

	Special Proc	ess: Plating S	System Assessme	nt Cover Sheet
Facility Name: DeKal	b Metal Finishing			
Address: 625 West 1	5th Street   PO Box 70	Auburn, IN 46706		
Phone Number: 260.9	925.1820			
Current Quality Certif	ication(s): IATF 16949	2016		
Number of Plating En	nployees at this Facility	r: 64		
Captive Plater (Y/N):	N			
Commercial Plater (Y	//N): Y			
Date of Assessment:	1/1/2022			
Date of Previous Ass	essment: 08/10/2021			
Date of Re-assessme	ent (if necessary):			
		Type(s) of Plating	Processing at this Facili	ty:
Process Table A:			Process Table F:	
Zinc 🗸			Hard Chrome Plating	
Zinc Alloy Plating 🗸	,			
Process Table B:			Process Table G:	
Mechanical Plating			Electroless Nickel	
Process Table C:			Process Table H:	
Decorative Plating of	Metal Substrates		Hydrogen Embrittlem	ent Relief Process
Process Table D:			Process Table I:	
Decorative Plating of	Plastic Substrates		Process Control & Testing Equipment Verification & Calibration 🗸	
Process Table E:				
Electropolish and Chi	rome Flash			
Personnel Contacte	d:			
Name:	Title	Company	Phone	Email
Dave Houser	Plant Manager	DMF	260.925.1820, 116	dhouser@dekalbmetal.com
Paul Fry	Lab Manager	DMF	260.925.1820, 115	pfry@dekalbmetal.com
Brandi Woodward	Lab Technician	DMF	260.925.1820, 117	bwoodward@dekalbmetal.com
Benton Gibson	Lab Technician	DMF	260.925.1820, 117	bgibson@dekalbmetal.com
Drew Ritchie	Quality Technician	DMF	260.925.1820, 130	dritchie@dekalbmetal.com
Auditors/Assessors	:			
Name:	Title	Company	Phone	Email
Matt Morris	Manager	DMF	260.925.1820, 114	mmorris@dekalbmetal.com
Lori Westrick	Quality Manager	DMF	260.925.1820, 145	lwestrick@dekalbmetal.com
Number of Nonconfor	rming Findings from Se	ection 1 and Section	n 2:	0
Number of Nonconfor	rming Findings in the J	ob Audit(s): 0		0
Number of Nanconfor	rming Findings in the P	rocess Table(e)		0
TAINED OF NOTICOTION	ming i muniga in the F	100000 Tabic(8).		

# **Section 1 - Management Responsibility & Quality Planning**There shall be a dedicated and qualified surface finishing person on site.

- To ensure readily available expertise, there shall be a dedicated and qualified surface finishing person on site.
  This individual shall be a full-time employee and the position shall be reflected in the organization chart.
- A job description shall exist identifying the qualifications for the position including chemical and surface finishing/surface finishing knowledge.
- The qualifications shall include a minimum of 5 years' experience in surface finishing operation or a combination of a minimum of 5 years of relevant formal education and surface finishing experience.

Guidance	Objective Evidence	Conforming Nonconforming NA
What is this person's title?	Lab Manager	Conforming
Is this position reflected in the organizational chart?	Business Plan and Quality Manual	Conforming
Is there a documented job description listing all the required qualifications and responsibilities of this position?	DMF292	Conforming
Describe in detail this person's educational background and practical experience.	Background includes apprenticeship and 30+ years of practical experience.	Conforming
How many years of process experience at a plating facility does this person have?	Employed since 1982	Conforming
Is this individual a full-time employee at the location being audited?	Yes	Conforming

#### Comments:

1.1

#### Section 1 - Management Responsibility & Quality Planning

1.2 The facility shall perform advanced quality planning.

- The organization shall incorporate a documented advanced product quality planning process.
- A feasibility study shall be performed and internally approved for each new part or process. Similar parts can be grouped into part families for this effort as defined by the organization.
- After the part approval process is approved by the customer, no process changes are allowed unless approved by the customer.
- The organization shall contact the customer when clarification of process changes is required. This clarification of process changes shall be documented.

Guidance	Objective Evidence	Conforming Nonconforming NA
Does the facility use a documented advanced quality planning process?	Procedure 14	Conforming
Does the facility perform a documented internal feasibility study for each part before processing?  If no, does the facility perform a documented internal feasibility study for similar part types or family of parts before processing?	Procedure 14, Procedure 11, DMF341	Conforming
What is the procedure for changing the process after PPAP?	Procedure 14	Conforming

#### Comments:

Section 1 - Management Responsibility & Quality Planning
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1.3 The facilities FMEAs shall be up to date and shall reflect the current process.

- The organization shall incorporate the use of a documented Failure Mode and Effects Analysis (FMEA) and ensure the FMEAs are updated to reflect current part quality status.
- The FMEA shall be written for each part or part family or they may be process-specific and written for each process.
- FMEAs shall address every process step from part receipt to part shipment.
- A cross-functional team shall be used in the development of the FMEA.
- All special characteristics, as defined by the organization and its customers, shall be identified, defined, and addressed in the FMEA.

Guidance	Objective Evidence	Conforming Nonconforming NA
Does the facility have a documented Failure Mode and Effects Analysis (FMEA) in use?	PFMEA for each plating line	Conforming
Identify the names and job function of the team members used in the development of the FMEA.	Names and job functions listed on PFMEA's	Conforming
Identify if the FMEA is written for each part, part family or process specific.	Process Specific	Conforming
Are all FMEAs consistent with all associated documentation such as control plans, work instructions and shop travelers?	Yes, review PFMEAs for evidence	Conforming
Do all FMEAs include every process step from part receipt to part shipment?	Yes, review PFMEAs for evidence	Conforming
Are special characteristics, as defined by the organization and its customers, identified, defined, and addressed in the FMEAs?	ксс	Conforming
Provide evidence that the FMEA has been updated in response to quality issues.	See Revision Notes for Evidence	Conforming
Comments:	-	•

#### Section 1 - Management Responsibility & Quality Planning

1.4

The process control plans shall be up to date and shall reflect the current process.

- The organization shall incorporate the use of a documented control plan and ensure the control plans are updated to reflect current controls.
- The control plans shall be written for each part or part family or they may be process-specific.
- The control plans shall address all process steps from part receipt to part shipment and identify all equipment used and all key surface finishing process parameters as defined by the organization.
- A cross-functional team shall be used in the development of control plans, which shall be consistent with all associated documentation such as work instructions, shop travelers, and FMEAs.
- All special characteristics, as defined by the organization and its customers, shall be identified, defined, and addressed in the control plans.
- The control plan shall detail the product and process characteristics, and controls including testing frequency and sample size.

Guidance	Objective Evidence	Conforming Nonconforming NA
Does the facility have a documented control plan in use?	Control Plan for each plating line	Conforming
Identify if the control plan is written for each part, part family or process specific.	Process Specific	Conforming
Does the control plan identify all key surface finishing process parameters?	Yes, review Control Plans for evidence	Conforming
Identify the names and job function of the team members used in the development of the control plan.	Names and job functions listed on Control Plans	Conforming
Are the control plans consistent with all associated documentation such as work instructions, shop travelers, specifications and FMEAS?	Yes, review Control Plans for evidence	Conforming
Provide evidence that sample sizes and frequencies for evaluation of process and product characteristics are addressed and consistent with the minimum requirements.	Yes, review Control Plan and Procedure 19 for evidence	Conforming

Are special characteristics, as defined by the organization and its customers, identified, defined, and addressed in the control plans?	ксс	Conforming	
Provide evidence that the control plan has been updated in response to quality issues, customer requirements and process changes.	See Revision Notes for Evidence	Conforming	
Comments:			
Section 1 - Management Responsibility & Q	uality Planning		
All surface finishing related and referenced specifications shall be up to date and available.  For example: SAE, AIAG, ASTM, General Motors, Ford, FCA, Toyota, Volvo Truck.			
A document control system is pertinent for the handling and internal distribution of received customer specifications and to kee ensure all customer requirements are understood and satisfied, the organization shall have all related surface finishing and cust that they are current.  • The organization shall have a process to ensure the timely review, distribution, and implementation of all customer and indust schedule. This process shall be executed as soon as possible and shall not exceed two weeks.  • The organization shall document this process of review and implementation, and it shall address how customer and industry of status is established, and how the relevant information is cascaded to the shop floor within the two-week period.  • The organization shall identify who is responsible for performing these tasks.	omer referenced standards and specifications available for use and a pro try engineering standards and specifications and changes based on custor	cess to ensure mer-required	
Guidance	Objective Evidence	Conforming Nonconforming NA	
Does the organization have all related surface finishing and customer referenced standards and specifications available for use?	Surface Finishing standards and customer reference standards are available electronically in a document management system.	Conforming	
How are standards and specifications obtained?	IHS Global, Customer Portals, Customer Communication	Conforming	
Describe the system and timing used to maintain the standards and specifications to ensure that they are up to date.	Update notifications are sent from IHS and some Customer Portals.  The rest are reviewed once their assigned validity date has expired (typically 1 year)	Conforming	
Define that process used to review and communicate within the two-week period updated standards and specifications throughout the organization. Include the names and job functions of the responsible personnel.	Matt Morris (Manager) or Lori Westrick (Quality Manager) review all obtained standards, notates applicable changes, loads them into a document management/notification system and schedules QMS updates as needed.	Conforming	
Comments:			
Section 1 - Management Responsibility & Quality Planning			
1.6 There shall be documented process ins	tructions.		
size, rectifier settings, etc.	<ul> <li>The organization shall have written process instructions for all active parts or family of parts, including relevant part specific requirements. Examples of part specific requirements include process line, plating type, load size, rectifier settings, etc.</li> <li>These process instructions may take the form of work instructions, job card, computer-based recipes, or other similar documents.</li> </ul>		
Guidance	Objective Evidence	Conforming Nonconforming NA	

Does the organization have written process instructions for all active parts or family of parts and include all relevant operating parameters?	DMF147	Conforming
What form of process specification is used? (These may be in the form of work instructions, job card, computer-based recipes, or other similar documents.)	Work Instructions, Computer based recipes	Conforming

Comments:

1.7 A valid product capability study shall be performed.

To demonstrate each process is capable of yielding acceptable product, the organization shall perform product capability studies for the initial validation of each process, after relocation of any process equipment, and after a major change of any process or equipment. The organization shall define what constitutes a major change.

- Initial product capability studies shall be conducted for all surface finishing processes per line as defined in scope of work and in accordance with customer requirements. Capability study techniques shall be appropriate for the surface finishing product characteristics, (e.g., surface finishing thickness, corrosion resistance, etc.).
- An action plan shall exist to address the steps to be followed in case capability indices fall outside customer requirements or established ranges.

Guidance	Objective Evidence	Conforming Nonconforming NA
Has an initial product capability study been performed?	Line Validation Documentation, PPAPs, Corrosion Reports	Conforming
Are studies conducted for each surface finishing process for each line in the facility?	Procedure 28	Conforming
Has a new study been completed after relocation of any process equipment, major rebuild of any equipment, or any significant change in process chemistry?	No recent relocations, rebuilds, or changes to process chemistry	Conforming
How does the organization define what constitutes a major change?	Procedure 10	Conforming
What steps are followed when capability indices fall outside specified requirements?	Procedure 29	Conforming

Comments:

#### Section 1 - Management Responsibility & Quality Planning

1.8 The organization shall collect, analyze, and react to product and process data over time.

- The analysis of product characteristics and processes parameters over time can yield vital information for defect prevention efforts.
- Methods of analysis shall include ongoing trend or historical data analysis of special product and process parameters.
- The organization shall determine which parameters to include in such analysis.

