



**OMNIGRIP CST**  
COLOURED ROAD SURFACING



## The Science of Coloured Surface Treatments

Balancing Colour Retention & Skid Resistance to obtain the best value performance for highway coloured surfacing is a well established science and by taking into account the unique properties of SYNTHITE® coloured aggregates you can be assured that the applied coloured surfacing system will maintain its colour and skid resistance for the design life of the applied surfacing.



### System Design Considerations:

1. Type of Treatment: Coloured textured surfacing is primarily designed to enhance the landscape environment and be aesthetically pleasing thus colour retention is paramount BUT so is the whole of life performance that includes maintaining the appropriate levels of friction and texture to ensure public safety.
2. Skid Resistance: The system should have a skid resistance (texture depth and surface friction) equal to or slightly better than the surrounding pavement and be designed to maintain this for the life of the product.
3. Colour Retention: The coloured treatment of the system must be maintained or this will defeat the visual appearance. Thus treatments that are easily marked by vehicles or suffer excessive colour fading become unsightly and affect the visual impact of the application
4. System Performance: The binder used must hold the aggregate permanently in position and not be dislodged even under the heaviest of braking where subjected to vehicle traffic and as such the system must have a proven performance level to ensure the client obtains not only a system that is fit for purpose but also obtains best value for money, system performance and longevity.



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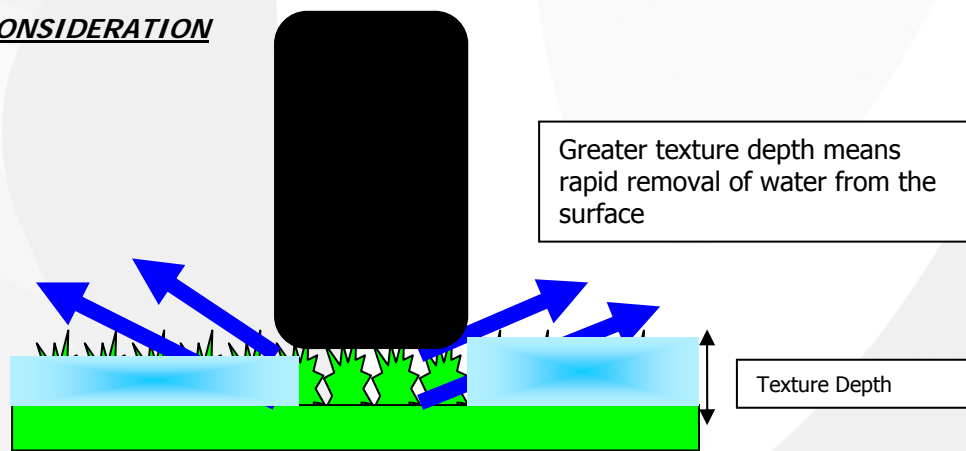
**What is Skid Resistance?**

1. On road, maintaining adequate friction between vehicle tyres and road surfacing is paramount to road safety.
2. Skid resistance in the dry is substantially better than in the wet
3. The properties that affect skid resistance are Texture Depth (Macro Texture) & Friction (Micro Texture)

**How does Texture Depth and Friction affect the skid resistance?**

1. Texture Depth assists in the rapid removal of water from the contact point allowing the Microtexture to make contact with the vehicle tyre.
2. In wet conditions, the greater the texture depth the better the contact point
3. Microtexture defines the degree of friction between the tyre and the contact surface and thus the degree of skid resistance
4. The longevity and effectiveness of the Microtexture is defined by the aggregate’s resistance to polishing
5. An aggregate’s resistance to polishing is defined by its Polished Stone Value (PSV) or Polished Aggregate Friction Value (PAFV)

**TEXTURE DEPTH CONSIDERATION**



Thus the first consideration in system design is identifying the ideal texture depth (TD) and relative aggregate size. In the assessment of same it is prudent to understand that the larger the aggregate the deeper the TD will be, however more importantly under heavy traffic the larger aggregate will better resist erosion and provide a better and longer whole of life TD.

