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5 December 2011

Mr Geoffrey Gleeson
Director, Operations 3
International Trade Remedies Branch
Australian Customs and Border Protection Service
Customs House
5 Constitution Avenue
CANBERRA ACT 2601

Dear Mr Gleeson

Public File Copy

ATM Correspondence 2011/02 - HSS exported from China, Korea, Malaysia, Taiwan and Thailand – Investigation No. 177 – Like Goods and HDG

Background

I refer to correspondence recently placed on the public file concerning the manufacture of hot-dipped galvanized ("HDG") HSS. Investigation 177 includes HDG HSS within the notified goods coverage of the investigation.

ATM has noted the comments forwarded by ASA members at the behest of ASA. The following companies have responded to ASA's request that members urge Customs and Border Protection to exclude HDG HSS from the investigation on the grounds that OneSteel ATM ("ATM") has recently ceased HDG production at Acacia Ridge:

- Steel Supplies;
- Townsville Steel and Wire;
- Amity Pacific;
- AdSteel; and
- Sanwa.

Contrary to the assertions of the above interested parties, HDG continues to be available from local supply.

Material Injury

ATM submits that the level of HDG sales volume supplied from ATM's Acacia Ridge facility throughout the investigation period is a clear illustration of the level of material injury suffered by the Australian industry. This includes:

- The closure of ATM's Newcastle HDG plant in 2008 (capacity of xxxxx tonnes per annum and the loss/redeployment of approximately xx jobs);
- The recent announcement that ATM has had to mothball its Acacia Ridge Plant (capacity of xxxxx tonnes per annum and the loss/redeployment of a further xxxx jobs); and

- ATM (including the combined Newcastle and Acacia Ridge sites) has gone from a historical market position of approximately xxxxx (HDG/ILG) CHS in FY 2004 out of a market of about xxxxx tonnes (HDG/ILG) CHS to less than xxxxx tonnes in FY 2011 in a market of approx xxxxx tonnes. Local market supply has been substituted with dumped and subsidised imports.

The displacement of locally produced HDG/ILG CHS with imports from the nominated countries best portrays material injury experienced by ATM during the recent investigation period (and across the intervening periods since 2004).

<u>Like Goods</u>

Recent representations to Customs and Border Protection have suggested that HDG is no longer available from local supply and that HDG should not be included in the goods coverage of the HSS investigation. ATM submits that the assertions of the interested parties that HDG CHS is not available from local supply are incorrect.

ATM manufactured and supplied HDG CHS throughout the investigation period with sales of xxxxx tonnes in 2010/11. ATM continues to offer a substantial range of HDG CHS as a part of its market offer[1]. The only modifications to this have been a move to mothball ATM's Acacia Ridge galvanising plant (to reduce fixed and variable costs) and sub-contract the galvanising to predominately xxxxxx xxxxxx (a variable cost). The pipe continues to be manufactured at Acacia Ridge and is then coated off-site[2].

ATM has recently mothballed the Acacia Ridge facility and in the event measures are applied is able to:

- Re-commence production. Confidential Attachment 3 details essentially the 'make safe' condition of the plant and the ability to re-commence production with a four week notification subject to securing zinc raw materials and replacement bag for the bag house; and/or
- Install xxxxxxxxx coating capability around xxxxxxxxxxxxxxxxxxxxx. Application of these coatings will xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx. Confidential Attachment 4 provides details on xxxxxx testing on the corrosion performance of xxxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxxxxxxxx xxxxxxxx xxxxxxxxxxxxxx xxxxx (Refer Confidential Attachment 5).

ATM continues to supply DuraGal/SupaGal® CHS products that are 'fit for purpose' for many applications and directly substitutable with HDG pipe for many common applications:

- The reason behind the relatively low market share of DuraGal/Supagal® CHS is that imported HDG CHS has been historically the lowest priced Galvanised CHS available. By contrast, the wide use of imported and locally produced ILG RHS across the country is not commonly the lowest priced HDG RHS;

- A significant proportion of the Australian market for HDG CHS is in rural applications e.g. gates, cattle-yards and other fencing. Virtually all of these applications are classified as low in atmospheric corrosion category (Refer Non-Confidential Attachment 6 – excerpt of AS4212 section 3.2.2). In these applications AS2309 (Refer Non-Confidential Attachment 7 – section Table 1) prescribes a conservative corrosion life of 10 to 25+ years for ILG products (including DuraGal/SupaGal). It is ATM's view that ILG pipe is fit for purpose for a significant number of applications.

