

Guide for Coating Systems

Guidelines for corrosion protection in
accordance with AS/NZS 2312.1:2014





Avantguard®

Best corrosion protection - with less paint

Our patented Avantguard zinc primers activate more zinc throughout the coating to give you superior corrosion protection and lower maintenance requirements. Avantguard technology helps your coating system last up to 50% longer and protects your assets regardless of the environment they face.

Give your assets superior corrosion protection. Avantguard 750 complies with NORSOK M-501 and is proven to be fast curing and easy to apply.

- Longer corrosion protection
- Lower maintenance costs
- Reduce application and construction costs
- Improve sustainability

Based on activated zinc technology, our patented Hempadur Avantguard coatings have been proven to deliver superior corrosion protection compared to key competitor zinc rich epoxy primers. This superiority has been independently proven by third party laboratory neutral salt spray tests according to ISO 9227. In this test, steel protected with Avantguard produced a lower evolution of rust creep than the competitors, assessed according to ISO 12944-6, when tested up to 3x the duration for C5 high environments. Avantguard's overcoating interval is a minimum of 33 percent faster than competitor zinc-rich epoxies when comparing product data sheets.

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Product selection based on AS/NZS 2312.1:2014

Table 6.3: Systems for atmospheric exposure

Coating system details									Durability: years to 1st maintenance						
System designation	Surface preparation	1st Coat		2nd Coat		3rd coat		Total nominal DFT µm	Atmospheric corrosivity category						
		Product name	Nom DFT µm	Product name	Nom DFT µm	Product name	Nom DFT µm		C1 very low	C2 low	C3 med	C4 high	C5-i very high industrial	C5-m very high marine	T inland tropical
Acrylic - 2-pack															
ACC 1	ST 3	Hempaprime Multi 500	125	Hempel's Pro Acrylic ⁵	50	-	-	175	25+	10-25	5-10	2-5	-	-	5-10
ACC 1	ST 3	Hempadur Mastic 45880/1	125	Hempel's Pro Acrylic	50	-	-	175	25+	10-25	5-10	2-5	-	-	5-10
ACC 2	SA 2½	Hempadur Fast Dry 17410	75	Hempel's Pro Acrylic ⁵	50	-	-	125	25+	15-25	10-15	5-10	2-5	2-5	10-15
ACC 2	SA 2½	Hempadur Avantguard 860	75	Hempel's Pro Acrylic	50	-	-	125	25+	15-25	10-15	5-10	2-5	2-5	10-15
ACC 4	SA 2½	Hempadur Fast Dry 17410	75	Hempaprime Multi 500	125	Hempel's Pro Acrylic ⁵	50	250	*	25+	15-25	10-15	5-10	5-10	15-25
ACC 4	SA 2½	Hempadur Fast Dry 17410	75	Hempadur Mastic 45880/1	125	Hempel's Pro Acrylic	50	250	*	25+	15-25	10-15	-	-	15-25
ACC 4	SA 2½	Hempadur Avantguard 860	75	Hempaprime Multi 500	125	Hempel's Pro Acrylic ⁵	50	250	*	25+	15-25	10-15	5-10	5-10	15-25
ACC 4	SA 2½	Hempadur Avantguard 860	75	Hempadur Mastic 45880/1	125	Hempel's Pro Acrylic	50	250	*	25+	15-25	10-15	-	-	15-25
