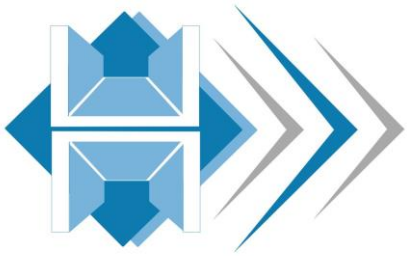
HOT DIP GALVANIZERS ASSOCIATION SOUTHERN AFRICA



CODE OF PRACTICE FOR HOT DIP GALVANIZING AND DUPLEX CORROSION CONTROL

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APPROVED AND ACCEPTED BY

	POSITION	DATE	SIGNATURE
1.			
2.			
3.			

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1. APPROVED GALVANIZER

Accredited galvanizer shall be a member of the Hot Dip Galvanizers Association Southern Africa and if required, shall issue a certificate of conformance to ISO 10474, or if registered as a South African Bureau of Standards (SABS) Mark Scheme Galvanizer a SABS certificate of conformance. (A list of approved members is available on the Association web site, www.hdgasa.org.za.

2. QUALITY STANDARDS

The hot dip galvanized coating shall conform in every respect to the standards contained in the South African National Standards, SANS 121 (ISO 1461:2009) and SANS 32 (EN 10240:1997), Hot Dip Galvanizing specification for products other than continuously galvanized sheet and wire.

2.1 QUALITY CONTROL

The hot dip galvanizer shall provide a quality management plan detailing inspection procedures, which will include inspection of steel prior to galvanizing and final inspection prior to despatch. Where fabrication defects are identified prior to galvanizing, e.g. burrs, poor welding or excessive weld spatter, such components shall be placed on hold and a non-conformance report submitted to the fabricator.

- Double end dipping shall be permitted provided that it will not result in distortion of the product and an acceptable surface finish of the coating is achieved.

- Bolts, nuts and other fastening devices shall be hot dip galvanized. Zinc electroplating (electro-galvanizing) is unacceptable. All fasteners shall be supplied by a SABS approved manufacturer.

- High tensile fasteners from grade 10.9 shall be hot dip galvanized in conformance to ISO 10684:2004. The hot dip galvanizer shall issue a certificate of compliance with this requirement.

2.2 COATING REPAIRS

Any coating repairs undertaken on the galvanizers premises or later on site, e.g. touch up of small-uncoated surfaces (black spots), shall be strictly limited both in dimension and quantity as stipulated in the relevant SANS 121 (ISO 1461:2009) specification.

- Uncoated areas and defects shall be repaired by abrading surfaces with 80 grit sandpaper and painting with Galvpatch or equal and approved twin pack zinc rich epoxy paint, to a minimum DFT of 100µm. When a duplex coating system has been specified the DFT of the repair coating shall be equal to that of the surrounding hot dip galvanized coating. The repaired surface shall not be accepted or despatched until the repaired surface coating has cured.
- Where coating defects exceed the specified permissible limit, which qualifies for touch-up repairs after galvanizing, affected items shall be rejected and re-galvanized or if applicable repair may be negotiated with the customer.

Refer to Information Sheet No12 "Hot dip galvanizing & duplex coat repair procedure"

Final Inspection:

After the final inspection has been satisfactorily completed, the galvanizers' inspectorate shall issue a certificate stating that the applied coating conforms to the requirements of SANS 121 (ISO 1461:2009) or SANS 32 (EN 10240:1997) as applicable.

3. QUALITY SURVEILLANCE

3.1 "The client" may employ an independent suitably technically qualified organisation to carry out Quality Surveillance of the work on its behalf. In the event of dispute, the decision of "The client" shall be final.

3.2 For the purpose of carrying out quality surveillance, "The client" or its QA / QC Consultant shall be granted access to any part of the galvanizers' premises relevant to the work being carried out, at any reasonable time. The galvanizer shall provide, at his own cost, any equipment or labour necessary to gain access to surfaces which are coated, to be coated or are in the process of being coated.

3.3 "The client" may remove any reasonable samples of materials to be used in the coating application. Rejection of the sample will place a hold on the use of material of the same batch number and may lead to rejection of all that batch of material and the reworking of any components that have already been coated with rejected material.

3.4 "The client" may carry out reasonable destructive tests to ascertain compliance with the specification. The contractor to the satisfaction of "The client" at no additional cost shall repair areas thus damaged.

3.5 The cost of quality surveillance will be borne by "The client", except where surveillance results in rejection of the work or when notice by the contractor results in a fruitless trip, in which case the contractor shall carry the cost of surveillance.

3.6 The inspector shall complete a report at each visit. A copy of the report shall be given to the galvanizing company.

4. DATA BOOK

4.1 Upon completion of the works, the contractor shall provide "The client" with a Data Book containing all the relevant Quality Control documents and records pertaining to the works.

4.2 The contractor shall submit one copy of the Data Book to "The client" and keep one copy for his own records.

5. HANDLING AND STORAGE

The following precautions shall be taken for storage of coated items.

