

PROTECTIVE COATINGS



SIGMASHIELD 880

INTRODUCING SIGMASHIELD 880

A NEW STANDARD FOR PROTECTION IN SEVERE ENVIRONMENTS:

- Engineered to resist corrosion in a wide range of industry applications
- Can be rapidly immersed and continues to cure upon sea water immersion making it ideal for splash zones, tidal areas and immersion applications

INTRODUCING SIGMASHIELD 880

- Areas of use:

OFFSHORE

- Jackets
- Caissons
- Pilons

PETROCHEMICAL

- Jettys
- Sheet Piling
- Walkways
- Pipework

MINING

- Sluice ways
- Conveyors
- Slurry lines

OTHER

- Infrastructure
- Cement manufacturing
- Power

INCREASE PRODUCTIVITY WITH SIGMASHIELD 880

Faster dry

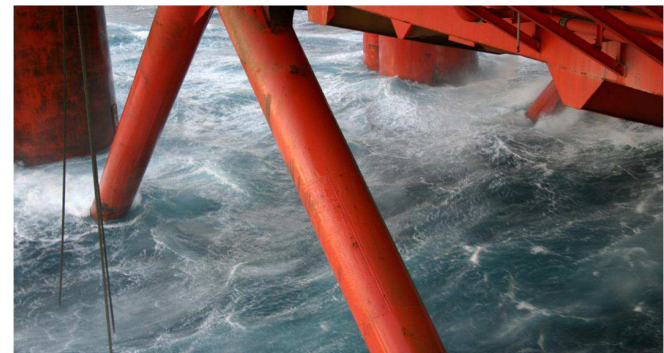
- Faster time to service

Abrasion resistant

- Superior to competitor
- Without reinforcement

Thicker single coat

- 2X competitor

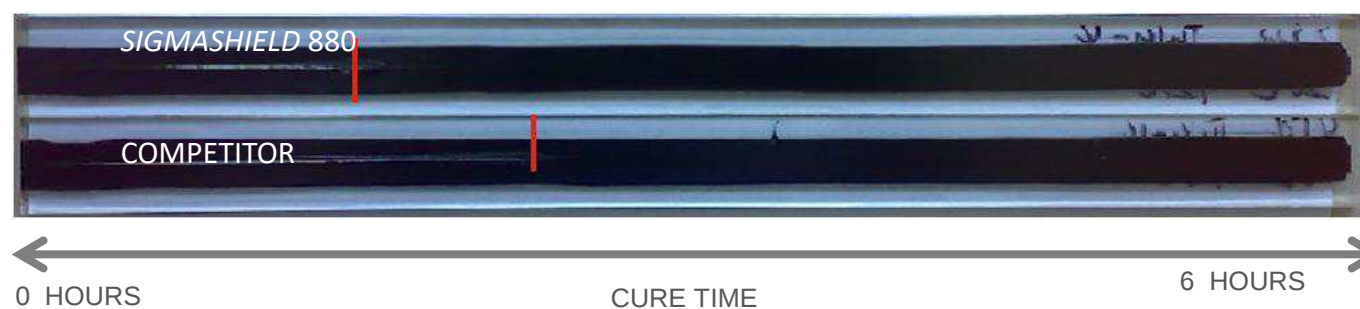


SIGMASHIELD 880 - THE NEW STANDARD

40% Faster dry-to-touch than competitor

	SIGMASHIELD 880	COMPETITOR
DRY-TO-TOUCH (HOURS) at 25°C	2.5	4

Tracking resistance at 23°C (74°F) versus competitor:



SIGMASHIELD 880 - THE NEW STANDARD

Rapid immersion

- Can be immersed 30 minutes after application
- Continues to cure upon immersion
- Immersion cure under varied conditions



SIGMASHIELD 880 - THE NEW STANDARD

30% More abrasion resistant

- Less weight loss than competitor
- Protect longer
- Without reinforcement
- Less equipment wear and tear



