PLATING ENGINEERING	CONTROL PLAN	☐ Prototype ☐ Pre - Launch ☑ Production

Control Plan Number : CP-004	Key Contact / Phone : MR. SHAILESH APHALE / 98230 59490	Date (Org)	Issue no	Date	Rev No.	Customer / Model
				01-01-19	0 1	X
PartNumber / Latest Change Level X	Core Team	MR. SHAILESH APHALE	Customer Engineering Approval / Date (If Req'd)			
Part Name - X	Supplier / Plant Approval / Date		Customer Quality Approval / Date (If Req'd)			
Supplier / Plant X	X	Others Approval / Date (If Req'd)	Other Approval / Date (If Req'd)			

Part / Process Number	Process Name / Operations Description	Machine / Device,Jig, Tools for	No.	Characteristics: Product	Characteristics: Process	Class	Methods: Product / Process Specification	Methods: Evaluation / Measurement	Methods: Sample Size	Methods: Sample Freq.	Methods: Error proofing	Methods: Control Method	Reaction Plan	Corrective action
a	**Receipt of Chemical**		1	As per Chemical Specification QA/FR/R/05			As per Quality plan for incoming metarial QA/FR/01	As per Quality plan for incoming metarial QA/FR/01	As per Quality plan for incoming metarial QA/FR/01	As per Quality plan for incoming metarial QA/FR/01		Receipt raw material analysis as per Quality plan QA/FR/01	Send material back to supplier	Test Certificate should be in with every batch.
b	**Receipt of Components**		2	Apperance			Free From Defects like Scratch, Dents, etc.	Visual	100%			Visual inspection	Inform to customer	Regular communication with customer.
c	**Jiging**	**Component Jig**	1	Apperance			Free From Defects like Scratch, Dents, etc.	Visual	100%			Visual inspection	Inform to customer	Regular communication with customer.
1	Degreasing	TANK NO. 1	1		Time Temp. Concetration		Time - 5-10 Min. Temp. 40-70 deg C. Concetration - 30 to 70 gms / Lit.	Timer with buzzer Temp. controller Bath analysis	Once once	2 Days	Temp cut off,	Calibration of all measuring and montiroing equipments	Stop production	Awarness to the operator and control of process parameters
2	Water Rinse	TANK NO. 2	1		pH		pH - Max. 14	pH meter	once	Day		Calibration of all measuring and montiroing equipments	Stop production	Awarness to the operator and control of process parameters
3	Acid Degressing cleaning by PE3	TANK NO. 3	1		Concentration Time		Concetration - 25% Time 3 - 5 Min.	Lab Analysis Timer with buzzer	once	Weekly		Calibration of all measuring and montiroing equipments	Stop production	Awarness to the operator and control of process parameters
4	Water Rinse	TANK NO. 4	1		pH		pH - Max. 3	pH meter	once	Day		Calibration of all measuring and montiroing equipments	Stop production	Awarness to the operator and control of process parameters
5	De-oxide	TANK NO. 5	1		Concentration Time		Concetration - 30-50% Time 3 - 5 Min.	Lab Analysis	once	Weekly		Calibration of all measuring and montiroing equipments	Stop production	Awarness to the operator and control of process parameters
6	Water Rinse	TANK NO. 6	1		pH		pH - Max. 1-3	pH meter	once	Day		Calibration of all measuring and montiroing equipments	Stop production	Awarness to the operator and control of process parameters
7	Anodic Cleaning	TANK NO. 7	1		Time Temp. Concetration Current		Time - 2 to 5 Min. Temp. 25-70 deg C. Concetration - 30 to 70 gms / Lit. Amp. As per job card	Timer with buzzer Temp. controller Bath analysis	once	Day		Calibration of all measuring and montiroing equipments	Stop production	Awarness to the operator and control of process parameters
8	Water Rinse	TANK NO. 8	1		pH		pH - Max. 14	pH meter	once	Day		Calibration of all measuring and montiroing equipments	Stop production	Awarness to the operator and control of process parameters
9	Activation	TANK NO. 9	1		Concetration		Concetration - 5-10 % peact	Lab Analysis	once	Weekly		Calibration of all measuring and montiroing equipments	Stop production	Awarness to the operator and control of process parameters