[1] Refer Non-Confidential Attachment 1 – ATM Market Offer for HDG CHS.
[2] Refer Confidential Attachment 2 – ATM and xxxxxxxxxxx.

In support of this position, ATM has attached example where customers have substituted HDG for ILG (Refer Confidential Attachment 8).

Concluding Remarks

ATM submits that following the recent decision to mothball its Acacia Ridge galvanizing facility, HDG CHS continues to be available from local supply via third party galvanizing operations. In the event measures are applied ATM has the ability to re-start its Acacia Ridge galvanizing plan and/or migrate tube production to xxxxxxxxx coating capability xxxxxxxxxxxx coating xxxxxxxxxxx. In addition, ATM considers that locally produced ILG products are 'fit-for-purpose' goods that readily substitute for HDG CHS for many applications and are considered like goods to imported HDG CHS.

If you have any questions concerning this submission please do not hesitate to contact me on (07) 3342 1921.

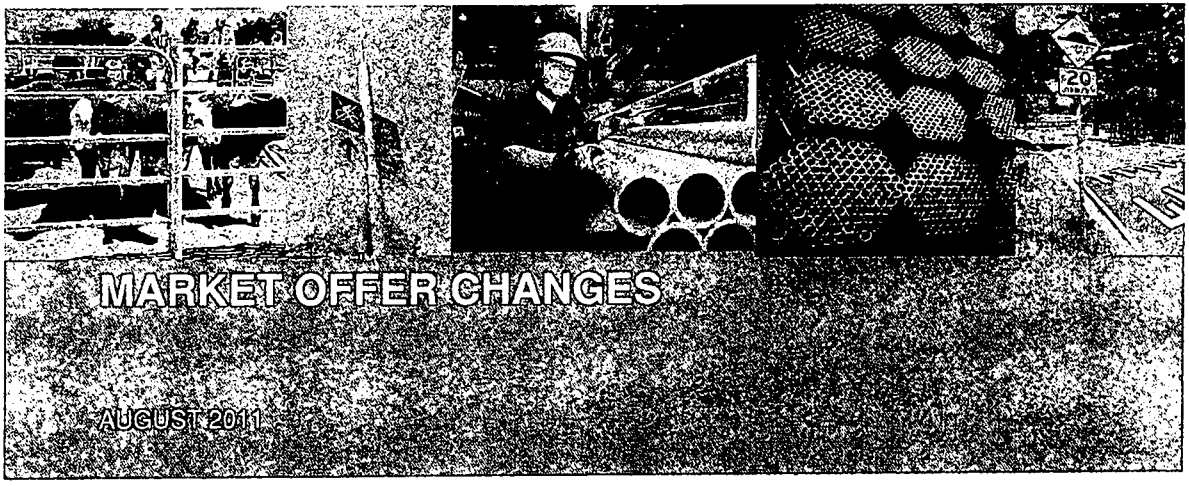
Yours sincerely

John O'Connor
Director

Cc Stephen Porter, General Manager Sales

Attachment 1

onesteel
australian tube mills



onesteel
australian tube mills

Hot Dipped Gal Pipe

Introduction

The purpose of this presentation is to provide forward notice of changes we are implementing with regards to our Hot Dip Galvanizing (HDG) Market Offer.

We will accept orders against our current Market Offer for HDG CHS through to the close of business 9th September 2011. After this time orders for HDG CHS that are not covered by residual stock will be manufactured and supplied utilising a 3rd party HDG process.

Immediately following the 9th September, we will issue a summary of available stock of HDG CHS manufactured under the current Market Offer for your consideration to purchase.

The following slides will provide details with regards to our revised product offer in this range.

