



Corrosion protective coatings

ESACOTE AC 509



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New binder for WB corrosion protection

ESACOTE AC 509

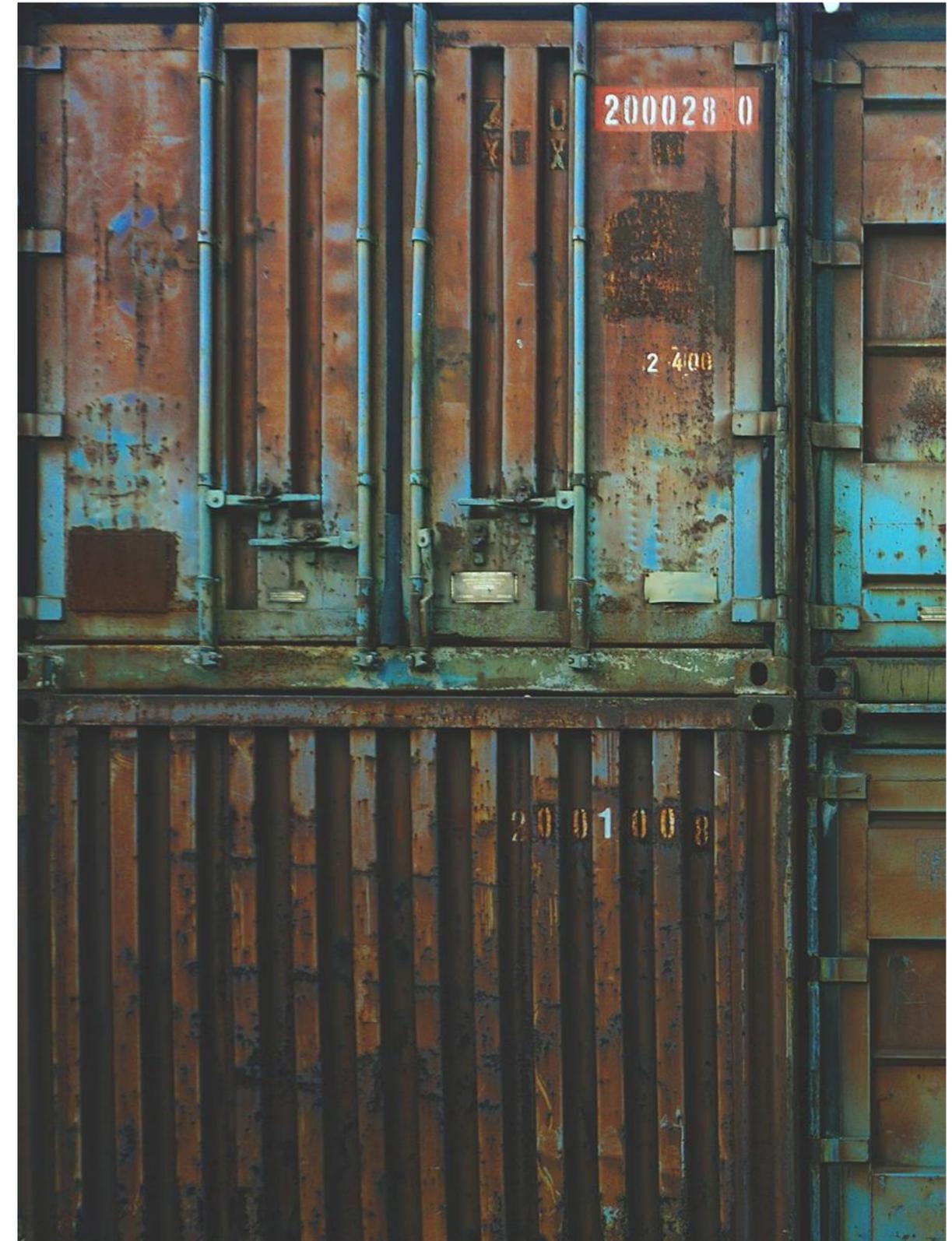
Product properties

Appearance at 25 °C:	milky liquid
pH:	7,5-8,5
(at 25°C on supplied product, ASTM E 70):	
Viscosity (mPa.s): (Brookfield RVT @ 25 °C, 50 rpm spindle 2)	<1000
Solid content, %:	42.0-44.0

