DSP Atmospheric Warranty

Warranty applying to Duferco Steel Processing continuously hot dip galvanized sheet that is directly exposed to the atmosphere as roof sheeting or cladding

This warranty only applies to the batch of DSP continuously hot dip galvanized sheet declared by the customer and related to the installation address as per your Warranty Application (Appendix D) Reference number _____

Duferco Steel Processing (Pty) Ltd (DSP), guarantees that the continuously hot dip galvanized product (DSP product) purchased by the customer, was manufactured under an effective quality management system. DSP warrants that the material will have a minimum installed operational life of _____ years (as per general guideline in **APPENDIX A**) when exposed as roof sheeting or cladding to an external weathering atmosphere as defined in ISO 9223:2012 as revised

DSP Product identification: ……

A. This Warranty is subject to the following specific terms and conditions:

1. The material referred to is Z100 - Z275 zinc coated sheet and has a total thickness of 0.4 – 1.5mm including coating as determined by zinc mass tests (wet chemistry or Weigh strip weigh method according to EN ISO 1460)

2. The zinc coating on the DSP product has not been mechanically damaged through transport and poor handling or chemically damaged through exposure to chemical atmospheres or liquids which are known to be harmful to zinc coatings and that storage and handling were carried out according to the requirements of **APPENDIX B.**

3. The DSP product is installed in accordance with guidelines in the latest edition of SANS 10400 Part L**,** sound building practice and the guidelines in **APPENDIX C.**

4. That an annual inspection of the installed product is carried out and documented and that annual maintenance is carried out and documented, in particular:

    a. **Sheltered areas**, or areas not normally washed by rain, must be cleaned on a six monthly basis and records of such cleaning are to be kept until the termination period of the warranty

    b. **Regular maintenance** is undertaken with an annual washing with potable water (pH between 6,5 – 10,0) which will not be harmful or corrosive to galvanized zinc coatings

5. Any warranty claim will require unambiguous identification of the claimed product (e.g. purchase contract number, DSP coil number) and submission of a completed "Warranty Application Form" together with the invoice for purchase of the goods. Additionally, the claimant's buyer must provide DSP with any additional information which DSP may require in order to expedite and process the warranty claim e.g. date installed, installation company, location of installation, cleaning and maintenance records, proximity to emissions of corrosive gases from process plants or industries. **Refer to Section B below.**

6. The product for which a claim is initiated must have a DSP product identifier printed or displayed on the sheeting and must be ordered as such "Branded ".

7. It is specifically recorded that DSP is not obliged to honour this warranty in the event of non-compliance with either the correct use or application of continuously galvanized sheeting within the atmospheric conditions referred to in **APPENDIX A** or the non-compliance with good installation practice as guided by SANS 10400 Part L or installation according to sound building practice.

8. Discharge of any liability by DSP of its obligations specified in this warranty, shall be done on a full and final basis of any claims against the company and the receiver of such settlement shall not be entitled to any further claim against DSP with respect to the materials and application in a specific warranty claim.

9. A warranty claim procedure may be initiated when more than 5% of all sheets used in an installation are shown to be affected by red rust. Any claim against a DSP product must be submitted before degradation spreads to more than 10% of the surface area. Product defects and premature deterioration of the DSP product must be reported to DSP within 72 hours of its observance and a claim must be lodged in writing to DSP within 15 days from the date of detection. Failure to submit a Warranty claim pursuant to the provisions of this Section will constitute a waiver of your rights to claim under the present warranty and your claim will be rejected.

B. The Warranty <u>DOES NOT</u> cover:

a. Uniform changes of zinc spangle or variation in spangle (pattern on a new hot dip galvanized surface), dulling of surface colour, changes in surface appearance caused by dirt & dust deposited on the surface during storage, transportation and after installation.

b. The use of the DSP product in applications where the local atmospheric environment is not a C1-C4 atmosphere as defined in ISO 9223:2012 as revised **(see APPENDIX A**), in particular this warranty does not cover any damage to the coating caused by:

   i. extraordinary meteorological conditions e.g. tornadoes, hurricanes
   ii. an act of God e.g. earthquake, fire, floods or hailstorms
   iii. exposure of DSP products to a chemically aggressive environment including corrosive industrial pollutants, corrosive fumes or deleterious gases which attack the zinc coating and subsequently the underlying steel sheet
   iv. . damage due to war, riots and terrorist actions.

c. DSP products which were in contact with chemicals aggressive to zinc, structural elements manufactured of copper and to liquids flowing from copper pipes.

d. Surface appearance differences between coils.

e. Damage arising during the preparation of coated sheeting using DSP continuously galvanized sheeting as the base material for an organic or inorganic coating system.

f. Damage arising from DSP product stored outdoors or in such a manner that moisture accumulates between sheeting resulting in white rust or wet storage stain **(see APPENDIX B)** White rust claims are not covered by this warrantee.

g. Damage originating during metal forming processes, transportation and site installation as a result of mechanical impact damage or contact with corrosive chemicals.

h. Surface contamination of the zinc coating by residual iron fillings & iron particles generated during cutting, milling, grinding or boring operations or any assembling operations realized at a factory or building site.

i. Damage arising from incorrect or generally unacceptable methods of installation and unsuitable placement of DSP product on buildings or installations including roofing, side or end cladding and flashing where for example the roof slope is not as per building standards (SANS 10400 Part L) or the installation leads to excessive overlaps, water accumulation and dust / dirt / soil accumulation on the atmospherically exposed surface.

j. Corrosion of DSP product on the non-atmospherically exposed side of the sheet where the DSP product was used for roofing, side or end cladding or flashing.

k. Damage on DSP product used as side or end cladding that had been permanently placed in contact with soil, buried in soil or covered with moisture retaining substances

l. Damage on DSP product located in sheltered areas or areas not usually washed by rainfall

m. DSP will not be liable for any indirect costs (removal & re-installation) or damages arising from the use of defective DSP product save that DSP's liability in terms of this warranty, shall be limited to the replacement of defective material only, at the initial delivery address and Duferco Steel Processing shall not be liable for:

    i. Any consequential costs, damage to property or any injury to persons arising from the use of the DSP product.

    ii. Installation or labour costs

n. DSP's liability due of premature corrosion of its product shall be limited to either replacement of the same coating designation material or the reimbursement of the cost of purchasing replacement product from DSP

o. After expiration of the warranty period, no further claims will be accepted

p. DSP's liability shall be limited exclusively to a pro-rata share (P) based on the remaining warranty period from date of claim – where X = warranty period, A = years in service till claim and P = [(X-A) / X]

A signed copy of this warranty document must be returned to DSP within 30 (thirty) days after receipt of the document, failing which your Warranty Application will be considered as rejected.

Marketing Manager
Duferco Steel Processing (Pty) Ltd
Private Bag X12
Saldanha
7395

_____
MARKETING MANAGER
DUFERCO STEEL PROCESSING (PTY) LTD

ON BEHALF OF APPLICANT

SIGNED: _____

NAME: _____

DESIGNATION: _____

DATE: _____

APPENDIX A

X value in years for the warranty period

REFERENCE SOURCE ISO 9223:2012 as revised

Select the Environmental Category then select Z coating value & read off X

			X in years (before red rust appears)			
Environmental Category	**Description**	**Zinc corrosion rate µm/year**	**Z 100**	**Z 150**	**Z 200**	**Z 275**
C 1	**Not likely to corrode** More than 50 km from the sea inland	<0,1	50	50	50	50
C 2	**Slightly corrosive** More than 10 km from the sea or not near (> 20 km) polluted industrial areas or open cast mining	0,1-0,7	10	14	20	25
C 3	**Moderately Corrosive** 5-10 km from the sea or within 10 km of a polluted industrial area or open cast mine	0,7- 2,1	3	4	6	9
C 4	**Very Corrosive** 1-3 km from the sea or within 1km of a polluted industrial area	2,1 – 4,2	**Not suitable for use in this environment**		3	4
C 5	**Extremely corrosive** Within 1000 m of the sea or within a very polluted industrial area	4,2 – 8,4	**Not suitable for use in this environment**			

µm = micro meters

APPENDIX B

Storage & Handling of hot dip galvanized sheet

A. **It is important to properly store and transport hot dip galvanized steel** so as not to disrupt the development of the zinc patina. Zinc, like all metals, begins to corrode naturally when exposed to the atmosphere. However, zinc corrosion products form a tenacious, abrasion-resistant patina which helps to provide hot dip galvanizing with its long service life. The formation of this patina depends on the galvanized coating being exposed to freely circulating air. Stacking galvanized articles closely together, or nesting, for extended periods of time, thereby limiting access to freely circulating air, can lead to the formation of a white stain or white powdery product known as white rust or wet storage stain.

B. **White rust or wet storage stain is essentially a staining or buildup of zinc hydroxide** on the surface of the galvanized steel. Superficial mild staining is no reason for concern as it will weather away when the parts are put in service. If two surfaces are in close contact with one another and not allowed to dry, excessive buildup of this voluminous and porous corrosion product will remain and as it accumulates in significant quantities, can cause excessive corrosion of the coating.

C. Minimizing White Rust or Wet Storage Stain:

a. Provide adequate ventilation between stacked pieces and avoid nested stacking.
b. Elevate and separate articles stacked outdoors with strip spacers and during shipping if there is the likelihood of condensation.
c. Incline parts to allow for maximum drainage.
d. Prevent uncovered material from being left at in-transit loading points where it may be exposed to rain, mist or condensation.
e. Make use of a suitable Vapour Corrosion Inhibitor (VCI).
f. Store galvanized material under cover in dry, well-ventilated conditions, away from doorways open to the environment.
g. Maintain a low humidity environment at storage sites.

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APPENDIX C

Installation guidance for galvanized roof sheeting

1. All galvanized sheeting bundles when lifted by crane must have a spreader beam and fabric protected slings to prevent damage to galvanized surfaces.

2. Sheet bundles must be spread out on the roof framework to prevent overloading and strapped to purlins to stop them being lifted by the wind and damaged.

3. All galvanized sheeting must be handled with care to prevent scratching, damage and marking of zinc coated surfaces. Do not drag sheeting over rough ground, or over each other and ensure that tools and scaffolding are never dragged over galvanized sheeting.

4. Store galvanized sheeting under cover and ensure that there are spacers between sheeting to stop wet storage stain or white rust.

5. Be careful, when cutting galvanized sheeting on site, not to spray hot particles onto other sheets particularly coated sheets – use a power saw with cold cutting blades to produce fewer particles and burrs.

6. Do not allow metal particles to spray or blow onto new galvanized sheeting else rust marks will appear and the zinc coating will be compromised.

7. During installation of galvanized roof sheeting metallic particles from angle grinding, saws, drills and self-tapping screws may be deposited on the galvanized roof sheets. At the end of each day's work sweep all metallic particles from the roof and do not leave surplus screws, washers or fasteners on the roof, else premature corrosion and damage to the galvanized surface may occur.

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APPENDIX D

APPLICATION FORM FOR WARRANTY

1. **Applicant……**

2. **Project Description…….**

3. **Street Address…….**

4. **Distance from sea in meters……**

5. **Distance from an industrial area in meters……..**

6. **Name of Builder / Main Contractor……**

7. **Roof or Cladding Area in m^2……**

8. **Roof slope in degrees……**

9. **Coating designation …….**

10. **Steel service centre name……**

11. **Slitter of DSP coil…….**

12. **Profiler of DSP Roof sheeting……....**

13. **Roof sheeting or cladding installation company…….**

14. **Estimated environmental category (per Appendix A) ……...**

15. **Factors that could influence corrosion performance of DSP sheet**

…….

…….

APPENDIX D continued….

<u>On behalf of applicant</u>

Completed by name…….

Designation……..

Date……..

Company……

Contact telephone number……

<u>On Behalf of Duferco</u>

Name……..

Designation……..

Date……