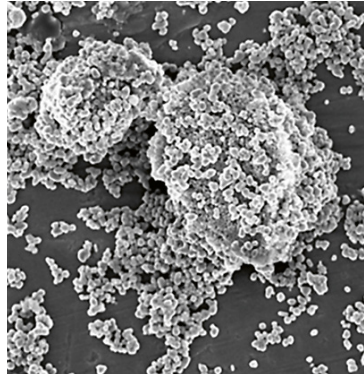


# Titanium dioxide partial replacement for sustainable architectural coatings

## 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<sub>2</sub> Savings Calculator that allows formulators to easily adjust their formulations when replacing TiO<sub>2</sub> by specialty fillers such as SIPERNAT® 820 A.



## TiO<sub>2</sub> 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<sub>2</sub> has an affinity for the surface of specialty extenders. Evonik silicate extenders increase the efficiency of TiO<sub>2</sub> pigments by minimizing crowding effects and optimizing inter-particle distance for light scattering.
- Check our TiO<sub>2</sub> Savings Calculator to find out how much TiO<sub>2</sub> can be saved by partially replacing it with SIPERNAT® 820 A. Reduction of your product carbon footprint with our more sustainable TiO<sub>2</sub> replacement can be easily calculated. The tool is easy to use and freely accessible on:

[https://www.coatino.com/products/PR\\_52043852](https://www.coatino.com/products/PR_52043852)

### Save TiO<sub>2</sub> with SIPERNAT® 820 A

SIPERNAT® 820 A distributes TiO<sub>2</sub> particles more efficiently which allows the formulator to save TiO<sub>2</sub>. 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 <sub>2</sub> * 10 %
TiO <sub>2</sub> saving* 2 ————— 30 15 %	
TiO <sub>2</sub> 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 <sub>2</sub> reduction:	~ 15 %
TiO <sub>2</sub> cost reduction:	~ 12 %
TiO <sub>2</sub> cost saving:	~ 0.35 \$/kg
Density:	1.356 g/ml
CO <sub>2</sub> reduction:	~ 57 g CO <sub>2</sub> /kg
TiO <sub>2</sub> :	8.5 %
SIPERNAT® 820 A:	0.7 %
Additional water:	0.8 %



Click or scan the QR-code for more information!

## 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<sub>2</sub> 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 %.

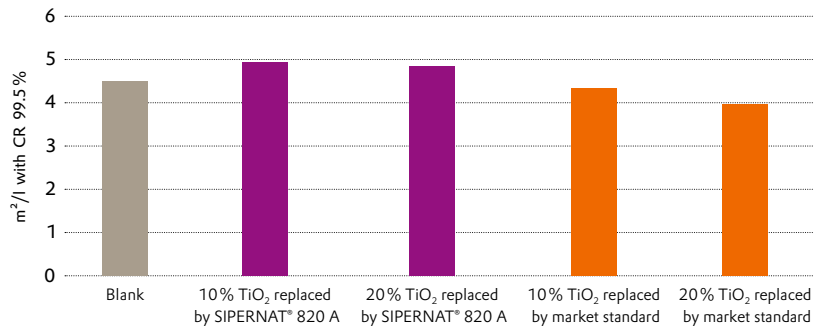
## BENEFITS

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

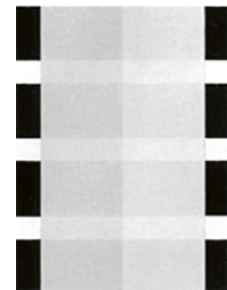
### Technical Data SIPERNAT® 820 A

Delivery form	free-flowing powder
DOA absorption	155 ml/100g
Loss on drying	7%
Particle size, d <sub>50</sub>	7 µm
pH value, 20% in water	10
Sodium sulfate content	0.5%
Specific gravity	2.1
Specific surface area (BET)	85 m <sup>2</sup> /g

### Spreading rate



### Hiding power test panel



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