



BUREAU
VERITAS

Report No. : 200501272M08

Report Date : 2021-06-11

TEST REPORT

APPLICANT : WU XI HUA DONG ZINDN SCIENCE AND TECHNLOGY CO.,LTD.
ADDRESS OF APPLICANT : B ZONE INDUSTRIAL ZONE, GUANLIN TOWN, YIXING CITY, WUXI CITY, JIANGSU PROVINCE
CONTACT OF APPLICANT : /
RECEIVED DATE : 2020-09-05
TEST DURATION : 2020-11-02~2021-05-21
SAMPLE NAME : ZINDN Cold sprayed zinc coating
SAMPLE MODEL : /

ISSUED BY : BUREAU VERITAS ADT (SHANGHAI) CORPORATION
LAB LOCATION : NO.829, XINZHUAN ROAD, SONGJIANG DISTRICT, SHANGHAI, CHINA



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2021-06-11



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SUMMARY OF TEST RESULTS:

No.	Test Items	Test Method	Test Result	Conclusion
1.	Cyclic ageing test	ISO 12944-9:2018 & ISO 2409:2013 & ISO 4628-2:2016 & ISO 4628-3:2016 & ISO 4628-4:2016 & ISO 4628-5:2016	See Page 5~7	Pass

Note: Pass: Test result meets the requirement of standard or client.
Fail: Test result doesn't meet the requirement of standard or client.
/: Not Apply to the judgment.

Conclusion: The samples meets the requirements of ISO12944-9 CX;

SAMPLE TABLE:

Sample Name	Sample No.	Sample Size
ZINDN Cold sprayed zinc coating	200501272Q02N07~21010029Q02N12	150*75*3mm;Dry film Thickness ZINDN:2*60 μ m





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1 CYCLIC AGEING TEST																			
Test Method	ISO 12944-9:2018 & ISO 2409:2013 & ISO 4628-2:2016 & ISO 4628-3:2016 & ISO 4628-4:2016 & ISO 4628-5:2016																		
Test Date	2020-11-02~2021-05-21																		
Sample No.	200501272Q02N07~21010029Q02N12																		
Lab Environment	23±2°C, 50±5%RH																		
Sample Check before Test	Sample is normal before test.																		
Test Condition/ Parameter	<p>a)72 hours of UV and water exposure,according to the standard ISO 16474-3,the conditions are as follows.</p> <table border="1"><thead><tr><th>Phase</th><th>Temperature (°C)</th><th>Wavelength (nm)</th><th>Irradiance (W/m²@340nm)</th><th>Duration (h:min)</th></tr></thead><tbody><tr><td>1(UV-A)</td><td>60</td><td>340</td><td>0.83</td><td>04:00</td></tr><tr><td>2(COND)</td><td>50</td><td>/</td><td>/</td><td>04:00</td></tr></tbody></table> <p>Remark: One cycle for 8 hours, a total of 9 cycles.</p> <p>b)72-hour neutral salt spray test,according to ISO 9227.</p>				Phase	Temperature (°C)	Wavelength (nm)	Irradiance (W/m ² @340nm)	Duration (h:min)	1(UV-A)	60	340	0.83	04:00	2(COND)	50	/	/	04:00
Phase	Temperature (°C)	Wavelength (nm)	Irradiance (W/m ² @340nm)	Duration (h:min)															
1(UV-A)	60	340	0.83	04:00															
2(COND)	50	/	/	04:00															

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Serial number	Project	Specification	Measured value
1	Brine strength	(5±1) %	5%
2	PH of the test solution (23°C ±3°C)	6.5~7.2	7.0
3	Volume of spray	(1.0~2.0) mL/h/80cm ²	Left: 1.3ml/h/80cm ² Right: 1.2ml/h/80cm ²
4	Test cabinet temperature	(35.0±2.0) °C	35.0°C
5	Dwell time	72 hours	72 hours
6	Layout	The angle of inclination from the center perpendicular: 30°	The angle of inclination from the center perpendicular: 30°
7	Cleaning water temperature	<38°C	24.5°C
Remark: All above using deionized water, wash and dry immediately after sample test.			
c) 24 hours low temperature exposure test (-20±2)°C			
Step	Temperature(°C)	Time(h:min:s)	
1	25	00:05:00	
2	-20	00:30:00	
3	-20	24:00:00	
4	25	00:30:00	
5	25	00:30:00	
Remark: check the samples at the 1 cycles.			
Operation:			
1. The UV condensation cycle begins with UV and ends with condensation.			
2. Clean the test plate with deionized water between salt spray and temperature exposure without drying.			
3. The temperature should be reached (-20±2)°C within 30 minutes at the beginning of low temperature exposure.			
4. Expose the test plate for 25 cycles or 4200 hours.			
Evaluation criteria	Adhesion=Level 0-2; Blistering=Level 0; Rusting=Level Ri0; Cracking=Level 0; Flaking=Level 0; Average corrosion width≤3mm		



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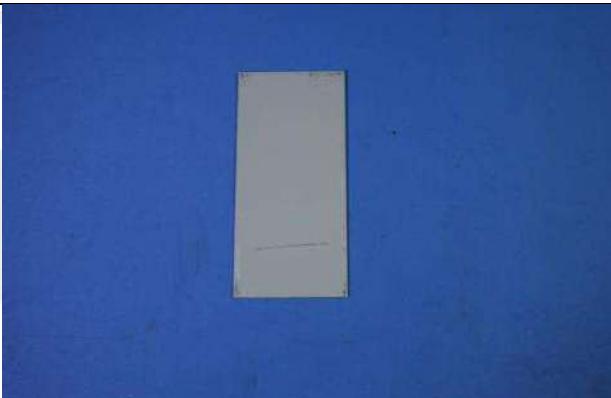
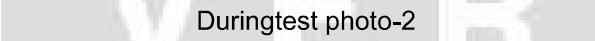
Test Results	Test item	Test purpose	Test Result
	Adhesion Test of Coatings	Verify paint adhesion requirements	Level 0
	Light Ageing Test-UV Exposure	To assess the effects of products exposed to solar radiation(uv)	Blistering=Level 0; Rusting=Level Ri0; Cracking=Level 0; Flaking=Level 0
	Salt spray test	Check the sample's ability for resisting corrosion of salt spray.	
	Cold Test	The purpose of this test is to verify the sample's ability of storage at low temperature.	
	Striking corrosion width	Verify paint adhesion requirements	Average corrosion width≤3mm

Note: The samples are provided by the client.

Equipment Information	Equipment Name	Equipment No.	Calibration Period
	QUV Accelerated Weathering Tester	621-0001	2021-03-26~2022-03-25
	Brine Spray Tester	913-0008	2021-05-17~2022-05-16
	Comprehensive Test Chamber	955-0001	2021-04-29~2022-04-28

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Test Photo			
Pretest photo-#2		Test preline	
Stretch before testing		Duringtest photo-1	
Duringtest photo-2		Duringtest photo-3	



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Test Photo	
	
During test photo-4	Posttest photo-#2

--TEST REPORT END --

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