5.1 HANDLING

All coated components shall be handled using nylon slings or specially positioned lifting points provided for such handling.

5.2 LOADING

All hot dip galvanized and/or duplex coated components to be transported shall be loaded on suitable dunage and lashed to avoid chafing and steel to steel contact. Plastic "Spaghetti strips" must be used to protect smaller items of steel and angles (5mm spaghetti plastic coil). Coated steel shall be secured on the truck preferably with nylon securing straps. Where chains must be used, suitable rubber insertion pads must be placed between the coated steel and chains at all contact points.

5.3 OFF LOADING

Offloading at site shall be conducted using the same care and precautions as required for loading.

COVER

Coated items shall be stored under cover where possible.

Items not stored under cover shall be stored in such a manner as to avoid retention of water and allow good air circulation.
Items shall be stored on timber or on trestles fitted with timber to raise the product to at least 100mm off the ground.

5.4 STACKING

Items shall be stacked using timber packaging or other approved means to avoid coating-to-coating contact. Sufficient baring area of packing shall be used to avoid damage to coatings.

6. SITE REPAIRS

Modifications, transportation and erection damage, shall be repaired by abrading with 80 grit sand paper and painting with Galvpatch or equal and approved twin pack zinc rich epoxy paint, achieving an overlap of 5mm onto the surrounding sound zinc coating and to a minimum thickness of 100µm. When a duplex coating system has been specified the DFT of the repair coating shall be equal to that of the surrounding hot dip galvanized coating. Steel shall not be accepted until the repaired surface has cured. Furthermore, in priority and as approved by the “Engineer”:

Uncoated steel utilised in modifications with hot dip galvanized steel shall be despatched for hot dip galvanizing. Any areas that are to be subsequently welded should either be masked prior to hot dip galvanizing or suitably cleaned of zinc in order to prevent possible weld metal embrittlement or zinc residue inclusions, prior to welding on site.

Where site modifications of a hot dip galvanized surface is required, all traces of the hot dip galvanized coating shall be ground off prior to welding. Removal of the zinc coating from surfaces to be welded is necessary in order to prevent possible weld metal embrittlement or zinc residue inclusions.

Refer to Information Sheet No12 "Hot dip galvanizing & duplex coat repair procedure"

APPROVED COATINGS

Brand Name	**Approved by the Engineer**
Primer	**Approved by the Engineer**
Galvpatch or equivalent	**Hot Dip Galvanizers Association S.A.**

7. DUPLEX COATING (HOT DIP GALVANIZING PLUS PAINT)

This specification covers the painting of hot dip galvanized steel other than sheet and wire. The requirements for the painting of hot dip galvanized sheet are contained in ISO 12944 Parts 4 and 5.

7.1 All hot dip galvanized steel to be painted shall be certified as conforming to the required hot dip galvanizing quality standard, prior to painting.

7.2 Painting shall take place as soon as possible after hot dip galvanizing, preferably at the galvanizing contractor's premises. If this is not feasible for practical reasons, painting on site is acceptable, but shall be in accordance with **7.3.**

7.3 Code of Practice for Preparation and Painting Hot Dip Galvanized Steel:

Adequate surface preparation can be achieved by way of chemical cleaning. Surface sweep blasting is, however, the preferred procedure. Preparation shall be conducted in accordance with HDGASA 01- Rev 1 2014 - Code of Practice for Surface Preparation and Application of Organic Coatings.

***Warning*:** Sweep blasting shall be undertaken strictly in accordance with the procedures as per the code of practice, with particular reference to the selection of the appropriate abrasive, blasting nozzle pressure and angle of deflection of the blasting media. Failure to do so will result in damage of the hot dip galvanized coating.

A hold or witness point should be established after sweep blasting has taken place before painting is commenced.

Painting procedures shall comply with the requirements contained in,

HDGASA 01- Rev1 2014 - Code of Practice for Surface Preparation and Application of Organic Coatings

HDGASA 02- Rev1 2014 - Code of Practice for the Performance requirements of Coating Systems

8. RELATED DOCUMENTS

All national and international standards referred to in this document shall form part of this code of practice. Where reference is made to a code, specification or standard the reference shall be taken to mean the latest edition of the code, specification or standard, including addenda, supplements and revisions thereto.

8.1 SOUTH AFRICAN NATIONAL STANDARDS (SANS)

SANS 121 (ISO 1461:2009) - Hot Dip Galvanized zinc coatings (other than continuously zinc-coated sheet and wire)

SANS 32 (EN 10240:1997) for Hot Dip Galvanized Pipe produced on an automatic or semi-automatic tube plant

8.2 INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO 9002 Quality Management System

8.3 HOT DIP GALVANIZERS ASSOCIATION SOUTHERN AFRICA

HDGASA 01- Rev1 2014 Code of Practice for Surface Preparation and Application of Organic Coatings

HDGASA 02- Rev1 2014 Code of Practice for the Performance Requirements of Coating Systems