

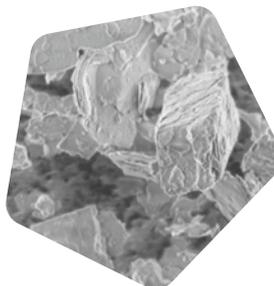


SteaShield® 10

Ultra lamellar talc
for barrier coatings

Attributes:

- Improved barrier properties and corrosion resistance
- Reduced settling
- Natural, inert, free flowing





SteaShield® 10

SteaShield® 10 is produced using an innovative, proprietary, milling process which dramatically increases lamellarity and confers exceptional barrier properties to coatings.

It is the most lamellar talc grade available to coatings formulators today.

Mechanical Performance

The coatings were applied on S46 Q-panels at 24µm dry film thickness. All tests performed after 7 days of curing.

Paint properties	Falling impact (cm, 1 kg)	Perso hardness (s)
Fine talc (reference)	100	260
Zn phosphate	5	295
SteaShield® 10	100	280

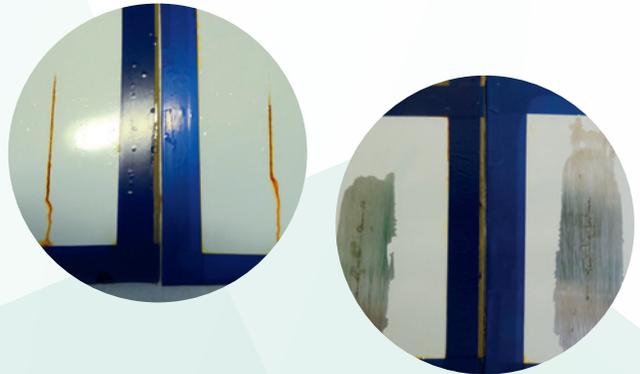
Paint properties	Conical mandrel (mm)	Cross cut adhesion (ISO 2409)
Fine talc (reference)	30	0
Zn phosphate	35	4
SteaShield® 10	15	0

Anti-corrosion performance – salt spray test

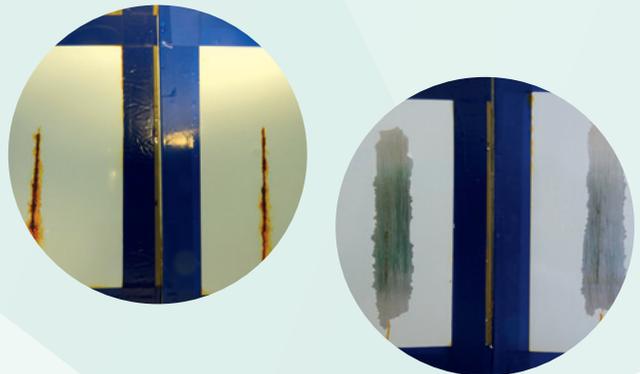
The results after 350 hours salt spray test (ASTM B 117) are shown right.

Conclusion

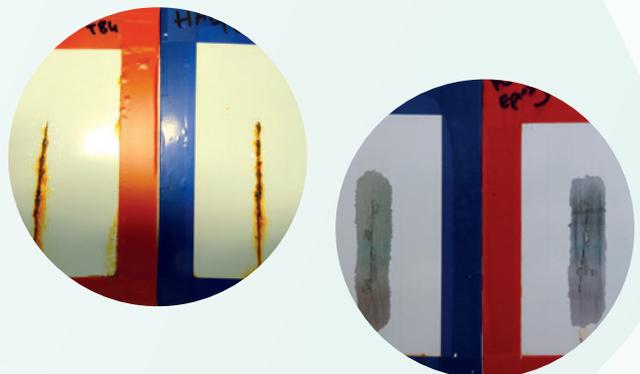
By virtue of its ultra lamellar particles, **SteaShield® 10** imparts barrier properties and excellent mechanical performance in thin layer coating systems.



Fine talc (reference)



Zn Phosphate

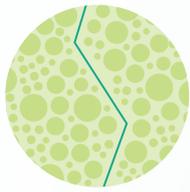


SteaShield® 10

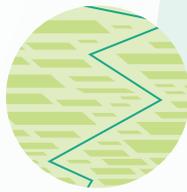
Enhanced barrier properties

By virtue of its ultra lamellar particle shape, **SteaShield® 10** creates a physical barrier which protects the paint substrate by impairing the diffusion of water and corrosive agents through the film.

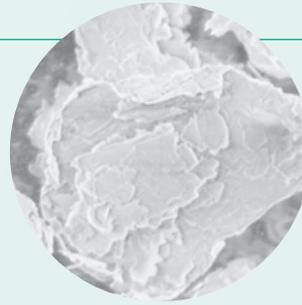
Diffusion path



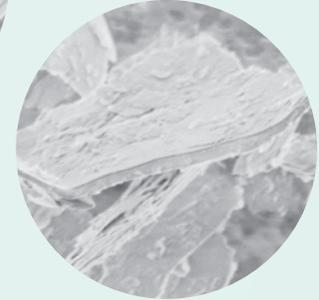
Non lamellar filler



SteaShield® 10



Micronised talc



SteaShield® 10

These unparalleled barrier properties significantly improve corrosion resistance. The following studies demonstrate the efficiency of **SteaShield® 10** in coil and epoxy coatings.

