickness and mix proportions are determined by loading, stone grading, stone type & shape, maximum stone size and substrate conditions.

Thickness must be at least 3 x maximum stone size and fairly typically for a 5mm size this would be between 25 & 18mm.

Mix proportions are determined primarily by strength requirements to support the superimposed loading. A close graded stone will support greater vertical and horizontal load but will have a higher demand for binder based on the increased surface area of the stone. A binder content of 6 to 7% and above is required for most resin bound mixes supporting pedestrian and vehicle loads. Mix proportions should be determined by carrying out trial mixes.

Care should be taken when using stone with a high flakiness index (eg. some flints) and stone with a high proportion of dust.

A modified binder is required for tumbled glass at increased percentages (refer Optus)

Depending on the slope of the substrate, the use of the surface and the type of stone it may be necessary to apply a surface scatter of anti-slip material to improve the frictional characteristics of the surface.

SURFACE PREPARATION

General

Ambient temperature should be between 5^{o}C and 35^{o}C during application and cure. The substrate should be dry and there should be no threat of rain.

For low temperature applications and application onto ramps refer to Optus.

Concrete Substrate:

Concrete substrates should be at least 28 days old. Remove all contamination including oils and greases, laitance, algae, moss, etc. Remove any dust by vacuuming.
Dry thoroughly and prime if substrate is at all permeable.

Bituminous Substrate:

Remove all contamination including oils and greases. Sweep clean to remove any dust. Dry thoroughly.

Tree Pits

Above the tree root ball a solid base should be created to accept the Tree Pit Surfacing system. This will include at least150mm of free draining compactible fill such as Type 3 fill to SHW Cl85. The surface should be completely dry before application of the surfacing.

For a heavier duty solution the surfacing can be placed in a plastic geogrid / matrix paver

MIXING AND APPLICATION

TP Resin SF binder

2 Pack System

TP RESIN SF is supplied in pre weighed packages. Stir Pack B well until a consistent colour and pour into a container. Add Pack A and mix together until homogeneous (about 2 mins)

Single Pack and catalyst

TP RESIN SF can also be supplied in a single container that should be mixed thoroughly for about 1½mins. Following this the catalyst is added and mixing continued for a further 1½mins.

Binder & Aggregate

Place the required weights of **dry** natural aggregate into a mixer. Commence mixing and pour in mixed TP Resin SF. Mix for a minimum of 1 minute ensuring aggregate is evenly coated.

Application

The application area must be contained in order to support the wet resin mix before it cures. In a tree pit this will typically take the form of a kerb and a temporary or permanent collar around the trunk (to allow for growth).

Spread over the prepared area and finish with a trowed to the desired profile.

Depending on the aggregate chosen and the type of use a light scattering of crushed glass or similar may be required to improve slip resistance (particularly with rounded stone).

COVERAGE AND CURE

Coverage rate varies with depth, stone type and stone size. Typical coverage rates are as follows:

1. A 16mm depth of resin bound paving using a 1-5mm stone blend with 7% TPSF resin requires **2kg TPSF binder and 26.5kg of stone /sm.**

3. A 50mm depth of tree pit surfacing using a 6 - 10mm tree pit stone mix with 5% resin requires: **4.3kg TPSF binder and 82kg of stone /sm**

These figures are for guidance only and refer to specific applications.

TECHNICAL PROPERTIES

Pot Life 20°C:	20 minutes
Cure @20°C:	3.0 – 4.0 hours
Tensile Strength (binder)	3.01 N/mm^2 (7day)
	5.38 N/mm^2 (3mths)
Elongation at break (binder)	55.90% (7days)
	36.33% (3mths)

HEALTH AND SAFETY

It is recommended that barrier cream, gloves, boots and overalls be worn when using TP RESIN SF. A face mask should always be worn.

For full details please refer to the appropriate material safety data sheets.

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