

## RonaDeck Resin Bound Surfacing

SuDS compliant permeable paving for pedestrian and vehicle traffic



### FEATURES

- aliphatic resin will not deteriorate or discolour when exposed to typical UK weather
- Low VOC
- high slip resistance—tested to BS 8204-6:2008+A1:2010 Appendix B
- SuDS compliant
- highly permeable—up to 850 litres / m<sup>2</sup> / minute
- 38% of resin formulated from a botanic source
- product warranty up to 10 years available
- natural appearance
- suitable for pool surrounds, pathways, driveways and car parks
- low maintenance
- Wide range of colour blends, see page 7

### Description

RonaDeck Resin Bound Surfacing is a resin bound aggregate surface for pedestrian and vehicular traffic that has been formulated for the UK market. The open matrix allows water to drain through to the base, eliminating water ponding and allowing water to drain to planted areas or land drains. The surfacing may be applied to SuDS compliant bases and sub-bases, reducing the impact of urban development on flood risk and allowing water to flow into water courses. Edgings created from brick, stone, timber or steel should be installed to retain and protect the resin bound surfacing.

RonaDeck Resin Bound Surfacing is a two component polyurethane resin which binds a range of selected decorative kiln-dried aggregates. RonaDeck Resin Bound Surfacing provides an attractive porous surface which is strong enough for foot and light vehicle traffic.

### Traffic and Scuffing

RonaDeck Resin Bound Surfacing is designed for foot traffic and occasional vehicle traffic such as on domestic driveways, residential developments with light domestic traffic or car parking bays. It is however, not a road surface for heavy volumes of domestic or commercial traffic. Heavier vehicle traffic, including heavy impact and high point loading will damage the surface and may result in failure.

Due to the destructive scuffing forces created by power steering (e.g. three point turns) in car parks or on driveways where cars will repeatedly turn within a confined area, localised wear is more likely. It is therefore recommended that when the product is used in such locations, the surface is regularly inspected by the client or installer and maintained as required.

### Resin and Aggregate

RonaDeck Resin Bound Surfacing Resin has been designed for the UK market. Under normal UK weather conditions the system is considered UV light and heat resistant and will not discolour. If exposed to weather beyond those of typical UK conditions, slight discolouration may occur.

# RonaDeck Resin Bound Surfacing

## SuDS complaint permeable paving for pedestrian and vehicle traffic

### **Resin and Aggregate (continued)**

The performance and appearance of the finished surface is dependent on the aggregate used. The RonaDeck Resin Bound Surfacing Aggregate blends have been designed to achieve strength, resilience, porosity and decoration.

Natural aggregates may contain small amounts of iron which can produce rust staining when exposed to air and water; standard RonaDeck Resin Bound Surfacing blends contain aggregates selected for infrequency of incidence of staining but iron may be present in any natural aggregate. The presence of iron cannot be identified before use and Ronacrete Ltd cannot accept responsibility for any loss or damage suffered as a result of staining.

### **Appearance**

The appearance of RonaDeck Resin Bound Surfacing samples and materials are dependent on the colour, shade and grading of individual aggregates supplied to Ronacrete Ltd by its suppliers. Being largely natural aggregates, the appearance may be variable within batches and from batch to batch and uniformity of appearance should not be expected. Darker aggregate blends are less likely to show tyre marks. RonaDeck Resin Bound Surfacing is hand finished with a steel float and some variation in finished levels is to be expected. Levels variation may be accentuated in certain natural and artificial light conditions, such as at sunrise or sunset or when lighting is set into the surfacing.

### **Compaction of the Construction**

Adequate compaction of the sub-base and base is essential to prevent cracking of the base, a minimum 1 tonne “sit on” roller should be used when possible and the contractor must ensure that the construction is fully restrained at all edges to ensure dimensional stability.

