

## LAB REPORT

**TSR No.:** 0096  
**Date:** 18 March 2002  
**Customer Name:** Reid Engineering  
**Substrate:** Steel, Galv. and Gold Pass  
**Pretreatment:** Steel + Primer + Black Beauty  
**Product Code:** N/A  
**Cure Schedule:** As specified per product  
**Purpose of Test:** To determine various substrate types for corrosion resistance

No. 1A & 1B: Marked 2.5 & 90  
No. 2A & 2B: Marked 5.0 & 95  
No. 3: Gold Pass, marked 4.0 & DH  
No. 4: Sand blasted, Coated with Zinshield only  
No. 5: Sand blasted, Coated with Black Beauty only  
No. 6: Sand blasted, Coated with Zinshield and Black Beauty

### Test Method and Standard

**Neutral Salt Spray:** Q-Fog Cyclic Corrosion Tester      ASTM B 117  
3M Scotch™ tape No. 8981      ASTM D 3359 Method A

Samples have been scribed through the coating with a sharp instrument to expose underlying metal substrate before test in corrosion environment. After that all samples have been tested for initial adhesion and placed in salt spray cabinet.

Progressive (periodic: every 24 hours, except holidays) visual examinations have been made to check the signs of deterioration or adhesion loss during the test.

Adhesion of the film to the substrate has been measured by applying and removing pressure-sensitive tape over the scribes made in the film.

### Test Results:

#### 1. After 48 hours

No.1, No.2 and No.3 started rusting there was no change on No.4, No.5 and No.6.

#### 2. After 250 hours

No. 1, No.2 and No.3 kept rusting and there was no change on No.4, No.5 and No.6.

**3. After 500 hours**

The surface was fully rusted for No.1, No.2 and No.3, no original surface can be observed, and there was no change on No.4, No.5 and No.6.

**4. After 1,000 hours**

The surface of No.1, No.2 and No.3 was fully covered with rust. They were stopped testing. There was no adhesion loss and blisters on No.4, No.5 and No.6. For No.5, there was corrosion signs appeared at the scribe line.

**5. After 2,000 hours**

There was no adhesion loss for No.4, No. 5 and No.6, only signs of corrosion appeared on No.4 and No.5, sized about 1mm at the scribe line. No other difference between the three samples can be observed.

**6. After 3,000 hours**

There was no adhesion loss for No.4, No. 5 and No.6. Corrosion appeared on No. 6 at scribe line and corrosion on No.4 and No.5, sized about 2-3mm.

**7. After 4,000 hours**

There was no adhesion loss for No.4, No. 5 and No.6. Corrosion on No.4 and No.5 are size about 3mm and No.6 is about 1mm.

**8. After 5,000 hours**

There was no adhesion loss for No.4, No.5 and No.6. Blisters appeared on No.4, sized about 0.5mm. Corrosion at scribe line was same as 4000 hours for No.4, No.5 and No.6.

**9. After 6,000 hours**

There was no adhesion loss for No.4, No.5 and No.6. Blister appeared on No.5, sized about 0.5 and the blisters on No.4 are about 1mm. There was no blister on No.6. Corrosion at scribe line was same as 5000 hours for the three samples.

**10. After 7,000 hours**

There was no adhesion loss for the samples. Blisters were developing. 20% surface area of No 4 and 5% of No.5 was rusted. Blisters appeared on No.6, sized about 0.5mm.

### 11. After 8,000 hours

There was no adhesion loss for the samples. 40% area of No.4 and 10% of No.5 was rusted. Corrosion at scribe line for No.5 was about 3-4 mm. 3 more blisters sized about 0.5mm appeared on No.6.

### 12. After 9,000 hours

There was no adhesion loss for the samples. 50% area of No.4 and about 15-20% of No.5 was rusted. Corrosion at scribe line was about 4-5 mm for No.5 and 3-4 mm for No.6.

### 13. After 10,000 hours

There was no adhesion loss for the samples. About 70% area of No.4, about 20-30% of No.5 and about 5% of No.6 was rusted. Corrosion at scribe line was about 2-3 mm for No.4, 5-6mm for No.5, 4-5 for No.6.

## Conclusion:

- No.1 and No.2 are hot dip Galvanised steel and No.3 are Gold Pass, they failed after 500 hours test.
- No.6 which is Zinshield plus black beauty, the system is the best system, performs very well after 10,000 hours test. Black Beauty only system is the second best system, and then followed by the Zinshield only system.

Test & Report by

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