ACC 5	SA 2½	Hempel's Galvosil 15700	75	Hempaprime Multi 500	125	Hempel's Pro Acrylic ⁵	50	250	*	25+	15-25	10-15	5-10	5-10	15-25
ACC 5	SA 2½	Hempel's Galvosil 15700	75	Hempadur Mastic 45880/1	125	Hempel's Pro Acrylic	50	250	*	25+	15-25	10-15	-	-	15-25
ACC 5	SA 2½	Hempadur Avantguard 860	75	Hempaprime Multi 500	125	Hempel's Pro Acrylic ⁵	50	250	*	25+	15-25	10-15	5-10	5-10	15-25
ACC 5	SA 2½	Hempadur Avantguard 860	75	Hempadur Mastic 45880/1	125	Hempel's Pro Acrylic	50	250	*	25+	15-25	10-15	-	-	15-25
ACC 6	SA 2½	Hempel's Galvosil 15700	75	Hempaprime Multi 500	200	Hempel's Pro Acrylic ⁵	50	325	*	25+	25+	25+	5-10	15-25	25+
ACC 6	SA 2½	Hempel's Galvosil 15700	75	Hempadur Mastic 45880/1	200	Hempel's Pro Acrylic	50	325	*	25+	25+	25+	-	-	25+
ACC 6	SA 2½	Hempadur Avantguard 860	75	Hempaprime Multi 500	200	Hempel's Pro Acrylic ⁵	50	325	*	25+	25+	25+	5-10	15-25	25+
ACC 6	SA 2½	Hempadur Avantguard 860	75	Hempadur Mastic 45880/1	200	Hempel's Pro Acrylic	50	325	*	25+	25+	25+	-	-	25+
Alkyd															
ALK 1	ST 3/SA 2	Hempalin Primer 12050	40	-	-	-	-	40	5+	0-5	-	-	-	-	-
ALK 3	ST 3/SA 2	Hempel's Uni-Primer	75	Hempalin Enamel 52140	40	-	-	115	15+	5-15	2-5	-	-	-	2-5
Epoxy - very high build (DFT 250-500 µm/coat)															
EVH1	SA 2½	Epinamel DTM985	250	-	-	-	-	250	25+	15-25	10-15	5-10	2-5	2-5	5-10
EVH2	SA 2½	Epinamel DTM985	400	-	-	-	-	400	*	25+	15-25	10-15	5-15	5-15	10-15
EVH3	SA 2½	Epinamel PR250	75	Epinamel DTM985	400	-	-	475	*	25+	15-25	10-15	5-15	5-15	10-15
Epoxy - high build (DFT 125-200 µm/coat)															
EHB3	SA 2½	Hempadur Fast Dry 17410	75	Hempaprime Multi 500	200	-	-	275	*	15-25	10-15	5-10	2-5	2-5	5-10
EHB3	SA 2½	Hempadur Fast Dry 17410	75	Hempadur Mastic 45880/1	200	-	-	275	*	15-25	10-15	5-10	-	-	5-10
EHB4	SA 2½	Hempel's Galvosil 15700	75	Hempaprime Multi 500	200	-	-	275	*	25+	15-25	10-15	5-10	5-10	10-15
EHB4	SA 2½	Hempel's Galvosil 15700	75	Hempadur Mastic 45880/1	200	-	-	275	*	25+	15-25	10-15	-	-	10-15
EHB4	SA 2½	Hempadur Avantguard 860	75	Hempaprime Multi 500	200	-	-	275	*	25+	15-25	10-15	5-10	5-10	10-15
EHB4	SA 2½	Hempadur Avantguard 860	75	Hempadur Mastic 45880/1	200	-	-	275	*	25+	15-25	10-15	-	-	10-15
EHB5	SA 2½	Hempadur Fast Dry 17410	75	Hempaprime Multi 500 ¹	125	Hempaprime Multi 500 ¹	125	325	*	25+	15-25	10-25	10-15	10-15	10-15
EHB5	SA 2½	Hempadur Fast Dry 17410	75	Hempadur Mastic 45880/1 ¹	125	Hempadur Mastic 45880/1 ¹	125	325	*	25+	15-25	10-25	-	-	10-15
EHB6	SA 2½	Hempel's Galvosil 15700	75	Hempaprime Multi 500 ¹	125	Hempaprime Multi 500 ¹	125	325	*	25+	25+	25+	10-15	15-25	10-25
EHB6	SA 2½	Hempel's Galvosil 15700	75	Hempadur Mastic 45880/1 ¹	125	Hempadur Mastic 45880/1 ¹	125	325	*	25+	25+	25+	-	-	10-25
EHB6	SA 2½	Hempadur Avantguard 860	75	Hempaprime Multi 500 ¹	125	Hempaprime Multi 500 ¹	125	325	*	25+	25+	25+	10-15	15-25	10-25
EHB6	SA 2½	Hempadur Avantguard 860	75	Hempadur Mastic 45880/1 ¹	125	Hempadur Mastic 45880/1 ¹	125	325	*	25+	25+	25+	-	-	10-25

Table 6.3: systems for atmospheric exposure (continued)

Coating system details									Durability: years to 1st maintenance						
System designation	Surface preparation	1st Coat		2nd Coat		3rd coat		Total nominal DFT µm	Atmospheric corrosivity category						
		Product name	Nom DFT µm	Product name	Nom DFT µm	Product name	Nom DFT µm		C1 very low	C2 low	C3 med	C4 high	C5-i very high industrial	C5-m very high marine	T inland tropical
Epoxy mastic - surface tolerant															
EPM3	ST3	Hempaprime Multi 500	200	Hempaprime Multi 500	200	-	-	400	*	15-25	10-15	5-10	2-5	2-5	10-15
EPM3	ST3	Hempadur Mastic 45880/1	200	Hempadur Mastic 45880/1	200	-	-	400	*	15-25	10-15	5-10	-	-	10-15
Inorganic zinc sillicate															
IZS1	SA 2½	Hempel's Galvosil 15700	75	-	-	-	-	75	25+	25+	15-25	10-15	2-5	5-10	15-25
Polysiloxane															
PSL2	SA 2½	Hempel's Galvosil 15700	75	Hempaprime Multi 500	175	Hempaxane Light	75	325	*	25+	25+	25+	15-25	15-25	25+
PSL2	SA 2½	Hempel's Galvosil 15700	75	Hempadur Mastic 45880/1	175	Hempaxane Light	75	325	*	25+	25+	25+	-	-	25+
PSL2	SA 2½	Hempadur Avantguard 860	75	Hempaprime Multi 500	175	Hempaxane Light	75	325	*	25+	25+	25+	15-25	15-25	25+
PSL2	SA 2½	Hempadur Avantguard 860	75	Hempadur Mastic 45880/1	175	Hempaxane Light	75	325	*	25+	25+	25+	-	-	25+
PSL3	SA 2½	Hempadur Fast Dry 17410	75	Hempaprime Multi 500	175	Hempaxane Light	75	325	*	25+	25+	15-25+	15-25	10-15	25+
PSL3	SA 2½	Hempadur Fast Dry 17410	75	Hempadur Mastic 45880/1	175	Hempaxane Light	75	325	*	25+	25+	15-25+	-	-	25+
Polyurethane															
PUR1	ST 3	Hempaprime Multi 500	125	Hempathane HS 55610	50	-	-	175	*	10-15	5-10	2-5	-	-	5-15
PUR1	ST 3	Hempadur Mastic 45880/1	125	Hempathane HS 55610	50	-	-	175	*	10-15	5-10	2-5	-	-	5-15
PUR2	SA 2½	Hempadur Fast Dry 17410	75	Hempathane HS 55610	50	-	-	125	25+	10-25	5-10	2-5	-	-	5-15
PUR2a	SA 2½	Hempel's Galvosil 15700	75	Hempathane HS 55610	75	-	-	150	25+	15-25	10-15	5-10	2-5	2-5	10-15
PUR2a	SA 2½	Hempadur Avantguard 860	75	Hempathane HS 55610	75	-	-	150	25+	15-25	10-15	5-10	2-5	2-5	10-15
PUR3	SA 2½	Hempadur Fast Dry 17410	75	Hempaprime Multi 500	125	Hempathane HS 55610	50	250	*	25+	15-25	10-15	5-10	5-10	15-25
PUR3	SA 2½	Hempadur Fast Dry 17410	75	Hempadur Mastic 45880/1	125	Hempathane HS 55610	50	250	*	25+	15-25	10-15	-	-	15-25
PUR4	SA 2½	Hempel's Galvosil 15700	75	Hempaprime Multi 500	125	Hempathane HS 55610	50	250	*	25+	25+	10-15	5-10	5-10	15-25
PUR4	SA 2½	Hempel's Galvosil 15700	75	Hempadur Mastic 45880/1	125	Hempathane HS 55610	50	250	*	25+	25+	10-15	-	-	15-25
PUR4	SA 2½	Hempadur Avantguard 860	75	Hempaprime Multi 500	125	Hempathane HS 55610	50	250	*	25+	25+	10-15	5-10	5-10	15-25
PUR4	SA 2½	Hempadur Avantguard 860	75	Hempadur Mastic 45880/1	125	Hempathane HS 55610	50	250	*	25+	25+	10-15	-	-	15-25
PUR5	SA 2½	Hempel's Galvosil 15700	75	Hempaprime Multi 500	200	Hempathane HS 55610	50	325	*	25+	25+	25+	15-25	15-25	25+
PUR5	SA 2½	Hempadur Avantguard 860	75	Hempadur Mastic 45880/1	200	Hempathane HS 55610	50	325	*	25+	25+	25+	-	-	25+
PUR5	SA 2½	Hempadur Avantguard 860	75	Hempaprime Multi 500	200	Hempathane HS 55610	50	325	*	25+	25+	25+	15-25	15-25	25+
PUR5	SA 2½	Hempadur Avantguard 860	75	Hempadur Mastic 45880/1	200	Hempathane HS 55610	50	325	*	25+	25+	25+	-	-	25+
PUR6	ST 3	Hempadur Fast Dry 17410	75	Hempadur Fast Dry 17410	75	Hempathane HS 55610	75	225	*	15-25	10-15	5-10	2-5	2-5	5-15
PUR7	SA 2½	Hempadur Avantguard 860	75	Hempadur Fast Dry 17410	75	Hempathane HS 55610	75	225	*	25+	15-25	10-15	5-10	5-10	10-15

Table C 1: Systems for non-atmospheric environments

Coating system details								
System designation	Surface preparation	1st Coat		2nd Coat		3rd Coat		Total nominal DFT µm
		Product name	Nom DFT µm	Product name	Nom DFT µm	Product name	Nom DFT µm	
Environment: potable water immersion								
EHB7	SA 3	Epinaamel DTM985 ³	150	Epinaamel DTM985 ³	150	-	-	300
EVH2a	SA 3	Hempadur 35560	400	-	-	-	-	400
EVH3a	SA 3	Hempadur 35560	250	Hempadur 35560	250	-	-	500
Environment: sea water immersion								
EVH2	SA 2½	Epinaamel UHB1000	1500	Epinaamel UHB1000	1500	-	-	3000
EVH2	SA 2½	Epinaamel DTM985 ³	400	-	-	-	-	400
EVH3	SA 2½	Epinaamel DTM985 ³	250	Epinaamel DTM985 ³	250	-	-	500
Environment: sea water splash								
EUH3	SA 2½	Epinaamel UHB1000	1000	-	-	-	-	1000
EVH2	SA 2½	Epinaamel DTM985	400	-	-	-	-	400
EVH3	SA 2½	Epinaamel DTM985	250	Epinaamel DTM985	250	-	-	500
Environment: soil								
EUH4	SA 2½	Epinaamel UHB1000	1200	Epinaamel UHB1000	1200	-	-	2400
EVH2	SA 2½	Epinaamel DTM985	400	-	-	-	-	400
EVH3	SA 2½	Epinaamel DTM985	250	Epinaamel DTM985	250	-	-	500
Environment: hot water								
HR10	SA 2½	Hempadur 85671	100	Hempadur 85671	100	-	-	200
Environment: sewage immersion								
EVH2	SA 2½	Epinaamel DTM985 ³	400	-	-	-	-	400
EVH3	SA 2½	Epinaamel DTM985 ³	250	Epinaamel DTM985 ³	250	-	-	500
Environment: severe industrial - acid splash								
CLR3	SA 2½	Hempadur 15570	75	Hempatex HI-Build 46330	100	Hempatex HI-Build 46330	100	275
EPN1	SA 2½	Hempaline Defend 630	500	Hempaline Defend 630	500	-	-	1000
Environment: severe industrial - alkaline splash								
EUH5	SA 2½	Epinaamel UHB1000	1000	Epinaamel UHB1000	1000	-	-	2000
EVH4	SA 2½	Epinaamel PR250	75	Epinaamel DTM985	250	Epinaamel DTM985	250	575
EPN1	SA 2½	Hempaline Defend 630	500	Hempaline Defend 630	500	-	-	1000
Environment: severe industrial - solvent								
IZS1	SA 2½	Hempel's Galvosil 15700	75	-	-	-	-	75
ETL 1	SA 2½	Hempaline Defend 630	200 ⁹	Hempaline Defend 630	200 ⁹	-	-	400
Epoxy phenolic	SA 2½	Hempadur 85671	90	Hempadur 85671	90	Hempadur 85671	90	270