### **Reflective Cracking & Differential Movement**

Re-entrant corners, which are angular intrusions into resin bound surfacing by walls; edgings etc., may cause formation of reflective cracks in the surfacing. Intrusions into the surfacing should be avoided whenever possible and when unavoidable, intrusions should be curved rather than angular. Cracking of the base is likely to result in cracking of the resin bound surfacing. Application to different types of base materials in the same area of paving should be avoided, when this is not possible, allowance should be made for differential movement between differing types of base, to prevent cracking of the surfacing.

### **Maintenance**

It is possible to repair localised damage by cutting out and replacing, ideally using the same aggregate as originally supplied. Ageing and weathering of the original may prevent an invisible repair. “Picking out” of some stones is possible but is likely to be minimal and localised. Any major loss of stone should be reported.

### **Blooming**

Blooming occurs, largely in late Autumn, Winter and early Spring, when conditions for application of resins are not ideal. Polyurethane resins may harden quickly but even at 20°C, initial cure does not occur until 24 hours have elapsed and initial cure takes longer at lower temperatures. Initial cure time is important because until it is achieved, the resin remains open to absorption of water. On dry days with air temperatures in excess of 10°C, conditions may seem benign but such conditions can produce blooming. Condensation occurs when the dew point is close to the air temperature and whenever the dew point rises to within 3 degrees of air temperature, condensation will occur. Application of resins during these adverse conditions, or for 2 days following application if conditions remain

# RonaDeck Resin Bound Surfacing

## SuDS complaint permeable paving for pedestrian and vehicle traffic

### Blooming (continued)

similar or worsen, runs the risk of blooming caused by dew forming on the resin surface or fog condensing on the surface. When a car is parked for the night in conditions when the dew point is reached, condensation will occur by morning, shedding condensed water onto the driveway surface. When the weather is colder, frost forming on the surface is also a risk when the temperature rises and the frost reverts to liquid form.

RonaDeck Resin Bound Surfacing resin may be applied to surfacing which has been affected by blooming, but not until the existing resin is removed. Polyurethane resin does not remain open to adhesion of a further coat for very long and it must be assumed that preparation to abrade or ideally remove the surface resin, especially resin which has bloomed, is required before application of a further coat is attempted. It is preferable to carry out the works during late April to September when the conditions which caused the blooming are less likely occur.

### Slip Resistance

All RonaDeck Resin Bound Surfacing aggregate blends have been tested for slip resistance in accordance with BS 8204-6:2008+A1:2010 Appendix B. All aggregate blends achieved 'low potential for slip' in dry conditions. In wet conditions, test results for Autumn Forest marginally fell into the medium potential for slip range, testing of all other blends continued to show low potential for slip. Slip Resistance Values for all RonaDeck Resin Bound Surfacing blends can be found on page 7 of this document. Application of RonaDeck Resin Bound Surfacing System Anti-Slip Aggregate will significantly increase the slip resistance of the surface in the wet and on steep gradients without substantial change to appearance.

### Contractors

RonaDeck Resin Bound Surfacing System is a specialist product and must only be applied by specialist applicators. Do not apply or allow it to be applied by contractors who do not possess the necessary skills and experience. You should consider appointing a Ronacrete Ltd Approved Contractor.

### Suggested Build Up

	Pathway	Driveway (in and out)	Driveway (turning)	Car Park
RonaDeck Resin Bound Surfacing	15mm	15mm	18mm	18mm
Binder Course*	60mm	80mm	80mm	100mm
Type 3 sub-base	175mm	200mm	200mm	300mm

\*AC14 open graded asphalt concrete (macadam) maximum 100/150 pen binder (for pathways and driveways) or 70/100 pen binder (for car parks) to BS EN 13108-1.

The build up may require an impermeable membrane to carry water to infiltration/ storage system/ soakaway or a geotextile layer to prevent upward migration of soil. A capping layer may also be required depending on the sub-grade condition.