Typical values*

Solvent content, %:	0%
Minimal film forming temperature, °C:	~25
Koenig hardness (sec):	~65
Film aspect:	transparent and glossy

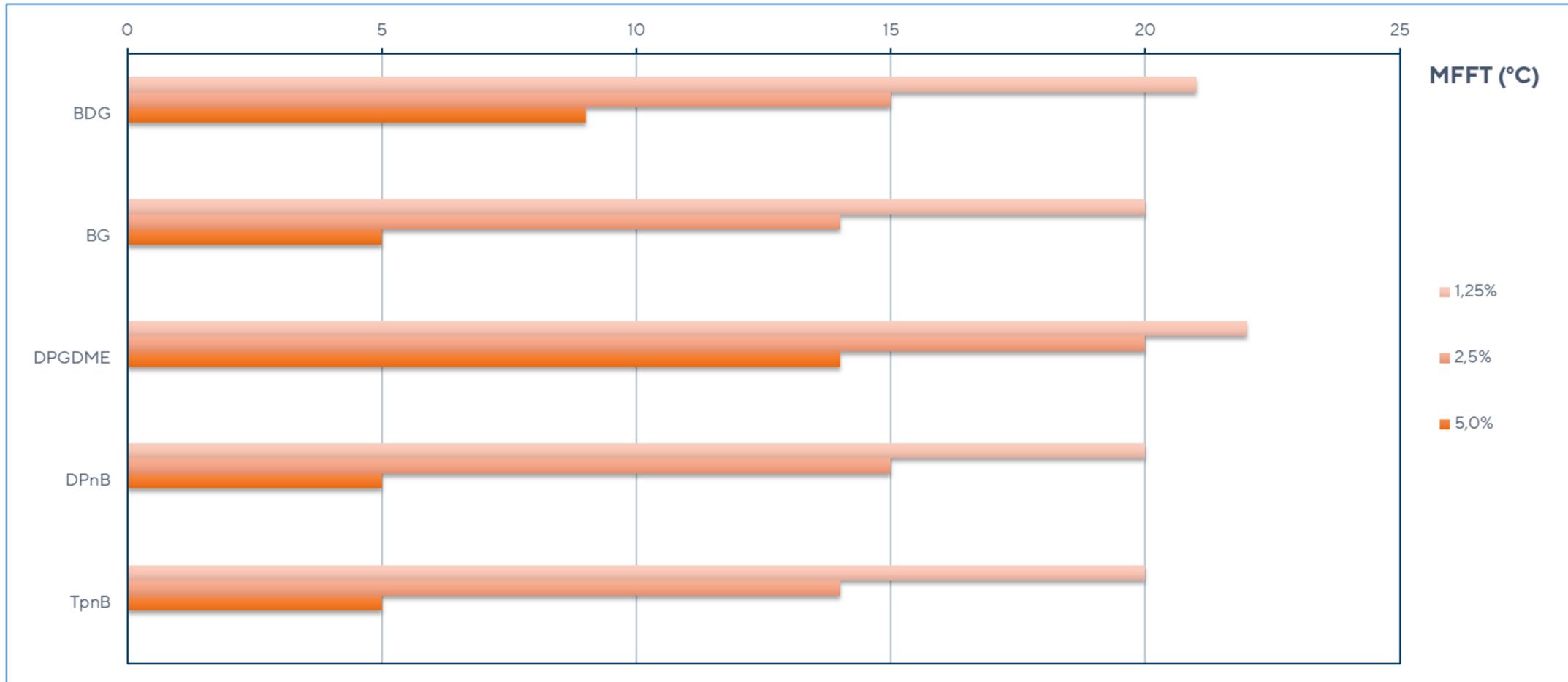
**These values provide general information and are not part of the product specification*





MFFT evaluation

	0,0%	1,25%	2,5%	5,0%
BDG	25	21	15	9
BG	25	20	14	5
DPGDME	25	22	20	14
DPnB	25	20	15	5
TpnB	25	20	14	5



MFFT evaluation has been performed on pure binder.

