

Zinga UK

(a division of MGDuff International Ltd)

1 Timberlaine Estate
Gravel Lane, Quarry Lane
Chichester
West Sussex PO19 8PP

Tel: 01243 533336 Fax: 01243 533422
e-mail: sales@zinga-uk.com
website: www.zinga-uk.com



Agrément Certificate
03/4047
Product Sheet 1

CORROSION PROTECTIVE COATING FOR STEEL

ZINGA

PRODUCT SCOPE AND SUMMARY OF CERTIFICATE

This Certificate relates to Zinga, a liquid-applied zinc protective coating for structural steel.

AGRÉMENT CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.



KEY FACTORS ASSESSED

Properties in relation to fire — the product has a Class 0 or 'low risk' surface as defined in the national Building Regulations (see section 6).

Welding — welding can be conducted on a 60 µm Zinga coating with no detrimental effect on the quality of the weld, but damage to the Zinga coating will occur which must be repaired (see sections 7 and 13).

Resistance to abrasion — where continual abrasion is likely, an abrasion-resistant topcoat should be applied over the Zinga coating (see section 8).

Durability — under normal conditions, a 60 µm thick coating of Zinga applied to abrasive blasted steel will remain effective with a life expectancy in excess of 20 years in rural conditions, 12 years in inland industrial conditions and 10 years in polluted coastal conditions (see section 10).

The BBA has awarded this Agrément Certificate to the company named above for the product described herein. This product has been assessed by the BBA as being fit for its intended use provided it is installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Simon Wroe
Head of Approvals — Materials

Greg Cooper
Chief Executive

Date of First issue: 16 December 2009

Originally certified on 8 September 2003

The BBA is a UKAS accredited certification body — Number 113. The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk

Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.

British Board of Agrément
Bucknalls Lane
Garston, Watford
Herts WD25 9BA

©2009

tel: 01923 665300
fax: 01923 665301
e-mail: mail@bba.star.co.uk
website: www.bbacerts.co.uk

Regulations

In the opinion of the BBA, the use of Zinga is not subject to these Regulations.



The Building Regulations 2000 (as amended) (England and Wales)



The Building (Scotland) Regulations 2004 (as amended)



The Building Regulations (Northern Ireland) 2000 (as amended)

Construction (Design and Management) Regulations 2007

Construction (Design and Management) Regulations (Northern Ireland) 2007

Information in this Certificate may assist the client, CDM co-ordinator, designer and contractors to address their obligations under these Regulations.

See sections: 2 *Delivery and site handling*, (2.1 to 2.3), 7 *Welding* (7.2 and 7.3), 12 *Precautions* (12.1) and 13 *Application* (13.6 and 13.7).

Non-regulatory Information

NHBC Standards 2008

NHBC accepts the use of Zinga, when installed and used in accordance with this Certificate, in relation to *NHBC Standards*, Chapter 8.5 *Painting and decorating*.

Technical Specification

1 Description

1.1 Zinga is a single pack, zinc coating for internal or external use as a primer and/or final corrosion protection for structural steel and as a repair for suitably prepared, eroded or damaged galvanized or zinc-coated steel.

1.2 Zinga contains zinc powder (milled using a specialised process), an organic binder and aromatic solvents. The wet product characteristics are as follows:

Density (kg·d·m ⁻³)	2.67
Solids content (% by weight)	80
Solids content (% by volume)	58

1.3 The dry film contains 96% zinc powder of which 97% is metallic zinc.

1.4 The product is applied to surfaces previously prepared by abrasive blasting to grade Sa 2½, or to a rusted surface to grade C, both to BS EN ISO 8501-1 : 2007.

1.5 Zingasolv is a mixture of aromatic solvents used for diluting Zinga prior to spray application, and for cleaning equipment.

1.6 The product is manufactured by a batch blending process. Quality control is exercised over raw materials, during manufacture and on the final product.

2 Delivery and site handling

2.1 The product is delivered in 1 kg, 2 kg, 5 kg, 10 kg, and 25 kg metal containers. Each container carries a label bearing the manufacturer's name, product name, batch code and the BBA identification mark incorporating the number of this Certificate.

2.2 Zinga and Zingasolv are flammable, with a flashpoint above 32°C, and must be stored and used in a cool place, away from sources of ignition.

2.3 Applicators must wear gloves and facial protection. A suitable HSE approved respirator should be worn for spray applications or when using the product in confined places.

2.4 The shelf-life of the product is in excess of one year when stored under cool, dry conditions.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Zinga.

Design Considerations

3 General

- 3.1 The Zinga coating is satisfactory for internal or external use as anti-corrosion protection for structural steel, and as a repair system for suitably prepared, damaged, galvanized or zinc-coated steel.
- 3.2 The product is applied in one or two coats, to give a minimum total dry film thickness of 60 µm.
- 3.3 Zinga is sensitive to organic solvents and prolonged exposure can lead to breakdown of the Zinga layer.
- 3.4 In certain circumstances (eg in areas of high abrasion) it may be necessary to apply a topcoat over Zinga. In such cases, precautions should be taken to minimise exposure of the Zinga to any solvent contained in the topcoat (or any tie coats which may be used) by typically applying a very thin first coat and leaving to thoroughly dry before further applications. The Certificate holder can give guidance on the selection and application of suitable topcoats. The use of topcoats over Zinga is not covered by this Certificate.

4 Practicability of installation

The product should be installed by suitably equipped and experienced structural engineering companies, or blasting/painting applicators, experienced with this type of product.

5 Effect on water quality

The product meets the requirements of BS 6920-1 : 2000, and may be used in contact with potable water.

6 Properties in relation to fire

- 6.1 When tested to BS 476-6 : 1989, a sample of Zinga coated steel had an index of performance (I) of 0.0 and a sub-index (i₁) of 0.0. When tested to BS 476-7 : 1997 a similar sample had a Class 1 surface. It therefore has a Class 0 or 'low risk' surface as defined in the various national Building Regulations.
- 6.2 The use of Zinga under intumescent coatings has not been assessed by the BBA and is outside the scope of this Certificate.

7 Welding

- 7.1 Welding or flame cutting should not be conducted until the zinc-rich film is fully cured and free from solvent.
- 7.2 Prior to welding Zinga coated steel, an assessment must be made of the dangers posed to the welder's (and others') health under the Control of Substances Hazardous to Health Regulations 2002 (COSHH) (as amended). Reference should be made to HSE Guidance Note EH54 *Assessments of exposure to fume from welding and allied processes* 1990.
- 7.3 Proper conditions of ventilation must be provided to ensure that the concentrations of toxic products produced during welding or flame cutting of steel with a 60 µm coating of Zinga do not exceed the values stated in the current version of HSE Guidance Note EH40 *Workplace Exposure Limits*.
- 7.4 Welding through this thickness of Zinga will have no detrimental effect on the quality of the weld.

8 Resistance to abrasion

- 8.1 The resistance of the finished coating to continual abrasion is limited, but any damage can be readily repaired by re-coating. Where continual abrasion is likely, an abrasion-resistant topcoat should be applied (see section 3.3).
- 8.2 In the event of surface damage, the surrounding undamaged Zinga coating will continue to protect the substrate from corrosion for a limited time. However, the damage should be repaired by the further application of Zinga as part of a planned maintenance programme (see section 9).

9 Maintenance

- 9.1 Maintenance painting should be conducted before the steel substrate has become exposed, and within the periods stated in section 10, by applying a new layer of Zinga directly over a clean existing layer.
- 9.2 Localised re-coating of damaged or eroded areas can also be conducted with Zinga. Where the substrate has become exposed it must be prepared, as described in section 11, before Zinga is applied.

10 Durability

10.1 Zinga applied to abrasive blasted steel at a minimum dry film thickness of 60 µm (above the maximum peak height) will remain effective with an ultimate life in excess of 20 years in internal conditions free from chemical contamination. When applied externally it will remain effective with an ultimate life in excess of the values given in Table 1 (see also section 9.1).

Table 1 Ultimate life spans

Conditions	Life (years)
Polluted coastal	10
Inland industrial	12
Rural	20

10.2 The life of the coating can be extended proportionately by applying additional coats of Zinga to achieve thicknesses up to a maximum of 200 µm. Greater thickness may be achieved but the advice of the Certificate holder should be sought.

10.3 In chemically-corrosive conditions this performance may not be achieved and the advice of the Certificate holder should be sought.

Installation

11 General

Zinga is applied either under factory conditions or on site to either abrasive blasted steel to grade Sa 2½, or rusted steel to rust grade C, both as defined in BS EN ISO 8501-1 : 2007. The substrates must be thoroughly de-greased before being abraded.

12 Precautions

12.1 During application, adequate ventilation must be provided, and care taken to avoid inhalation of spray and solvent vapour. Naked flames, or other sources of ignition, must be excluded during application and curing.

12.2 The product may be applied to damp substrates, but not to wet surfaces.

13 Application

13.1 The product is applied in one or two coats by brush, or airless or conventional spray, to give a minimum total dry film thickness of 60 µm. A roller can also be used, but in this case a brush coat must be applied first. Zinga can be applied to substrates at temperatures down to -15°C providing the surface is free from ice. During application the temperature of the Zinga liquid must remain between 15 and 25°C. During spray application the product must be stirred continuously, and for other types of application it must be re-mixed at least every 20 minutes.

13.2 The product may be diluted by up to 5% of Zingasolv for airless spray application, and up to 25% for air supported application. Zingasolv must be added whilst stirring. The Certificate holder can advise on suitable spray equipment.

13.3 Where abrasive cleaning is required, the first coat is applied to the abraded substrate before the surface has oxidised, normally within four hours of blasting. The surface must be kept free from contamination between blasting and coating.

13.4 A stripe-coat of Zinga should be applied to sharp edges, nuts and bolts and weld areas and allowed to dry before application of the first full layer of the product.

13.5 The product is allowed to cure for two hours (at 20°C) prior to application of subsequent coats. If the product is to be overcoated with a different topcoat, a longer curing period will be necessary. The Certificate holder can advise on suitable topcoats and overcoating times (see section 4.3).