Changes to the range: Size Range

Our market Offer will include sizes in the following ranges;

- Extra Light: all sizes ≥76.1x2.3 (65nb to 150nb)
- Light: all sizes ≥76.1x3.2 (65nb to 150nb)
- Medium: all sizes ≥60.3x3.6 (50nb to 150nb)
- Heavy: all sizes ≥42.4x4.0 (32nb to 150nb)

- The galvanizing of CHS will be done to order.
- An additional 15 days will be added to the normal ex stock lead time (for those products we carry in clear CHS).
- For those sections that do not qualify as stockable in Clear CHS, the lead time will equal the rolling date plus 15 days processing with the 3rd party galvaniser plus normal load consolidation and transport times.

Differences from Current Product

- The weight of the zinc/m^2 will be heavier than the current product.
  - Current zinc coverage is equal to 300g/m^2
  - Production from October will be at 390g/m^2 to 600g/m^2 dependent on gauge.

- The galvanized finish will no longer have the "barber pole" straightening marks and will have an "industrial" galvanized finish including normal imperfections.

- Pricing will remain consistent with our current offers.

Changes to the range: End Finish

onesteel
australian tube mills

For orders taken after COB 9th September 2011 we will no longer provide end finishing other than Plain End. The following end finishes will no longer be available from OneSteel Australian Tube Mills

- Swaged One End
- Swaged Both Ends
- Screwed One End
- Screwed Both Ends

} Will continue to be available on Red Painted CHS

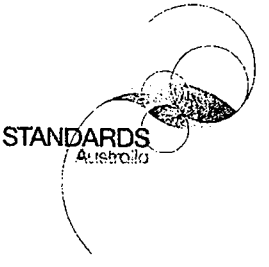
- Screwed & Socketed Ends
- Roll Grooved (already exited)
- Shouldered (already exited)

Attachment 6

AS 4312—2008

Australian Standard®

Atmospheric corrosivity zones in Australia



This Australian Standard® was prepared by Committee MT-014, Corrosion of Metals. It was approved on behalf of the Council of Standards Australia on 18 January 2008.
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The following are represented on Committee MT-014:

- Australasian Corrosion Association
- Australian Chamber of Commerce and Industry
- Australian Electrolysis Committee
- Australian Pipeline Industry Association
- Australian Paint Approval Scheme
- AUSTROADS
- Blast Cleaning & Coating Association of Australia
- Bureau of Steel Manufacturers of Australia
- Corrosion Prevention Centre
- CSIRO Manufacturing and Materials Technology
- Galvanizers Association of Australia
- Materials Australia
- Plumbing Products Industry Group
- Water Utility Interests
- Water Services Association of Australia

This Standard was issued in draft form for comment as DR 07270.

Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through the public comment period.

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Standards Australia welcomes suggestions for improvements, and encourages readers to notify us immediately of any apparent inaccuracies or ambiguities. Contact us via email at mail@standards.org.au, or write to Standards Australia, GPO Box 476, Sydney, NSW 2001.

AS 4312—2008

Australian Standard®

Atmospheric corrosivity zones in Australia

First published as AS 4312—2008.

Published by Standards Australia GPO Box 476, Sydney, NSW 2001, Australia

ISBN 0 7337 8555 7

PREFACE

This Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee MT-014, Corrosion of Metals.

After consulting with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian rather than an Australian/New Zealand Standard.

The objective of this Standard is to provide guidelines for the classification of atmospheric environments in terms of their effects on corrosion to assist with the selection of metal finishes for ferrous products.

This Standard expands on information previously published in AS/NZS 2312, *Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings*, to provide industry with more comprehensive guidance on atmospheric corrosivity.

The term 'informative' has been used in this Standard to define the application of the appendix to which it applies. An 'informative' appendix is only for information and guidance.

CONTENTS

2.3.5 Abrasion and erosion

Abrasion and impact of exposed surfaces will in time remove protective films and hence reduce the surface life of the material or coating, e.g. wind erosion, handling, traffic and livestock.

2.3.6 Other factors

There are many other factors that can influence the corrosion rate of a metal at a given site, with some being of more importance than others. Appendix B summarizes the effect of randomness in weather patterns and exposure conditions on the outcome of corrosion rates determined by field exposure. These factors can explain why there can be considerable variation in corrosion figures from nominally similar sites.

