

The Vuba Laboratory

Introducing Vuba's Research and Development Lab and our R & D Team. This year Vuba's focus is improving the industry and having the highest quality products and our lab is the forefront of this. Vuba are constantly investigating issues in the industry and striving to educate on solutions. Our new technical bulletin will aim to report back to you with our findings with some solid science and test results to back this up.

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Porous vs Non Porous Bases

In our Vuba Lab we tested the impact of a porous base vs a non porous base on the effects of moisture damage. This was to demonstrate and prove the theory that a porous base will contribute to the protection against moisture damage and significantly reduce the negative effects of moisture damage.

What are the typical effects of moisture damage?

If resin bound surfacing is affected by moisture in the curing process it can cause a decrease in strength and discolouration. The decrease in strength can often lead to break down of the surface and failure of the resin bound surfacing.



What tests did Vuba do?

We laid a set of resin bound samples on a porous base and a set on a non porous base and instantly severely moisture damaged the samples to simulate sudden heavy rainfall.



In the porous base the water permeated through straight away compared to the non porous base where the water settles at the bottom of the resin bound surfacing above the sub base. We then left these to cure for 10 days which allows for a full cure for accurate strength tests.



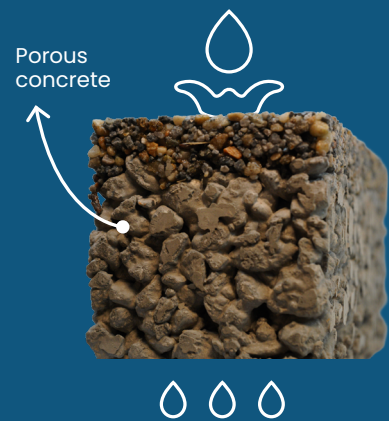
Once removed from the moulds we then used our Universal Testing Machine and performed 3 point bend tests to see the effects of the moisture damage on strength.

RESULTS



33% Porous base is STRONGER than the Non Porous base

The results show that when using a porous base, the strength is much higher after moisture damage compared to a non porous base. The porous base dropped in strength only by 14 % compared to the non porous base that dropped by 35 % in strength.



New VubaMac System

Conclusion

This is because the water can free drain through the base rather than sitting on the non porous surface and submerging the resin bound. The results prove that a porous base will help to protect against the affects of moisture damage and reduce the negative affects. This is why Vuba always recommends a porous sub base, specifically encouraging our new VubaMac Base System which is a SUDS compliant no dig resin bound system.

INTRODUCING VUBAMAC

VubaMac is a urethane asphalt base course. Vuba's SRM provides the base, and a layer of resin bound railway ballast is then mixed and spread on to the surface using a spazzle. The ballast is then flattened using a wetpour roller, and a topping layer of SRM applied. Vuba's resin bound can be applied in the same day, creating a 50mm monolithically bonded polyurethane base and surface wearing course. More about VubaMac to come in our next update!

The Best Diluent Additive for your Sealer

White Spirit vs Xylene



Diluents in your sealer

When sealing your resin bound projects, it is necessary to dilute your resin sealer kit with a diluent. There is a divided opinion in the industry regarding what should be used to dilute your

sealer, Vuba recommend White Spirit whilst some others still recommend Xylene. Vuba took to the lab to show exactly why we use white spirit and not xylene in our resin sealer.



Why did we test this?

We've seen in the industry people raising the question about their resin bound surfacing breaking down even after applying a sealer, and continuing to deteriorate. Vuba's recommended Sealer System doesn't see this problem so we wanted to look into what was happening to give the best advice to our customers. When we heard some people used Xylene, of which we know breaks down resin bound dramatically, we theorised that this would be the problem. Keen to keep improving the industry, the Vuba Lab Team ran some tests.

What tests did Vuba do?

We took a set of samples and sealed them with our sealer using White Spirit as the additive for dilution, then another set exactly the same but with Xylene as the additive. We left the sealer to cure and assessed the visual results on the samples. Next, once removed from the moulds we then used our Universal Testing Machine and performed 3 point bend tests to see the effects of the sealer additives on strength.



RESULTS



Sample sealed with
20% White Spirit additive is STRONGER
Sample sealed with Xylene additive

The results show that when using White Spirit, the strength of the overall resin bound system when sealed is much higher than when sealing with Xylene as the diluent.



The Chemistry

Xylene is more volatile than white spirit, and so evaporates more quickly leaving a stronger surface. So, if you are sealing a non-resin surface, we'd actually recommend Xylene. However, this same Xylene attacks the covalent bonds in the resin bound beneath, significantly weakening the system. For that reason, you should never use Xylene in your sealer when it is being applied on to a resin bound base. You can test this for yourself. Place a resin bound sample submerged in Xylene and you will be able to pick out the stones in an hour. This will not happen if submerged in White Spirit.



Find out more **from our technical team:**

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