



# BHARTI METAL FINISHERS PVT. LTD.

**547 - K, PACE CITY-II, SEC-37, GURGAON**

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## CONTROL PLAN FOR ALKLINE ZINC PLATING WITH Cr3 PASSIVATION (AUTO LINE)

CUSTOMER NAME: -		NICE STEEL		CORE TEAM:- GAURAV BANSAL,BALENDRA SINGH,DEVENDER YADAV	Date (ORIGNAL): - 15.9.2015			Doc. No -	BMF/QAD/02		
DATE:- 06.11.2020					CUSTOMER ENGG. APPROVAL DATE(IF REQD)-			Rev. No -	2		
PART NAME: -		C.AAFF			CUSTOMER QUALITY APPROVAL DATE(IF REQD)-			Rev. Date	06.11.2020		
PART NO: -					OTHER APPROVAL DATE (IF REQD)-						
PROCESS	PROCESS NAME	M/C /DEVICE	CHARACTERISTICS		PRODUCT/PROCESS	EVALUATION	FREQ.	RESP.	CONTROL	REMARKS	
S.NO	DESCRIPTION	FOR MFG.	NO.	PROCESS	TOLERANCE	METHOD			METHOD		
1	Incoming material to store		1		<b>Verify quantity /weight with party challan</b>						
2	Incoming Inspection	Visual	1	Incoming Inspection	No rust, No scratch, No dent	Visual	10 Pcs./1000 pcs.	Eng/Operator	BMF/PCS/03-00		
3	Loading	Stn. No.1	1	Loading in hangers		48 Nos/ Hanger	7 hangers per flight Bar				
4	SOAK CLEANING (Steelex - K-20)	Tank No.14	1	Concentration	80 -120 gm/ltr.	Lab Test	Twice/Week	Lab Chemist	BMF/LAB/12-01		
			2	Density	8-12 Be	Hydrometer	Verify at twice/day	Eng/Operator	BMF/PCS/01-01		
			3	Time	7-8 min.				PLC controller		
			4	Temp.	70 ± 10°C	Auto Temp. controller.	Verify at twice/day	PLC controller	BMF/PCS/01-01		
			5	Discard	Discard Frequency		Monthly	Eng/Operator	BMF/PCS/02-01		
			6	Oil Contents	Not more then 5 gm/ltr	Lab Test	Monthly	Third party report			
5	Water Rinse I	Tank No.15	1	Time	1-3 min.			PLC controller			
			2	Discard	Discard Frequency		Daily	Eng/Operator	BMF/PCS/02-01		
	Water Rinse II	Tank No.16	1	Time	3-4 min.			PLC controller			
			2	Discard	Discard Frequency		2 Days	Eng/Operator	BMF/PCS/02-01		
6	DE-SCALING - I (Comm. - HCL)	Tank No.17	1	HCL Concentration	HCL (20-30%)	Lab Test	Twice/Week	Lab Chemist	BMF/LAB/12-01		
			2	Density	12-18 Be	Hydrometer	Verify at twice/day	Eng/Operator	BMF/PCS/01-01		
			3	Time	4 - 5 min.			PLC controller			
			4	Temp.	room temp.						
			5	Discard	Discard Frequency		Monthly	Eng/Operator	BMF/PCS/02-01		
7	WATER RINSE I	Tank No.18	1	Time	4-5 min.			PLC controller			
			2	Discard	Discard Frequency		Daily	Eng/Operator	BMF/PCS/02-01		
	WATER RINSE II	Tank No.19	1	Time	5-15 sec.			PLC controller			
			2	Discard	Discard Frequency		2 Days	Eng/Operator	BMF/PCS/02-01		