2.4 CORROSIVITY CATEGORIES

For practical use of corrosivity figures, it is desirable to divide corrosion rate figures into categories that correlate with corrosion protection requirements, such as durability of materials, or performance of protective coatings. ISO 9223 has suggested five corrosion zones based on the first year corrosion rate of mild steel. This, and related standards, also allows estimation of the same corrosivity zones based on environmental factors such as time of wetness and chloride deposition rate, and corrosion rates of other metals such as zinc. However, there is much evidence to suggest that such calculation and use of other metals do not correlate, and it is best to use only corrosion rate measurements of steel to define corrosivity zones. The ISO 9223 zones are arbitrary, and the divisions between them are not related to any environmental or any other factors, however they are widely accepted and are used in this Standard. Table 2.1 shows ISO 9223 corrosivity categories, the one year corrosion rates for mild steel, and examples of typical environment.

TABLE 2.1

CORROSIVITY CATEGORIES ACCORDING TO ISO 9223

ISO 9223 category	Corrosivity	Steel corrosion rate µm/y	Typical environment
C1	very low	<1.3	dry indoors
C2	low	1.3–25	arid/urban inland
C3	medium	25–50	coastal or industrial
C4	high	50–80	sea-shore (calm)
C5	very high	80–200	sea-shore (surf)

2.5 ATMOSPHERIC CORROSION—METALS OTHER THAN STEEL

2.5.1 General

The corrosion rates of other metals will be much less than for steel in the same environment. Generally, the corrosion properties of metals other than steel will follow the same trends as steel; that is, as the environment becomes more severe, their corrosion rate will increase. Other than noting this general trend, there are no consistent mathematical relationships between corrosion rate of carbon steel and of other metals, although ISO 9223 classifies atmospheric corrosivity based on corrosion rates of zinc, copper and aluminium, as well as steel. The following Clauses note some general observations regarding atmospheric corrosion of other metals.

2.5.2 Stainless steels

Stainless steels have a passive film which provides very good corrosion protection in most atmospheres. As a result the general atmospheric corrosion rate is so low as to be virtually unmeasurable. However, some atmospheric contaminants can cause pitting or surface staining. The extent will depend on the grade of stainless steel and quality of the finish as well as the atmosphere. The main contaminants of concern are metallic iron dust and chlorides. Where these are not present, such as interior and rural environments, any grade and finish should remain free from rust stains. In marine environments, the basic ferritic grades will show rust staining, as will 304 grade with a rough finish. Industrial environments can cause staining, especially if exposed to pollutants such as chloride and iron dust. In a severe marine environment, molybdenum-containing 316 is resistant, showing only slight spotting in very severe environments. With a smooth finish or regular washing or both, grades better than 304 should be acceptable, although 316 would normally be selected in marine and severe marine atmospheric environments. Further information on the corrosion properties of stainless steel is given in AS/NZS 4673.

2.5.3 Zinc

The atmospheric corrosion rate of zinc has been found to be generally linear with time, however examples of the rates increasing and decreasing over time have been observed. In rural and other contaminant free environments, the corrosion rate of zinc will be very low, around one-tenth to one-twentieth of that in steel in the same environment, and usually less than 1 µm per year. In industrial environments, zinc sulphate and other soluble salts will form that will wash from the surface, and corrosion rates are higher, 1 to 10 µm microns per year. These are also one-tenth to one-twentieth the corrosion rate of steel. In marine atmospheres, soluble zinc chloride will form and the corrosion rate, as with steel, is much higher. Corrosion rates of 2 to 15 µm per year are typical, depending on proximity to the coast. These are one-twentieth to one-hundredth the corrosion rate of steel. The corrosion rate of zinc tends to decrease with time in marine atmospheres.

Fresh zinc surfaces should be stored under well-ventilated conditions, or bulky white corrosion products called white rust or wet storage stain may be formed.

The corrosion properties of titanium-zinc alloy sheeting used for facades are generally similar to zinc used for galvanized coatings.

2.5.4 Aluminium

Aluminium forms a very resistant oxide film which provides protection in a wide range of atmospheres. As a result, the corrosion of commercial aluminium alloys is very low, usually less than 1 µm per year. Any corrosive attack will be in the form of pitting, the depth of which decreases with time in most atmospheric environments. Aluminium will resist slightly acidic environments better than steel or zinc. Further information on the corrosion performance of aluminium and aluminium alloys is given in various Australian Standards, such as AS/NZS 1734 for sheet and plate and AS/NZS 1866 for extrusions.

