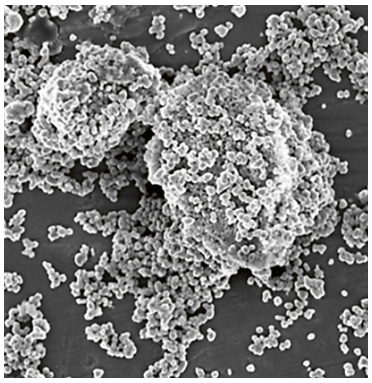
Titanium dioxide partial replacement for sustainable architectural coatings

How digitalization can support formulators!

Evonik does not only offer a broad portfolio of additives including specialty fillers to support coating formulators but also provides services to facilitate formulation work and save precious time. Evonik Coating Additives has developed the TiO_2 Savings Calculator that allows formulators to easily adjust their formulations when replacing TiO_2 by specialty fillers such as SIPERNAT® 820 A.



TiO_2 Savings Calculator

- Titanium dioxide is one of the most costly ingredients of architectural coatings and plays an important role on coating performance such as UV stability, whiteness and color development. TiO_2 has an affinity for the surface of specialty extenders. Evonik silicate extend the efficiency of TiO_2 pigments by minimizing crowding effects and optimizing inter-particle distance for light scattering.
- Check our TiO_2 Savings Calculator to find out how much TiO_2 can be saved by partially replacing it with SIPERNAT® 820 A. Reduction of your product carbon footprint with our more sustainable TiO_2 replacement can be easily calculated. The tool is easy to use and freely accessible on:

https://www.coatino.com/products/PR_52043852

Save TiO_2 with SIPERNAT® 820 A

SIPERNAT® 820 A distributes TiO_2 particles more efficiently which allows the formulator to save TiO_2. This will further reduce the density while not negatively affecting the coating properties.

Adjust the values to find out how much you may gain with SIPERNAT® 820 A:

Initial density*	1.5	g/ml	
Initial TiO_2*	10	%	
TiO_2 saving*	2	30	15 %
TiO_2 costs	3	$/kg	
SIPERNAT® 820 A costs	1.5	$/kg	

Costs are subject to change and depicted solely for calculation purposes - Please contact your Evonik Account Manager

Results

Density reduction:	10 %
TiO_2 reduction:	15 %
TiO_2 cost reduction:	12 %
TiO_2 cost saving:	0.35 $/kg
Density:	1.356 g/ml
CO_2 reduction:	57 g CO_2/kg
TiO_2:	8.5 %
SIPERNAT® 820 A:	0.7 %
Additional water:	0.8 %

Click or scan the QR-code for more information!

EVONIK
Leading Beyond Chemistry

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How to improve hiding power?

SIPERNAT® 820 A is a precipitated synthetic silicate with exceptionally bright clean color. SIPERNAT® 820 A has highly structured particles that provide multiple benefits such as: film reinforcement, TiO_2 spacing, sheen uniformity, and excellent dry opacity.

SIPERNAT® 820 A helps to reduce your product carbon footprint by its low carbon footprint e.g. by using green energy in production.

Hiding power and spreading rate tested in an exterior coating, PVC 76 % where 10 to 20 % of titanium dioxide was replaced by specialty fillers

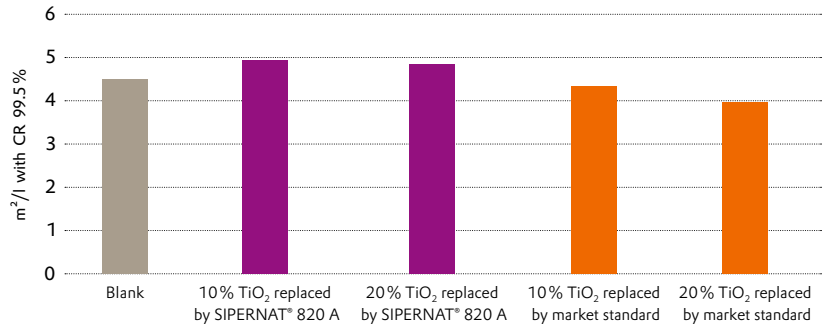
A partial replacement with SIPERNAT® 820 A helps increasing the area covered by the paint while maintaining the contrast ratio at the level of 99.5 %.

BENEFITS

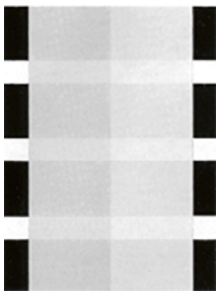
- cost reduction
- hiding power
- increased levels of whiteness
- very good dry opacity
- improved washability and scrub resistance
- good weathering characteristics
- positive sustainability profile

Technical Data SIPERNAT® 820 A	
Delivery form	free-flowing powder
DOA absorption	155 ml/100 g
Loss on drying	7 %
Particle size, d_{50}	7 µm
pH value, 20 % in water	10
Sodium sulfate content	0.5 %
Specific gravity	2.1
Specific surface area (BET)	85 m^2/g

Spreading rate



Hiding power test panel



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