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S.NO	DESCRIPTION	FOR MFG.	NO.	PROCESS	TOLERANCE	METHOD			METHOD	
8	ANODIC CLEANING (Ginbond - 808)	Tank No.20	1	Concentration	70-100 gm/ltr.	Lab Test	Twice/Week	Lab Chemist	BMF/LAB/12-01	
			2	Density	8-12 Be	Hydrometer	Verify at twice/day	Eng/Operator	BMF/PCS/01-01	
			3	Time	7-8 minutes	PLC		PLC controller		
			4	Temp.	70 ± 10°C	Auto Temp.	Verify at twice /day	Eng/Operator	BMF/PCS/01-01	
			5	Current	400 - 600 Amp. (4 - 7 volt)	Rectifier	Verify at twice/day	Eng/Operator	BMF/PCS/01-01	
			6	Discard	Discard Frequency		Monthly	Eng/Operator	BMF/PCS/02-01	
			7	Oil Contents	Not more then 5 gm/ltr	Lab Test	Monthly	Third party report		
9	WATER RINSE I	Tank No.21	1	Time	5 - 15 sec.			PLC controller		
			2	Discard	Discard Frequency		Daily	Eng/Operator	BMF/PCS/02-01	
	WATER RINSE II	Tank No.22	1	Time	1-2 min.			PLC controller		
			2	Discard	Discard Frequency		2 Days	Eng/Operator	BMF/PCS/02-01	
10	DE-SCALING - II (Comm. - HCL)	Tank No.23	1	Concentration	HCL (10-20%)	Lab Test	Twice/Week	Lab Chemist	BMF/LAB/12-01	
			2	Density	8 -12 Be	Hydrometer	Verify at twice/day	Eng/Operator	BMF/PCS/01-01	
			3	Time	2 - 3 min.			PLC controller		
			4	Temp.	room temp.					
			5	Discard	Discard Frequency		Monthly	Eng/Operator	BMF/PCS/02-01	
11	WATER RINSE I	Tank No.24	1	Time	1-2 min.			PLC controller		
			2	Discard	Discard Frequency		Daily	Eng/Operator	BMF/PCS/02-01	
	WATER RINSE II	Tank No.25	1	Time	1-2 min.			PLC controller		
			2	Discard	Discard Frequency		2 Days	Eng/Operator		
12	NEUTRALISER (Caustic)	Tank No.26	1	Concentration	(Caustic) - 40~ 60 gm/lit.	Lab Test	Twice/Week	Lab Chemist	BMF/LAB/12-01	
			2	Concentration	(Conditioner) - 5 ~10 ml./lit.					
			3	Density	2-5 Be	Hydrometer	Verify at twice/day	Eng/Operator	BMF/PCS/01-01	
			4	Time	5 - 6 Min.			PLC controller		
			5	Discard	Discard Frequency		2 Weeks	Eng/Operator	BMF/PCS/02-01	