Performance of **SteaShield® 10** in coil coatings

The efficiency of **SteaShield® 10** is demonstrated by comparing the performance parameters of a typical coil coating formulation and a formulation with partial replacement of corrosion inhibitors by Imerys **SteaShield® 10**

Components (% weight)	Standard formulation	Formulation with SteaShield® 10
Saturated polyester resin (60%)	43.8	43.8
Melamine crosslinker	4.7	4.7
Catalyst 1	1.5	1.5
Catalyst 2	0.4	0.4
Levelling/ anti-cratering agent	0.4	0.4
Rheology modifier	1.3	1.3
Fumed silica	0.4	0.4
Corrosion inhibitor	6.0	4.0
Zn phosphate	6.0	4.0
SteaShield® 10	-	4.0
TiO ₂ rutile	18.3	18.3
Matting agent	0.4	0.4
Thinner	16.8	16.8
Total	100.0	100.0

Results

Paint properties	Standard formulation	Formulation with SteaShield® 10
Viscosity Ford cup 4 (s)	187	185
Solids content (%)	62.9	61.0
Settling	Yes	No

Application properties	Stem hand coater (thickness 24µm wet) + baked 45s at 320°C	
Gloss 60°	34	37
Opacity (%) (contrast card)	78.1	78.8
MEK resistance (double rubs)	30	30
Flexibility - T bend	3T	3T
Salt spray test (+ top coat)	< 150 h	> 200 h
Cost saving	-	± 2.5%

The formulation containing **SteaShield® 10** provides better anti-settling properties and significantly improves corrosion resistance whilst maintaining all other performance parameters.



Zn Phosphate



with **SteaShield® 10**

SteaShield® 10 minimises settling

Thanks to its ultra lamellar particle shape, **SteaShield® 10** resolves settling problems in the formulation.



Reference (190h)



with **SteaShield® 10**
(190h)



with **SteaShield® 10**
(250h)

Improved salt spray resistance

Using **SteaShield® 10** in the formulation improves barrier properties, significantly increasing corrosion resistance.

Performance of SteaShield® 10 in 2P epoxy

The performance of **SteaShield® 10** was compared to **Steopac®** and Zn phosphate in a 2P epoxy coating. The coatings were assessed at low dry film thickness.

2P epoxy formulation	Steopac®	Zn Phosphate	SteaShield® 10
Component A			
Epoxy resin, X75	28.2	28.2	28.2
Dispersant	0.1	0.1	0.1
TiO ₂ , Rutile	15.2	15.2	15.2
Solvent mix	7	7	7
Component B			
Amine hardener, X70	12.9	12.9	12.9
Dispersant	0.4	0.4	0.4
Baryte	14.3	14.3	14.3
Steopac®	12.4	0	0
Zn Phosphate	0	12.4	0
SteaShield® 10	0	0	12.4
Solvent mix	9.5	9.5	9.5
Total	100	100	100

Paint properties	Steopac®	Zn Phosphate	SteaShield® 10
Falling impact (cm, 1kg)	100	5	100
Persoz hardness (s)	260	295	280
Conical mandrel (mm)	30	35	15
Cross cut adhesion (ISO 2409)	0	4	0

TiO₂ ↓

About Imerys

Our expertise

Imerys has over a hundred years' combined experience in the minerals business and the widest portfolio of minerals available to Paints & Coatings manufacturers today. We refine and engineer these minerals through various – often proprietary – processes that influence their concentration, size, shape, structure and surface chemistry to obtain the exact properties our customers require. Each year, we process thousands of tons of materials to the highest standards of quality, consistency and reliability.

Our Paints & Coatings team has in-depth knowledge of Paints & Coatings formulating, of how minerals interact in Paints & Coatings applications and a proven track record for developing new, value-added solutions for customers. Our product and applications laboratories are equipped with a full range of analytical and Paints & Coatings-specific equipment enabling us to spearhead applications innovation as well as to provide customers with bespoke formulation services and technical support.

Integrating sustainable development into all we do

At Imerys, we respect the world in which we operate. We are committed to our role in society, to meeting our obligations to the countries and communities in which we do business, as well as to acting as responsible environmental stewards.

Performance Minerals EMEA major sites



€4.6bn
Sales



17,800
Employees



30+
Minerals



230
No. of sites



50
Countries

Our Corporate Social Responsibility policy is built upon three mainstays:

Empowering our people

- Ensuring that health and safety come first by developing and continually improving our health and safety culture and systems so as to achieve an injury-free workplace.
- Developing our human capital by respecting internationally recognized human rights and labor practices as set out in our Code of Business Conduct and Ethics; investing in the talent and skills of our employees; engaging in constructive social dialogue, and fostering a culture of workplace diversity and inclusion based on mutual respect.

Caring for our planet

- Acting as responsible environmental stewards by assessing environmental risks and continually improving control measures to reduce adverse environmental impacts; maximizing the efficient use of natural resources, and preserving biodiversity.
- Reducing the impact of climate change through the implementation of a long-term climate change strategy in line with the COP21 2°C trajectory as well as developing innovative solutions at the service of a low-carbon economy.

Building for the future

- Ensuring exemplary Business Conduct by maintaining the highest standard of corporate governance; respecting and implementing fair operating practices and ensuring a responsible supply-chain with all our partners; and engaging with local communities to create shared value in particular through education and skills development.
- Ensuring that our products are safe for people and the environment and developing sustainable solutions that make positive contributions to society from both life cycle assessment as well as long term sustainability perspectives.

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