Suggested additives

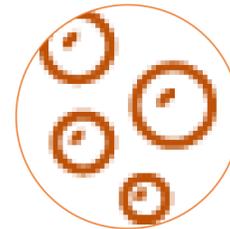
- Butyl glycol
- Butyl diglycol
- DPnB
- TPnB
- DPGDME

Coalescing agents



- Disperbyk 2080
- Tegodisperse 750 W
- Edaplan 490

Dispersing agents



- Ascotran H 10
- AB Rust NFC
- Asconium A 142 DA
- Asconium 500
- Emarust LC 1
- Emarust CL 8
- Nubirox 106

Anti flash rust & anticorrosive agents



- Viscolam PS 010 AIR
- Viscolam PS 102 AIR
- Viscolam PS 170 AIR
- Viscolam PS 202 AIR

Rheology modifiers





White DTM starting formulation #1

		Trade name	% w/w
STEP 1: ADD IN ORDER WITH GOOD AGITATION IN MILL BASE TANK			
A1	Water	DEMI WATER	7.14
B1	Dispersing agent (BYK)	DISPERBYK 2080	0.90
C1	Neutralizer (ANGUS)	AMP 90	0.02
D1	Defoamer(BYK)	BYK 024	0.09
E1	Titanium dioxide (KRONOS)	KRONOS 2190	13.62
STEP 2: DISPERSE WITH HIGH SHEAR FOR 10-15' AND ADD UNDER CONSTANT STIRRING			
F1	Binder	ESACOTE® AC 509	68.70
G1	Defoamer (BYK)	BYK 024	0.14
H1	Wetting agent (BYK)	BYK 349	0.45
I1	Corrosion inhibitor (ASCOTEC)	ASCONIUM 142 DA	1.73
I2	Neutralizer (ANGUS)	AMP 90	0.13
I3	Water	DEMI WATER	1.73
L1	Coalescing agent (DOW)	BDG	2.10
L2	Water	DEMI WATER	2.10
M1	Anti flash rust (ASCOTEC)	ASCOTRAN H-10	0.45
N1	Thickener	VISCOLAM® PS 102 (diluted in water 1:1)	0.70
Total			100

WHITE PASTE

Dose A1 and under stirring add a mix of B1,C1,D1,E1.

Solid Content ≈80% .

Pigment grinding below 10 microns (time 20-30' at 1000-2000 rpm)

On top of white paste, under stirring, add F1, G1,H1, a mix of I1, I2 and I3, a mix of L1 and L2, M1 and N1

After adding all the ingredients, mix for 15' at 1000 rpm

Solid Content ≈ 45.5% .

White DTM starting formulation #1

PAINT DATA	
PVC	10.1%
PVC/cPVC	0.18
Gloss (60°)	85 GU
TEST CONDITIONS	
Substrate	Cold Rolled Steel Q-36
Test duration (ISO 9227)	720h
Application	1 layer
DFT	50 μ
Dry adhesion	4B

Salt Spray Test

168h



336h



720h





White DTM starting formulation #1

PAINT DATA	
PVC	10.1%
PVC/cPVC	0.18
Gloss (60°)	
TEST CONDITIONS	
Substrate	Cold Rolled Steel Q-36
Test duration (ISO 9227)	720h
Application	1 layer
DFT	100 μ
Dry adhesion	4B

Salt Spray Test

168h



336h



720h



White DTM starting formulation #1

PAINT DATA	
PVC	10.1%
PVC/cPVC	0.18
Gloss (60°)	79 GU
TEST CONDITIONS	
Substrate	Cold Rolled Steel Q-36
Test duration (ISO 9227)	720h
Application	2 layers
DFT	80 + 80 μ
Dry adhesion	5B

