

Certificate of conformity ISO12944 C5-High

ISO12944: 2018 Paints and varnishes — Corrosion protection of steel structures by protective paint systems

It is an international standard for the protection of steel against corrosion by protective paints systems. The 80µm coating of ROVAL or EPO ROVAL complies with the technical requirements specified by ISO12944 C5-High. This means that ROVAL or EPO ROVAL can be expected to have a useful life of 15 to 25 years in C5 corrosive environment.

Corrosivity categories

Category	Corrosivity	Examples of typical environments
C1	Very Low	Inside buildings with clean atmospheres
C2	Low	Atmospheres with low level of pollution: mostly rural areas Unheated buildings where condensation can occur
C3	Medium	Urban and industrial atmospheres, moderate sulfur dioxide pollution: coastal areas with low salinity
C4	High	Industrial areas and coastal areas with moderate salinity
C5	Very High	Industrial areas with high humidity and aggressive atmosphere and coastal areas with high salinity
CX	Extreme	Offshore areas with high salinity and industrial areas with extreme humidity and aggressive atmosphere and subtropical and tropical atmosphere
Im1	Fresh water	River installations, hydro-electric power plants
Im2	Sea or brackish water	Immersed structures without cathodic protection (e.g. harbour areas with structures like sluice gates, locks or jetties)
Im3	Soil	Buried tanks, steel piles, steel pipes
Im4	Sea or brackish water	Immersed structures with cathodic protection (e.g. offshore structures)

Expected durability range

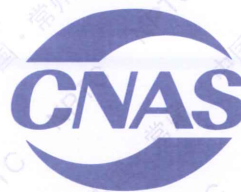
Category	Range
Low (L)	Up to 7 years
Medium (M)	7-15 years
High (H)	15-25 years
Very High (VH)	More than 25 years

Note: The durability range is not a "guarantee time".





170014240442 (2020)国认监认字(054)号



中国认可
国际互认
检测
TESTING
CNAS L0896

Test Report

Report Number: TW21527W2 (En)

Name of Product

Royal Cold Galvanizing Compound

Entrusting Corporation

Shanghai Royal Zinc Rich Paint Corporation

Test Category

Entrusting Test

Report Issue Date

May 21, 2021



国家涂料质量监督检验中心
National Quality Supervision Testing Center for Paint
国恒信(常州)检测认证技术有限公司
National GoldSun(Changzhou) Test & Certification Technology Co.,Ltd.



National Quality Supervision Testing Center for Paint

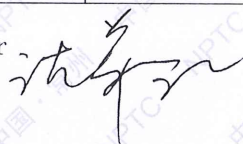
Test Report

Report Number: TW21527W2 (En)

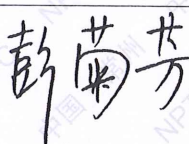
Page 1 of 2

Name of Product	Roval Cold Galvanizing Compound	Number of Sample	TW21527
Manufacturer	Shanghai Roval Zinc Rich Paint Corporation	Trademark	ROVAL
Address Of Entrusting Corporation	No. 393 Fenggong Road, Malu Town, Jiading District, Shanghai	Entrusting Date	February 20, 2021
Tel Of Entrusting Corporation	021-69156584	Samples Arriving Date	February 20, 2021
Sample Description	The appearance of the 16 test panels on steel plates delivered by the entrusting corporation is grey and flat.		
Test Basis	ISO 12944-6:2018 Paints and varnishes — Corrosion protection of steel structures by protective paint systems —Part 6: Laboratory performance test methods (Test regime 1, C5, high)		
Test Date	February 24, 2021 ~ May 11, 2021		
Conclusion	<p>The sample delivered conforms to the technical requirements specified in ISO 12944-6:2018 Paints and varnishes — Corrosion protection of steel structures by protective paint systems —Part 6: Laboratory performance test methods (Test regime 1, C5, high)</p> <p style="text-align: right;">Date of Sign and Issue: May 21, 2021</p>		
Remarks	<p>1. Information provided by the entrusting corporation: the substrate of the test panel is steel plate, of which the surface is sandblasted to Sa2.5, the surface roughness is medium (G), and the film thickness is $(80 \pm 10) \mu\text{m}$.</p> <p>2. The items tested of ISO 12944-6:2018 are all within the scope of accreditation and authorization of our center.</p> <p>3. The photos of the second and third items before and after tests are shown in the appendix.</p>		

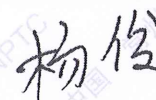
Approver



Checker



Tester






Test Results:

Report Number: TW21527W2(En)