The above information is produced for guidance only, the designer/ contractor should be satisfied that the construction is suitable for the expected traffic and ground conditions. Guidance about thickness and type of asphalt concrete has been provided by an asphalt supplier and while due care has been taken to ensure the information is correct, it is not the responsibility of Ronacrete Limited to design this or any other element of the construction.

# RonaDeck Resin Bound Surfacing

SuDS complaint permeable paving for pedestrian and vehicle traffic

## Mix Design

RonaDeck Resin Bound Surfacing Resin	7.5kg
RonaDeck Resin Bound Surfacing Aggregate	100kg
RonaDeck Fine Aggregate	6.25kg

## Coverage

Coverage rates for individual blends can be found on page 7 of this document. Coverage is based on application to a smooth flat surface and will vary when applied to undulating surfaces, according to compaction, and to the aggregate grading, which can change from batch to batch.

## Working Times and Temperatures

Working time is affected by temperature; at temperatures above the maximum recommended in the following tables, the pot life and working time may be insufficient to allow a wet edge to be maintained. Work should therefore not proceed when product and / or air temperature exceeds recommendations. The air temperature must therefore be monitored during application and work should stop when temperature exceeds recommendations. Care must be taken to keep materials as cool as possible in warm weather. At low temperatures RonaDeck Resin Bound Surfacing resin will not flow sufficiently to achieve a smooth finish and work should not proceed when air, material or substrate temperature is below 5°C.

### Winter Grade (5°C-15°C)

Ambient Temperature	5°C	10°C	15°C
Working Time	40-60 minutes	30-45 minutes	20-30 minutes
Lay before rain	3-4 hours	2-3 hours	1-2 hours
Pedestrian traffic after	12-14 hours	7-9 hours	5-7 hours
Vehicle traffic after	1-2 days	24 hours	15-17 hours

### Summer Grade (15°C-25°C)

Ambient Temperature	15°C	20°C	25°C
Working Time	50-60 minutes	40-55 minutes	35-50 minutes
Lay before rain	6-8 hours	4-5 hours	3-4 hours
Pedestrian traffic after	24 hours	13-14 hours	9-12 hours
Vehicle traffic after	2-3 days	1-2 days	1-2 days

### High Summer Grade (25°C-40°C)

Ambient Temperature	25°C	30°C	40°C
Working Time	55-90 minutes	45-75 minutes	30-45 minutes
Lay before rain	5-6 hours	4-5 hours	2-4 hours
Pedestrian traffic after	24 hours	14-16 hours	7-8 hours
Vehicle traffic after	2-3 days	1-2 days	24 hours

**Site conditions will affect the times quoted. All data is provided as a guide only.**

# RonaDeck Resin Bound Surfacing

## SuDS complaint permeable paving for pedestrian and vehicle traffic

### Application Conditions

Application during rain or before rain is not recommended. Light rain on the surface affect the bond between particles, reducing the strength of the system. Note that application to a damp substrate will reduce bond strength. Unmixed aggregate must be kept dry at all times. Care must be taken to keep the mixing station dry, thus avoiding entrapment of moisture between aggregate and resin. Do not apply RonaDeck Resin Bound Surfacing when rain is expected within 24 hours of application at 20°C. Do not apply RonaDeck Resin Bound Surfacing when fog, frost or dew is expected within 48 hours of application.

### Instructions for Use

#### Base

1. When constructing a new concrete base, the following should be considered:
2. Concrete bay proportions should be ideally 1:1 and should not be greater than 3:2, long narrow strips of concrete will crack across the bay width and these cracks are likely to be mirrored in the surfacing.
3. Ensure that the concrete has a minimum design strength of C35 and that the concrete has a minimum compressive strength of 15-20N/mm<sup>2</sup> before the surface is prepared.
4. Prepare the concrete surface to remove laitance and provide a lightly textured surface to ensure adequate adhesion, vacuum shot blasting is the preferred method.
5. The surface of the asphalt concrete must be clean, dry and free from loose materials.
6. Ensure that falls are in place to provide adequate drainage when applying to an impermeable base.
7. Protect all edges abutting soft landscaping with brick or concrete to prevent damage to the surfacing. Edgings should be securely fixed to prevent movement.
8. A flexible joint filler should be used at edgings where there is potential for movement of the edging, to separate the surfacing from the edging.
9. Where RonaDeck Resin Bound Surfacing is to be applied to an impermeable base, gaps or weep holes should be created in the edging, to allow drainage of water.
10. When applying RonaDeck Resin Bound Surfacing to concrete bases, all movement joints, stress relief joints and day joints must be expressed in the resin bound surfacing.