	SIGMASHIELD 880	COMPETITOR
ISO 5740/ASTM D4060 WEIGHT LOSS	85 mg	120 mg

SIGMASHIELD 880 - THE NEW STANDARD

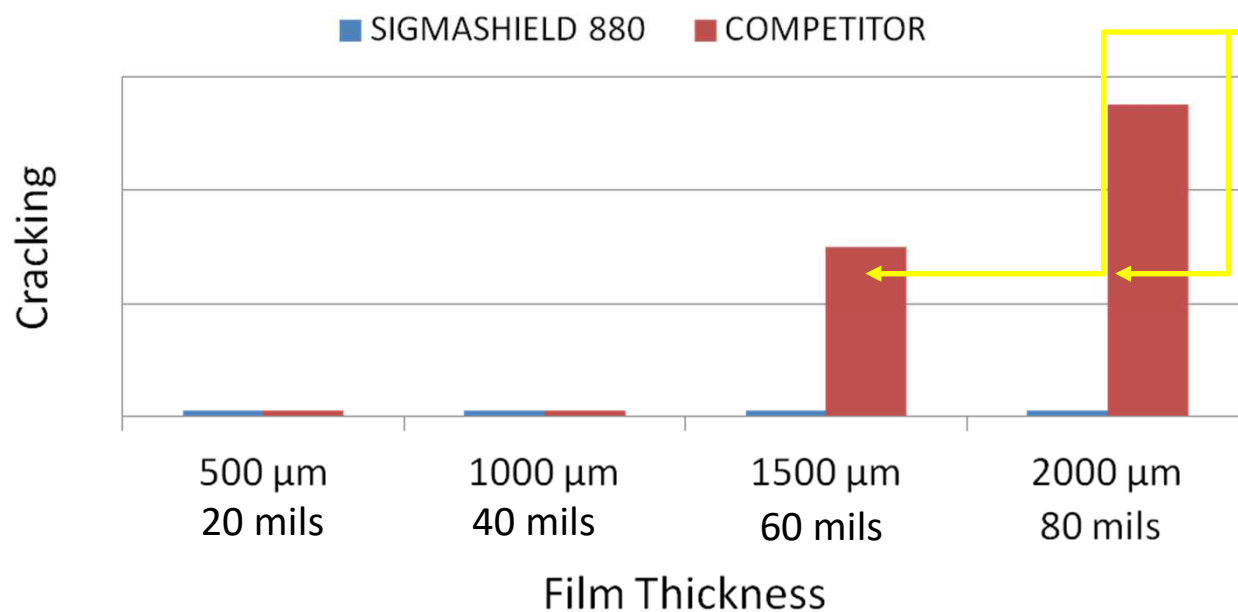
- 2X Thickness in a single coat (up to 1000 μm /40 mils)
- Benefit of two coats in one
- Save labor and time
- Protect longer



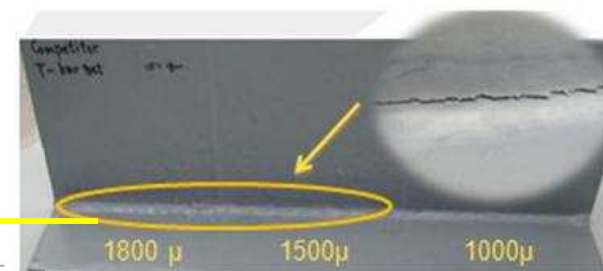
SIGMASHIELD 880 - THE NEW STANDARD SUPERIOR CRACK RESISTANCE

At very high film thickness > 1800 μm / 70mils

- On hot / cold cycling
- Continuous at 60°C / 140°F



Competitor cracking:



SIGMASHIELD 880 - THE NEW STANDARD BETTER SAG RESISTANCE THAN COMPETITOR



Sag resistance by gauge

800 μm
(32 mils)



1800 μm
(72 mils)



Sag resistance by airless spray

SIGMASHIELD 880 - THE NEW STANDARD

- Excellent adhesion on concrete (pull-off adhesion test)
- Dry and damp concrete
- Even with early water immersion



Dry substrate

Damp substrate and
immersion



SIGMASHIELD 880 - THE NEW STANDARD

Surface preparation tolerance

- Hydro jetted substrates
- Hand tooled substrates
- Spray, brush and roll application



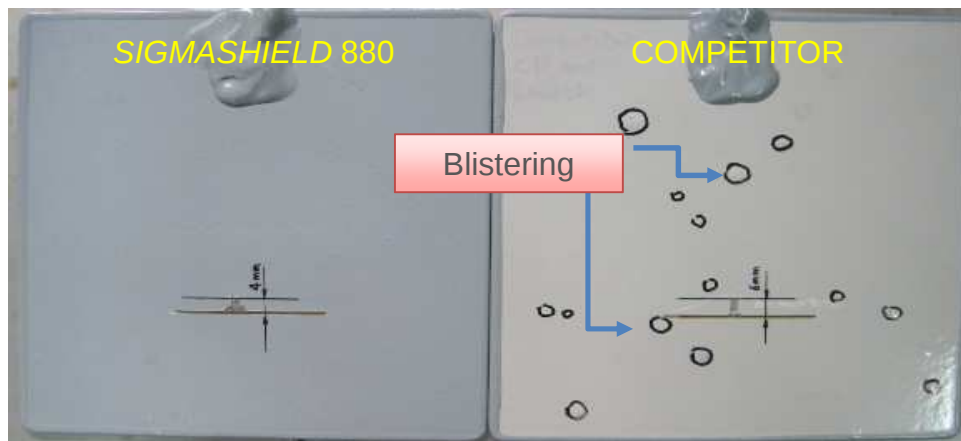
Coating performance will depend on substrate preparation degree.