Page 2 of 2

No.	Test Items	Technical Requirements	Test Results	Item's Conclusion	Remarks
1	Adhesion, MPa	0% adhesive failure between steel/metalized steel respectively and the first coat (unless pull-off values are at least 5 MPa), minimum pull-off value of 2.5 MPa for each measurement	5.9(5.1~7.1), 100%B	Qualified	ISO 4624:2016
2	Heat and Humidity Test	720h, blistering 0(S0), rusting Ri0, cracking 0(S0), flaking 0(S0), 0% adhesive failure between steel/metalized steel respectively and the first coat (unless pull-off values are at least 5 MPa), minimum pull-off value of 2.5 MPa for each measurement	720h, blistering 0(S0), rusting Ri0, cracking 0(S0), flaking 0(S0); adhesion (pull-off test) after heat and humidity test is 5.7MPa (5.1MPa~6.2MPa), 100%B	Qualified	ISO 6270-1:2017 ISO 4624:2016 
3	Neutral salt spray test	1440h, the creepage from the scribe is ≤1.5mm; On the unscribed areas of the paint film, blistering 0(S0), rusting Ri0, cracking 0(S0), flaking 0(S0), 0% adhesive failure between steel/metalized steel respectively and the first coat (unless pull-off values are at least 5 MPa), minimum pull-off value of 2.5 MPa for each measurement	1440h, there is no creepage from the scribe on the paint film, blistering 0(S0), rusting Ri0, cracking 0(S0), flaking 0(S0), the whitening area is 60%; adhesion (pull-off test) after neutral salt spray test is 5.6MPa(4.7MPa~7.6MPa), 20%A/B, 80%B	Qualified	ISO 9227:2017 ISO 4624:2016
	Blank Below				

----- End of the Report -----



国恒信
N G T



230014239439



中国认可
国际互认
检测
TESTING
CNAS L0896

Test Report

Report Number: TW233597W1 (En)

Name of Product

Epo Roval Cold Galvanizing
Compound

Entrusting Corporation

Shanghai Roval Zinc Rich Paint
Corporation

Test Category

Entrusting Test

Report Issue Date

February 8, 2024



国恒信(常州)检测认证技术有限公司
National GoldSun(Changzhou) Test & Certification Technology Co., Ltd.
国家涂料质量检验检测中心
National Quality Inspection & Test Center for Paint



National GoldSun (Changzhou) Test & Certification Technology Co., Ltd.





报告真伪查询

Test Report

Report Number: TW233597W1 (En)

Page 1 of 2

Name of Product	Epo Roval Cold Galvanizing Compound	Number of Sample	TW233597
Manufacturer	Shanghai Roval Zinc Rich Paint Corporation	Trademark	ROVAL
Address Of Entrusting Corporation	No.393 Fenggong Road, Malu Town, Jiading District, Shanghai	Entrusting Date	October 23, 2023
Tel Of Entrusting Corporation	021-69156584	Samples Arriving Date	October 23, 2023
Sample Description	The appearance of the 10 test panels on steel plates delivered by the entrusting corporation is grey and flat.		
Test Basis	ISO 12944-6:2018 Paints and varnishes—Corrosion protection of steel structures by protective paint systems—Part 6: Laboratory performance test methods(C5, Test regime 1, High)		
Test Date	October 31, 2023~January 11, 2024		
Conclusion	<p>The delivered samples conform to the technical requirements specified in ISO 12944-6:2018 Paints and varnishes—Corrosion protection of steel structures by protective paint systems—Part 6: Laboratory performance test methods(C5, Test regime 1, High).</p> <div style="text-align: center;">   <p>Date of Sign and Issue: February 8, 2024</p> </div>		
Remarks	Information provided by the entrusting corporation: the substrate of the test panels is steel plate, the grade of surface treatment is Sa2.5, the profile grade is "medium (G)", and the dry film thickness of the test panels is $(80 \pm 10) \mu\text{m}$.		

Approved by 曹晓东

Verified by 张平

Prepared by 穆太起

Test Results:

Report Number: TW233597W1(En)

Page 2 of 2

No.	Test Items	Technical Requirements	Test Results	Item's Conclusion	Remarks
1	Adhesion, MPa	0% adhesive failure between steel/metalized steel respectively and the first coat (unless pull-off values are at least 5MPa), minimum pull-off value of 2.5MPa for each measurement	6(3.2~6.9), 100%B	Qualified	
2	Resistance to humidity	720h, blistering 0 (S0), rusting Ri0, cracking 0 (S0), flaking 0 (S0); 0% adhesive failure between steel/metalized steel respectively and the first coat (unless pull-off values are at least 5MPa), minimum pull-off value of 2.5MPa for each measurement	720h, blistering 0 (S0), rusting Ri0, cracking 0 (S0), flaking 0 (S0), the whitening area is 40%; adhesion (pull-off test) after resistance to humidity is 4MPa (2.6MPa~ 4.8MPa), 100%B	Qualified	
3	Neutral salt spray test	1440h, the creepage from the scribe is $\leq 1.5\text{mm}$; on the unscribed areas of the paint film, blistering 0 (S0), rusting Ri0, cracking 0 (S0), flaking 0 (S0), 0% adhesive failure between steel/metalized steel respectively and the first coat (unless pull-off values are at least 5MPa), minimum pull-off value of 2.5MPa for each measurement	1440h, there is no creepage from the scribe on the paint film; on the unscribed areas of the paint film, blistering 0 (S0), rusting Ri0, cracking 0 (S0), flaking 0 (S0), the whitening area is 80%; adhesion (pull-off test) after neutral salt spray test is 6MPa (5.0MPa~ 6.7MPa), 40%A/B, 60%B	Qualified	
	Blank Below				

End of the Report