NEWS LETTER-31

SALT SPRAY TESTING FOR PAINTING – PART 2

Introduction:

Painting is a protective coating on metallic objects to prevent corrosion. We, Pipe Hangers and Supports have developed standard painting specifications based on the site's environmental conditions. We have carried out salt spray testing for 2000 Hours in a closed chamber as per ASTM B117 to validate each of our recommended painting systems and the result summary of various painting systems is as follows: -

1.1 Paint System:

PAINTING SPECIFICATION

Approach to standardisation of painting systems/Applications

DOC NO	PHSPL/ASPS/01									DATE :17.08.2022					
										REV :	4				
PAINT SYSTEM	Environments.	Description	DESIGN TEMPERATURE	Primer Coat	DFT/Coat	Number of Coat	Intermediate Coat	DFT/Coat	Number of Coat	Final Coat	DFT/Coat	Number of Coat	Final color	Total DFT	SALT SPRAY RESULT (ASTM B117-2019)
			Blast Cleaning to SA 2 ½												
A	**C5-I Very high** (industrial) Industrial areas with high humidity and with an aggressive atmosphere. Buildings or areas with almost permanent condensation and high levels of contamination.	1. Springs 2. Spring Housing 3. Beam Weld attachment 4. Lug attachment 5. Rigid Strut Tube 6. Spreader Beam	below 120 deg c	Zinc Phosphate primer	35-45 Microns	1	Epoxy High Build MIO	50-60 Microns	1	Aliphatic Acrylic Polyurethane	25-35 Microns	1	Smoke Grey	DFT 110-140 Microns	**NO RED REST FORMATION NOTICED UP TO 2000Hrs**
B	**C5-M Very high (marine)** Coastal and marine areas with high salinity. Buildings or areas with permanent condensation and high levels of contamination.	1. Springs 2. Spring Housing 3. Beam Weld attachment 4. Lug attachment 5. Rigid Strut Tube 6. Spreader Beam	below 120 deg c	Inorganic Zinc Silicate primer	35-45 Microns	1	Epoxy High Build MIO	50-60 Microns	1	Aliphatic Acrylic Polyurethane	25-35 Microns	1	Smoke Grey	DFT 110-140 Microns	**NO RED REST FORMATION NOTICED UP TO 2000Hrs**
C	DESIGN TEMPERATURE *	1. Pipe Clamps 2. Elbow Lugs 3. Horizontal Lugs 4. Pipe Base/Pipe Shoe 5. Stiff Clamp assembly 6. Clevis (F12)	Pipe clamp below 400 deg c	Inorganic Zinc Silicate primer	50-60 Microns	1	Heat Resistant silicone Aluminium (Resistance upto 600ºC)	20-30 Microns	1	Heat Resistant silicone Aluminium (Resistance upto 600ºC)	20-30 Microns	1	Aluminium	Min. 90-120 Microns	**NO RED REST FORMATION NOTICED UP TO 420Hrs**
D	DESIGN TEMPERATURE *	1. Pipe Clamps 2. Elbow Lugs 3. Horizontal Lugs 4. Pipe Base/Pipe Shoe 5. Stiff Clamp assembly 6. Clevis (F12)	Pipe clamp above 401 to 600 deg c	–			Heat Resistant silicone Aluminium (Resistance upto 600ºC)	20-30 Microns	1	Heat Resistant silicone Aluminium (Resistance upto 600ºC)	20-30 Microns	1	Aluminium	Min. 40-60 Microns	**NO RED REST FORMATION NOTICED UP TO 86Hrs**
E	C5-M ** Very high (marine)	All Threaded parts (Threaded rods, Rod Coupler, Clevis(A105), U-Bolt, Eyenut, etc)	Thread items	–						zinc Flake coating	25 microns	1	White Zinc	Min. 25 Microns	**NO RED REST FORMATION NOTICED UP TO 2000Hrs**
F	C2 ** Low Atmospheres with low levels of contamination. Rural areas. Unheated buildings with possible condensation.	All Threaded parts (Threaded rods, Rod Coupler, Clevis(A105), U-Bolt, Eyenut, etc)	Thread items	–						Electro galvanised	10 Microns	1	White Zinc	Min. 10 Microns	**NO RED REST FORMATION NOTICED UP TO 24Hrs**
G	**C5-I Very high** (industrial) Industrial areas with high humidity and with an aggressive atmosphere. Buildings or areas with almost permanent condensation and high levels of contamination.	1. Springs 2. Spring Housing 3. Beam Weld attachment 4. Lug attachment 5. Rigid Strut Tube 6. Spreader Beam	below 120 deg c	Zinc Rich Primer	35-45 Microns	1	Epoxy High Build MIO	50-60 Microns	1	Aliphatic Acrylic Polyurethane	25-35 Microns	1	Smoke Grey	DFT 110-140 Microns	**NO RED REST FORMATION NOTICED UP TO 2000Hrs**
H	C5-I Very high (industrial) Industrial areas with high humidity and with an aggressive atmosphere. Buildings or areas with almost permanent condensation and high levels of contamination.	1. Spring Housing 2. Beam Weld attachment	below 120 deg c	–						Hot Dip Galvanizing	110 microns	1	White Zinc	Min. 110 Microns	**NO RED REST FORMATION NOTICED UP TO 2000Hrs**

notes: a) **C&D** * - surface protection of items such as clamps which are within the insulation is dependant on the temperature rather than the ambient enviroment, since they are not exposed to the enviroment . It is expected that the insulation will be erected withen 3 months of the instauation of the clamp

b) E & F **- Electro galvanizing can withstand C1 and C2 atmospheric conditions only but Zinc flake coating can withstand even C5 atmospheric conditions however the cost of Zinc flake coatings is high compared to electro galvanizing. On sample tested for Zinc flake coating, it has fought for over 2000Hrs of salt spray test.