13.6 During the curing period good ventilation is essential to remove solvent vapour. On any surface where natural ventilation is restricted, an air blower should be installed to ensure complete removal of solvent vapour. If heaters are used they should provide efficient air circulation to remove vapours and avoid localised hot spots.

13.7 When a significant delay occurs between coats, the surface of the first coat must be cleaned and any dirt or water-soluble deposits removed by thorough washing with water. Any grease or oil must be removed by swabbing with Zingasolv using clean rags (taking appropriate precautions to avoid inhalation and skin contact).

13.8 Any steel coated with the product and welded on-site will suffer some damage to the Zinga coating. Weld spatter must be removed by chipping and/or grinding. Slag, charred coating, and abraded areas caused by mechanical damage during transit and erection, must be blast cleaned to restore the original condition of the steel substrate, and a further one or two coats of Zinga applied to a minimum dry film thickness of 60 µm.

14 Tests

14.1 Samples of the product were tested for:

- flashpoint to BS 3900-A14 : 1986
- solids content to BS 3900-B2 : 1970.

14.2 Samples of the product coated on abrasive blasted steel were tested for:

- resistance to artificial weathering to MOAT No 33 : 1986 3.3.2.1
- cross-hatch adhesion to BS 3900-E6 : 1974
- resistance to salt spray to BS 3900-F4 : 1968
- resistance to sulfur dioxide to BS 3900-F8 : 1976
- effect of substrate preparation.

14.3 A sample of Zingasolv was tested for flashpoint to BS 3900-A14 : 1986.

15 Investigations

15.1 Independent test data were examined relating to the following aspects of performance of Zinga:

- galvanic protection offered to a steel substrate
- intercoat mixing of successive coating layers
- resistance to humidity, salt spray, salt water and artificial weathering
- chemical resistance
- effect of overcoating
- effect of low temperature storage
- bend and impact resistance
- effect of substrate preparation on adhesion
- effect on strength of welding.

15.2 Independent test reports were examined on the performance of the product when coated on a steel plate and tested to BS 476-6 : 1989 and BS 476-7 : 1997.

15.3 Reports were examined from a number of users with experience of the product in service.

15.4 Visits were made to existing sites where the product had been in use for periods of up to 11 years.

15.5 A visit was made to a site in progress to assess the practicability of application.

15.6 The manufacturing process was examined, including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.

Bibliography

BS 476-6 : 1989 *Fire tests on building materials and structures — Method of test for fire propagation for products*
BS 476-7 : 1997 *Fire tests on building materials and structures — Method of test to determine the classification of the surface spread of flame of products*

BS 3900-A14 : 1986 *Methods of test for paints — Tests on liquid paints — Determination of flashpoint (rapid equilibrium method)*

BS 3900-B2 : 1970 *Methods of test for paints — Tests involving chemical examination of liquid paints and dried paint films — Determination of volatile matter and non-volatile matter*

BS 3900-E6 : 1974 *Methods of test for paints — Cross-cut test*

BS 3900-F4 : 1968 *Methods of test for paints — Durability tests on paint films — Resistance to continuous salt spray*

BS 3900-F8 : 1976 *Methods of test for paints — Durability tests on paint films — Determination of resistance to humid atmospheres containing sulphur dioxide*

BS 6920-1 : 2000 *Suitability of non-metallic products for use in contact with water intended for human consumption with regard to their effect on the quality of the water — Specification*

BS EN ISO 8501-1 : 2007 *Preparation of steel substrates before application of paints and related products — Visual assessment of surface cleanliness — Rust grades and preparation grades of uncoated steel substrates and of steel substrates after overall removal of previous coatings*

MOAT No 33 : 1986 *The assessment of masonry coatings*

16 Conditions

16.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is granted only to the company, firm or person named on the front page — no other company, firm or person may hold or claim any entitlement to this Certificate
- is valid only within the UK
- has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English law.

16.2 Publications and documents referred to in this Certificate are those that the BBA deems to be relevant at the date of issue or re-issue of this Certificate and include any: Act of Parliament; Statutory Instrument; Directive; Regulation; British, European or International Standard; Code of Practice; manufacturers' instructions; or any other publication or document similar or related to the aforementioned.

16.3 This Certificate will remain valid for an unlimited period provided that the product/system and the manufacture and/or fabrication including all related and relevant processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

16.4 In granting this Certificate, the BBA is not responsible for:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- individual installations of the product/system, including the nature, design, methods and workmanship of or related to the installation
- the actual works in which the product/system is installed, used and maintained, including the nature, design, methods and workmanship of such works.

16.5 Any information relating to the manufacture, supply, installation, use and maintenance of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used and maintained. It does not purport in any way to restate the requirements of the Health & Safety at Work etc Act 1974, or of any other statutory, common law or other duty which may exist at the date of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care. In granting this Certificate, the BBA does not accept responsibility to any person or body for any loss or damage, including personal injury, arising as a direct or indirect result of the manufacture, supply, installation, use and maintenance of this product/system.