10	Water Rinse	TANK NO. 10	1		pH		pH - 1-3	pH meter	once	Day		Calibration of all measuring and montiroing equipments	Stop production	Awarness to the operator and control of process parameters
11	Neutralise	TANK NO. 11	1		Concetration pH		Concetration - 5-10 gms / lit.Peal pH - 9-14	pH meter	once	Weekly		Calibration of all measuring and montiroing equipments	Stop production	Awarness to the operator and control of process parameters
12	Plating Bath	TANK NO. 12	1		Time Temp Concentration Naoh Ni		Time - 60 - 90 Min. Temp. 22-28 deg C. Concetration Zinc- 8 to 10 gms / Lit Naoh - 125-140 gms / Lit Ni - 1 to 2 gms/Lit	Temp. controller Lab Analysis Lab anlaysis Lab Anlysis	once Once	Batch Day	Temp cut off,	Calibration of all measuring and montiroing equipments	Stop production	Awarness to the operator and control of process parameters
13	Plating Bath	TANK NO. 13	1		Time Temp Concentration Naoh Ni		Time - 60 - 90 Min. Temp. 22-28 deg C. Concetration Zinc- 8 to 10 gms / Lit Naoh - 125-140 gms / Lit Ni - 1 to 2 gms/Lit	Temp. controller Lab Analysis Lab anlaysis Lab Anlysis	once Once	Batch Day	Temp cut off,	Calibration of all measuring and montiroing equipments	Stop production	Awarness to the operator and control of process parameters
14	Plating Bath	TANK NO. 14	1		Time Temp Concentration Naoh Ni		Time - 60 - 90 Min. Temp. 22-28 deg C. Concetration Zinc- 8 to 10 gms / Lit Naoh - 125-140 gms / Lit Ni - 1 to 2 gms/Lit	Temp. controller Lab Analysis Lab anlaysis Lab Anlysis	once Once	Batch Day	Temp cut off,	Calibration of all measuring and montiroing equipments	Stop production	Awarness to the operator and control of process parameters

15	Plating Bath	TANK NO. 15	1		Time Temp Concentration Naoh Ni		Time - 60 - 90 Min. Temp. 22-28 deg C. Concetration Zinc- 8 to 10 gms / Lit Naoh - 125-140 gms / Lit Ni - 1 to 2 gms/Lit	Temp. controller Lab Analysis Lab anlaysis Lab Anlysis	once Once	Batch Day	Temp cut off,	Calibration of all measuring and montiroing equipments	Stop production	Awarness to the operator and control of process parameters
16	Plating Bath	TANK NO. 16	1		Time Temp Concentration Naoh Ni		Time - 60 - 90 Min. Temp. 22-28 deg C. Concetration Zinc- 8 to 10 gms / Lit Naoh - 125-140 gms / Lit Ni - 1 to 2 gms/Lit	Temp. controller Lab Analysis Lab anlaysis Lab Anlysis	once Once	Batch Day	Temp cut off,	Calibration of all measuring and montiroing equipments	Stop production	Awarness to the operator and control of process parameters
17	Plating Bath	TANK NO. 17	1		Time Temp Concentration Naoh Ni		Time - 60 - 90 Min. Temp. 22-28 deg C. Concetration Zinc- 8 to 10 gms / Lit Naoh - 125-140 gms / Lit Ni - 1 to 2 gms/Lit	Temp. controller Lab Analysis Lab anlaysis Lab Anlysis	once Once	Batch Day	Temp cut off,	Calibration of all measuring and montiroing equipments	Stop production	Awarness to the operator and control of process parameters
18	Plating Bath	TANK NO. 18	1		Time Temp Concentration Naoh Ni		Time - 60 - 90 Min. Temp. 22-28 deg C. Concetration Zinc- 8 to 10 gms / Lit Naoh - 125-140 gms / Lit Ni - 1 to 2 gms/Lit	Temp. controller Lab Analysis Lab anlaysis Lab Anlysis	once Once	Batch Day	Temp cut off,	Calibration of all measuring and montiroing equipments	Stop production	Awarness to the operator and control of process parameters
19	Plating Bath	TANK NO. 19	1		Time Temp Concentration Naoh Ni		Time - 60 - 90 Min. Temp. 22-28 deg C. Concetration Zinc- 8 to 10 gms / Lit Naoh - 125-140 gms / Lit Ni - 1 to 2 gms/Lit	Temp. controller Lab Analysis Lab anlaysis Lab Anlysis	once Once	Batch Day	Temp cut off,	Calibration of all measuring and montiroing equipments	Stop production	Awarness to the operator and control of process parameters