Guidance	Objective Evidence	Conforming Nonconforming NA
What product characteristics and process parameters are used?	See Procedure 28, SPC Module and ERP System for Evidence	Conforming
How is the ongoing trend or historical data reviewed and analyzed?	Integrated into Management Review	Conforming
How does the organization use this data to prevent future failures and improve the quality system?	Examples include updates to maintenance schedules and the addition of new process monitoring equipment.	Conforming
Comments:		

	Section 1 - Management Responsibility & Q	uality Planning	
1.9	All process control and testing records must be retained for a minimum of one cale	endar year after the year in which they were created.	
·	Guidance	Objective Evidence	Conforming Nonconforming NA
What is the բ	process to retain these records?	Procedure 01	Conforming
Iwnat is the process for retention of customer specific documents with longer retention times?		Retention limits specified in CSR's are aligned with internal record retention limits within Procedure 01.	Conforming
Comments:		1	-
	Section 1 - Management Responsibility & Qu	uality Planning	
1.10	There shall be a process in place to review the monitoring sys	tems/logs at specified intervals.	
• In the case	nent or management designee shall review the monitoring systems/logs at specified intervals.  e of Hydrogen Embrittlement avoidance and relief, review shall occur prior to parts being released for shipment and ization shall have reaction plans for nonconformances to process requirements.	shall not exceed 24 hours.	
	Guidance	Objective Evidence	Conforming Nonconforming NA
Define the p	process in place to gather and review this information.	Procedure 25 and DMF118, Management Review	Conforming
Identify the I	manager or management designee reviewing the process records from the monitoring systems/logs.	Drew Ritchie	Conforming
In the case o	of Hydrogen Embrittlement baking, is the review taking place within the 24 hour period?	No parts require Hydrogen Embrittlement baking	N/A
Describe rea	action plans for nonconformances to the written process requirements.	Procedure 25, Control Plans	Conforming
Comments:			
	Section 1 - Management Responsibility & Qu	uality Planning	
1.11	Internal assessments shall be completed at a minimum once every 12 months using the	e latest revision of the CQI-11 Plating System Assessment.	
		Objective Evidence	Conforming Nonconforming
	Guidance	Objective Evidence	NA
What is the o	date of the last AIAG CQI-11 Plating System Assessment?	https://dekalbmetal.com/wp-content/uploads/2016/08/CQI11.pdf	•
What is the c	date of the last AIAG CQI-11 Plating System Assessment?	7	NA
	date of the last AIAG CQI-11 Plating System Assessment?	https://dekalbmetal.com/wp-content/uploads/2016/08/CQI11.pdf	NA

- The quality management system shall include a documented process for reprocessing that shall include authorization from the quality manager or a designated individual.
- The reprocessing procedure shall describe product characteristics for which reprocessing is allowed as well as those characteristics for which reprocessing is not permissible.
- All reprocessing activity shall require a separate rework specific process control sheet or other identification method, issued by qualified technical personnel denoting the necessary surface finishing modifications.
- Records shall clearly indicate when and how any material has been reprocessed.
- The rework of material shall comply with the customer's specifications and/or requirements.

Guidance	Objective Evidence	Conforming Nonconforming NA
Describe the procedure for authorizing reprocessing of nonconforming material.	Procedure 29	Conforming
Does the reprocessing procedure describe product characteristics that allow or not allow reprocessing?	Procedure 19	Conforming
Did the quality manager or manager's designee authorize the rework and determine the reprocessing procedure?	Yes	Conforming
How do you identify that material has been reprocessed?	Procedure 19	Conforming
Do the records clearly indicate when and how any material has been reprocessed including the quality manager's authorization of release?	Procedure 19	Conforming
Provide evidence that the rework complies with your customer's specifications and/or requirements.	See Problem Module, SPC Module Final Audit Log for Evidence	Conforming

#### Comments:

#### Section 1 - Management Responsibility & Quality Planning

1.13 The Quality Department shall review, address, and document customer and internal concerns.

The quality management system shall include a process for documenting, reviewing, and addressing customer concerns and any other concerns internal to the organization.

Guidance	Objective Evidence	Conforming Nonconforming NA
Describe the procedure for reviewing and addressing external customer and internal concerns.	Procedure 29	Conforming
Describe the problem solving approach that is used.	8D and/or other customer required formats (i.e. 5-Why)	Conforming
Describe the communication process used to respond to the originator.	Problem Module issues a tracking number (i.e. RMA)	Conforming
Provide a recent example of this procedure in use.	Review Problem Module for evidence	Conforming

#### Comments:

#### Section 1 - Management Responsibility & Quality Planning

**1.14** The organization shall have a continual improvement process.

- The continual improvement process shall be designed to achieve improvements in quality and productivity.
- Identified actions shall be prioritized and shall include timing (estimated completion dates).
- The organization shall show evidence of program effectiveness.

Guidance	Objective Evidence	Conforming Nonconforming NA
Describe the continual improvement process used to achieve improvements in quality and productivity.	Procedure 32	Conforming
Provide a recent example of how actions are identified, prioritized and completion dates assigned.	Review CIPA Log in Management Review for evidence	Conforming
Describe how the organization measures the effectiveness.	Review CIPA Log in Management Review for evidence	Conforming
Comments:		
Section 1 - Management Responsibil	ty & Quality Planning	
1.15 There shall be predefined personnel responsible for mar	agement of materials in quarantine area.	
Only the quality manager or designee may authorize the disposition of material from quarantine status.		
Guidance	Objective Evidence	Conforming Nonconforming NA
Define the process for release of material from quarantine.	Procedure 29 and Problem Module	Conforming
List the authorized personnel with job titles.	Lori Westrick (Quality Manager), Matt Morris (Manager) and Dave Houser (Plant Manager)	Conforming
Review evidence that only these persons are releasing materials from the quarantine area.	Review Problem Module for evidence (Question in Problem Module)	Conforming
Comments:		
Section 1 - Management Responsibil	ty & Quality Planning	
1.16 There shall be documented procedures and/or work instructions for all processe	and they shall be available to all of the organization's personnel.	
<ul> <li>There shall be procedures or work instructions available to personnel covering their responsibilities.</li> <li>These documents shall include instructions for addressing potential emergencies (such as power failure), equipment st operating procedures.</li> </ul>	art-up, equipment shut-down, product segregation (See 2.3, 2.8), product inspe	ection, and general
Guidance	Objective Evidence	Conforming Nonconforming NA
Review the procedure/work instruction for process start-up and shut-down.	DMFWI112, DMFWI071, DMFWI072, DMFWI073, DMFWI074, DMFWI075, DMFWI076, DMFWI077	Conforming
Review the procedure/work instruction for process control during operation.	DMF147	Conforming
What is the procedure in place to address potential emergencies? (Such as power outage and/or equipment failure).	Procedure 29, Procedure 08	Conforming
Review the procedures for inspection of the product, in process or after completion.	Procedure 19	Conforming
Verify that these procedures/work instructions are accessible to personnel performing the job at all times.	Available Electronically at each work station.	Conforming
Comments:	·	•
Section 1 - Management Responsibil	ty & Quality Planning	

1.17

- The organization and management shall provide employee training.
- The organization shall provide employee training for all operations.
- All employees, including backup and temporary employees, shall be trained.
- Documented evidence shall be maintained showing the employees trained and the evidence shall include an employee assessment.
- Management shall define the qualification requirements for each function, and ongoing or follow-up training shall also be addressed.

Guidance	Objective Evidence	Conforming Nonconforming NA
Review the process for initial training of all employees, including backup and temporary.	Procedure 06	Conforming
Review the process for ongoing and/or follow-up training.	Procedure 06	Conforming
Provide a recent copy of the training matrix.	Review Training Module for evidence	Conforming
Provide documented evidence that shows how the organization verifies effectiveness of training.	Review Training Module for evidence	Conforming

#### Comments:

#### Section 1 - Management Responsibility & Quality Planning

- 1.18 Essential management and supervisory functions shall be performed by qualified personnel at all times and a matrix of these essential responsibilities shall be available for review.
- The organization shall maintain a responsibility matrix identifying all essential management and supervisory functions and list the qualified personnel who may perform such functions.
- It shall identify both primary and secondary (backup) personnel for the essential functions (as defined by the organization).
- This matrix shall be readily available to management at all times.

Guidance	Objective Evidence	Conforming Nonconforming NA
Review and provide an example of the most recent matrix.	DMF301	Conforming
Confirm that the matrix includes both primary and secondary persons.	DMF301	Conforming
Describe how and where this information is made available.	Document Module	Conforming

#### Comments:

#### Section 1 - Management Responsibility & Quality Planning

1.19 There shall be a preventive maintenance program and maintenance data shall be utilized to form a predictive/preventive maintenance program.

- The organization shall have a documented preventive maintenance program for essential process equipment (as identified by the organization).
- The program shall be a closed-loop process that tracks maintenance efforts from request to completion to assessment of effectiveness.
- Equipment operators shall have the opportunity to report problems, and problems shall also be handled in a closed-loop manner.
- Company data, e.g., downtime, quality rejects, first time-through capability, recurring maintenance work orders, and operator-reported problems, shall be used to improve the preventive maintenance program.
- Maintenance data shall be collected and analyzed as part of a preventive maintenance program.

Guidance	Objective Evidence	Conforming Nonconforming NA
Show evidence that a documented preventive maintenance program exists.	Procedure 23, Fiix Database	Conforming
Describe the process for reporting problems.	Requests are sent to the Plant Manager who is responsible for scheduling tasks with the Maintenance Department. Results are recorded in the Fiix Database.	Conforming
Provide a recent example showing that the person reporting the problem received feedback after the problem was resolved.	If a request is made, it would originate on DMF336 and be logged into the Fixx Database.	Conforming
Give a recent example of how the program was used to prevent/predict potential equipment failure.	See examples in Fiix Database	Conforming
How is the data being generated reviewed with management to improve the quality system?	Management Review	Conforming
Comments:		

#### Section 1 - Management Responsibility & Quality Planning

1.20 The organization shall develop a critical spare part list and the parts must be available to minimize production disruptions.

• Spare part suppliers, minimum quantity and lead times shall be documented.

Guidance	Objective Evidence	Conforming Nonconforming NA
Provide the critical spare parts list.	Fiix Database	Conforming
Does the critical spare parts list include inventory, lead time and suppliers?	Fiix Database	Conforming
Describe how and when the organization updates the list.	Monthly Review	Conforming
What criteria is used to determine whether critical spare parts are kept at the facility or sourced off site.	Procedure 23	Conforming
Describe the process used to maintain minimum quantities.	Procedure 23, Fiix Database	Conforming

Comments:

#### Section 2 - Floor and Material Handling Responsibility 2.1 The organization shall ensure that customer data entered into the receiving system matches the customer's shipping documents.

It is critical that all customer requirements and lot identification be correctly transferred to internal documents.

- The facility shall ensure that the data entered in the receiving system match the information on the customer's shipping documents.
- Documented processes and evidence of compliance shall exist, e.g., shop travelers, work orders, etc.
- Sometimes the material received does not precisely correspond to customer shipping documents. The facility shall have a detailed procedure in place to resolve receiving discrepancies.
- The requirements stated above apply to captive, in-house, commercial and all involved departments.