Table C 2: Systems for high temperature applications

Coating system details										
System designation	Surface preparation	1st Coat		2nd Coat		3rd Coat		Total nominal DFT µm	Maximum heat resistance	Remark
		Product name	Nom DFT µm	Product name	Nom DFT µm	Product name	Nom DFT µm			
HR 1	SA 2½	Hempel's Galvosil 15700	50	Hempel's Silicone Acrylic ⁶	25	Hempel's Silicone Acrylic ⁶	25	125	250°C	- Hempel's Silicone Aluminium 56914 max. dry exposure up to 600°C. Not for CUI. - Versiline CUI 56990 temperature resistance from -196° to 650°C - Hempadur 85671 max. dry exposure up to 205°C. - For hi-heat and corrosion under insulation (CUI) application please contact your local sales rep.
HR 3	SA 2½	Hempel's Galvosil 15700	50	-	-	-	-	50	400°C	
HR 5	SA 2½	Hempel's Galvosil 15700	50	Hempel's Silicone Aluminium	25	Hempel's Silicone Aluminium	25	125	600°C	
HR 6	SA 3	Hempel's Galvosil 15700	50	Hempel's Silicone Aluminium	25	Hempel's Silicone Aluminium	25	100	600°C	
HR 7	SA 2½	Versiline CUI	100 ⁷	Versiline CUI	100 ⁷	-	-	200	565°C	
HR 10	SA 2½	Hempadur 85671	100	Hempadur 85671	100	-	-	200	230°C ⁸	

Table 6.1: Systems for hot dipped galvanized steel to AS/NZS 4680

Coating system details										Durability: years to 1st maintenance			
System No.	Service qualities	Surface preparation	1st Coat		2nd Coat		3rd Coat		Total nominal DFT µm	C2 Low	C3 Med	C4 High	C5 Very High
			Product name	Nom DFT µm	Product name	Nom DFT µm	Product name	Nom DFT µm					
1D	Decorative	Wash & dry	Wattyl AquaPrep Galvanized Iron Primer	25	Wattyl Solagard ⁴	50	-	-	75	5-10	5-10	NR	NR
2D	Decorative	Wash & sweep	Hempadur 15553	75	Hempathane HS 55610	100	-	-	175	10-15	10-15	5-10	NR
3I	Wear & tear industrial	Wash & sweep	Hempadur 15553	75	Hempaprime Multi 500	150	-	-	225	>15	10-15	10-15	5-10
4D	Protective long term industrial	Wash & sweep	Hempaprime Multi 500	250	Hempathane HS 55610	100	-	-	350	>15	>15	10-15	5-10
4I	Protective long term industrial	Wash & sweep	Epinafel DTM985	350	-	-	-	-	350	>15	>15	10-15	5-10
5D	Protective long term industrial	Wash & sweep	Hempadur 15553	75	Hempaprime Multi 500	225	Hempathane HS 55610	100	400	>15	>15	>15	10-15
5I	Protective long term industrial	Wash & sweep	Epinafel PR250	75	Epinafel DTM985	325	-	-	400	>15	>15	>15	10-15

Notes

- 1 Available in MIO-pigmented shades
- 2 Recommended min. DFT 100µm
- 3 Only factory manufactured white and black colours are suitable for immersion applications
- 4 Some colours may require multiple coats to achieve opacity
- 5 In this system Paracryl IF540 can be specified in place of Hempel's Pro Acrylic
- 6 For use above 200°C, only aluminium shade is applicable
- 7 Recommended min. DFT 150µm per coat
- 8 Hempadur 85671 max. dry exposure up to 205°C. For CUI application, please consult your Hempel sales rep
- 9 Recommended min. DFT 300µm; can be used as single-coat 400µm DFT

What a difference a day makes

We've designed our Hempaline Defend Tank Linings to enable you to get your assets back up and running in just 24 hours. Fast-curing and easy to apply, choose Hempaline Defend coatings to reduce your downtime and extend your maintenance intervals.

- Engineered for aggressive environments
- Excellent protection against extreme pH swings, high abrasion and elevated temperatures
- Quick delivery and expert on site support

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Across the globe, Hempel's coatings protect surfaces, structures and equipment. They extend asset lifetimes, reduce maintenance costs and make homes and workplaces safer and more colourful. Hempel was founded in Copenhagen, Denmark in 1915. It is proudly owned by the Hempel Foundation, which ensures a solid economic base for the Hempel Group and supports cultural, social, humanitarian and scientific purposes around the world.

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