				Gopi		Gopinath	RC	Issued for review/Approval	*Reviewed by*	*Approved by*
				Prepared by		*Checked by*	*Approved by*	*Document description*	*Name & Sign of Approving Authority with Seal*	

NEWS LETTER

SALT SPRAY TESTING

1.2 Result summary:

Sample ID per Paint System	Paint Make	Primer Product Name	Primer Batch No.	Intermediate Product name	Intermediate batch No.	Finish Product Name	Finish Batch No.	Final Shade	Final Results Observed
A	Asian Sigma PPG	HB Zinc Phosphate	536800159	Epoxy HB MIO	510700211	Aliphatic Acrylic Polyurethane	510700273	Smoke Grey	No Blister and Red rust formation was noticed up to 2000 Hrs.
B	Asian Sigma PPG	In Organic Zinc Silicate	510700275	Epoxy HB MIO	510700211	Aliphatic Acrylic Polyurethane	510700273	Smoke Grey	No Blister and Red rust formation was noticed up to 2000 Hrs.
C *	Asian Sigma PPG	In Organic Zinc Silicate	510700275	HR Aluminium (600°C)	535300074	HR Aluminium (600°C)	535300074	Aluminium	No rust formation was noticed up to 420 Hrs. Red rust formation was noticed at 432 Hrs.
D *	Asian Sigma PPG			HR Aluminium (600°C)	535300074	HR Aluminium (600°C)	535300074	Aluminium	No rust formation was noticed up to 84 Hrs. Red rust formation was noticed at 96 Hrs.
E **						Zinc Flake Coating	BI21B00593	White Zinc	No rust formation was noticed up to 372 Hrs. White rust formation was noticed at 384 Hrs and continued till 1212 Hrs. Blister formation was noticed at 1224 Hrs and continued till 1308 Hrs. Blister & Peel off of coating noticed at 1320 Hrs and continued till 2000 Hrs. No Red rust formation was noticed up to 2000 Hrs.

NEWS LETTER

SALT SPRAY TESTING

Sample ID per Paint System	Paint Make	Primer Product Name	Primer Batch No.	Intermediate Product name	Intermediate batch No.	Finish Product Name	Finish Batch No.	Final Shade	Final Results Observed
F **						Electro Galvanizing	121101	White Zinc	No rust formation was noticed up to 24 Hrs. Black Spot formation was noticed at 36 Hrs. Black spot and White rust formation was noticed at 48 Hrs and continued till 300 Hrs. Red rust formation was noticed at 312 Hrs.
G	Asian Sigma PPG	HB Zinc rich primer	536800159	Epoxy HB MIO	510700211	Aliphatic Acrylic Polyurethane	510700273	Smoke Grey	No Blister and Red rust formation was noticed up to 2000 Hrs.
H						Hot Dip Galvanizing		White Zinc	No Blister and Red rust formation was noticed up to 2000 Hrs.

Note:

a. Sample ID C & D * - surface protection of items such as clamps within the insulation depends on the temperature rather than the ambient environment as they are not exposed to the environment. The insulation is expected to be erected within 3 months of the installation of the clamps.

b. Sample ID E & F **- Electro galvanizing can withstand C1 and C2 atmospheric conditions only but Zinc flake coating can withstand even C5 atmospheric conditions however the cost of Zinc flake coatings is high compared to electro galvanizing. On the sample tested for Zinc flake coating, it has fought for over 2000Hrs of salt spray tests.

Happy coating!

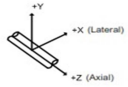
For past newsletters please look up our website www.pipehangers.in

About Pipe Hangers:

A Global Solution to Spring Hangers and Supports. We are the leading manufacturer of spring hangers, supports & accessories. Over the past 35 years we have supplied to major power plants, refineries, nuclear installations & process industries in India & several International projects.

Pipe Hangers & Supports Private Limited

Ordering Information



1)	Hot Load (Operating Load) in Kgs	:
2)	Thermal Movement / Travel (Direction + or -) in mm	: UP (+) mm
3)	Type of Hanger Variable / Constant /Rigid	: VariableEffort Support
4)	For Constant Add Over Travel	: ☐ Yes ☐ No
5)	For Variable Springs Max Allowable % Load Variation	: %
6)	Horizontal / Lateral Movement (If any)	: 'X' Dir mm / 'Z' Dir mm
7)	Hydro Load (If any)	: Kgs
8)	Model & Type of Support	:
9)	Assembly Length (From BOS/TOS to Pipe CL)	: mm
10)	Operating Temperature	: Deg C
11)	Pipe Insulation Thk	: mm
12)	Pipe Material	:
13)	Require Pipe Shoe for Foot Mounted Support	: ☐ Yes ☐ No
14)	For Foot Mounted Support Match Height	: ☐ Yes ☐ No
15)	Attachments like Lugs, Cleats Welded to Pipe in Scope	: ☐ Yes ☐ No
16)	Operating Load includes Wt of Accessories like Clamp, Tie Rods, Cleats, Lugs etc.	: ☐ Yes ☐ No
17)	Preferred Surface Protection / Painting	:
18)	For 'G' Type / Double / Trapeze type Hanger the Load Given above is for 1 assembly consisting of 2 Hangers / Individual Hanger	: ☐ Yes ☐ No