2.5.5 Aluminium-zinc alloys

These are usually used as coatings on steel in the form of 5Al-95Zn or 55Al-45Zn alloys. Such coatings have been shown to have improved corrosion resistance over galvanized steel of similar thickness in mild, industrial and marine environments.

2.5.6 Copper

Copper and copper alloys such as brass and bronze resist corrosion by rural, industrial and marine atmospheric environments, except atmospheres contaminated by ammonia or ammonium compounds. Corrosion is usually uniform in the form of tarnishing and corrosion rates are normally less than 1 µm per year. AS 1565 provides additional information on selection of copper alloys, including for corrosion resistance.

SECTION 3 CORROSIVITY ENVIRONMENTS

3.1 GENERAL

ISO 9223 classifies five atmospheric corrosivity categories based on the corrosion rate of mild steel, as described in Section 2. These same categories are used in ISO 14713 for selection of metallic coatings, although the corrosion of the first two categories are altered slightly. The ISO 9223 categories have been modified slightly for ISO 12944 for selection of protective paint coatings, and this modified classification is used in this Standard. In ISO 12944, the C5 (very high) category is divided into C5-M marine and C5-I Industrial to account for the differing performance of protective coatings in these two environments, even though the corrosion rate of steel may be the same. This has been adopted for this Standard. Furthermore, a Tropical (T) category has been introduced for this Standard to account for the fact that tropical environments degrade organic coatings such as paint at a greater rate than would be inferred from their corrosion rate. Table 3.1 compares the categories adopted in this Standard to those in the various ISO Standards.

The corrosivity categories adopted are described below for Australia, along with typical areas where such categories may be found.

3.2 ATMOSPHERIC CORROSIVITY CATEGORIES

3.2.1 C1: Very Low (Mild steel corrosion rate <1.3 μm/y)

Environments in this category are commonly found inside heated or air conditioned buildings with clean atmospheres, such as most commercial buildings. They may also be found in semi-sheltered locations remote from marine or industrial influence, and in unheated or non-air conditioned buildings. While some alpine regions in Australia are nominally in this category, design and micro-environmental factors will move them into category C2.

3.2.2 C2: Low (Mild steel corrosion rate 1.3 to 25 μm/y)

Macro-environments in this category include dry, rural areas, and other areas remote from the coast or sources of pollution. Most areas of Australia at least 50 kilometres from the coast would be in this category, which can extend to within one kilometre from quiet, sheltered seas. Most inland towns, such as Canberra, Ballarat, Toowoomba and Alice Springs are in this category, as are suburbs of cities on sheltered bays (Brisbane, Melbourne, Hobart) that are more than one kilometre from the sea. Adelaide is semi-sheltered, and suburbs more than 6 kilometres from the coast in the southern suburbs, through to 3 kilometres from the coast in the northern suburbs are in this zone. Unheated or non-air conditioned halls where some condensation may occur, such as warehouses or sports halls, can be in this category. Proximity to the coast is an important factor.

3.2.3 C3: Medium (Mild steel corrosion rate 25 to 50 μm/y)

Macro-environments are mainly coastal areas with low salinity. The extent of the affected area varies significantly with factors such as wind, topography and vegetation. Around sheltered areas, such as Port Philip Bay, category C3 extends beyond 50 metres from the shoreline to a distance of about one kilometre inland. For a less sheltered bay or gulf, such as Adelaide, this category extends further inland by about 3 to 6 kilometres inland. Along ocean front areas with breaking surf and significant salt spray, it extends from about one kilometre inland to between 10 and 50 kilometres inland, depending on the strength of prevailing winds and topography. Much of the metropolitan areas of Wollongong, Sydney, Newcastle and the Gold Coast are in this category. In South Australia, the whole of the Yorke Peninsula falls within this, or a more severe category. In the south-east of South Australia, from Victor Harbour to the Victorian border, this category extends between

30 and 70 kilometres inland. Such regions are also found in urban and industrial areas with low pollution levels, and for several kilometres around large industries such as steelworks and smelters. Micro-environmental effects, such as proximity to airports and sewage treatment works, may also place a site within this category. Interior environments with category C3 corrosivity can also occur in humid production rooms, such as food-processing plants, laundries, breweries, printing works and dairies.

