

Your Product Datasheet and Installation Guide

VALTEX™

VALTEX™ is a two component aliphatic polyurethane stone encapsulation binder, for use with decorative dried aggregates and marbles.





VALTEX™

A Polyurethane Binder

What is VALTEX™?

VALTEX™ is a polyurethane resin binder. Polyurethane resin is commonly chosen as a binder for its fast cure times, high abrasion resistance, flexibility and toughness. All qualities which are perfectly suited as a stone encapsulation binder for both internal and external applications. Chemically, VALTEX™ is a blend of high grade Polyester Ester Polyols and Aliphatic Polyisocyanate.

Why Choose VALTEX™?

The grading and formulation of VALTEX™ is engineered to yield an extremely high performing stone encapsulation binder. VALTEX™ has been formulated using traditional technology as a basis, and applied our wider knowledge and experience of industrial resin systems to create a truly industry leading binder in abrasion resistance, chemical resistance and usability.

Benefits of our Resin Binder:

The ratio of Resin A and Hardener B has determining effect on the overall mechanical strength of the system. VALTEX™ contains a comparably increased volume of isocyanate to the industry standard, which yields a very high mechanical strength and improved chemical resistance

In addition, as detailed further in 'Recommended Aggregate Addition', our VALTEX™ binder contains an equal or greater amount of Resin than recommended by the FeRFA Technical Guide to Resin Bound Surfacing for External Applications. A high ratio, 6.59% including a binding quartz will achieve excellent permeation as well as enhanced wetting of the substrate to aid a stronger bond between screed and substrate.



VALTEX™ Binder Key Information

Sizes Available	1.88kg or 7.50kg
UV Stability	Stable
Resin / Aggregate Ratio	6.59%+
Place of Manufacture	East Yorkshire, UK
Elongation at Break	70%
Gasoline Resistance	No change
Recommended Base	Open Grade Asphalt



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VALTEX™ Mechanical Properties

The tensile strength and the elongation at break are measured according to IN EN ISO 527, using type 5 test body. The sample thickness deviates from the standard by 4 mm. the testing speed is 200 mm/min. The tear strength is measured according to DIN EN ISO 34-1.

The specimens are dried 1 day at 23 °C followed by 3 days at 50 °C.

Valtex	Hardness	Elongation at Break	Tensile Strength	Shelf Storage	Tear Propagation Resistance (N/mm)
Typical Values	40 Shore D	70%	13MPa	6 Months	50

VALTEX™ Chemical Resistance

Substance	Contact time	VALTEX reaction
Gasoline	24 hrs	Almost no discoloration or deterioration of the surface.
Diesel	24 hrs	No surface change
1% NaOH solution	24 hrs	No surface change
10% HCl solution	24 hrs	No surface change
Xylene	5 min	Very slight visual damage.
Xylene	60 min	Swollen, slightly damaged by nail scratch.
Xylene	24 hrs	Clearly swollen surface. Surface can be damaged. Lower surface hardness.
Butyl Acetate	5 min	Very slightly swollen, slight damaged by nail scratch.
Butyl Acetate	60 min	Swollen, slightly damaged by nail scratch.
Butyl Acetate	24 hrs	Clearly swollen surface. Surface can be damaged. Lower surface hardness.
Acetone	5 min	Slightly swollen, slight damaged by nail scratch.
Acetone	24 hrs	Surface is swollen significantly and can be damaged easily. Lower surface hardness.

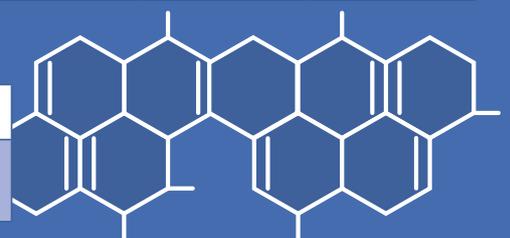
VALTEX™ Composition (2K)

Part A Resin

Iodine Color Value (Hazen DIN EN 1557)	Acid Value, DIN EN ISO 2114	Viscosity @ 23°C, DIN EN ISO 3219/A.3	Hydroxyl Content, DIN 53 240/2	Water Content, DIN 51 777/1	Equivalent Weight	Density @ 20°C, DIN EN ISO 2811	Flash Point, DIN EN ISO 2719
< 5	< 2 mg KOH/g	3000 - 4000 mPa.s	4.5 - 4.9 %	< 0.1 %	360	1.01 g/ml	127 °C

Part B Hardener

Valtex Hardener B	Colour	Viscosity at 25°C	NCO	HDI
Typical Specification Values	≥ 40 HAZEN (APHA)	2400 +/- 400 mPa.s	22.0 +/- 0.5 %	< 0.2 %



Valtex Hardener B	Appearance	Solids Content	Bulk Density 25°C	Weight per US gallon	Flash Point	Equivalent Weight
Typical Physical Properties	Clear liquid	100% approx	1160 kg/m3 approx.	9.68 lbs approx.	> 120°C	191 g approx.

VALTEX™ Binder to Aggregate Recommended Ratios

The following table is for guidance and reflects our recommended resin to aggregate ratio for resin encapsulated stone surfacing systems. The performance of resin surfacing can be affected not just by the type and size of aggregate; but also the overall ratio of resin to aggregate. VALTEX™ is supplied in formats which either meet or equal recommended FeRFA Guidelines.

Depending upon the shape, regularity, porosity and size of the aggregate within a mix, a different resin content may be required to that specified here. However, these are general guidelines which suit most of our aggregated resin surfacing systems. For driveable MarbleBound™ systems, please consult the specific MarbleBound™ datasheet.

Valtex Pack Size (kg)	Blended Aggregate Addition*	HD Quartz Addition	Total Mix by Weight kg	Valtex Resin to Full HD Resin Bound System	FeRFA Guide: Resin To Aggregate Ratio
1.88kg	25kg	1.56kg	28.44kg	6.61%	6.59%
7.50kg	100kg	6.25kg	113.75kg	6.59%	6.59%

Aggregate Suitability

The following table is for guidance and reflects our recommended resin to aggregate ratio for resin encapsulated stone surfacing systems. The performance of resin surfacing can be affected not just by the type and size of aggregate; but also the overall ratio of resin to aggregate. VALTEX™ is supplied in formats which either meet or equal recommended FeRFA Guidelines.

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Typical Stone Values	Stone Hardness	Resistance to Fragmentation
Paloma Grey	4 Mohs	LA ³⁵
Rose Gold	7 Mohs	LA ⁵⁰

Definitive suitability of aggregates not included as a blend within our Wonders of the World range can only be established through long term empirical evidence.

Suitability of Marble

As shown with the case of the Paloma Grey marble, the Stone Hardness of marble typically ranges between 3 and 6 Mohs. As a result, we specify marble aggregate bound in Valtex to be suitable for light duty usage only - pathways, patios, landscaping schemes, showrooms etc. For our driveable MarbleBound™ system, please see datasheet for our MarbleBound™ Resin Binder.

Aggregate Size and Blend

For driveable resin bound systems to be used with VALTEX™ Binder, we would recommend the following system specification:

1 x 1-3mm 25kg Aggregate

1 x 6.25kg Binding Quartz

3 x 2-5mm 25kg Aggregate

1 x 7.5kg VALTEX Resin Binder

The aggregate should be angular in form, washed and dried, and not containing excessive levels of dust. If not using a driveway approved blend from Vuba, please contact us with Stone Hardness and Resistance to Fragmentation values for the stone to be used. Suitability of stone does not necessarily ensure a successful outcome. The performance of the system is affected by the matrix of stones.



Working and Curing Times

Working time is classified as the amount of time allowable with the mixed resin and hardener, without the flow and workability becoming seriously compromised.

8°C	Workable Time	Rain*	Tack Free (Pedestrian)	Vehicle Traffic
Valtex	70 mins	6-8 Hours	24-30 Hours	3 Days
Valtex + Accelerex	40 mins	3-5 Hours	16-20 Hours	2 Days

13°C	Workable Time	Rain*	Tack Free (Pedestrian)	Vehicle Traffic
Valtex	45 mins	4-6 Hours	18-22 Hours	2 Days
Valtex + Accelerex	30 mins	3-4 Hours	10-14 Hours	36 Hours

20°C	Workable Time	Rain*	Tack Free (Pedestrian)	Vehicle Traffic
Valtex	30 mins	3-4 Hours	12-16 Hours	1 Day
Valtex + Accelerex	25 mins	2 Hours	8-10 Hours	1 Day

Moisture Tolerance and Resin*

VALTEX™, like all polyurethane binders, is susceptible to foaming and blistering from exposure to excessive moisture. Excessive moisture resulting from a wet substrate will give the overall system a pale / milky shading. Excessive moisture caused by precipitation will cause slight foaming and whitening of the resin bound surface. Timings for exposure are based upon continuous temperature (see 'Understanding Cure Times').

Understanding Curing Times

These guidance cure times have been achieved whilst exposed to a constant temperature. An ambient temperature of 13°C and falling will have a significantly extended cure time to the figures above. In the natural environment, the temperature will fall into the evening and through the night, resulting in the retardation of curing times.

Application Temperature

The minimum application temperature we recommend for Valtex is 8°C. Valtex™ + Accelerator can be applied at 5°C at the lowest. The highest temperature application we would recommend is 25°C - beyond that temperature workability and therefore consistency of application will become difficult to maintain.

	Valtex	Valtex + Accelerator
Minimum Application Temp	8°C	5°C

Aggregate Suitability and Values

Slip resistance tests may be carried out using a Pendulum Slip Resistance test machine to determine finished application slip resistance. Application technique, compaction and gradient will affect the final the on site slip resistance value. Tests are normally carried out in both wet and dry conditions. A VALTEX™ resin bound system with the addition of HD Quartz will generally meet with the generally accepted value of 40 PTV (Pendulum Test Value). For gradients and other areas where a more anti slip is required, it is possible to apply Crushed Glass on to the uncured surfacing system for greater anti slip properties.

Typical Slip Resistance Value (Test Example 1):

Resin Bound System	SRV Dry	SRV Wet
Silver Highland HD	55 (low risk)	50 (low risk)

Typical Slip Resistance Value (Test Example 2):

Resin Bound System	SRV Dry	SRV Wet
Canadian Spruce HD	55 (low risk)	50 (low risk)

Slip resistance can be improved by an even application of fine aggregate to the surface of the freshly applied resin.

Thickness and Coverage Rate Guidance

The recommend thickness for a resin bound screed should be the greater of the following values:

15mm for Light Duty Usage (Pedestrian)

18mm for Medium to Heavy Duty Usage (Vehicle)

The largest stone in the mixed multiplied by 3. For example, a 6mm stone mix will require an 18mm thickness.

Coverage rates vary with mix design. Please see examples below. A general guide for a coverage rates is 4.35m² for 15mm and 3.60m² for 18mm thickness of a full Valtex™ HD Resin Bound system weighing 113.75kg.

Resin Bound System	15mm	18mm
Silver Highland HD	4.36m ²	3.63m ²

Resin Bound System	15mm	18mm
Canadian Spruce HD	4.33m ²	3.61m ²

Suggested Construction for Substrates:

Suggested Construction for Asphalt Base



Substrate Suitability and Specification

Concrete

Preparation

Prepare concrete by mechanical means to provide a sound, clean, dry substrate that is free from laitance and suitable for application of the resin bound surfacing. Concrete should be primed prior to application using our Easiprime or Epiprime (and seeded with a 1.4 - 1.8mm quartz).

Specification

1. 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.
2. Open bay joints are likely to cause cracking in the surfacing and formation should be prevented by application of Polycrete repair mortar into the joints. Bays should be linked with steel mesh reinforcement, or if already in place, a surface grade mesh should be embedded in the surface using an epoxy bedding coat.
3. Ensure that the concrete has a minimum design strength of C35 and that the concrete has a minimum compressive strength of 25N/mm² before the surface is prepared, in accordance with BS 8500-2:2015.

Drainage

Ensure that falls are in place to an adequate drainage system when applying to an impermeable concrete base. Water will flow through the VALTEX™ system and run across the concrete surface.

Asphalt (Bituminous Macadam)

Preparation

Allow the asphalt to oxidise for 7 days prior to application of the VALTEX™ Resin Bound Surface. It is not a requirement to prime asphalt surfaces.

Specification

The bitumen binder of asphalt concrete must have a pen value no greater than 100/150, when tested in accordance with EN 1426 Needle Penetration Test. It is advisable to use a harder grade of bitumen when machine application is possible and 70/100 pen (or harder) is preferred.

Bituminous materials with a higher pen value will be too soft and may deform in warm weather. Adequate compaction of the sub-base and base is essential to prevent cracking. 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.

Drainage

Rainwater will flow through the permeable VALTEX™ Resin Bound System, and through the open grade binder course. An integral drainage system is not required.



Application Guidance



Perimeter Edging

Protect all edges abutting soft landscaping with brick, steel, timber or concrete to prevent damage to the surfacing. Edgings should be securely fixed to prevent movement. A flexible joint filler should be used at edgings where there is potential for movement to separate the surfacing from the edging.



Mixing Guidance

1. Scrape all of the contents of VALTEX™ Resin Bound Surfacing B component into the larger A component container and mix with a slow speed drill ($\leq 450\text{RPM}$) and MR2 paddle mixer attachment for 2 minutes. Overmixing will increase heat generation and reduce working time.
2. Simultaneously, add 100kg of aggregate to the Large Pan Forced Action Mixer, Baron 120 Litre Capacity Mixer or similar approved. Followed by addition of the 6.25kg Binding Quartz.
3. Allow the aggregate to begin mixing and immediately add the mixed resin to the aggregate in the mixer until all the aggregate is evenly coated with resin. Mix for approximately 3-4 minutes. Overmixing will increase heat generation and reduce working time.
4. Discharge the mixed resin and aggregate onto the prepared surface, level and smooth. Ensure to compact to even firm composition.
5. Finish the surface with a suitable float. Vuba Solvent should be used if required.
6. If required, immediately cast Crushed Glass onto the top surface of the wet resin and aggregate, at the rate of approximately 0.1kg/m^2 . Ensure even coverage to prevent a patchy appearance.
7. Allow to cure and open to traffic as described in the Curing Time tables above.



Further Noted Advice

1. Regularity and consistency of mixing times is essential to prevent shading within your VALTEX™ Resin Bound System. Excessive mixing, especially of dry stone, will result in darker shading.
2. Ensure you have all bags required for your project prior to commencement, and ensure you have sufficient material by marking coverage per mix on the surface. It is imperative to not run short of material.
3. Ensure you have scheduled to apply VALTEX™ during a period of suitable weather for both application and curing time.
4. Contact Vuba for further advice regarding VALTEX™ if you have any hesitations or doubts.



VALTEX™ Product Limitations

The minimum application temperature is typically 5°C (8°C when used without Accelerator) on a rising thermometer and maximum is typically 25°C. Ideal temperature conditions are 15 – 20°C.

The surfacing may be affected by the shaling action of tyres when vehicles are turning in confined spaces. Tyres must not be turned when in a static position. Wheels should not be regularly turned in confined spaces. Debris and loose stones must not be trafficked on to the resin bound surface, as this may result in de-lamination of the screed.

Regular inspections should be carried out to ensure early detection of damage should this occur.

Maintenance and Cleaning Guidance

Power Washing

If power washing the surface, use only sufficient water pressure to remove dirt or contamination. Use cold water only (maximum 40 0C) with a fan jet, maintaining at least 300 mm between the lance and the surface holding the lance at an angle of approximately 45°. Avoid concentration of the jet on one area by using a sweeping action from side to side.

Use of Cleaning Products

Cleaning products should be PH neutral where possible and biodegradability should be considered when cleaning permeable pavement as chemicals will drain to natural water courses. When using acidic or alkaline cleaners, pH should be as close to neutral as possible and cleaners should be neutralised before flushing with clean water to reduce the risk of staining and degradation of the resin. A discrete test patch should be chosen for a trial before general use.4.2 Regular Cleaning Regular appropriate cleaning of surfacing materials will contribute to the durability of the surfacing. As with any surfacing material, resin bound surfacing should be cleaned regularly and as frequently as necessary to maintain its appearance. Sweep with a broom to remove leaves, paper etc. Use water as necessary to wash the surface and only use cleaning products when water and a sweeping brush are insufficient for cleaning the surface. The use of abrasive pads and wire brushes should be avoided.

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Removing Moss, Algae and Lichen

After brushing off biological growth, remove remaining moss, algae, lichen or other biological growth from the surface with a proprietary fungicide. Flushing with clean water may not be necessary and may affect the long term effectiveness of the treatment. Follow the instructions of the manufacturer and abide by local regulations with regard to the use of chemicals. Periodic use of a fungicide should be considered as a preventative measure in areas where conditions are likely to promote biological growth.

Health and Safety

Part A (Resin) is not classified as a dangerous substance; however, the wearing of goggles is to be recommended.

Part B (Hardener) contains a non-volatile isocyanate. Avoid prolonged contact with skin. In cases of contact with eyes, flush out with excess water and seek medical attention.

Wear goggles.

Additional Precautions

1. Use industrial safety gloves.
2. Use suitable eye protection.
3. Before use, ensure that you read the relevant Health and Safety Data Sheets for this product.

The company will supply, upon request, individual advice in writing in connection with the use and application of its products in all appropriate cases. Customers are urged to make use of this service. This datasheet is provided for general guidance only. All recommendations and suggestions are made in good faith but without guarantee and are subject to the company's terms and conditions.

How to Specify VALTEX

VALTEX™ Resin Bound Porous Decorative Surfacing

Detailed description

The VALTEX™ Resin Bound Porous surfacing system is a 'cold applied' surface course consisting of a blend of washed and dried angular aggregates, fully encapsulated with a flexible UV-stable resin to provide an attractive, hardwearing, low maintenance surface using a range of natural aggregates. The finished surface provides a bound paving system which is flexible and resistant to cracking. See technical datasheet for specific performance characteristics.

Benefits

- Highly Abrasion and Chemical Resistant Binder
- Can be Applied Over Existing Concrete or Asphalt
- Resin Content Equal or Exceeding FeRFA Recommendations
- Range of Exclusive Worldwide Aggregates Available
- Can be applied on to asphalt and concrete or other stable substrates.

Life Expectancy

This will vary depending on usage but typically a minimum life expectancy between 10-15 years should be expected. Contact us for a project specific product warranty.



Olympic Gold Medalist Luke Campbell applying VALTEX™

'Best Product...in my humble opinion, would be the resin bound range from Vuba...'
The Paving Expert (Landscape Show 2019)



VALTEX™ specified for the new Hull Daily Mail Building



VALTEX™ Resin Bound Porous Decorative Surfacing

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Product Reference:

VALTEX™ Resin Bound Porous Decorative Surfacing

Colour:

Insert Name of Blend

Manufacturer Contact Information

Architects / Specifiers:

To request sample specifications, product advice and samples you can email our Technical Director Sean Scott.

Email: sean.scott@vubagroup.com

Tradesmen and Contractors:

To obtain a Contractor Price List; sample cases or to obtain advice and pricing, you can contact Contractor Sales Manager Scott Mayo.

Email: scott.mayo@vubagroup.com

Training, Distributors and Retail:

If you are interested in attending a training course regarding the application of VALTEXTM or would like to become a Distributor or Retailer of our products, you can contact Training and Retail Sales Manager Shelley Ashley.

Email: shelley.ashley@vubagroup.com

Trade Counter:

If you would like to visit our trade counter to purchase materials or obtain more technical advice, you can contact our Trade Counter and Warehouse Manager James Morris on the details below.

Email: james.morris@vubagroup.com

Export Enquiries:

If you would like to join the growing number of countries who use our VALTEXTM product, then please contact Technical Director Sean Scott.

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