OMNIGRIP CST encompasses the use of the unique Synthite aggregate which when installed provides an average texture depth when measured by Volumetric Patch Texture Depth Austroads SDT 02:2003 as follows:

Upon Installation	Nominal Synthite Sizing	After 5 Years Trafficking
2.66 mm	1 –3 mm	≥ 1.2 mm
1.64 mm	0.8—1.5 mm	≥ 0.4 mm

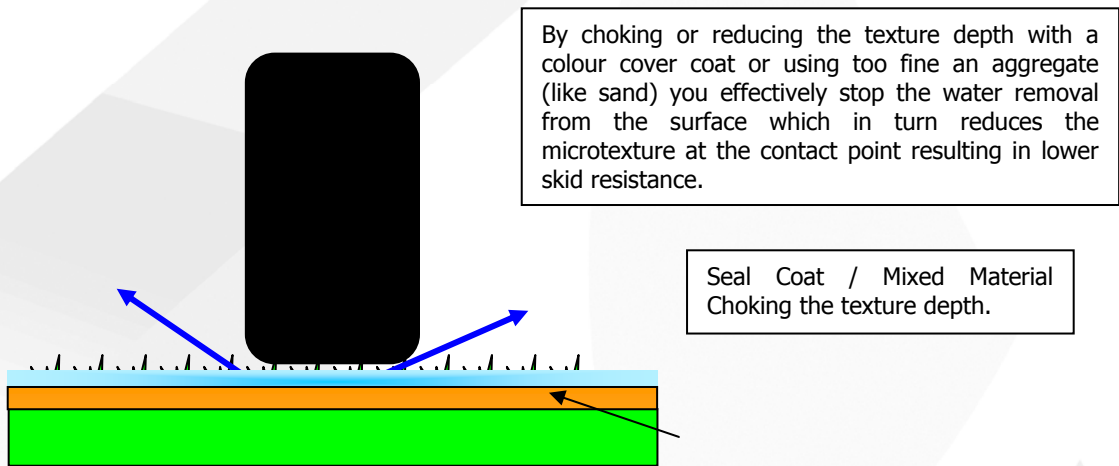


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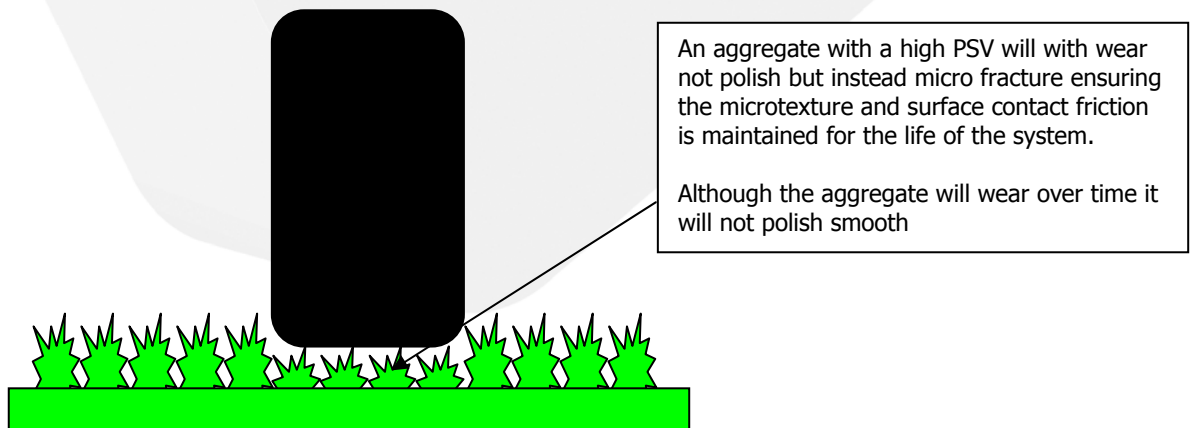
Regrettably many generic systems are reliant on obtaining a coloured effect by either placing coloured paint coating over the top of an aggregate or applying a mixed material where aggregate and paint are blended and applied as a one off application. In both instances such applications tend to choke the texture depth resulting in the contact surface point being further reduced.



### MAINTAINING FRICTION LEVELS

The second consideration point in designing a surfacing system, and arguably the most important, is that once you obtain a level of skid resistance on day 1 you must ensure that this skid resistance is maintained for the design life of the product.

In order to maintain the long term skid resistance we ensure that the aggregate type being used is not only the correct size to give you the texture depth but also the aggregate is not going to polish smooth and become slippery. Thus the most important property of the aggregate is to ensure it has the correct PSV / PAFV which will ensure it is resistant to polishing and will not polish smooth.