3.2.4 C4: High (Mild steel corrosion rate 50 to 80 µm/y)

This category occurs mainly on the coast. Around sheltered bays, category C4 extends up to 50 metres inland from the shoreline. In areas with rough seas and surf, it extends from several hundred metres inland to about one kilometre inland. As with other categories, the extent depends on winds, wave action and topography. This category will also be found inside large industrial plants with steam production, and perhaps up to 1.5 kilometre downwind of the plant. Again this is best considered as a micro-environment. Damp, contaminated interior environments such as occur with swimming pools, dye works, paper manufacturers, foundries, smelters and chemical processing plants may also extend into this category.

3.2.5 C5: Very High (C5-I: Industrial, C5-M: Marine) (Mild steel corrosion rate 80 to 200 µm per year)

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. (In some areas of Newcastle, for example, it extends more than half a kilometre from the coast. This category may also be found in aggressive industrial areas, where the environment may be acidic with a pH of less than 5. For this reason, category C5 is divided into Marine and Industrial for purposes of selection of zinc and aluminium metallic coatings, and organic coatings. Some of the damp and/or contaminated interior environments in category C4 may occasionally extend into this category.

3.2.6 T: Inland Tropical

The 'Tropical' category is relevant only to the selection of organic coatings. A tropical environment is found in monsoonal areas of north Queensland, Northern Territory, north-west Western Australia, Papua New Guinea and the Pacific Islands, except that where salinity has an affect such zones fall into one of the more severe categories described above. Corrosivity in inland regions is generally low (similar to category C2), but the aggressiveness of the environment to organic coatings means that durability is less than the metal corrosion rate would indicate. Weathering of organic coatings depends on factors other than environmental corrosivity, such as UV light intensity, and selection needs to consider these factors which are outside the scope of this Standard. Figure 3.1 shows the approximate extent of the tropical zone in Australia.

TABLE 3.1

CORROSIVITY CATEGORIES

ISO 9223 and ISO 14713	ISO 12944 and this Standard	Description	Mild steel corrosion rate (µm/y)
C1	C1	Very low	<1.3
C2	C2	Low	1.3–25
C3	C3	Medium	25–50
C4	C4	High	50–80
C5	C-5I	Very High—industrial	80–200
C5	C-5M	Very High—marine	80–200
—	(T) (See Note)	Tropical	See Clause 3.2.6

NOTE: The tropical category is not in ISO 12944.

Attachment 7

Australian Standard®

Durability of galvanized and electrogalvanized zinc coatings for the protection of steel in structural applications—Atmospheric

This Australian Standard® was prepared by Committee MT-014, Corrosion of Metals. It was approved on behalf of the Council of Standards Australia on 7 April 2008.
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The following are represented on Committee MT-014:

- Australasian Corrosion Association
- Australian Chamber of Commerce and Industry
- Australian Electrolysis Committee
- Australian Paint Approval Scheme
- Australian Pipeline Industry Association
- AUSTROADS
- Blast Cleaning and Coating Association of Australia
- Bureau of Steel Manufacturers of Australia
- Corrosion Prevention Centre
- CSIRO Manufacturing and Materials Technology
- Galvanizers Association of Australia
- Materials Australia
- Plumbing Products Industry Group
- Water Services Association of Australia
- Water Utility Interests

This Standard was issued in draft form for comment as DR 07267.

Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through the public comment period.

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AS 2309—2008

Australian Standard®

Durability of galvanized and electrogalvanized zinc coatings for the protection of steel in structural applications—Atmospheric

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PREFACE

This Standard has been prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee MT-014, Corrosion of Metals. After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian Standard rather than an Australian/New Zealand Standard.

The objective of this Standard is to specify a classification for the durability of metallic zinc based coatings on structural steels and to provide a broader understanding of the application of the product.

Currently there is no appropriate International Standard for classification of metallic coatings.

The term 'informative' has been used in this Standard to define the application of the appendix to which it applies. An 'informative' appendix is only for information and guidance.

CONTENTS

Thus, while the service life of zinc coated steel is comprehensively addressed in Table 1, designers and specifiers need to recognise the potential for micro-climates which can markedly accelerated the corrosion rate of the coating and steel substrate.

These include:

(a) Contact with or burial in soil.