#### Mixing

1. Place RonaDeck Resin Bound Surfacing Aggregate (100kg) followed by RonaDeck Fine Aggregate (6.25kg) into a clean, dry, forced action mixer minimum capacity/ power 120 litres/ 1.8kW, Baron E200 mixer or similar.
2. Scrape all of the contents of RonaDeck Resin Bound Surfacing B component into the larger A component container and mix with a slow speed drill ( $\leq$  450RPM) and MR2 paddle mixer attachment for 2 minutes.
3. Immediately add the mixed resin to the aggregate in the mixer. Mix the aggregate and resin together until all the aggregate is evenly coated with resin. Mix for approximately 3-4 minutes. Overmixing will increase heat generation, reduce working time and may affect the colour. Inconsistent mixing times may cause colour variation.

# RonaDeck Resin Bound Surfacing

SuDS complaint permeable paving for pedestrian and vehicle traffic

## Instructions for Use (continued)

### Application

1. Discharge the mixed resin and aggregate onto the prepared surface, level and smooth. Excessive compaction will reduce permeability.
2. Finish the surface with a suitable float avoiding overworking which may result in “trowel burn”. RonaDeck Low VOC Tool Cleaner/ Trowel Finishing Aid should be used if required, the use of white spirit is not acceptable
3. For improved slip-resistance on steep gradients, apply RonaDeck Resin Bound Surfacing Anti-Slip Aggregate to the wet resin at the rate of approximately  $0.1\text{kg/m}^2$ , avoid a patchy appearance by scattering evenly.
4. Always ensure that a wet edge is maintained, joints between mixes will be visible unless the older mix is still workable.

### Curing

Allow to cure and open to traffic as described in “**Working Times and Temperatures**”.

### Cleaning Tools

Tools and equipment may be cleaned with RonaDeck Low VOC Tool Cleaner/ Trowel Finishing Aid, which will remove uncured resin.

## Shelf Life and Storage

Shelf life of RonaDeck Resin Bound Surfacing Resin is 6 months, aggregates have an unlimited shelf life. Store materials in clean, dry, frost free warehouse conditions between  $5^{\circ}\text{C}$  and  $25^{\circ}\text{C}$ . Protect from sunlight.

## Health and Safety

Refer to Safety Data Sheet.

## Site Attendance

When on site Ronacrete Ltd representatives are able to give a general indication of the correct method of installing a Ronacrete Ltd product. It must be remembered that Ronacrete Ltd is a manufacturer and it is therefore the responsibility of the contractor and his employer to ensure he is aware of and implements the correct practices and procedures to ensure the correct installation of the product and that liability for its correct installation lies with the contractor and not with Ronacrete Ltd.

# RonaDeck Resin Bound Surfacing

SuDS compliant permeable paving for pedestrian and vehicle traffic



Atlantic Silver



SRV (dry)	67 (low risk)
SRV (wet)	59 (low risk)
Coverage	4.21m <sup>2</sup> @ 15mm
	3.51m <sup>2</sup> @ 18mm



Autumn Forest



SRV (dry)	50 (low risk)
SRV (wet)	34 (medium risk)
Coverage	4.13m <sup>2</sup> @ 15mm
	3.44m <sup>2</sup> @ 18mm