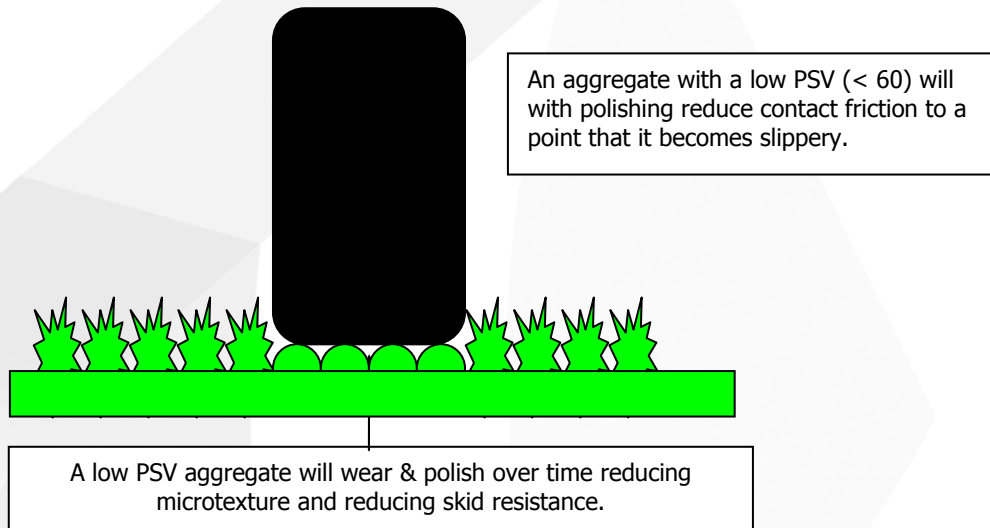


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HOWEVER in the event that a low PSV aggregate is applied then polishing of the surface under trafficking may rapidly occur rendering the anticipated benefits of the applied treatment void.



### MAINTAINING THE COLOUR

The third consideration in the design of a coloured surfacing is the colour retention for if the surfacing fails to retain its colour the visual impact of the system will be lost. Thus where a bright and vivid colour is required the best value solution is the use of Synthite coloured aggregate.

Synthite coloured aggregates are a recycled and specially processed synthetic material which is colour encapsulated on all sides but possesses a clear internal matrix. This aggregate is then bonded into a coloured resin base which secures the aggregate and provides long term colour retention without the need for coloured paint sealers that ultimately fade and wear.

### **How does it work?**

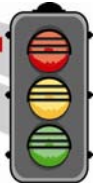
As the surface of traditional colour coated aggregates or those colour sealed with a paint coat begins to traffic the aggregate is subjected to wear and eventually exposes the natural colour of the underlying aggregate. In using traditional coloured aggregates or painted finishes this will result in the natural colour of the aggregate being fully exposed in trafficked areas and hence the visual impact of the coloured surface is compromised.





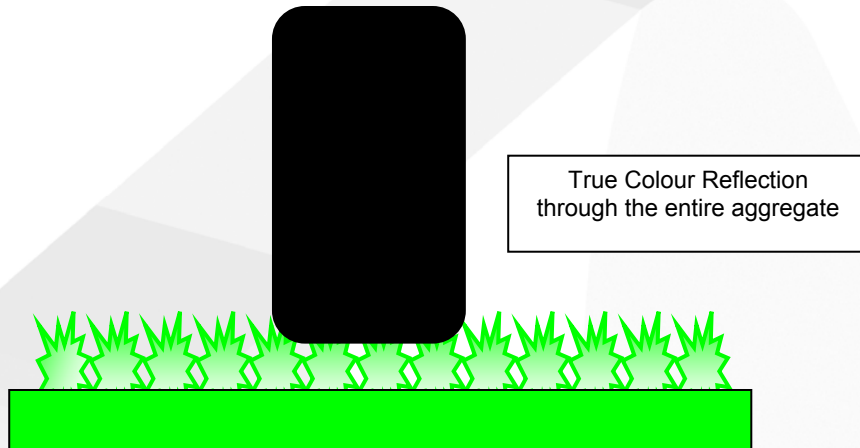
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### Colour Retention –SYNTHITE®

NB: Synthite is an Australian Registered Trade Mark of Omnicrete Pty Ltd



In contrast the Synthite® aggregate with a PSV  $\geq 60$  is not only colour coated prior to application with a specialist coating but it has an internal clear matrix which allows the underlying colour on all of the facets to be reflected through the matrix ensuring the visual effect of the surface always remains coloured.

Long term colour retention is maintained for the design life of the product as colour reflection from the underlying binder and aggregate facets which are not subjected to abrasion and are protected from UV by the clear matrix of the aggregate.

### CONCLUSION

In conclusion it can be seen that there is a defined science to obtaining and maintaining skid resistance, colour retention and material performance and by using Synthite aggregate you can be assured that the system designed and specified will provide the best value decorative, skid resistant surface.

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