SIGMASHIELD 880 - THE NEW STANDARD

Compatible with Cathodic Protection (CP)

- Better blister resistance in combination with CP

Immersion with CP for 6months



Dry substrate, curing in air

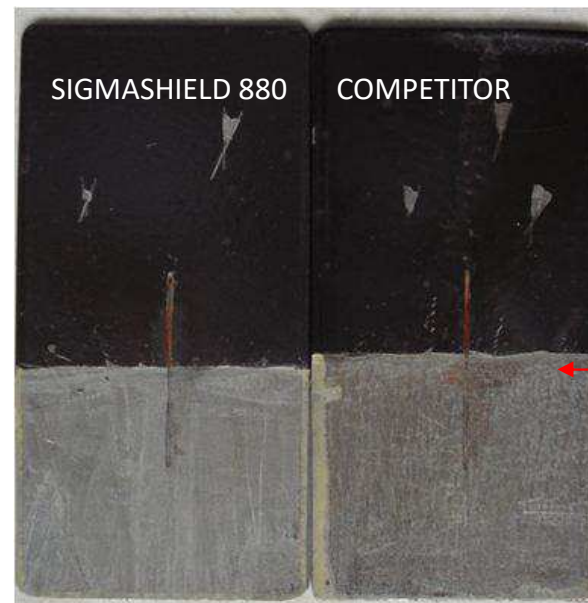
SIGMASHIELD 880 - THE NEW STANDARD

Better Corrosion Resistance

Immersion in seawater for 6 months



Dry substrate, curing in air



Damp substrate, curing in water
2 hours after application

SIGMASHIELD 880 - THE NEW STANDARD

Typical application:

- One coat 200-1000 µm/8-40 mils

Recommended substrate preparation:

- ISO - Sa2, SSPC SP6
- ISO - Sa2½, SSPC SP10
- SSPC SP3, St 3, Pt 3
- Hydrojetted (VIS WJ2/3 L)

Coating performance will depend on substrate preparation degree.

SIGMASHIELD 880 - THE NEW STANDARD

Maximum overcoat interval at 20°C (68°F):

- With itself – 28 days
- With epoxy – 14 days
- With polyurethane – 14 days

SIGMASHIELD 880 - THE NEW STANDARD

Splash and spill resistance list:

- Ethanol
- Butanol
- Propanol
- 5% Potassium Hydroxide
- 5% Sodium Hydroxide
- 10% Sodium Chloride
- 10% Ammonia Solution
- Sodium Carbonate
- ISO-Octane

SIGMASHIELD 880 - THE NEW STANDARD

Available in a range of colors for immersion:

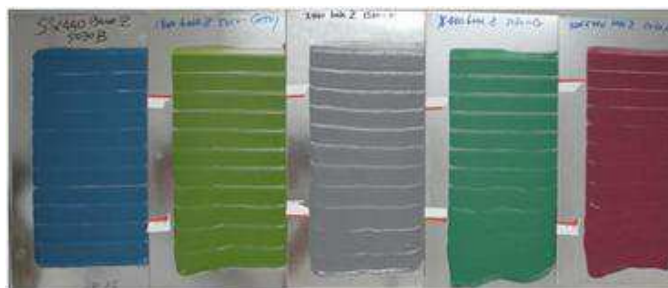
Black, yellow, grey, and off-white

(other colors could be available upon request depending volumes)

Tinting Bas L&Z under development and under testing for cathodic protection applications:



Base L



Base Z

SIGMASHIELD 880 - THE NEW STANDARD

Certifications ISO 12944 – 6 with high durability (> 15 years)

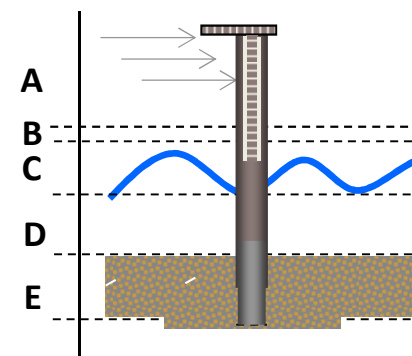
Corrosivity	Surface preparation	Product	Thickness	COT Lab report
C5M	Sa 2.5	SIGMASHIELD 880	300	LAB10-1138-REP
C5M	Sa 2.5	SIGMASHIELD 880	1000	LAB10-1139-REP
C5M	Hydrojetted WJ2L	SIGMASHIELD 880	400	LAB10-1140-REP
Im3 / Im2	Sa 2.5	SIGMASHIELD 880	300	LAB10-1138-REP
Im3 / Im2	Sa 2.5	SIGMASHIELD 880	1000	LAB10-1139-REP
Im3 / Im2	Hydrojetted WJ2L	SIGMASHIELD 880	400	LAB10-1140-REP

SIGMASHIELD 880 - THE NEW STANDARD

Certifications ISO 20340 and NORSOK M501 revision 5

	System N°	Remark	First coat	Thickness	Second coat	Thickness
ISO 20340	Im2	Zone D	SIGMASHIELD 880	1000		
NORSOK M-501	7	Zone D	SIGMASHIELD 880	300	SIGMASHIELD 880	300

- Corrosive atmosphere due to high salinity: C5M
- Splash zone: C5M & Im2
- Tidal zone: C5M & Im2
- Submersion: Im2
- Sea bed



SIGMASHIELD 880 CASE HISTORY

Project name:

CONGOREP Offshore Platform
PPN 1 EMERAUDE FIELD

Location:

Pointe Noir, Congo

Coating system:

SIGMASHIELD 880 grey

Project description:

Coating application was made to the offshore platform splash zone areas with an extremely corroded starting condition due to lack of previous maintenance. Their objective was to stabilize the corrosion for subsequent major repairs. SIGMASHIELD 880 showed excellent bonding at the water line and pull-off adhesion results in all areas.



SIGMASHIELD 880 CASE HISTORY

Project name:

Jetty at RU IV Refinery

Location:

Pertamina - Cilacap, Indonesia

Coating system:

SIGMASHIELD 880 yellow

Project description:

Coating application to jetty pipe and piling at Pertamina in Cilacap, Indonesia. Roll application after hand tool chipping and wire brush surface preparation (St 2) to an average DFT of 400 μm with water immersion after 30 minutes. Inspection was completed 18 months later with the SIGMASHIELD 880 in excellent condition.



SIGMASHIELD 880 CASE HISTORY

Project name:

Fender at JT 7A at RU V Refinery

Location:

Pertamina - Balikpapan, Indonesia

Coating system:

SIGMASHIELD 880 yellow

Project description:

Coating application to Jetty fender JT 7A at Pertamina in Balikpapan, Indonesia. Airless spray application after silica sand blasting (SA 2) substrate preparation to an average DFT of 500 μ m. Inspection was completed 15 months later with the SIGMASHIELD 880 in excellent condition.



Inspection after 4 months

SIGMASHIELD 880 CASE HISTORY

Project name:

Internal water pipe coating
Thermoelectric Plant

Location:

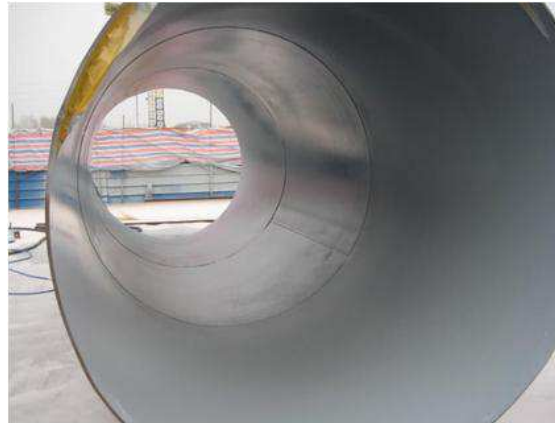
Changshan, China

Coating system:

SIGMASHIELD 880 grey

Project description:

Pipe internals were sand blasted for surface preparation. Weld seams were stripe coated and then two coats were applied to a total film thickness of 600µm with excellent appearance and application characteristics.



SIGMASHIELD 880 CASE HISTORY

Project name:

Steel structural support fabrication

Location:

ZPMC - Nantong, China

Coating system:

SIGMASHIELD 880 RAL 7001

Project description:

Application to steel structural support by airless application with good atomisation, leveling and film formation characteristics.



SIGMASHIELD 880 – CONCLUSION

40% Faster dry and rapid immersion

- Improve productivity
- Continues to cure underwater
- Less downtime and greater time flexibility

30% More abrasion resistant

- Without reinforcement
- Longer lasting protection

2X Thicker in a single coat

- Save labor and time
- Excellent crack resistance
- Longer lasting protection