Aztec Gold



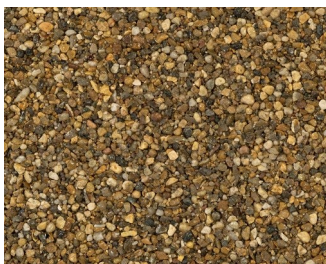
SRV (dry)	48 (low risk)
SRV (wet)	37 (low risk)
Coverage	4.06m <sup>2</sup> @ 15mm
	3.38m <sup>2</sup> @ 18mm



Black Pearl



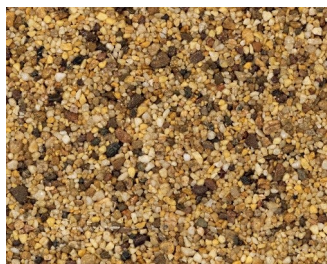
SRV (dry)	71 (low risk)
SRV (wet)	49 (low risk)
Coverage	3.89m <sup>2</sup> @ 15mm
	3.24m <sup>2</sup> @ 18mm



Harvest Crunch



SRV (dry)	50 (low risk)
SRV (wet)	39 (low risk)
Coverage	4.01m <sup>2</sup> @ 15mm
	3.64m <sup>2</sup> @ 18mm



Maple Glow



SRV (dry)	45 (low risk)
SRV (wet)	48 (low risk)
Coverage	4.10m <sup>2</sup> @ 15mm
	3.40m <sup>2</sup> @ 18mm



Midnight



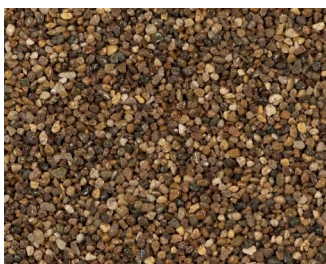
SRV (dry)	71 (low risk)
SRV (wet)	58 (low risk)
Coverage	3.97m <sup>2</sup> @ 15mm
	3.31m <sup>2</sup> @ 18mm



Oyster



SRV (dry)	56 (low risk)
SRV (wet)	44 (low risk)
Coverage	4.13m <sup>2</sup> @ 15mm
	3.44m <sup>2</sup> @ 18mm



Riverbed



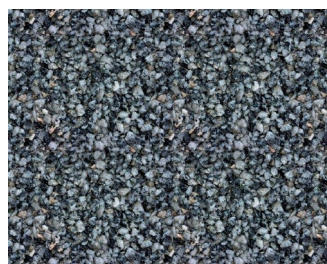
SRV (dry)	52 (low risk)
SRV (wet)	40 (low risk)
Coverage	4.17m <sup>2</sup> @ 15mm
	3.48m <sup>2</sup> @ 18mm



Rose Garden



SRV (dry)	74 (low risk)
SRV (wet)	51 (low risk)
Coverage	4.13m <sup>2</sup> @ 15mm
	3.44m <sup>2</sup> @ 18mm



Silver Blue



SRV (dry)	44 (low risk)
SRV (wet)	42 (low risk)
Coverage	4.26m <sup>2</sup> @ 15mm
	3.55m <sup>2</sup> @ 18mm



Terragrey



SRV (dry)	57 (low risk)
SRV (wet)	46 (low risk)
Coverage	4.84m <sup>2</sup> @ 15mm
	4.03m <sup>2</sup> @ 18mm

All RonaDeck Resin Bound Surfacing aggregate blends have been tested for slip resistance in accordance with BS 8204-6:2008+A1:2010 Appendix B. The slip resistant values shown above were obtained in laboratory conditions. Results obtained on site may differ.

The information detailed in this leaflet is liable to modification from time to time in the light of experience and of normal product application, and before using, customers are advised to check with Ronacrete Ltd, quoting the reference number, that they possess the latest issue. Any person or company using the product without first making further enquiries as to the suitability of the product for the intended use does so at his own risk, and Ronacrete Ltd can accept no responsibility for the performance of the product, or for any loss or damage arising out of such use.

## Resin Bound and Bonded Surfacing