20	Plating Bath	TANK NO. 20	1		Time Temp Concentration Naoh Ni		Time - 60 - 90 Min. Temp. 22-28 deg C. Concetration Zinc- 8 to 10 gms / Lit Naoh - 125-140 gms / Lit Ni - 1 to 2 gms/Lit	Temp. controller Lab Analysis Lab anlaysis Lab Anlysis	once Once	Batch Day	Temp cut off,	Calibration of all measuring and montiroing equipments	Stop production	Awarness to the operator and control of process parameters
21	DM Water Rinse -1	TANK NO. 21	1		pH		pH - 13-15	pH meter	once	Day		Calibration of all measuring and montiroing equipments	Stop production	Awarness to the operator and control of process parameters
22	DM Water Rinse -2	TANK NO. 22	1		pH		pH - Max. 13	pH meter	once	Day		Calibration of all measuring and montiroing equipments	Stop production	Awarness to the operator and control of process parameters
23	DM Water Rinse -3	TANK NO. 23	1		pH		pH - Max. 12	pH meter	once	Day		Calibration of all measuring and montiroing equipments	Stop production	Awarness to the operator and control of process parameters
24	Activation	TANK NO. 24	1		pH		pH - Max. 3	pH meter	once	Day		Calibration of all measuring and montiroing equipments	Stop production	Awarness to the operator and control of process parameters
25	DM Water Rinse	TANK NO. 25	1		pH		pH - Max 5	pH meter	once	Day		Calibration of all measuring and montiroing equipments	Stop production	Awarness to the operator and control of process parameters
26	Clear Passivation	TANK NO. 26	1		pH Concetration		pH1- 1.6 Concetration - 100 ml/Lit.	pH meter Lab Analysis	once	Day		Calibration of all measuring and montiroing equipments	Stop production	Awarness to the operator and control of process parameters
27	DM Water Rinse -1	TANK NO. 27	1		pH		pH - Max 3-5	pH meter	once	Day		Calibration of all measuring and montiroing equipments	Stop production	Awarness to the operator and control of process parameters
28	DM Water Rinse -2	TANK NO. 28	1		pH		pH - Max 5	pH meter	once	Day		Calibration of all measuring and montiroing equipments	Stop production	Awarness to the operator and control of process parameters
29	Blow Down	TANK NO. 29	1		NA		NA	Air Blower	NA	NA		NA	Stop production	Awarness to the operator and control of process parameters
30	Top Coat Clear	TANK NO. 30	1		pH Concentration		pH - Min 8.5 Concetration - 90-100%	pH meter Lab Analysis	once	Day		Calibration of all measuring and montiroing equipments	Stop production	Awarness to the operator and control of process parameters
31	Drying	TANK NO. 31	1		Temp. Time		Temp. 50-80 deg c Time - 5 - 10 Min.	Temp Indicator Timer with buzzer	Once	Batch	Temp cut off,	Calibration of all measuring and montiroing equipments	Stop production	Awarness to the operator and control of process parameters
32	Inspection	INSPECTION TABLE	1	Apperance			Free from plating defects such as skip, Passivation coverage, color, etc	Visual	100%	100%		Awarness of Inspector	Sagrigation and rework	Display of work instruction
33			2	Thickness Ni-Zn			8-10 Micron 11-15 % Ni Rest Zink.	XRF Machine	Five	Per Lot		Calibration of all measuring and montiroing equipments	Batch reject and rework	Display of work instruction

34			3	Adhesion			No peel off	Adhesion Test	As per requirement	--------		Calibration of all measuring and montiroing equipments	Batch reject and rework	Display of work instruction
35			4	Corrosion Test (As Per Volvo/ASTMB117)			No Corrosion should take place	As per ASTM B117	Once	Every year		Supplier selection and evaluation	Re-Validation of process	Awarness to the operator and control of process parameters
36	Final Inspection		1	Apperance			Free from plating defects such as skip, Passivation coverage, colour, etc	Visual	100%	100%		Awarness of Inspector	Sagrigation and rework	Display of work instruction
37	Packing		1	Qty.				Visual	100%	100%		Awarness of Inspector	Sagrigation and rework	Display of work instruction
38	Despatch		1	Apperance			Free from Damages to the customer'	Visual	100%	100%		Awarness of Opeator	Rework	Display of work instruction