(b) Prolonged contact with moisture or ponding of water.

(c) Exposure to industrial pollution, particularly acidic or strongly alkaline fall-out and specific chemicals.

Corrosion of galvanized and electrogalvanized steel can be extremely variable in buried exposures, and this aspect must be considered at the design stage. Effective drainage is often of importance and protective coatings may be warrented in many situations. The service life of galvanized and additional electrogalvanized coatings exposed to water, soils and aggressive chemicals is discussed in greater detail in Appendix D.

TABLE 1

CORROSION RATE AND ESTIMATED SERVICE LIFE FOR WASHED SURFACES

System designation*	Nominal coating thickness	Service life, years					
		Atmospheric corrosivity category (As per AS/NZS 2312 and ISO 9223)					
		A Very low	B Low	C-F Medium Inland tropical	D High	E-I Very high industrial	E-M Very high marine
g/m² per side	µm	Indoor dry Air-conditioned	Outdoor rural inland—Occasional condensation	High humidity with some pollution—Urban coastal swimming pools, chemical plants	Industrial or urban coastal swimming pools, chemical plants	Industrial high humidity and high salinity, coastal	Seawater, offshore conditions
HDG300	42	†	25+	10–25	5–10	NR	2–5
HDG390	55	†	25+	15–25	5–15	NR	2–5
HDG500	70	†	25+	25+	10–25	NR	5–10
HDG600	85	†	25+	25+	15–25	2–5	5–15
ZB100/100	14	†	10–25+	2–10	NR	NR	NR
ZB300/300	42	†	25+	10–25	5–10	NR	2–5
ILG100	14	†	10–25+	2–10	NR	NR	NR
ILG300	42	†	25+	10–25	5–10	NR	2–5
PGS50	7	5–10	NR	NR	NR	NR	NR
PGS100	14	†	10–25+	2–10	NR	NR	NR

* Number which indicates coating thickness

† Indoor environment only, not relevant to this Standard.

NR = Not recommended

4.6 Durability ratings

Where durability is directly proportional to coating thickness, the assigning of an industry durability rating is a means of establishing the durability of zinc product in the market.

NOTE: Once a coating has been applied to steel it is difficult to determine the thickness and subsequent durability, without specialized measuring equipment.

Durability classes from 1 to 5 have been assigned to zinc coatings based on their coating mass, with 1 being the thinner and 5 being the thicker of the coatings. A visual classification system based on a star rating has also been incorporated. These classes are listed in Table 2.

Class 1: Coatings with a mass of <100 g/m^2. These are predominantly found on electroplated products, typically bright finished building hardware and fasteners. Electroplated zinc coatings do not have the zinc-iron alloy constituents that occur in hot-dip galvanized coatings and will generally corrode at a higher rate. Zinc coatings in this class are best suited for indoor use only.

Class 2: Coatings with a mass of 100–199 g/m^2. These are predominantly found in the in-line galvanized processes, where continuous lengths of steel coil, tube or wire are coated in a continuous hot-dip galvanizing process that forms a smooth and uniform coating with a thin zinc-iron alloy layer that make the coating well suited to bending and forming. Light structural hollow and open sections, sheeting, decking and mesh products are typically manufactured from this coating class.

Class 3: Coatings with a mass of 200–399 g/m^2. These are predominantly found in thinner steel sections less than 3 mm in thickness or fabrications that have been hot dip galvanized in a batch process, or small parts that have been centrifuged (bolts, nuts, brackets).

Class 4: Coatings with a mass of 400–599 g/m^2. These are predominantly found on lighter roll-formed or hot rolled steel sections and fabrications that are hot dip galvanized with a section thickness between 3 mm and 6 mm.

Class 5: Coatings with a mass of 600 g/m^2 or greater. These are predominantly found on structural sections of fabrications that are hot dip galvanized and over 6 mm in section thickness. Substantially heavier hot dip galvanized zinc coatings may be applied to this type of steel depending on its surface condition and chemistry with a proportional increase in durability.

Suppliers of zinc coated products may label products to indicate the durability rating applicable to the coating, as shown in Table 2, to provide clear identification for purchasers.

Where used, labelling shall include—

(a) reference to this Standard (AS 2309); and

(b) indication of the applicable Class or Star rating.