



STANGERS

Consulting Engineers and Scientists

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Your Ref : Letter 21/11/90
Our Ref : 0508/91/1126/KS/ew
Date : 9th March 1992

Reynolds and Associates Ltd
University of Reading

For the attention of Mr B Reynolds

REPORT ON TESTING
OF SAMPLES OF ZINGA

Introduction

Samples of Zinga Liquid Compound and Zinga coated steel panels were received for testing and comparative evaluation.

Details of Samples

A 2.5 Litre can of grey liquid compound labelled 'Zinga Cold Galvanising Anti-Rust Protection' received from Galvatech Limited on the 20th March 1991

Ten 150 x 100mm coated steel plates received from Galvatech Limited on the 14th November 1991.

Procedure

The testing and comparative evaluation followed an agreed programme comprising the following elements.

A) Tests on Zinga applied in the lab

- i) Condition in the can and application properties by brush
- ii) Resoftening of brushes caked with dry Zinga
- iii) Adhesion between coats i.e. effect of removing a second coat before fully dry stage
- iv) Low temperature storage stability (-10°C for 500 hours)



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B) Tests on manufacturer's prepared panels

Coating thickness checks by Elcometer paint film thickness meter were carried out before testing the panels. The average results obtained are quoted below against each test.

- i) Bend Test (BS 3900 Part E1 method)
Using 12mm mandrel, 85 micron dry film
- ii) Impact Resistance (BS 3900 Part E3 method)
75 micron dry film
- iii) Resistance to continuous salt spray for 500 hours
(BS 3900 Part F4 method) 70 micron dry film

Discussion

A) Tests on Zinga applied in the lab

Zinga is easy to apply by brush and resoftens caked Zinga or dry Zinga films as claimed by the manufacturer. This property enables Zinga to be built up into thick composite layers avoiding the discrete films achieved with conventional coatings. Low temperature storage at -10°C for 500 hours did not appear to be detrimental to Zinga.
(See appendix 1.)

B) Tests on manufacturer's prepared panels

Selected tests involving Zinga were repeated at your request using test panels prepared by Zingametall.

Bend Test :

- The Zinga coating showed good resistance to cracking and detachment. (See Fig. 1.)

Impact Resistance Test :

- The Zinga coating remained crack-free and well bonded to the steel substrate.

Resistance to continuous salt spray test :

- After 500 hours of exposure, the Zinga coating had not prevented rust development within the score line.
- The coating remained well adherent to the steel with no underfilm corrosion creep beyond the boundaries of the score line. (See appendix 2.)



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Conclusions

It is evident that the product has special properties which place it, as far as we know, into a unique category.

The decision to repeat certain tests on Zinga above produced results which have demonstrated that, under the conditions of panel preparation and coating application, Zinga exhibits good extensibility, adhesion and impact resistance.

K. W. Souch.
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KW Souch
for STANGER CONSULTANTS LIMITED



APPENDIX 1

A) Tests on Zinga applied in the lab

i) Condition in the can and application properties by brush.

Some settlement in the can was observed but the material was readily reincorporated into a uniform and homogenous product by mixing with a broad blade pallet knife. The material was easy to apply by brush. No brush drag was experienced and the dry film showed brush marks.

ii) Resoftening of brushes caked with dry Zinga

Liquid Zinga resoftened the caked material on the brush and restored the brush to a usable condition for Zinga application.

iii) Adhesion between coats i.e. effect of removing a second coat before fully dry stage.

Application of a second coat of Zinga softened the first fully dried coat applied to laboratory abraded panels. Removal of the second coat before drying tended also to remove the first coat.

iv) Low temperature storage stability
(-10°C for 500 hours)

After 500 hours at -10°C, the Zinga sample was readily homogenised and showed no apparent change compared with the as-received material.



APPENDIX 2

B) Tests on manufacturer's prepared panels

- i) Bend Test (BS 3900 Part E1 method)
Using 12mm mandrel, 85 micron dry film

Micro-crazing in region of bend. (See Fig. 1)

- ii) Impact Resistance (BS 3900 Part E3 method)
75 micron dry film

Front No cracking or detachment
Reverse No cracking or detachment (See Fig. 2)

- iii) Resistance to continuous salt spray for 500 hours
(BS 3900 Part F4 method) 70 micron dry film

White and red rust in score line. Steel substrate tarnished but no rusting observed.
(See Fig. 3).