Guidance	Objective Evidence	Conforming Nonconforming NA
Describe the receiving process including listing the documentation used.	Procedure 17, Procedure 19	Conforming
Describe the process to identify the plating requirements.	DMF114, DMF135, DMF250	Conforming
Describe the reaction process when material received does not correspond to the customer's documents.	See Control Plan for Evidence	Conforming

#### Comments:

	Section 2 - Floor and Material Handling Responsibility
2.2	Is product clearly identified and stored throughout the surface finishing process and is lot traceability and integrity maintained?

Procedures are required for part and container identification to avoid incorrect processing or mixing of lots.

- As received, in-process, and finished product or material shall be properly segregated, identified, and stored in a dedicated and clearly defined area.
- Out-going lot(s) shall be traceable to the incoming lot(s).
- The discipline of precisely identifying lots and linking all pertinent information to them enhances the ability to do root cause analysis and continual improvement.

Guidance	Objective Evidence	Conforming Nonconforming NA
Describe the method that ensures the parts and lot numbers are correctly identified and maintained throughout the process.	Procedure 17, Final Audit Log	Conforming
Verify that received, in-process, and finished product or material is properly segregated, identified, and stored in a dedicated	Parts received, on hold, and finished are stored in locations marked	Conforming
	, ,	

#### Comments:

#### Section 2 - Floor and Material Handling Responsibility

Procedures shall be adequate to prevent movement of nonconforming product into and out of the production system. 2.3

The control of suspect or nonconforming product is necessary to prevent inadvertent shipment or contamination of other lots.

- Procedures shall be adequate to prevent movement of nonconforming product into the production system.
- Procedures shall exist addressing authorized personnel, appropriate disposition, product identification and tracking of material flow in and out of hold area.
- Nonconforming hold area shall be clearly designated to ensure segregation of such material.

		Conforming
Guidance	Objective Evidence	Nonconforming
		NA

Wher	e is the nonconforming holding area, and how is it identified?	Located by the door that leads from the plant to the main office and	Conforming
Descr	ibe the procedure to prevent the unauthorized movement of nonconforming products.	Procedure 29	Conforming
Provi	de evidence that material movement in and out of this area is documented.	Review Problem module for evidence.	Conforming
Comr	nents:		-
	Section 2 - Floor and Material Ha	ndling Responsibility	
2.4	For bulk processing there shall be a procedure to identify trap points throughout the enti	ire process to reduce risk of unfinished, improperly coated and mixed parts.	
• Mo	organization shall have documented procedures to identify and monitor all trap points for each process/equipme nitoring of potential trap points shall occur at minimum every part changeover. p points may include: Plating barrels, part containers, loading and unloading equipment, spin dryers, transfer belts		
	Guidance	Objective Evidence	Conforming Nonconformin NA
Descr	ibe the procedure to identify and monitor all trap points for each process and/or equipment.	Procedure 17	Conforming
Provi	de the list of trap points.	See signage posted at each line and in the shipping/receiving area.	Conforming
Comr	nents:		
	Section 2 - Floor and Material Hai	ndling Responsibility	
	The handling, storage and packaging shall be adequate to ensure proc	duct quality is maintained throughout the entire process.	
2.5			
• Har	l  Idling, storage, and packaging shall be adequate to ensure product quality.  It cleanliness shall be maintained throughout the process.  Doarts shall be stored in a controlled environment.		

Guidance	Objective Evidence	Conforming Nonconforming NA
Which process steps have dedicated in-process containers?	Loading/Unloading	Conforming
How are containers maintained to preserve part cleanliness?	Customer owned containers are stored in a clean, dry environment.	Conforming
Describe how the containers are inspected to ensure they are free of foreign material.	Containers are customer owned	N/A
Provide a list of dedicated storage areas that avoid exposure to contamination and corrosion. (Storage outdoors, near media blasting and corrosive processes such as acid tanks should be avoided).	Warehouse at 625 or 924 W. 15th Street	Conforming

#### Comments:

	Section 2 - Floor and Material Handling Responsibility			
2.6	Each process step shall be documented and traceable.			
How	How does the operator verify that all process steps have been completed in specified order and in within specified time limits?			

Guidance	Objective Evidence	Conforming Nonconforming NA
Do you have a document (shop travelers, job sheet, etc.) that specifies all the processes for each part number/part family?	DMF147	Conforming
Define the procedure that ensures that all processes have been completed in the specified order.	Use of automatic lines that force all steps in the process to be done in the order specified on the control plan.	Conforming
Describe how time sensitive processes are completed in the specified time limits (e.g., hydrogen embrittlement baking).	N/A	N/A
Provide documentation that this process has been followed.	N/A	N/A

Comments:

	Section 2 - Floor and Material Handling Responsibility
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2.7 Part loading shall be specified, documented and controlled.

- Loading parameters shall be specified, documented and controlled.
- Examples include: parts per rack, part position and orientation, weight per barrel or masking.

Guidance	Objective Evidence	Conforming Nonconforming NA
Describe how the loading parameters are communicated to the operator.	DMF147	Conforming
Identify how the loading weight or rack quantity is recorded for each load or rack.	DMF147, DMF220	Conforming

Comments:

#### Section 2 - Floor and Material Handling Responsibility

2.8 There shall be a procedure for material handling, containment action and product segregation in the event of an unplanned process interruption.

Unplanned downtime greatly increases the risk of improper processing.

- Work instructions specifically addressing potential types of unplanned process interruptions shall be accessible to operators.
- Specific instructions shall address containment/reaction plans for each step of the process. Where processes are time critical, immediate actions are required. Examples include process steps exposing parts to: acidic solutions, current, bake or curing processes.
- Evidence shall exist showing disposition and traceability of affected product.

Guidance	Objective Evidence	Conforming Nonconforming NA
What procedure is used to address each step of the process?	Quality Manual, Process Flow Maps, Control Plans, DMF147	Conforming
Provide all work instructions that address unplanned process interruptions.	PFMEAs, Procedure 19, Procedure 29, DMFWI112, DMFWI071, DMFWI072, DMFWI073, DMFWI074, DMFWI075, DMFWI076, DMFWI077	Conforming
How is the affected product traced, dispositioned and documented?	Final Audit Log, Problem Module	Conforming
Comments:		1

Section 2 - Floor and Material Handling Re	sponsibility	
2.9 Plant cleanliness, environment, and working conditions shall be conditions.	onducive to ensure product quality.	
<ul> <li>Plant cleanliness, housekeeping, environmental, and working conditions shall be adequate to preserve product quality.</li> <li>A housekeeping policy shall be clearly defined and executed.</li> </ul>		
Guidance	Objective Evidence	Conforming Nonconforming NA
Provide a copy of the housekeeping procedure.	Procedure 09	Conforming
Provide a copy of the procedure used to handle dropped or spilled parts.	Procedure 29, DMF147	Conforming
Describe what is done with loose parts found on the floor of the plant.	Procedure 29, DMF147	Conforming
Define the process used to review the facility for conditions that are detrimental to quality processing such as chemical spills and inadequate ventilation.	Program 10000	Conforming
Comments:		•
Section 2 - Floor and Material Handling Re	sponsibility	
2.10 Plant lighting shall be adequate in all inspe	ction areas.	
Lighting in the part and/or process inspection areas must be adequate for the intended operation.		
Guidance	Objective Evidence	Conforming Nonconforming NA
How do you ensure the lighting in the part and/or process inspection areas, including loading and unloading areas, is adequate for the intended operation?	Lighting is monitored quarterly as part of the building maintenance plan in the Fiix Database.	Conforming

No appearance items per IATF16949 8.6.3

N/A

For part inspection, how do you arrange the lighting to avoid spot lighting, glare, shadows and distracting reflections?

Comments:

### DMF338 Rev 05 12/21/2020

Job Identity:

Customer: AJ Rose

Shop Order Number: 040621-01-27

Part Number: 680555200D
Part Description: Bracket
Material Substrate: Zinc Iron
Plating Requirements: .00031"

Specification Number and Revision: DIN EN ISO 19598 Fe/ZnFe8/Cr/Tx April 2017

Question Number	Inspection Element	Identify Relevant Documents & Actual Condition (Provide Data or Values & Embed or Attach Documents)	Conforming Nonconforming NA
4.1	Attach evidence that the documentation for the specific part conforms to the requirements including:  • Advanced quality planning process  • FMEA  • Process Control Plan	PPAP approved 11/19/2019 Reviewed DMFL001, FMEA01, ControlPlan01	Conforming
4.2	What customer specifications or requirements are used for this part? • List the specification(s) and revision(s)	DIN EN ISO 19598 Fe/ZnFe8/Cr/Tx April 2017	Conforming
4.3	Provide evidence of receiving inspection.	DMF250	Conforming
4.4	Provide the job traveler or attach a copy of this traveler showing:  • Customer name  • Lot number  • Weight/quantity  • Process instructions  • Inspection requirements	Review DMF250 (Traveler), DMF147 (Work Instruction) and DMF140 (Final Audit Log) for evidence.	Conforming
4.5	If the lot is divided how is the traceability maintained throughout the process?	Lot is not divided. Goes back into same returnable bulk container.	N/A
4.6	Describe the method used to document each operation as being completed. Is there a sign-off with time stamp, bar code or scan, etc., after each operation?	DMF250	Conforming
4.7	Attach work instructions applicable to this part indicating proper barrel/basket mesh size or perforation (hole size), load size, appropriate rack configuration, appropriate part orientation on rack, etc.	DMF147	Conforming
4.8	Identify each process table pertaining to this job audit. Populate the applicable process tables with the actual process results/conditions at the time this part was processed (Columns H and I in Process Tables A through H).	Reference Process Table for Line 1 in CQI-11	Conforming
4.9	Were appropriate process steps on the job router/traveler signed off? For electronic systems, a screen print is acceptable.	DMF250	Conforming
4.10	Were all inspection steps, as documented in the control plan performed? (e.g. outside pocesses, gaging, marking)	ERP Line Checks, ERP Lab Checks, SPC Module	Conforming
4.11	Were steps/operations performed that were not documented in the control plan?	No	Conforming
4.12	If additional steps were performed, were they authorized?		N/A

4.13	If the order was certified, did the certification		N/A
7.13	accurately reflect the process performed?		14/4
4.14	Was the certification signed by an authorized individual?		N/A
4.15	Are the parts and containers free of foreign objects or contamination?	Metal Containers were clean / free of foreign objects. Containers was also double bagged per the WI.	Conforming
4.16	Are packaging requirements identified?	DMF147	Conforming
4.17	Are parts packaged to prevent mixing or damage to parts (parts packed over height of container)?	Parts were bulked packed inside 2 clean bags as specified on DMF147	Conforming
4.18	Are storage condition sufficient to maintain part quality. e.g., parts are stored indoors in a clean, dry environment.	Parts were stored in warehouse located at 625 W 15th Street. They will be transferred to the warehouse soon for packaging.	Conforming
4.19	Were the parts properly identified and/or labeled before shipping?	DMF250- stamped "purple transfer" since they go to the warehouse for packaging.	Conforming
4.20	For the finished part, list each test and inspection requirement per customer specification.  Each part may have one or more requirements determin plating specification. Parts must meet each requirement Add additional sections as needed.		•
	Inspection Element	Inspection Requirement	Conforming Nonconforming NA
	Insert audit data below this line. Add additional	sections as needed.	
	Test Description:	Plating Thickness	
	Test Method:	Procedure 19	Conforming
4.20.1	Test Requirement:	.00031"	Conforming
	Result: Attach evidence:	.00034"	Conforming
	Test Description:	Corrosion Resistance	
	Test Method:	DIN EN ISO 19598 Fe/ZnFe8/Cr/Tx	Conforming
4.20.2	Test frequency or quantity:	As Required	Conforming
4.20.2	Test Requirement:	120 hours to white / 500 Hours no Red	Conforming
	Result: Attach evidence:	Report Number D14211	Conforming

### DMF338 Rev 05 12/21/2020

Job Identity:

Customer: AJ Rose

Shop Order Number: 040621-01-27

Part Description: Bracket
Material Substrate: Zinc Iron
Plating Requirements: .00031"

Part Number: 680555200D

Specification Number and Revision: DIN EN ISO 19598 Fe/ZnFe8/Cr/Tx April 2017

Question Number	Inspection Element	Identify Relevant Documents & Actual Condition (Provide Data or Values & Embed or Attach Documents)	Conforming Nonconforming NA
4.1	Attach evidence that the documentation for the specific part conforms to the requirements including:  • Advanced quality planning process  • FMEA  • Process Control Plan	PPAP approved 11/19/2019 Reviewed DMFL001, FMEA01, ControlPlan01	Conforming
4.2	What customer specifications or requirements are used for this part? • List the specification(s) and revision(s)	DIN EN ISO 19598 Fe/ZnFe8/Cr/Tx April 2017	Conforming
4.3	Provide evidence of receiving inspection.	DMF250	Conforming
4.4	Provide the job traveler or attach a copy of this traveler showing:  • Customer name  • Lot number  • Weight/quantity  • Process instructions  • Inspection requirements	Review DMF250 (Traveler), DMF147 (Work Instruction) and DMF140 (Final Audit Log) for evidence.	Conforming
4.5	If the lot is divided how is the traceability maintained throughout the process?	We are not transferring our lot tag onto the final skid. Reference ICA 001463	Nonconforming
4.6	Describe the method used to document each operation as being completed. Is there a sign-off with time stamp, bar code or scan, etc., after each operation?	Not happening at time of audit. Reference ICA 001463	Nonconforming
4.7	Attach work instructions applicable to this part indicating proper barrel/basket mesh size or perforation (hole size), load size, appropriate rack configuration, appropriate part orientation on rack, etc.	WI given to us by the customer for reference. Attached in 147 and posted at the warehouse.	Conforming
4.8	Identify each process table pertaining to this job audit. Populate the applicable process tables with the actual process results/conditions at the time this part was processed (Columns H and I in Process Tables A through H).	Reference Process Table for Line 1 OSP in CQI-11	Conforming
4.9	Were appropriate process steps on the job router/traveler signed off? For electronic systems, a screen print is acceptable.	DMF250	Conforming
4.10	Were all inspection steps, as documented in the control plan performed? (e.g. outside pocesses, gaging, marking)	ERP Line Checks, ERP Lab Checks, SPC Module	Conforming
4.11	Were steps/operations performed that were not documented in the control plan?	No	Conforming
4.12	If additional steps were performed, were they authorized?		N/A

4.13	If the order was certified, did the certification		N/A	
4.13	accurately reflect the process performed?		N/A	
4.14	Was the certification signed by an authorized individual?		N/A	
4.15	Are the parts and containers free of foreign objects or contamination?	Metal Containers were clean / free of foreign objects. Containers was also double bagged per the WI.	Conforming	
4.16	Are packaging requirements identified?	DMF147	Conforming	
4.17	Are parts packaged to prevent mixing or damage to parts (parts packed over height of container)?	Parts were packed 12 pcs to a bag, 4 bags per box per customer instructions.	Conforming	
4.18	Are storage condition sufficient to maintain part quality. e.g., parts are stored indoors in a clean, dry environment.	Parts were stored in warehouse located at 924 W 15th Street.	Conforming	
4.19	Were the parts properly identified and/or labeled before shipping?	No identification at the time of the audit. Reference ICA 001463	Nonconforming	
4.20	4.20 For the finished part, list each test and inspection requirement per customer specification.  Each part may have one or more requirements plating specification. Parts must meet each red Add additional sections as needed.		•	
	Inspection Element	Inspection Requirement	Conforming Nonconforming NA	
	Insert audit data below this line. Add additional sections as needed.			
	Test Description:	Plating Thickness		
	Test Method:	Procedure 19	Conforming	
4.20.1	Test Requirement:	.00031"	Conforming	
	Result: Attach evidence:	.00034"	Conforming	
4.20.3	Test Description:	Corrosion Resistance		
	Test Method:	DIN EN ISO 19598 Fe/ZnFe8/Cr/Tx	Conforming	
	Test frequency or quantity:	As Required	Conforming	
	Test Requirement:	120 hours to white / 500 Hours no Red	Conforming	
	Result: Attach evidence:	Report Number D14211	Conforming	

### DMF338 Rev 05 12/21/2020

Job Identity:

**Customer: Vibracoustic** 

Shop Order Number: 040721-02-44
Part Number: SS-CD3006-300
Part Description: Inner Metal
Material Substrate: Zinc Nickel

Plating Requirements: .00031" 12-16% Nickel

Specification Number and Revision: TES-10100\_6 Rev 8

Question Number	Inspection Element	Identify Relevant Documents & Actual Condition (Provide Data or Values & Embed or Attach Documents)	Conforming Nonconforming NA
4.1	Attach evidence that the documentation for the specific part conforms to the requirements including:  • Advanced quality planning process  • FMEA  • Process Control Plan	PPAP approved 5/21/2018 Reviewed DMFL002, FMEA02, ControlPlan02	Conforming
4.2	What customer specifications or requirements are used for this part? • List the specification(s) and revision(s)	TES-10100_6 Revision 8	Conforming
4.3	Provide evidence of receiving inspection.	DMF250	Conforming
4.4	Provide the job traveler or attach a copy of this traveler showing:  • Customer name  • Lot number  • Weight/quantity  • Process instructions  • Inspection requirements	Review DMF250 (Traveler), DMF147 (Work Instruction) and DMF140 (Final Audit Log) for evidence.	Conforming
4.5	If the lot is divided how is the traceability maintained throughout the process?	Lot is not divided. Goes back into same returnable bulk container. Customer's lot tag was also attached.	N/A
4.6	Describe the method used to document each operation as being completed. Is there a sign-off with time stamp, bar code or scan, etc., after each operation?	DMF250	Conforming
4.7	Attach work instructions applicable to this part indicating proper barrel/basket mesh size or perforation (hole size), load size, appropriate rack configuration, appropriate part orientation on rack, etc.	DMF147	Conforming
4.8	Identify each process table pertaining to this job audit. Populate the applicable process tables with the actual process results/conditions at the time this part was processed (Columns H and I in Process Tables A through H).	Reference Process Table for Line 2 in CQI-11	Conforming
4.9	Were appropriate process steps on the job router/traveler signed off? For electronic systems, a screen print is acceptable.	DMF250	Conforming
4.10	Were all inspection steps, as documented in the control plan performed? (e.g. outside pocesses, gaging, marking)	ERP Line Checks, ERP Lab checks, SPC Module	Conforming
4.11	Were steps/operations performed that were not documented in the control plan?	No	Conforming
4.12	If additional steps were performed, were they authorized?		N/A

4.13	If the order was certified, did the certification accurately reflect the process performed?		N/A	
4.14	Was the certification signed by an authorized individual?		N/A	
	And the mante and containing from all foreign philate and	Cardboard container was clean / free of foreign		
4.15	Are the parts and containers free of foreign objects or contamination?	objects. Containers was also bagged per the WI.	Conforming	
4.16	Are packaging requirements identified?	DMF147	Conforming	
4.17	Are parts packaged to prevent mixing or damage to parts (parts packed over height of container)?	Parts were bulked packed as specified on DMF147	Conforming	
	Are storage condition sufficient to maintain part	Parts were stored in warehouse located at 625 W		
4.18	quality. e.g., parts are stored indoors in a clean, dry environment.	15th Street.	Conforming	
4.19	Were the parts properly identified and/or labeled before shipping?	DMF250- stamped orange	Conforming	
	For the finished part, list each test and inspection	Each part may have one or more requirements determ	-	
4.20	requirement per customer specification.	plating specification. Parts must meet each requirement.  Add additional sections as needed.		
	Inspection Element	Inspection Requirement	Conforming Nonconforming NA	
	Insert audit data below this line. Add additional	sections as needed.		
	Test Description:	Plating Thickness		
	Test Method:	Procedure 19	Conforming	
4.20.1	Test Requirement:	.00031"	Conforming	
	Result:	.00042"	Conforming	
	Attach evidence:		Comorning	
	Test Description:	Nickel		
	Test Method:	Procedure 19	Conforming	
4.20.2	Test frequency or quantity:	First 6, one per hour, Last 6	Conforming	
	rest inequality of qualitity.			
	Test Requirement:	12-16%	Conforming	
	Test Requirement: Result:			
	Test Requirement: Result: Attach evidence:	12-16% 12.70%	Conforming	
	Test Requirement: Result: Attach evidence: Test Description:	12-16% 12.70% Corrosion Resistance	Conforming  Conforming	
	Test Requirement: Result: Attach evidence: Test Description: Test Method:	12-16% 12.70% Corrosion Resistance TES-10100_6	Conforming Conforming Conforming	
4.20.3	Test Requirement: Result: Attach evidence: Test Description:	12-16% 12.70% Corrosion Resistance	Conforming  Conforming	

### DMF338 Rev 05 12/21/2020

Job Identity:

**Customer: Contitech** 

Shop Order Number: 041321-02-58

Part Number: 7700028159

Part Description: Upper Isolator Sub Assy

Material Substrate: Zinc Nickel

Plating Requirements: .00031' - .00055" | 12% - 17% Nickel

Specification Number and Revision: WSS-M21P51-A2 Rev 2019 03 22

Question Number	Inspection Element	Identify Relevant Documents & Actual Condition (Provide Data or Values & Embed or Attach Documents)	Conforming Nonconforming NA
4.1	Attach evidence that the documentation for the specific part conforms to the requirements including:  • Advanced quality planning process  • FMEA  • Process Control Plan	PPAP approved on 06/15/2017. Reviewed DMFL002 OSP, FMEA02 OSP, ControlPlan02 OSP	Conforming
4.2	What customer specifications or requirements are used for this part? • List the specification(s) and revision(s)	WSS-M21P51-A2 (Rev02 2019-03-22)	Conforming
4.3	Provide evidence of receiving inspection.	DMF250	Conforming
4.4	Provide the job traveler or attach a copy of this traveler showing:  • Customer name  • Lot number  • Weight/quantity  • Process instructions  • Inspection requirements	Review DMF250 (Traveler), DMF147 (Work Instruction) and DMF140 (Final Audit Log) for evidence.	Conforming
4.5	If the lot is divided how is the traceability maintained throughout the process?	Goes back into same returnable plastic tote. Lot tags are transferred and copied when lots are split. See attached pic for evidence.	N/A
4.6	Describe the method used to document each operation as being completed. Is there a sign-off with time stamp, bar code or scan, etc., after each operation?	DMF250	Conforming
4.7	Attach work instructions applicable to this part indicating proper barrel/basket mesh size or perforation (hole size), load size, appropriate rack configuration, appropriate part orientation on rack, etc.	DMF147	Conforming
4.8	Identify each process table pertaining to this job audit. Populate the applicable process tables with the actual process results/conditions at the time this part was processed (Columns H and I in Process Tables A through H).	Reference Process Table for Line 2 OSP in CQI-11	Conforming
4.9	Were appropriate process steps on the job router/traveler signed off? For electronic systems, a screen print is acceptable.	DMF250	Conforming
4.10	Were all inspection steps, as documented in the control plan performed? (e.g. outside pocesses, gaging, marking)	ERP Line Checks, ERP Lab checks, SPC Module	Conforming
4.11	Were steps/operations performed that were not documented in the control plan?	No	Conforming