Salt Spray Test

168h



336h

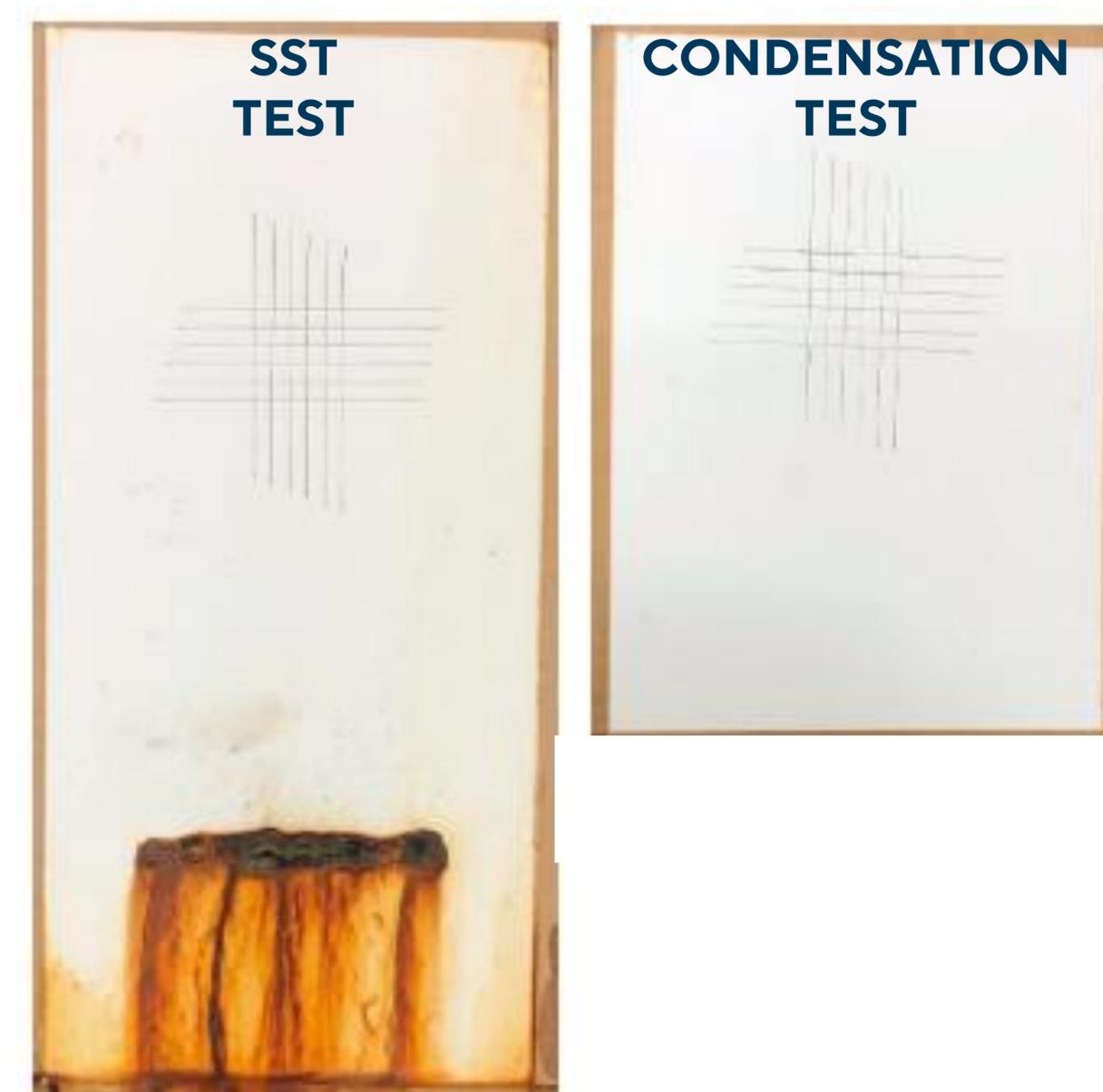


720h



White DTM starting formulation #2

		Trade name	% w/w
STEP 1: ADD IN ORDER WITH GOOD AGITATION IN MILL BASE TANK			
A1	Water	WATER	7.00
B1	Dispersing agent (EVONIK)	TEGODISPERSE 750 W	1.05
C1	Defoamer (BYK)	BYK 024	0.30
D1	Neutralizer (ANGUS)	AMP 90	0.20
E1	Titanium dioxide (KRONOS)	KRONOS 2190	17.50
DISPERSE WITH HIGH SHEAR FOR 10-15' AND ADD:			
F1	Anticorrosive additive (ASCOTEC)	ASCONIUM 500	1.0
LET DOWN: MIX UNDER CONSTANT STIRRING:			
G1	Binder	ESACOTE® AC 509	55.81
H1	Water	WATER	13.41
I1	Defoamer (BYK)	BYK 024	0.15
L1	Coalescing agent (DOW)	DOWANOL DPnB	2.33
M1	Anti flash rust (ASCOTEC)	ASCOTRAN H-10	0.50
ADD MILL BASE WITH HIGH SHEAR FOR 5-10' - ADJUST VISCOSITY:			
N1	Thickener	VISCOLAM® PS 102 (diluted in water 1:1)	0.75
Total			100





White DTM starting formulation #2

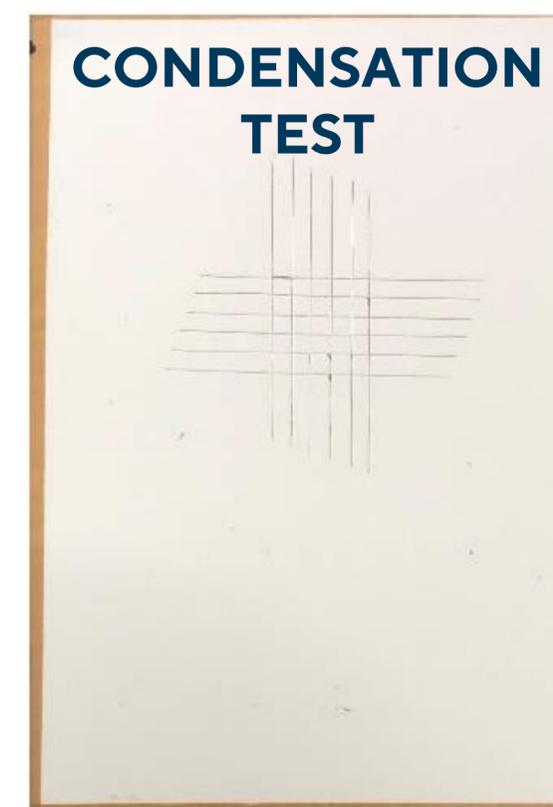
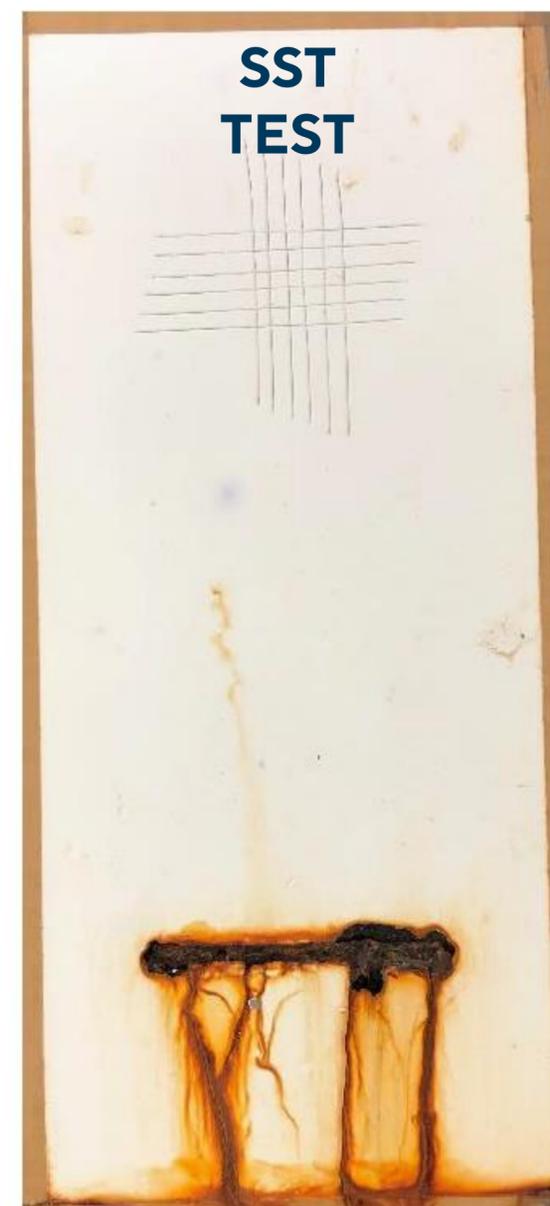
PAINT DATA	
PVC	15,7%
PVC/cPVC	0.28
Gloss (60°)	75
SALT SPRAY TEST RESULTS (ISO-9227)	
Blistering (ISO 4628-2)	0 (S0)
Rusting (ISO 4628-3)	Ri0
Corrosion at scribe (ISO 12944)	<1.5mm
Adhesion after 7 days (ISO 2409)	0
CONDENSATION TEST RESULTS (ISO-6270)	
Blistering (ISO 4628-2)	0 (S0)
Rusting (ISO 4628-3)	Ri0
Adhesion after 7 days (ISO 2409)	0
TEST CONDITIONS	
Substrate	Sandblasted steel SA2,5
Test duration (ISO 9227)	720 h
Test duration (ISO 6270)	480 h
Application	1 layer
DFT	90 μ

CORROSION CLASSES:

- **C3 – VERY HIGH:** urban or light industrial with moderate SO₂ level or process area of high humidity more than 25 years
- **C4 – HIGH:** medium to high corrosion environment for mostly land based structure between 12 and 25 years
- **C5 – MEDIUM:** high to severe conditions environment in land based and coastal structure between 7 and 15 years

White DTM starting formulation #3

		Trade name	% w/w
STEP 1: ADD IN ORDER WITH GOOD AGITATION IN MILL BASE TANK			
A1	Water	WATER	7.00
B1	Dispersing agent (EVONIK)	TEGODISPERSE 750 W	1.05
C1	Defoamer (BYK)	BYK 024	0.30
D1	Neutralizer (ANGUS)	AMP 90	0.20
E1	Titanium dioxide (KRONOS)	KRONOS 2190	17.50
DISPERSE WITH HIGH SHEAR FOR 10-15' AND ADD:			
F1	Anticorrosive additive (ASCOTEC)	ASCONIUM 142 DA	2.5
LET DOWN: MIX UNDER CONSTANT STIRRING:			
G1	Binder	ESACOTE® AC 509	55.81
H1	Water	WATER	11.91
I1	Defoamer (BYK)	BYK 024	0.15
L1	Coalescing agent (DOW)	DOWANOL DPnB	2.33
M1	Anti flash rust (ASCOTEC)	ASCOTRAN H-10	0.50
ADD MILL BASE WITH HIGH SHEAR FOR 5-10' - ADJUST VISCOSITY:			
N1	Thickener	VISCOLAM® PS 102 (diluted in water 1:1)	0.75
Total			100