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PROCESS S.NO	PROCESS NAME DESCRIPTION	M/C /DEVICE FOR MFG.	CHARACTERISTICS		PRODUCT/PROCESS TOLERANCE	EVALUATION METHOD	FREQ.	RESP.	CONTROL METHOD	REMARKS
13	ALKALINE ZINC ELECTRO PLATING	Tank No.30,31,32 No.33	1	Concentration	Zinc Metal (10-14 gm/ltr.)	Lab Test	Twice/Week	Lab Chemist	BMF/LAB/12-01	
			2	Concentration	Caustic (110 -140 gm/ltr)	Lab Test	Twice/Week	Lab Chemist	BMF/LAB/12-01	
			7	Time	20 - 25 min. (8.0 μ Min.)				PLC controller	
			8	Temp.	20-40 °C	Thermometer	Verify at tiwce/day	Eng/Operator	BMF/PCS/01-01	
			9	Current	1300-1800 Amp. (4 ~ 8 Volt.)	Rectifier	Verify at tiwce/day	Eng/Operator	BMF/PCS/01-01	
			10	Decantation	Decant Frequency		6 Months	Eng/Operator	BMF/PCS/02-01	
14	DRAG OUT	Tank No .29	1	Density	DENSITY < 3 Be	Hydrometer	Twice /daily	eng/operator	BMF/PCS/01-01	
			2	Discard	Discard Frequency		2 Weeks	Eng/Operator	BMF/PCS/02-01	
15	WATER RINSE I	Tank No.28	1	Time	5-15 sec.			PLC controller		
			2	Dicard	Discard Frequency		Daily	Eng/Operator	BMF/PCS/02-01	
	WATER RINSE II	Tank No.27	1	Time	1-2 min.			PLC controller		
			2	Discard	Discard Frequency		2 Days	Eng/Operator	BMF/PCS/02-01	
16	ACTIVATION DIP (Comm. - Nitric Acid)	Tank No.12	1	Concentration	Nitric Acid ( 5-15 ml/ltr.)	Lab Test	Twice/Week	Lab Chemist	BMF/LAB/12-01	
			2	Time	15 - 25 Sec.			PLC controller		
			3	Discard	Discard Frequency		Daily	Eng/Operator	BMF/PCS/02-01	
17	D.M WATER RINSE	Tank No.13	1	Water	DM Water					
			2	Time	5-15 sec.			PLC controller		
			3	Discard	Discard Frequency		2 Days	Eng/Operator	BMF/PCS/02-01	
18	Cr3 PASSIVATION	Tank No.11	1	Concentration	Trichrome Cr3 ( B* - Light blue)- 80-100 ml/ltr.	Lab Test	Twice/Week	Lab Chemist	BMF/LAB/12-01	*Auto Dosing Available * Ion Exchange System will be placed soon.
			2	Time	60 sec.	Automatic		PLC controller		
			3	PH value	1.8 - 2.5	PH meter	Verify at twice/day	Eng/Operator	BMF/PCS/01-01	
			4	<b>Discard Frequency as per impurity Level Zinc - up to 15000 PPM ,Pb- 5PPM, Iron upto 50 PPM)</b>		As per impurity level or once/3 months	Third Party Report	Lab Test Report		



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S.NO	DESCRIPTION	FOR MFG.	NO.	PROCESS	TOLERANCE	METHOD			METHOD	
19	DM WATER RINSE I	Tank No.10	1	Time	5-15 sec.			PLC controller		
			2	Water	DM Water					
			3	Discard	Discard Frequency		2 Days	Eng/Operator	BMF/PCS/02-01	
	DM WATER RINSE II	Tank No. 9	1	Time	5-15 sec.			PLC controller		
			2	Water	DM Water					
			3	Discard	Discard Frequency		2 Days	Eng/Operator	BMF/PCS/02-01	
20	OVEN DRYING	OVEN station No.3,4	1	Time	14 - 15 Min	Automatic	Each lot	PLC controller		
			2	Temp.	75-80°C	Auto Temp. controller	Verify at tiwce/day	Air hot water generator	BMF/PCS/01-01	
21	UNLOADING	Stn. No.2			Unloading components from hangers			Operator		
22	CURING	Curing Area		Period	24 Hrs.	Date & Time on The Tag	Each Day	Inspector		
23	INSPECTION	MICRON TEST	1	Thickness / Micron tester	Drawing/ As per customer requirement	Thickness Tester	Each lot / 5PCS	Inspector	BMF/PCS/04-00	
		APPEARENCE	2	APPEARENCE	No Black Spot, No White Spot, No Patches, No Blisters	Visual		Inspector	BMF/PCS/08-00	
		S.S.T	3	S.S.T CHAMBER	IN HOUSE/ THIRD PARTY		As per Plan	LAB	Test Report	
24	PACKING		1		As per customer Requirement					
25	DISPATCH		1		Packing standard customer requirement			Inspector		

### Revision History :-

Rev. No -	Rev. Date -	
1	06.11.2020	PASSIVATION DIPING TIME INCREASE.
2	06.11.2020	SOAK, ANODIC CLEANING TIME AND TEMP. INCREASE.
3	06.11.2020	OVEN DRYING TIME AND TEMP.INCREASE.

PREPARED BY:-

APPROVED BY: