



Resene

Engineered Coating Systems

Paint Systems for Steel & Galvanised Steel

**Guide to the protection of iron and steel
against exterior atmospheric corrosion.**

Equivalent to AS/NZS 2312:2002

Amendment Update 1 / 2004-08-02

Notes:

1. This document must be read in conjunction with the AS/NZS 2312:2002 Standard document and the additional Amendment No.1 -Revised Text - AS/NZS 2312 /Amdt 1/2004-08-02 to that standard.
2. Refer to Section 1.6 Durability Considerations & Section 2 Classification of Environments of the AS/NZS 2312:2002 Standard when using this document.
3. Criteria for determination of when first maintenance (major) is required is given in Section 10.2 of the above-mentioned standard.
4. Galvanising of steel sections must meet requirements of AS/NZS 4680 Standard.
5. Information given in this publication is intended as a guide only and represents data, which is believed to be reliable based on current knowledge.
6. Variation in environment, microclimate, changes in procedures of use, or extrapolation of data may cause unsatisfactory results.
7. **No warranty of product or system performance is expressed or implied.**
It is stressed that the durability range within the Standard is not a 'guarantee time'. Durability is a technical consideration that can help the owner set up a maintenance programme. It is also noted that the coating type is only one factor in determining the durability of a protective coating system. Surface preparation, application procedures, design, local variations in environment and other factors will all influence the durability of coatings.

Classification of Environments

As per Section 2 - AS/NZS 2312:2002

<p style="text-align: center;"><u>Micro-Environments</u></p> <p>In addition to climatic effects, the local environmental effects (microclimate) produced by the erection of a structure or installation of equipment needed to be taken into account. Such on-site factors require additional consideration because a mildly corrosive atmosphere can be converted into an aggressive environment by microclimatic effects. For example, a significant acceleration of corrosion rate can occur in the following circumstances:</p> <p>1/ At locations where the metal surface remains damp for an extended period, such as where surfaces are not freely drained or are sheltered from sunlight.</p> <p>2/ On unwashed surfaces, i.e. surfaces exposed to the atmospheric contaminants, notably coastal salts and pollution, but protected from cleansing rain.</p> <p>Other microclimatic effects which may accelerate the corrosion rate of the deterioration of its protective coating include acidic or alkaline fallout, industrial chemicals and solvents, airborne fertilizers and chemicals, prevailing winds which transport contamination, hot or cold surfaces and surfaces exposed to abrasion and/or impact etc. It is very difficult, if not impossible, to predict accurately the aggressiveness of a given environment and a certain amount of educated judgement is required to assess its influence on coating life.</p>	<p style="text-align: center;"><u>Category A: Very Low</u></p> <p>Most commonly found inside heated or air conditioned buildings with clean atmospheres. They may also be found in semi-sheltered locations remote from marine or industrial influence and in unheated or non-air conditioned buildings. The only external environments in Australia or New Zealand are some alpine regions although generally these environments will extend into category B.</p> <p style="text-align: center;"><u>Category B: Low</u></p> <p>This category includes dry, rural areas as well as other regions remote from the coast or sources of pollution. Most (but not all) areas of Australia or New Zealand beyond 50km from the sea are in this category. Unheated buildings where some condensation may occur, such as warehouses and sports halls, can be in this category, however proximity to the coast is an important factor.</p> <p style="text-align: center;"><u>Category C: Medium</u></p> <p>This category covers coastal areas with low salinity. The extent of the affected area varies with factors such as winds, topography and vegetation. Along ocean front areas with breaking surf and significant salt spray, it extends from about 1km inland to between 10 to 50 km inland, depending on the strength of prevailing winds and topography. Such regions are also found in urban and industrial areas with low pollution levels, however these areas are uncommon.</p>
<p style="text-align: center;"><u>Category D: High</u></p> <p>This category occurs mainly on the coast. Around sheltered bays, Category D extends up to 50m inland from the shoreline. In areas of rough seas and surf, it extends from about 200-300m to 1km inland. As with other categories the extent depends on winds, wave action and topography. Industrial regions may also fit into this category and this category extends inside the plant where it is best considered as a microenvironment. Damp, contaminated interior environments such as occur with swimming pools, dye works, paper plants, foundry's, smelters and chemical plants may also extend into this category.</p>	<p style="text-align: center;"><u>Category E: Very High</u></p> <p style="text-align: center;">(E-I: Industrial E-M: Marine)</p> <p>This category is common offshore and on the beachfront in regions of rough seas and surf beaches. The region can extend inland for several hundred metres and in some areas it can extend more than 1/2km from the coast. This category may also be found in aggressive industrial areas, where the environment may be acidic with pH of <5. For this reason, Category E is divided into Marine and Industrial for purposes of coating selection. Some of the damp and/or contaminated interior environments in category D may occasionally extend into this category.</p>
<p><u>Category F: Inland Tropical</u> has been omitted in this list. Please refer to the Standard if required.</p>	<p style="text-align: center;">Important Note :</p> <p>If a site is considered to be in more than one category, then a selected coating should be capable of resisting the most severe of the environments involved.</p>
<p>Note: For a full, more detailed description please refer to the above mentioned Standard</p>	<p>February 2011</p>

Resene Engineered Coating Systems

Equivalent to AS/NZS 2312:2002

PAINTING SYSTEMS FOR BATCH GALVANISED COATINGS

Coating System Details									Durability - Year to first Major Maintenance					
(See Clause 1.7 of the Standard) System Designation	Surface Preparation	1st Coat		2nd Coat		3rd Coat		Total Nom DFT μm^*	Atmospheric Category					
		Product	Nom DFT μm	Product	Nom DFT μm	Product	Nom DFT μm		A Very Low	B Low	C Med.	D High	Very High	
													E-I Ind	E-M Mar
HOT DIP GALVANIZING														
HDG 600P2 †	Degrease, Wash and Dry#	Galvo-Prime	40	HiGlo, Sonyx 101, Lumbersider, Enamacryl, Lustacryl	40	-	-	80	25+	25+	25+	15-25	2-5	5-15
HDG 600P3	Degrease, Wash and Dry, sweep abrasive blast	Armourcote 510	150	-	-	-	-	150	■	25+	25+	25+	5-15	15-25
HDG 600P5	Degrease, Wash and Dry, sweep abrasive blast	Armourcote 220	75	Armourcote 510	125	-	-	200	■	25+	25+	25+	5-15	15-25
HDG 600P6	Degrease, Wash and Dry, sweep abrasive blast	Armourcote 220	75	Imperite I.F. 503	75	-	-	150	■	25+	25+	25+	5-15	15-25
HDG 600P7	Degrease, Wash and Dry, sweep abrasive blast	Armourcote 220	75	Uracryl 403	75	-	-	150	■	25+	25+	25+	5-15	15-25

* Thickness of galvanising not included. † For maximised decorative life, atmospheric category D, E-I & E-M use systems HDG600P6 & HDG600P7.

Controlled sweep abrasive blasting with clean non-metallic abrasive to impart a surface roughness and remove chromate quenched surface be used to improve adhesion

■ While this system would have very high durability in this category, it is unlikely it would be economic

Resene Engineered Coating Systems

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PAINTING SYSTEMS FOR STEEL

Coating System Details									Durability - Year to first Major Maintenance					
System Designation	Surface Preparation	1st Coat		2nd Coat		3rd Coat		Total Nom DFT μm	Atmospheric Category					
		Product	Nom DFT μm	Product	Nom DFT μm	Product	Nom DFT μm		A Very Low	B Low	C Med.	D High	Very High	
													E-I Ind	E-M Mar
ACRYLIC - Latex, Single Pack														
ACL1	St2	Galvo-Prime	40	Hi-Glo	40	Hi-Glo	40	120	15-25	5-15	2-5	2-5	-	-
				Sonyx 101	40	Sonyx 101	40	120						
				Lumbersider	40	Lumbersider	40	120						
				Enamacryl	40	Enamacryl	40	120						
				Lustacryl	40	Lustacryl	40	120						
ACRYLIC - Two Pack, Solvent-Borne														
ACC1	St2	Armourcote 510	125	Imperite I.F. 503	50	-	-	175	25+	10-25	5-10	2-5	-	-
ACC2	Sa 2½	ArmourZinc 120 or Armourcote 220	75	Imperite I.F. 503	50	-	-	125	25+	15-25	10-15	5-10	2-5	2-5
ACC3	Sa 2½	ArmourZinc 120	75	Imperite I.F. 503	50	-	-	125	25+	15-25	10-15	5-10	2-5	2-5
ACC4	Sa 2½	ArmourZinc 120 or Armourcote 220	75	Armourcote 515/510	125	Imperite I.F. 503	50	250	*	25+	15-25	10-15	5-10	5-10
ACC5	Sa 2½	Zincilate 10/11	75	Armourcote 515/510	125	Imperite I.F. 503	50	250	*	25+	15-25	10-15	2-5	5-10
ACC6	Sa 2½	Zincilate 10/11 or ArmourZinc 120	75	Armourcote 510	200	Imperite I.F. 503	50	325	*	25+	25+	15-25	5-10	10-15
*While this system would have very high durability in this atmospheric category, it is unlikely that it would be economic.														
NOTE: Some colour finishes may need a thicker coat to achieve opacity.														
LEGEND: St2 = Power Tool cleaning (See AS1627.2) Sa 2½ = Abrasive Blast Cleaning - Class 2½ (see AS1627.4) DFT = Dry Film Thickness in Microns														
													Chart 1 February 2011	

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PAINTING SYSTEMS FOR STEEL

Coating System Details									Durability - Year to first Major Maintenance						
System Designation	Surface Preparation	1st Coat		2nd Coat		3rd Coat		Total Nom DFT μm	Atmospheric Category						
		Product	Nom DFT μm	Product	Nom DFT μm	Product	Nom DFT μm		A Very Low	B Low	C Med.	D High	Very High		
													E-I Ind	E-M Mar	
ALKYD															
ALK1	St2	Steel Fab	40	-	-	-	-	40	10+	0-5	-	-	-	-	
ALK2	Sa 2½	Armourcote 210	75	-	-	-	-	75	15+	5-15	2-5	-	-	-	
ALK3	St2	Armourcote 210	75	Armourcote 608	40	-	-	115	15+	5-15	2-5	-	-	-	
ALK4	Sa 2½	Armourcote 210	75	Super Gloss	40	-	-	115	25+	10-25	5-10	2-5	-	-	
ALK5	St2	Steel Fab	40	Super Gloss	40	SuperGloss	40	120	15+	5-15	2-5	-	-	-	
ALK6	St2	Steel Fab	40	Mica Bond	40	Micabond	40	120	25+	10-25	5-10	2-5	-	-	
CHLORINATED RUBBER															
CLR1	Sa 2½	Armourcote 210	75	Armourchlor HB-F	50	Armourchlor HB-F	50	175	25+	15-25	10-15	5-10	5-10	-	
CLR2	Sa 2½	Armourcote 220	75	Armourchlor HB-F	50	Armourchlor HB-F	50	175	*	15-25	10-15	5-10	5-10	2-5	
CLR3	Sa 2½	Armourcote 220	75	Armourchlor HB-F	100	Armourchlor HB-F	100	275	*	25+	15-25	10-15	10-15	5-10	

*While this system would have very high durability in this atmospheric category, it is unlikely that it would be economic.

NOTE: Some colour finishes may need a thicker coat to achieve opacity.

LEGEND: St2 = Power Tool cleaning (See AS1627.2)

Sa 2½ = Abrasive Blast Cleaning - Class 2½ (see AS1627.4)

DFT = Dry Film Thickness in Microns

Chart 2
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Resene Engineered Coating Systems

Equivalent to AS/NZS 2312:2002

PAINTING SYSTEMS FOR STEEL

Coating System Details									Durability - Year to first Major Maintenance					
System Designation	Surface Preparation	1st Coat		2nd Coat		3rd Coat		Total Nom DFT μm	Atmospheric Category					
		Product	Nom DFT μm	Product	Nom DFT μm	Product	Nom DFT μm		A Very Low	B Low	C Med.	D High	Very High	
													E-I Ind	E-M Mar
EPOXY - High Build (DFT: 125 to 500 μm per coat)														
EHB1	Sa 2½	Armourcote 510 or Alumastic	250	-	-	-	-	250	25+	15-25	10-15	5-10	2-5	2-5
EHB3	Sa 2½	Armourcote 220	75	Armourcote 510	200	-	-	275	*	25+	15-25	10-15	5-15	5-15
EHB4	Sa 2½	Zincilate 10/11 or ArmourZinc 120	75	Armourcote 510	200	-	-	275	*	25+	15-25	10-15	5-10	10-15
EHB5	Sa 2½	Armourcote 220	75	Armourcote 515 (MIOX)	125	Armourcote 515 (MIOX)	125	325	*	25+	15-25	10-15	10-15	10-15
EHB6	Sa 2½	Zincilate 10/11 or ArmourZinc 120	75	Armourcote 515 (MIOX)	125	Armourcote 515 (MIOX)	125	325	*	25+	25+	10-25	10-15	10-15
EPOXY - Primer / Finish Gloss														
EPF1	Sa 2½	Armourcote 220	75	Armourcote 510	125	Armourcote 512	50	250	*	25+	15-25	10-15	5-15	5-15
EPOXY MASTIC - Surface Tolerant														
EPM1	St2	Alumastic or Armourcote 510	200	-	-	-	-	200	25+	10-25	5-10	2-5	-	-
EPM2	St2	Alumastic or Armourcote 510	75	Alumastic or Armourcote 510	75	-	-	150	25+	10-25	5-10	2-5	-	-
EPM3	Sa 2½	Alumastic or Armourcote 510	75	Alumastic or Armourcote 510	200	-	-	275	*	15-25	10-15	5-10	2-5	2-5
*While this system would have very high durability in this atmospheric category, it is unlikely that it would be economic.														
NOTE: Some colour finishes may need a thicker coat to achieve opacity.														
LEGEND: St2 = Power Tool cleaning (See AS1627.2) Sa 2½ = Abrasive Blast Cleaning - Class 2½ (see AS1627.4) DFT = Dry Film Thickness in Microns														
													Chart 3 February 2011	

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PAINTING SYSTEMS FOR STEEL

Coating System Details									Durability - Year to first Major Maintenance					
System Designation	Surface Preparation	1st Coat		2nd Coat		3rd Coat		Total Nom DFT μm	Atmospheric Category					
		Product	Nom DFT μm	Product	Nom DFT μm	Product	Nom DFT μm		A Very Low	B Low	C Med.	D High	Very High	
													E-I Ind	E-M Mar
INORGANIC ZINC SILICATE														
IZS1	Sa 2½	Zincilate 10/11	75	-	-	-	-	75	25+	15-25	10-15	5-10	2-5	2-10
POLYURETHANE - Two Pack, Solvent Borne														
PUR1	St2	Armourcote 510	125	Uracryl 403	50	-	-	175	*	10-15	5-10	2-5	-	-
PUR2	Sa 2½	Armourcote 220	75	Uracryl 403	50	-	-	125	*	15-25	10-15	5-10	2-5	2-5
PUR3	Sa 2½	Armourcote 220	75	Armourcote 510	125	Uracryl 403	50	250	*	25+	15-25	10-15	5-10	5-10
PUR4	Sa 2½	Zincilate 10/11 or ArmourZinc 120	75	Armourcote 510 or Armourcote 515	125	Uracryl 403	50	250	*	25+	15-25	10-15	5-10	5-10
PUR5	Sa 2½	Zincilate 10/11 or ArmourZinc 120	75	Armourcote 510	200	Uracryl 403	50	325	*	25+	25+	15-25	10-15	10-15
*While this system would have very high durability in this atmospheric category, it is unlikely that it would be economic.														
NOTE: Some colour finishes may need a thicker coat to achieve opacity.														
LEGEND: St2 = Power Tool cleaning (See AS1627.2) Sa 2½ = Abrasive Blast Cleaning - Class 2½ (see AS1627.4) DFT = Dry Film Thickness in Microns														

Chart 4
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Resene Engineered Coatings Systems

Equivalent to AS/NZS 2312:2002

PAINTING SYSTEMS FOR STEEL/GALVANISED STEEL

GENERIC PRODUCT	RESENE PRODUCT
Acrylic Gloss (2 Pack)	Imperite I.F. 503
Acrylic Latex - Satin	Lumbersider
Acrylic Latex - Semi Gloss	Sonyx 101, Lustacryl
Acrylic Latex - Gloss	Hi-Glo, Enamacryl
Acrylic Latex Primer	Galvo-Prime
Alkyd Primer - High Build	Armourcote 210
Alkyd Primer - Low Build	Steel Fab
Alkyd Gloss	Super Gloss, Armourcote 608
Alkyd / MIO	Mica Bond
Chlorinated Rubber Gloss	Armourchlor HB-F
Epoxy - High Build	Armourcote 510, Armourcote 515
Epoxy Gloss	Armourcote 512
Epoxy Mastic	Alumastic
Epoxy MIO - High Build	Armourcote 515
Epoxy Primer (2 Pack)	Armourcote 220 / Armourcote 221
Inorganic Zinc Silicate	Zincilate 10 (2 pack)
Inorganic Zinc Silicate	Zincilate 11 (1 pack)
Organic Zinc Primer	ArmourZinc 120 (2 pack)
Polyurethane Gloss (2 Pack)	Uracryl 403

For Corrosion Protection Systems and Coating Systems outside the scope of this document, please contact your Resene Engineered Coatings Consultant for further assistance and advice.

We can also assist you in selection of the most appropriate system within this document to best suit your requirements.

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Our vision

To be respected as an ethical and sustainable company and acknowledged as the leading provider of innovative paint and colour technology.

Resene
the paint the professionals use

 **Resene**
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