White DTM starting formulation #3

PAINT DATA	
PVC	15,7%
PVC/cPVC	0.28
Gloss (60°)	75
SALT SPRAY TEST RESULTS (ISO-9227)	
Blistering (ISO 4628-2)	0 (S0)
Rusting (ISO 4628-3)	Ri0
Corrosion at scribe (ISO 12944)	<1.5mm
Adhesion after 7 days (ISO 2409)	0
CONDENSATION TEST RESULTS (ISO-6270)	
Blistering (ISO 4628-2)	0 (S0)
Rusting (ISO 4628-3)	Ri0
Adhesion after 7 days (ISO 2409)	0
TEST CONDITIONS	
Substrate	Sandblasted steel SA2,5
Test duration (ISO 9227)	720 h
Test duration (ISO 6270)	480 h
Application	1 layer
DFT	90 μ

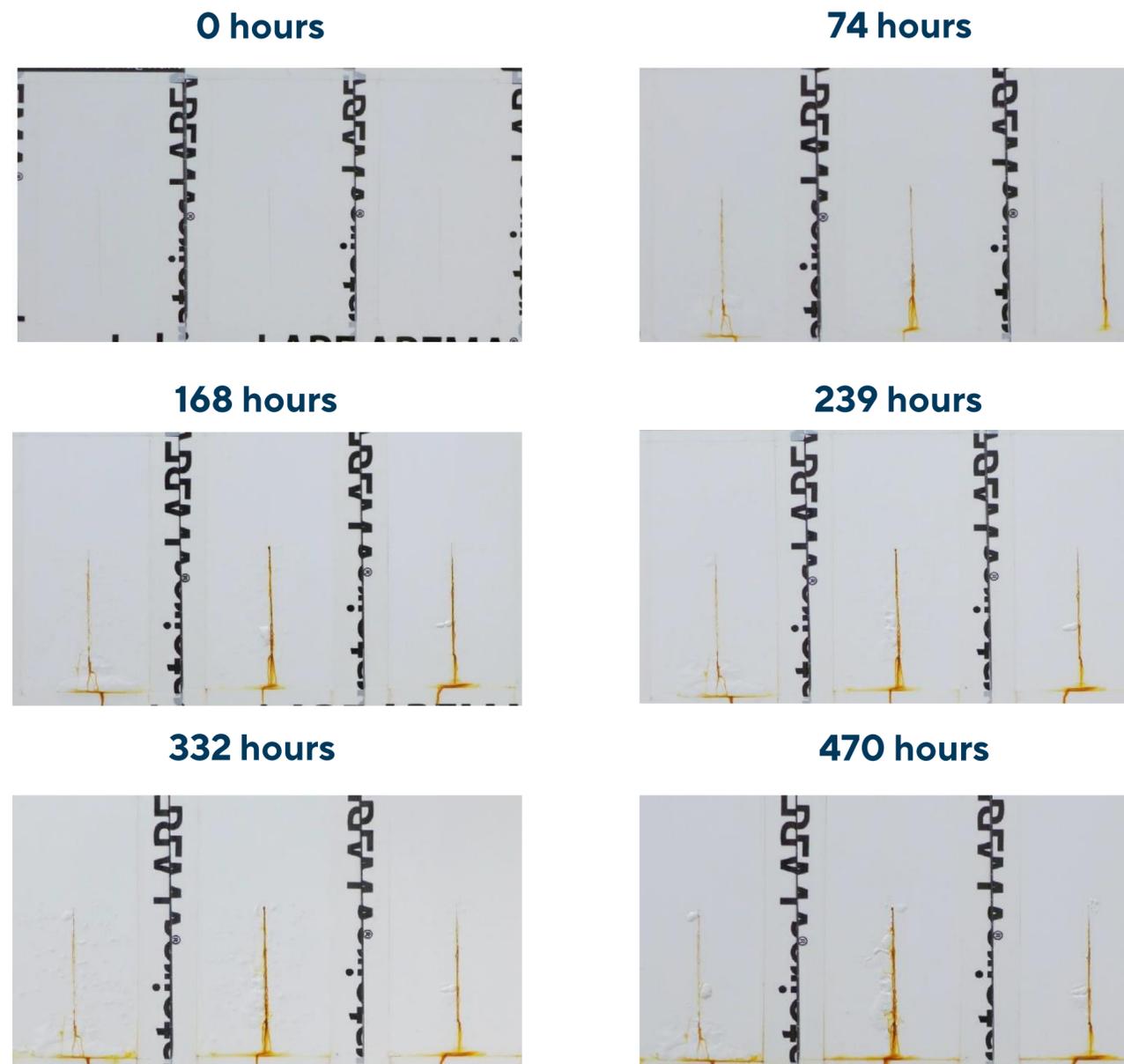
CORROSION CLASSES:

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- **C5 – MEDIUM:** high to severe conditions environment in land based and coastal structure between 7 and 15 years

White DTM starting formulation #4

		Trade name	% w/w
STEP 1: ADD IN ORDER WITH GOOD AGITATION IN MILL BASE TANK			
A1	TiO ₂ dispersion	WHITE PASTE 490	21,80
B1	Binder	ESACOTE AC® 509	69,39
C1	Water	WATER	0,38
D1	Defoamer (BYK)	BYK 024	0,14
E1	Wetting agent (BYK)	BYK 349	0,35
F1	Coalescing agent (DOW)	Dowanol DPnB	2,12
G1	Water	WATER	4,10
H1	Thickener	VISCOLAM® PS 102	0,72
I1	Anti flash rust (Labema)	AB RUST NFC	1,00
Total			100

TEST CONDITIONS	
Substrate	Q Panel S-36
Test duration (ISO 9227)	540h
Application	1 layer
DFT	85 μ



White DTM starting formulation #4

CROSS-CUT ADHESION TEST - EN ISO 2409



There is no defect on the grid made on the upper part, and the removal of the paint film extends less on either side of the damage on the lower part compared to the other paints.

White DTM starting formulation #5

		Trade name	% w/w
STEP 1: ADD IN ORDER WITH GOOD AGITATION IN MILL BASE TANK			
A1	TiO ₂ dispersion	WHITE PASTE	22,00
B1	Anticorrosive pig. (Ferro)	Nubirox 106	10,00
C1	Talc (Imerys)	Steashield 10	3,00
D1	Coalescing agent (DOW)	BDG	2,50
E1	Binder	ESACOTE® AC 509	60,10
F1	Thickener	VISCOLAM® PS 102	0,70
G1	Defoaming agent (BYK)	BYK 024	0,20
H1	Wetting agent (BYK)	BYK 349	0,50
I1	Corrosion inhibitor & Anti flash rust (Labema)	EMARUST CL 8	1,00
Total			100

TEST CONDITIONS	
Substrate	Iron
Test duration (ISO 9227)	750h
Application	1 layer
DFT	50 μ

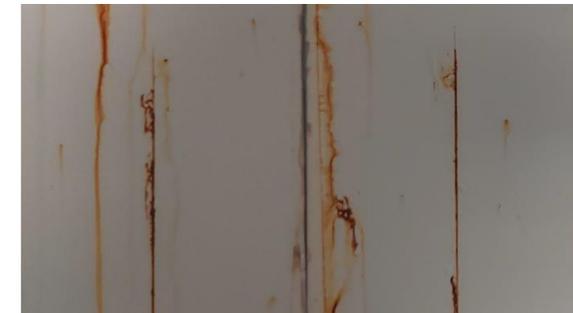
48 hours



168 hours



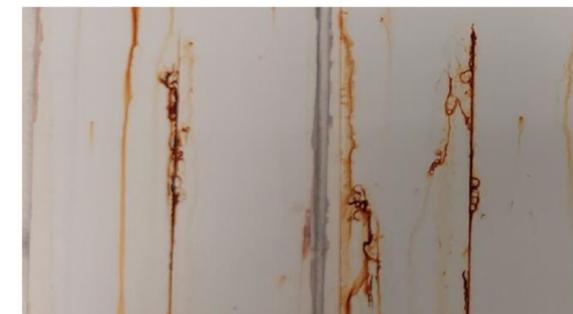
336 hours



504 hours



672 hours



750 hours