4.12	If additional steps were performed, were they authorized?		N/A				
4.13	If the order was certified, did the certification		N/A				
	accurately reflect the process performed?		-				
4.14	Was the certification signed by an authorized individual?		N/A				
4.15	Are the parts and containers free of foreign objects or contamination?	Zytecs were clean / free of foreign objects	Conforming				
4.16	Are packaging requirements identified?	DMF147	Conforming				
4.17	Are parts packaged to prevent mixing or damage to parts (parts packed over height of container)?	Parts were layer packed in customer supplied zytecs	Conforming				
4.18	Are storage condition sufficient to maintain part quality. e.g., parts are stored indoors in a clean, dry environment.	Parts were stored in warehouse located at 924 W 15th Street	Conforming				
4.19	Were the parts properly identified and/or labeled before shipping?	DMF250- stamped "purple transfer" since they go to the warehouse for packaging. See attached pic.	Conforming				
4.20	For the finished part, list each test and inspection requirement per customer specification.	Each part may have one or more requirements determ plating specification. Parts must meet each requirement Add additional sections as needed.	nt.				
	Inspection Element	Inspection Requirement	Conforming Nonconformin NA				
	Insert audit data below this line. Add additional sections as needed.						
	Test Description:	Plating Thickness					
	Test Method:	Procedure 19	Conforming				
4.20.1	Test Requirement:	.00031"00055"	Conforming				
	rest requirement.	.00031 .00033	Comorning				
	Result: Attach evidence:	.55531 .55555	Conforming				
	Result:	Nickel					
	Result: Attach evidence:		Conforming				
4 20 2	Result: Attach evidence: Test Description: Test Method:	Nickel Procedure 19					
4.20.2	Result: Attach evidence: Test Description: Test Method: Test frequency or quantity:	Nickel	Conforming Conforming				
4.20.2	Result: Attach evidence: Test Description: Test Method:	Nickel Procedure 19 First 6, one per hour, Last 6	Conforming				
4.20.2	Result: Attach evidence: Test Description: Test Method: Test frequency or quantity: Test Requirement: Result:	Nickel Procedure 19 First 6, one per hour, Last 6	Conforming Conforming Conforming				
4.20.2	Result: Attach evidence:  Test Description: Test Method: Test frequency or quantity: Test Requirement: Result: Attach evidence:	Nickel Procedure 19 First 6, one per hour, Last 6 12-17%	Conforming Conforming Conforming				
	Result: Attach evidence:  Test Description: Test Method: Test frequency or quantity: Test Requirement: Result: Attach evidence: Test Description:	Nickel Procedure 19 First 6, one per hour, Last 6 12-17%  Corrosion Resistance	Conforming Conforming Conforming Conforming				
4.20.2	Result: Attach evidence:  Test Description:  Test Method:  Test frequency or quantity:  Test Requirement:  Result: Attach evidence:  Test Description:  Test Method:	Nickel Procedure 19 First 6, one per hour, Last 6 12-17%  Corrosion Resistance WSS-M1P87-A2	Conforming Conforming Conforming Conforming Conforming				

### DMF338 Rev 05 12/21/2020

Job Identity:

Customer: Gecom

Shop Order Number: 040721-03-89

Part Number: Q90-11302-1
Part Description: Rod

Material Substrate: Zinc
Plating Requirements: 8um

Specification Number and Revision: TSH6524G-AC Rev 4

Question Number	Inspection Element	Identify Relevant Documents & Actual Condition (Provide Data or Values & Embed or Attach Documents)	Conforming Nonconforming NA
4.1	Attach evidence that the documentation for the specific part conforms to the requirements including:  • Advanced quality planning process  • FMEA  • Process Control Plan	PPAP approved 4/12/17 Reviewed DMFL003, FMEA03, ControlPlan03	Conforming
4.2	What customer specifications or requirements are used for this part? • List the specification(s) and revision(s)	TSH6524G-AC Rev 4	Conforming
4.3	Provide evidence of receiving inspection.	DMF250	Conforming
4.4	Provide the job traveler or attach a copy of this traveler showing:  • Customer name  • Lot number  • Weight/quantity  • Process instructions  • Inspection requirements	Review DMF250 (Traveler), DMF147 (Work Instruction) and DMF140 (Final Audit Log) for evidence.	Conforming
4.5	If the lot is divided how is the traceability maintained throughout the process?	Lot is not divided. Goes back into same returnable plastic tote.	N/A
4.6	Describe the method used to document each operation as being completed. Is there a sign-off with time stamp, bar code or scan, etc., after each operation?	DMF250	Conforming
4.7	Attach work instructions applicable to this part indicating proper barrel/basket mesh size or perforation (hole size), load size, appropriate rack configuration, appropriate part orientation on rack, etc.	DMF147	Conforming
4.8	Identify each process table pertaining to this job audit. Populate the applicable process tables with the actual process results/conditions at the time this part was processed (Columns H and I in Process Tables A through H).	Reference Process Table for Line 3 in CQI-11	Conforming
4.9	Were appropriate process steps on the job router/traveler signed off? For electronic systems, a screen print is acceptable.	DMF250	Conforming
4.10	Were all inspection steps, as documented in the control plan performed? (e.g. outside pocesses, gaging, marking)	ERP Line Checks, ERP Lab checks, SPC Module	Conforming
4.11	Were steps/operations performed that were not documented in the control plan?	No	Conforming
4.12	If additional steps were performed, were they authorized?		N/A

4.13	If the order was certified, did the certification		N/A	
4.14	accurately reflect the process performed?  Was the certification signed by an authorized individual?  Are the parts and containers free of foreign objects of contamination?  Are packaging requirements identified?  Are parts packaged to prevent mixing or damage to parts (parts packed over height of container)?  Are storage condition sufficient to maintain part quality. e.g., parts are stored indoors in a clean, dry environment.  Were the parts properly identified and/or labeled before shipping?  For the finished part, list each test and inspection requirement per customer specification.  Inspection Element		N/A	
4.15	Are the parts and containers free of foreign objects or contamination?	Plastic totes were clean / free of foreign objects.	Conforming	
4.16	Are packaging requirements identified?	DMF147	Conforming	
4.17		Parts were bulked packed inside plastic tote- facing same direction as specified on DMF147.	Conforming	
4.18	quality. e.g., parts are stored indoors in a clean, dry	Parts were stored in warehouse located at 625 W 15th Street.	Conforming	
4.19		DMF250- stamped orange	Conforming	
4.20	·	Each part may have one or more requirements determ plating specification. Parts must meet each requiremer Add additional sections as needed.	•	
	Inspection Element	Inspection Requirement	Conforming Nonconforming NA	
	Insert audit data below this line. Add additional s	sections as needed.		
	Test Description:	Plating Thickness		
	Test Method:	Procedure 19	Conforming	
4.20.1	Test Requirement:	8 um	Conforming	
	Result: Attach evidence:	10.9 um	Conforming	
	Test Description:	Corrosion Resistance		
	Test Method:	TSH6524G-AC	Conforming	
4.20.3	Test frequency or quantity:	As Required	Conforming	
4.20.3	Test Requirement:	72 hours to white / 120 Hours no Red	Conforming	
	Result:	Report Number	Conforming	

### DMF338 Rev 05 12/21/2020

Job Identity:

Customer: Graham Stamping Shop Order Number: 031721-04-03

Part Number: U-30825-305
Part Description: Washer
Material Substrate: Zinc Nickel

Plating Requirements: 6 um 12-16% Nickel

Specification Number and Revision: TES-1210 Rev A

	Specification Number and Revision. 1E3-1210 Rev A							
Question Number	Inspection Element	Identify Relevant Documents & Actual Condition (Provide Data or Values & Embed or Attach Documents)	Conforming Nonconforming NA					
4.1	Attach evidence that the documentation for the specific part conforms to the requirements including:  • Advanced quality planning process  • FMEA  • Process Control Plan	PPAP approved 6/7/2016 Reviewed DMFL004, FMEA04, ControlPlan04	Conforming					
4.2	What customer specifications or requirements are used for this part? • List the specification(s) and revision(s)	TES-1210 Rev A	Conforming					
4.3	Provide evidence of receiving inspection.	DMF250	Conforming					
4.4	Provide the job traveler or attach a copy of this traveler showing:  • Customer name  • Lot number  • Weight/quantity  • Process instructions  • Inspection requirements	Review DMF250 (Traveler), DMF147 (Work Instruction) and DMF140 (Final Audit Log) for evidence.	Conforming					
4.5	If the lot is divided how is the traceability maintained throughout the process?	Lot is not divided. Goes back into same returnable bulk container. Customer's lot tag was also attached.	N/A					
4.6	Describe the method used to document each operation as being completed. Is there a sign-off with time stamp, bar code or scan, etc., after each operation?	DMF250	Conforming					
4.7	Attach work instructions applicable to this part indicating proper barrel/basket mesh size or perforation (hole size), load size, appropriate rack configuration, appropriate part orientation on rack, etc.	DMF147	Conforming					
4.8	Identify each process table pertaining to this job audit. Populate the applicable process tables with the actual process results/conditions at the time this part was processed (Columns H and I in Process Tables A through H).	Reference Process Table for Line 4 in CQI-11	Conforming					
4.9	Were appropriate process steps on the job router/traveler signed off? For electronic systems, a screen print is acceptable.	DMF250	Conforming					
4.10	Were all inspection steps, as documented in the control plan performed? (e.g. outside pocesses, gaging, marking)	ERP Line Checks, ERP Lab checks, SPC Module	Conforming					
4.11	Were steps/operations performed that were not documented in the control plan?	No	Conforming					
4.12	If additional steps were performed, were they authorized?		N/A					

4.13	If the order was certified, did the certification accurately reflect the process performed?		N/A	
4.14	Was the certification signed by an authorized individual?		N/A	
4.15	Are the parts and containers free of foreign objects or contamination?	Bulk container was clean / free of foreign objects. Containers was also lines with a bag per the WI.	Conforming	
4.16	Are packaging requirements identified?	DMF147	Conforming	
4.17	Are parts packaged to prevent mixing or damage to parts (parts packed over height of container)?	Parts were bulked packed inside clean bag as specified on DMF147	Conforming	
4.18	Are storage condition sufficient to maintain part quality. e.g., parts are stored indoors in a clean, dry environment.	Parts were stored in warehouse located at 924 W 15th Street.	Conforming	
4.19	Were the parts properly identified and/or labeled before shipping?	DMF250- stamped orange	Conforming	
4.20	For the finished part, list each test and inspection requirement per customer specification.	Each part may have one or more requirements determined by plating specification. Parts must meet each requirement.  Add additional sections as needed.		
	Inspection Element	Inspection Requirement	Conforming Nonconforming NA	
	Insert audit data below this line. Add additional	sections as needed.		
	Test Description:	Plating Thickness		
	Test Method:	Procedure 19	Conforming	
4.20.1	Test Requirement:	6 um	Conforming	
	Result: Attach evidence:	9.9 um	Conforming	
	Test Description:	Nickel		
	Test Method:	Procedure 19	Conforming	
4.20.2	Test frequency or quantity:	As Required	Conforming	
7.20.2	Test Requirement:	12-16%	Conforming	
	Result: Attach evidence:	12.80%	Conforming	
	Test Description:	Corrosion Resistance		
	Test Method:	TES-1210 Rev A	Conforming	
4.20.3	Test frequency or quantity:	As Required	Conforming	
7.20.3	Test Requirement:	720 Red	Conforming	
	Result: Attach evidence:	Report Number D19212	Conforming	



### PROCESS TABLE A - Zinc & Zinc Alloy Plating

All requirements given below are subordinate to applicable customer/OEM specific requirements.

The customer may have additional requirements, e.g., inspection testing, greater frequencies, etc. When performing the job audit, the auditor shall verify plater is conforming to customer requirements.

\*If minimum requirements are not met, provide supporting records to justify actual conditions. To justify reduced monitoring frequencies, a minimum of 30 consecutive measurements (data points) at stated frequencies must be documented. If any data points at reduced monitoring frequencies are outside of control limits, then revert back to the frequencies stated under the minimum requirements.

Columns H and I are used for the Job Audit (Section 4).

Regularly scheduled measurements (e.g., temperature, concentrations, pH) are to be entered in the appropriate row.

For sections that are not applicable mark NA in the Comments column.

Instruction for creating the table with the form builder:

Using the Populate Forms list to the right, select the box that represents the first step of the process flow.

Then select the Populate Forms banner and that section of the process table will be added below.

For each additional step of the process flow, continue adding sections to the form by selecting the applicable step from the list to the right, followed by selecting the Populate Forms banner.

Rinses between process steps are to be included.

If using multiple counter flowed rinses only insert one Rinse section, document only the condition of the last rinse tank in the series.

Process Line Identification: Line 1

Type of Line: Rack

	Category/Process Steps	Type of Cont	trol	Monitoring Frequency		Observation/ Comments	Job Audit N	Measurements
ITEM #		Minimum Requirement	Actual Condition	Minimum Requirement	Actual Condition	Conforming Nonconforming NA	Range	Actual Measurements supporting time of Job Audit
1.0	Alkaline Cleaning		•		•			
	Type: Soak							
	Size, volume: Confidential							
	Chemical supplier: Confidential							
A1.1	Temperature (Thermocouple)	Automatic Max SAT difference allowed +/- 5°C (10°F).	Automatic	Continuous monitoring by controller. Manually verify daily.	1/8 hours worked	Conforming	See Control Plan	178
A1.2	Concentration	Manual	Manual	Once per day.	1/24 hours worked	Conforming	See Control Plan	11.47
A1.3	Time	Automatic	Automatic	After any program changes.	N/A	N/A	N/A	4 Min.
A1.4	Agitation (if applicable)	Automatic	Automatic	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes
A1.5	Solution Level - Parts, heaters, and transducers are completely submerged.	Automatic or Manual	Manual	Continuous monitoring by controller. Manually verify daily for automatic controls, every 8 hours for systems without controllers.	1/8 hours worked	Conforming	See Control Plan	Yes
A1.6	Impurity Content Check Per chemical supplier recommendation such as: - acid split (oil contamination) - alkalinity ratio	Manual	Not Recommended by Chemical Supplier	Once per week*	N/A	N/A	N/A	1.42 : 1
A1.7	Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
2.0	Alkaline Cleaning							
	Type - Electro (cathodic)	•						
	Size, volume: Confidential							
	Chemical supplier: Confidential	·						



Automatic Processor (1987)   10 Per Application   10 Automatic Automatic Automatic Processor (1987)   10 Per Application			1.	1		1	1	1	
A22   A Aglation of geopotation   Automatic   Automati	Tem	nperature (Thermocouple)	Max SAT difference allowed	Automatic	Continuous monitoring by controller. Manually verify daily.	1/8 hours worked	Conforming	See Control Plan	157
Automatic Automa	Con	ncentration	Manual	Manual	Once per day.	1/24 hours worked	Conforming	See Control Plan	9.99
Age of Agreement of Voltance Control of agricalsohile) Application from the Control of Agricantial Control of Agri	Time	e	Automatic	Automatic	After any program changes.	N/A	N/A	N/A	4 Min.
Author   Level   Particulation   Particulati	Agita	tation (if applicable)	Automatic	Automatic	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes
ALS Divides and transducers are completely submerged. Automatic or Manual submands controls, every 8 hours for systems without 18 hours worked Conforming September 2 per demind supplier recommendation such as:  April Professional supplier recommendation such as:  April Conformination in the recommendation and the recommendation a	Amp	perage or Voltage Control (if applicable)	Automatic	Automatic	Once every 8 hours*.	1/8 hours worked	Conforming	See Control Plan	3
per chemical suppler recommendation such as:			Automatic or Manual	Manual	automatic controls, every 8 hours for systems without	1/8 hours worked	Conforming	See Control Plan	Yes
Notice (This section is to be repeated as necessary to document all individual rines steps in the entire  1. Rines (This e- Identity in comment section of applicable) and a section of the properties of the entire of the properties of the properties of the entire of the properties of th	Per - aci - alk	chemical supplier recommendation such as: cid split (oil contamination) kalinity ratio	Manual	Recommended by		N/A	N/A	N/A	1.27 : 1
As 1 a.g Flowing, Counter Flowing, Spring, Stagnant, Drag-infout, Park 1 a.g Flowing, Counter Flowing, Spring, Stagnant, Drag-infout, Park 1 a.g Flowing, Spring, Stagnant, Drag-infout, Park 1 a.g Flowing Spring, Stagnant, Drag-infout, Park 1 a.g Flowing, Stagnant, Drag-infout, Park 1 a.g Flowing Spring, Stagnant, Drag-infout, Park 1 a.g Flowing, Stagnant, Drag-infout, Park 1 a.g Flowing Spring, Stagnant, Drag-infout, Park 1 a.g Flowing, Stagnant, Drag-infout, Park 1 a.g Flowing Spring, Stagnant, Drag-infout, Park 1 a.g Flow			Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
A3.1 [a.g., Flowing, Counter Flowing, Strays, Stagnant, Drag-injout, Indiana, Stagnant, Drag-i	Rins	se (This section is to be repeated as necessary to docu	ment all individual rinse step	s in the entire		•	•	•	
Ass. 2 a_, Municipal_Deointed_ODI,Reverse Oesnoss (RO), etc. NA	e.g.,	., Flowing, Counter Flowing, Spray, Stagnant, Drag-in/out,	NA	NA	NA	NA		Counter Flowing	
As a g., Mechanical (Describe), Air, Ultrasonic, etc.  No.	e.g.	., Municipal, Deionized (DI),Reverse Osmosis (RO), etc.	NA	NA	NA	NA		Municipal	
As 3. Solution Level — Parts, heatlers, and transducers are completely submerged. Automatic or Manual Manual Continuous monitoring by controller, Manually verify daily for parts, heatlers, and transducers are completely submerged.  As 3. Fine Quality - Identify in comment section — Automatic or Manual			NA	NA	NA	NA		Air	
A3.5   Elvar tepf (applicable)   Manual   Manual   Once every 8 hours.*   1/8 hours worked   Conforming   Sec Control Plan	- Pa	arts, heaters, and transducers are completely submerged.	Automatic or Manual	Manual	automatic controls, every 8 hours for systems without	1/8 hours worked	Conforming	See Control Plan	Yes
A3.7 Tank and solution maintenance schedule documented and followed.  4.0 Rinse (This section is to be repeated as necessary to document all individual rinse steps in the entire representation owner. The entire representation representation representation representation representation representation. As a counter Flowing, Spray, Stagnant, Drag-in/out, etc.  4.1 Rinse (This section is to be repeated as necessary to document all individual rinse steps in the entire representation rep			Manual	Manual	Once every 8 hours.*	1/8 hours worked	Conforming	See Control Plan	1754
Additional to the properties and transducers are completely submerged.  Ad. 5. Solution Level - Parts, heaters, and transducers are completely submerged.  Ad. 6. Flow rate (flappicable)  Ad. 6. Flow rate (flappicable)  Ad. 7. Solution maintenance should be a few feed is near the bottom (if manual Manual Manual Per preventive maintenance program.  Ad. 8. Flow rate (flappicable)  Ad. 9. Acid Pickling  Ad. 8. Flow rate (flappicable)  Ad. 9. Acid Pickling  Ad. 8. Flow rate (flappicable)  Ad. 9. Acid Pickling  Ad. 8. Flow rate (flappicable)  Ad. 9. Acid Pickling  Ad. 8. Flow rate (flappicable)  Ad. 9. Acid Pickling  Ad. 8. Flow rate (flappicable)  Ad. 9. Acid Pickling  Ad. 8. Flow rate (flappicable)  Ad. 8. Flow rate (flappicable	Flow	w rate (if applicable)	Manual	Manual	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes
Rinse Type - Identify in comment section e.g., Flowing, Counter Flowing, Spray, Stagnant, Drag-in/out, etc.  4.2. Water Type- Identify in comment section e.g., Municipal, Describe), Air, Ultrasonic, etc.  4.3. Agitation type - Identify in comment section (if applicable) - Parts, heaters, and transducers are completely submerged.  4.4. Solution Level - Parts, heaters, and transducers are completely submerged.  4.5. Rinse Quality - Identify in comment section e.g., Municipal, Describe), Air, Ultrasonic, etc.  4.6. Solution Level - Parts, heaters, and transducers are completely submerged.  4.6. Rinse Quality - Identify in comment section e.g., pH, Impurity Check, Conductivity  4.6. Flow rate (if applicable) immersion tank).  4.7. Very position of incoming water feed is near the bottom (if immersion tank).  4.8. Tank and solution maintenance schedule documented and followed.  4.9 Acid Pickling  4.1 Type-It Confernital  5.0 Acid Pickling  5.0 Concentration  4.1 Concentration  4.2 Concentration  5.2 Concentration  5.2 Concentration  6.2 Conforming  6.2 Control Plan in Vision of incoming water feed is near the bottom (if immersion tank).  6.3 Acid Pickling  7.5 Concentration  6.5 Concentration  7.5 Concentration  7.7			Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
A4.1 e.g., Flowing, Counter Flowing, Spray, Stagnant, Drag-in/out, etc.  A4.2 Water Type- Identify in comment section e.g., Municipal, Delonized (Di), Reverse Osmosis (RO), etc.  A4.3 Agitation type- Identify in comment section (if applicable) e.g., Municipal, Delonized (Di), Reverse Osmosis (RO), etc.  A4.3 Agitation type- Identify in comment section (if applicable) e.g., Mechanical (Describe), Air, Ultrasonic, etc.  A4.4 Solution Level - Parts, heaters, and transducers are completely submerged.  A4.5 Solution Level - Parts, heaters, and transducers are completely submerged.  A4.6 Flow rate, if applicable)  A4.7 Rinse Quality - Identify in comment section (applicable) e.g., Mechanical (Describe), Air, Ultrasonic, etc.  A4.6 Flow rate (if applicable)  A4.7 Immersion tank).  A4.7 Immersion tank).  A4.8 Flow rate (if applicable)  A4.8 Tank and solution maintenance schedule documented and followed.  A4.8 Tank and solution maintenance schedule documented and followed.  A5.8 Acid Pickling  Type: HCL  Size, volume: Confidential  A5.1 Concentration  A5.1 Concentration  A6.1 Concentration  A6.2 Manual  A6.3 Manual  A6.4 Manual  A6.5 Manual  A6.5 Manual  A6.6 Manual  A6.7 Manual  A6.7 Manual  A6.8 Manual  A6.8 Manual  A6.9 Manual	Rins	se (This section is to be repeated as necessary to docu	ment all individual rinse step	s in the entire					
A4.2 e.g., Municipal, Deionized (DI), Reverse Osmosis (RO), etc.  A4.3 Agitation type - Identify in comment section (if applicable) e.g., Mechanical (Describe), Air, Ultrasonic, etc.  A4.4 Solution Level - Parts, heaters, and transducers are completely submerged.  A4.5 Rinse Quality - Identify in comment section e.g., PH, Impurity Check, Conductivity  A4.6 Flow rate (if applicable)  A4.7 Wannual Manual Manual Once every 8 hours.  A4.6 Flow rate (if applicable)  A4.7 Verify position of incoming water feed is near the bottom (if mimersion tank).  A4.6 Flow rate (if applicable)  A4.7 Verify position of incoming water feed is near the bottom (if mimersion tank).  A4.8 Tank and solution maintenance schedule documented and flowed.  A4.8 Tollowed.  A5.1 Concentration  A5.1 Concentration  A6.1 Concentration  A6.2 Manual Manual Once every 8 hours.  A6.3 Conforming See Control Plan Verify position of incoming water feed is near the bottom (if manual manual manual manual manual manual manual per preventive maintenance program.  A6.1 Concentration  A6.2 Conforming See Control Plan Verify position of incoming water feed is near the bottom (if manual manual manual manual manual manual manual manual manual per preventive maintenance program.  A6.1 Concentration  A6.2 Per preventive maintenance program.  A6.3 Conforming N/A  Conforming	e.g.,		NA	NA	NA	NA		Counter Flowing	
A4.3 Agitation type - Identify in comment section (if applicable) e.g., Mechanical (Describe), Air, Ultrasonic, etc.  A4.4 Solution Level - Parts, heaters, and transducers are completely submerged.  A4.5 Rinse Quality - Identify in comment section e.g., pH, Impurity Check, Conductivity  A4.6 Flow rate (if applicable)  A4.7 Warring position of incoming water feed is near the bottom (if followed.)  A4.8 Tank and solution maintenance schedule documented and followed.  A5.9 Agitation type - Identify in comment section (if applicable)  A6.1 Flow rate (if applicable)  A6.2 Flow rate (if applicable)  A6.3 Flow rate (if applicable)  A6.4 Flow rate (if applicable)  A6.5 Flow rate (if applicable)  A6.6 Flow rate (if applicable)  A6.7 Verify position of incoming water feed is near the bottom (if followed.)  A6.7 Verify position of incoming water feed is near the bottom (if followed.)  A6.8 Tank and solution maintenance schedule documented and followed.  A6.9 Flow rate (if applicable)  A6.9 Flow rate (if applicable)  A6.1 Tank and solution maintenance schedule documented and followed.  A6.9 Flow rate (if applicable)  A6.9 Flow rate (if applicable)  A6.1 Tank and solution maintenance schedule documented and followed.  A6.9 Flow rate (if applicable)  A6.9 Flow rate (if ap			NA	NA	NA	NA		Municipal	
A4.4 - Parts, heaters, and transducers are completely submerged.  A4.5 Rinse Quality - Identify in comment section e.g., pH, Impurity Check, Conductivity  A4.6 Flow rate (if applicable)  A4.7 Verify position of incoming water feed is near the bottom (if immersion tank).  Tank and solution maintenance schedule documented and followed.  A5.0 Acid Pickling  Type: HCL  Size, volume: Confidential  Concentration  A6.1 Concentration  A6.2 Concentration  A8.3 Manual  A8.4 Concentration  A8.4 Concentration  A8.5 Control Plan Manual  A8.5 Manual  A8.6 Manual  A8.6 Manual  A8.7 Manual  A8.8 Manual  A8.8 Manual  A8.9 Manual  A8.0 Man			NA	NA	NA	NA		Air	
A4.6 Flow rate (if applicable) Manual Manual Once every 8 hours. 178 hours worked Conforming See Control Plan 8 A4.6 Flow rate (if applicable) Manual Manual Once every 8 hours. 178 hours worked Conforming See Control Plan 18 A4.7 Immersion tank). Manual Manual Per preventive maintenance program. 178 hours worked Conforming See Control Plan 18 A4.8 Tank and solution maintenance schedule documented and followed. Manual Per preventive maintenance program. 178 hours worked Conforming See Control Plan 19 A4.8 Tank and solution maintenance schedule documented and followed. Manual Per preventive maintenance program. 178 hours worked Conforming See Control Plan 19 A4.8 Tank and solution maintenance schedule documented and followed. Type: HCL Size, volume: Confidential Chemical supplier: Confidential A5.1 Concentration Manual Manual Manual Once every 8 hours*  Manual Once every 8 hours. Type: HCL Size, volume: Confidential Chemical supplier: Confidential Size, volume: Confidential Size,			Automatic or Manual	Manual	automatic controls, every 8 hours for systems without	1/8 hours worked	Conforming	See Control Plan	Yes
A4.7 Verify position of incoming water feed is near the bottom (if immersion tank).  A4.8 Tank and solution maintenance schedule documented and followed.  5.0 Acid Pickling  Type: HCL  Size, volume: Confidential  Chemical supplier: Confidential  A5.1 Concentration  Manual  Manu			Manual	Manual	Once every 8 hours.*	1/8 hours worked	Conforming	See Control Plan	857
A4. Immersion tank). Manual Manual Per preventive maintenance program. 1/ month Conforming N/A C	Flow	w rate (if applicable)	Manual	Manual	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes
A5.0   followed.   Manual   Per prevenue maintenance program.   17 month   Conforming   N/A   Conforming   N/A   Conforming   N/A   Conforming   Conforming   N/A   Conforming   Conforming		, ,	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
Type: HCL Size, volume: Confidential  Chemical supplier: Confidential  A5.1 Concentration Manual Manual Once every 8 hours*  Manual Once every 8 hours*  Concentration Size volume: Confidential  A5.1 Concentration Size volume: Confidential  Conforming. Data points show that reduced frequency is able to maintain			Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
Size, volume: Confidential  Chemical supplier: Confidential  A5.1 Concentration Manual Manual Once every 8 hours*  Manual Once every 8 hours*  Once every 8 hours*  Conforming. Data points show that reduced frequency is able to maintain	Acid	d Pickling							
A5.1 Concentration Manual Manual Once every 8 hours*  Concentration Confidential  A5.1 Concentration Manual Manual Once every 8 hours*  Confidential Conforming. Data points show that reduced frequency is able to maintain	Тур	pe: HCL							
A5.1 Concentration Manual Manual Once every 8 hours*  Concentration  Manual Manual Once every 8 hours*  Conforming. Data points show that reduced frequency is able to maintain  See Control Plan 3	Size	e, volume: Confidential							
A5.1 Concentration Manual Manual Once every 8 hours* points show that reduced something to maintain points show that reduced worked. See Control Plan to maintain	Che	emical supplier: Confidential							
process control.			Manual	Manual	Once every 8 hours*		points show that reduced frequency is able to maintain		37.45
AS.2 from chemical supplier with required corrective actions. Manual Manual Once per month. 1/ month Conforming See Control Plan	from	n chemical supplier with required corrective actions.			·		_		4.39   1178.52   24.43   15.57
A5.3 Time (Less than 10 Minutes or Customer Specific) Automatic Automatic After any program changes. N/A N/A N/A N/A N/A	Time	e (Less than 10 Minutes or Customer Specific)	Automatic	Automatic	After any program changes.	N/A	N/A	N/A	4 Min.



				T	T	1= .		C.
A5.4	Solution Level	Manual	Manual	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes
A5.5	Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
6.0	Rinse (This section is to be repeated as necessary to docu	ment all individual rinse step	s in the entire					
A6.1	Rinse Type - Identify in comment section e.g., Flowing, Counter Flowing, Spray, Stagnant, Drag-in/out, etc.	NA	NA	NA	NA		Flowing	
A6.2	Water Type- Identify in comment section e.g., Municipal, Deionized (DI),Reverse Osmosis (RO), etc.	NA	NA	NA	NA		Municipal	
A6.3	Agitation type - Identify in comment section (if applicable) e.g., Mechanical (Describe), Air, Ultrasonic, etc.	NA	NA	NA	NA		Air	
A6.4	Solution Level - Parts, heaters, and transducers are completely submerged.	Automatic or Manual	Manual	Continuous monitoring by controller. Manually verify daily for automatic controls, every 8 hours for systems without controllers.	1/8 hours worked	Conforming	See Control Plan	Yes
A6.5	Rinse Quality - Identify in comment section e.g., pH, Impurity Check, Conductivity	Manual	Manual	Once every 8 hours.*	1/8 hours worked	Conforming	See Control Plan	3751
A6.6	Flow rate (if applicable)	Manual	Manual	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes
A6.7	Verify position of incoming water feed is near the bottom (if immersion tank).	Manual	Manual	1/Month	1/ month	Conforming	N/A	Complete
A6.8	Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
7.0	Rinse (This section is to be repeated as necessary to docu	ment all individual rinse step	s in the entire					
	etc.	NA	NA	NA	NA		Flowing	
A7.2	Water Type- Identify in comment section e.g., Municipal, Deionized (DI),Reverse Osmosis (RO), etc.	NA	NA	NA	NA		Municipal	
A7.3	Agitation type - Identify in comment section (if applicable) e.g., Mechanical (Describe), Air, Ultrasonic, etc.	NA	NA	NA	NA	Air		
A7.4	Solution Level - Parts, heaters, and transducers are completely submerged.	Automatic or Manual	Manual	Continuous monitoring by controller. Manually verify daily for automatic controls, every 8 hours for systems without controllers.	1/8 hours worked	Conforming	See Control Plan	Yes
A7.5	Rinse Quality - Identify in comment section e.g., pH, Impurity Check, Conductivity	Manual	Manual	Once every 8 hours.*	1/8 hours worked	Conforming	See Control Plan	1880
A7.6	Flow rate (if applicable)	Manual	Manual	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes
A7.7	Verify position of incoming water feed is near the bottom (if immersion tank).	Manual	Manual	1/Month	1/ month	Conforming	N/A	Complete
A7.8	Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
	Alkaline Plating Bath							
	Type: Zinc-Iron							
	Size, volume: Confidential Chemical supplier: Confidential							
	Temperature (Thermocouple)	Automatic Max SAT difference allowed +/- 3°C (5°F).	Automatic	Continuous monitoring by controller. Manually verify daily.	1/8 hours worked	Conforming	See Control Plan	84
A8.2	Time	Automatic or Manual	Automatic	Automatic - After any program changes. Manual - every load.*	N/A	N/A	N/A	19 Min
A8.3	Solution Level - Parts, heaters, and transducers are completely submerged.	Automatic or Manual	Manual	Continuous monitoring by controller. Manually verify daily for automatic controls, every 8 hours for systems without controllers.	1/8 hours worked	Conforming	See Control Plan	Yes
A8.4	Current/Voltage	Automatic or Manual	Manual	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	5.5
A8.5	Plating Test Cell (Hull Cell)	Manual	Manual	Once per day.	1/24 hours worked	Conforming	See Control Plan	1.5
	Zinc Generator Tank (if applicable) -Caustic Concentration -Zinc Concentration	Automatic or Manual	Manual	Once every 8 hours.	2/24 hours worked	Conforming. Data points show that reduced frequency is able to maintain process control.	See Control Plan	19.15   3.45
	•				4/041	0 6	0 0	18.72
A8.7	Caustic Concentration	Manual	Manual	Once per day.	1/24 hours worked	Conforming	See Control Plan	10.72



Marcal   M									
Name	A8.9	Alloying Element Concentration (e.g., Fe, Ni, Co; if applicable)	Manual	Manual	Once per day.	1/24 hours worked	Conforming	See Control Plan	
Manual   M	A8.10	Complexor Concentration (for alloy baths)	Manual	N/A	Once per month by Supplier.	1/ month	Conforming		
A.S.   A.S.   Completion of the properties of	A8.11		Manual	Manual	Once per month.	1/ month	Conforming	See Control Plan	118.22   13.32
Alloration   Natural   Natural   Natural   Natural   Natural   Natural   Olice per motifier by supplier.   17 fortion   October   Octo	A8.12	Carbonate (CO <sub>3</sub> ) concentration	Manual	Manual	Once per month (Twice per month for alloy plating).	2/ month	Conforming	See Control Plan	8.5
AB.   S. Algorithmetic conychoiners opportunity   Continuous   Continuous   Continuous   Na.   Continuous   Continuous   Na.   Continuous   Continuous   Na.   Continuous   C	A8.13		Manual	N/A	Once per month by Supplier.	1/ month	Conforming		
Manual   M	A8.14	Chemical feeders	Automatic	Automatic	Once per week.	1/24 hours worked	Conforming	See Control Plan	35   96   51
Radic Order every 24 hours.   Salvania   Namual   Namua	A8.15	Agitation (Rack only - others optional)	Continuous	Continuous	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes
Asia	A8.16	Filtration Pressure	Continuous	N/A	Once every 8 hours.	N/A	N/A	N/A	N/A
As 10 Rines (This section is to be repeated as necessary to document all individual rines etype in the entire of a periodic point of the position of norming water feed in ear the bottom (if applicable) as a.g. Periodic point point of applicable) and point of applicable)	A8.17		Manual	Manual		1/ week	Conforming	N/A	process may cause customer rejections and should only be done when the line
As Res Type - Identify in comment section education (FO) etc.  As 2   Water Type- Identify in comment section education (FO) etc.  As 3   Solution Level   As 3   Solution (Level   As 3   As 3	A8.18		Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
As1 eg. Flowing, Counter Flowing, Spray, Stignant, Drag-incut, etc.  As2 (Aler Type- Identify in comment section eg. Municipal Denotrate (ID), Reverse Camonis (RO), etc.  As3 Againth spe- Againth in comment section (II) provided the control of th	9.0	Rinse (This section is to be repeated as necessary to docu	ment all individual rinse step	s in the entire					· · · · · · · · · · · · · · · · · · ·
Ag_Maintipal_Delonized (Di)Reverse Osmosis (RO), etc.  Ag_Maintipa	A9.1	e.g., Flowing, Counter Flowing, Spray, Stagnant, Drag-in/out,	NA	NA	NA	NA		Flowing	
Ag. Solution Level - Parts, heaters, and transducers are completely submerged. Ag. Solution Level - Parts, heaters, and transducers are completely submerged. Ag. Solution Level - Parts, heaters, and transducers are completely submerged. Ag. Solution Level - Parts, heaters, and transducers are completely submerged. Ag. Solution Level - Parts, heaters, and transducers are completely submerged. Ag. Solution Level - Parts, heaters, and transducers are completely submerged. Ag. Solution Level - Parts, heaters, and transducers are completely submerged. Ag. Solution Level - Parts, heaters, and transducers are completely submerged. Ag. Solution Level - Parts, heaters, and transducers are completely submerged. Ag. Solution Level - Parts, heaters, and transducers are completely submerged. Ag. Solution Level - Parts, heaters, and transducers are completely submerged. Ag. Solution Level - Parts, heaters, and transducers are completely submerged. Ag. Solution Level - Parts, heaters, and transducers are completely submerged. Ag. Solution Level - Parts, heaters, and transducers are completely submerged. Ag. Solution Conductivity - Parts, heaters, and transducers are completely submerged. Ag. Solution Conductivity - Parts, heaters, and transducers are completely submerged. Ag. Solution Conductivity - Parts, heaters, and transducers are completely submerged. Ag. Solution Conductivity - Parts, heaters, and transducers are completely submerged. Ag. Solution Conductivity - Parts, heaters, and transducers are completely submerged. Ag. Solution maintenance schedule documented and followed Per preventive maintenance program Manual - Altonatic - Automatic - Automa	A9.2	e.g., Municipal, Deionized (DI),Reverse Osmosis (RO), etc.	NA	NA	NA	NA		Municipal	
Adultantic or Manual Manual automatic controls, every 8 hours for systems without 18 hours worked Conforming See Control Plan Yes election (controllers.  Altomatic or Manual Manual Once every 8 hours.  Altomatic or Manual Manual Per preventive maintenance program.  Altomatic or Manual Manual Once every 8 hours.  Altomatic or Manual Manual Once every 8 hours.  Altomatic or Manual Manual Once every 8 hours.  Altomatic or Manual Manual Once every 9 hours for rack line.  Altomatic Ordoning See Control Plan Vas	A9.3		NA	NA	NA	NA	Air		
As 5 eg., p.H. Impurity Check, Conductivity Manual Manual Once every 8 hours. 178 hours worked Conforming See Control Plan (50) As 6 Flow rate (if applicable) Manual Manual Once every 8 hours. 178 hours worked Conforming See Control Plan (76) As 7. Flow rate (if applicable) Manual Manual Per preventive maintenance program. 17 month Conforming N/A Complete Manual Per preventive maintenance program. 17 month Conforming N/A Complete Manual Per preventive maintenance program. 17 month Conforming N/A Complete Manual Per preventive maintenance program. 17 month Conforming N/A Complete Manual Per preventive maintenance program. 17 month Conforming N/A Complete Manual Per preventive maintenance program. 17 month Conforming N/A Complete Manual Once every 8 hours. 17 month Conforming See Control Plan (72) Activation (16, n., ntric, suffuric, etc.)  In the Advantagle Automatic Alter any program changes. 17 hours worked Conforming See Control Plan (72) Activation (16, n., ntric, suffuric, etc.)  In the Advantagle Automatic Alter any program changes. 17 hours worked Conforming See Control Plan (72) Activation (16, n., ntric, suffuric, etc.)  In the Advantagle Automatic Automatic After any program changes. N/A	A9.4	- Parts, heaters, and transducers are completely submerged.	Automatic or Manual	Manual	automatic controls, every 8 hours for systems without	1/8 hours worked	Conforming	See Control Plan	Yes
A3.7 Verify position of incoming water feed is near the bottom (if immersion tank).  1. Tank and solution maintenance schedule documented and followed.  1. Tank and solution maintenance schedule documented and followed.  1. Tank and solution maintenance schedule documented and followed.  1. Tank and solution maintenance schedule documented and followed.  1. Tank and solution maintenance schedule documented and followed.  1. Tank and solution maintenance schedule documented and followed.  1. Tank and solution maintenance schedule documented and followed.  1. Tank and solution maintenance schedule documented and followed.  1. Tank and solution maintenance schedule documented and followed.  1. Tank and solution maintenance schedule documented and followed.  1. Tank and solution maintenance schedule documented and followed.  1. Tank and solution maintenance schedule documented and followed.  1. Tank and solution maintenance schedule documented and followed.  1. Tank and solution maintenance schedule documented and followed.  1. Tank and solution maintenance schedule documented and followed.  1. Tank and solution maintenance schedule documented and followed.  1. Tank and solution maintenance schedule documented and followed.  1. Tank and solution maintenance schedule documented and followed.  1. Tank and solution maintenance schedule documented and followed.  1. Tank and solution maintenance schedule documented and followed.  1. Tank and solution maintenance schedule documented and followed.  1. Tank and solution maintenance schedule documented and followed.  1. Tank and solution maintenance schedule documented and followed.  1. Tank and solution maintenance schedule documented and followed.  1. Tank and solution maintenance schedule documented and followed.  1. Tank and solution maintenance schedule documented and followed.  1. Tank and solution maintenance schedule documented and followed.  1. Tank and solution maintenance schedule documented and followed.  1. Tank and solution maintenance schedule documented and	A9.5		Manual	Manual	Once every 8 hours.*	1/8 hours worked	Conforming	See Control Plan	630
mersion tank). Manual Nanual Nanual Per preventive maintenance program. If month Conforming NA Complete Nanual Nanual Per preventive maintenance program. If month Conforming NA Complete Nanual College Nanual Nanual Per preventive maintenance program. If month Conforming NA Complete Nanual College Nanual Nanual Per preventive maintenance program. If month Conforming NA Complete Nanual Conforming NA Complete Nanual Nanua	A9.6	· · · · · /	Manual	Manual	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes
Notion Manual Manual Manual Per preventive maintenance program. 1/month Comming N/A Complete Notice Acid Activation (i.e., nitric, sulfuric, etc.)  Notion Manual Manual Manual Once every 8 hours. 1/1 hours worked Conforming See Control Plan 2.2  A10.2 Time Manual Manual Manual Once every 28 hours. 1/1 hours worked Conforming See Control Plan 1 Min.  NA N/A N/A N/A N/A N/A N/A N/A N/A N/A N	A9.7	immersion tank).	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
A10.1 pH/concentration Manual Automatic Once every 8 hours. 1/1 hours worked Conforming See Control Plan 2.2 A10.2 Time Manual Automatic* Automatic After any program changes. N/A N/A N/A N/A 1 Min. A10.3 Fallen part removal Manual Manual Once every 24 hours for rack line. 1/24 hours worked Conforming See Control Plan Yes A10.4 Tank and solution maintenance schedule documented and followed. A11.5 Rinse (This section is to be repeated as necessary to document all individual rinse steps in the entire A11.6 Rinse (This section is to be repeated as necessary to document all individual rinse steps in the entire A11.1 Rinse (This section is to be repeated as necessary to document all individual rinse steps in the entire A11.1 Rinse (This section is to be repeated as necessary to document all individual rinse steps in the entire A11.1 Rinse (This section is to be repeated as necessary to document all individual rinse steps in the entire A11.1 Rinse (This section is to be repeated as necessary to document all individual rinse steps in the entire A11.1 Rinse (This section is to be repeated as necessary to document all individual rinse steps in the entire A11.2 Water Type - Identify in comment section A11.4 Agnical Operatory of the comment section A11.5 Rinse Quality - Identify in comment section A12.5 Rinse Quality - Identify in comment section A13.6 Spray - Identify in comment section A14.6 Spray - Identify in comment section A15.6 Spray - Identify in comment section A16.6 Spray - Identify in comment section A17.5 Rinse Quali		followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
A10.2 Time Automatic* Automatic After any program changes. N/A N/A N/A N/A N/A 1 Min.  A10.3 Fallen part removal Manual Manual Once every 24 hours for rack line. 1/24 hours worked Conforming See Control Plan Yes  A10.4 Tank and solution maintenance schedule documented and followed.  A11.5 Spray, Municipal, Describe, Air, Ultrasonic, etc.  A12.5 Passivates  A13.5 Fallen part removal Manual Manual Per preventive maintenance program. 1/ month Conforming N/A Complete Onforming N/A Complete  A14.6 Spray Spray, Stagnant, Drag-in/out, etc.  A15.9 Flow rate (if applicable) Manual Manual Once every 8 hours.  A16.1 Spray nozzele conditor) (if applicable) Manual Manual Once every 8 hours.  A17.6 Passivates  A17.7 Tank and solution maintenance schedule documented and followed.  A18.1 Spray nozzele condition if applicable) Manual Manual Once every 8 hours.  A18.1 Spray nozzele condition if applicable) Manual Manual Once every 8 hours.  A18.1 Spray nozzele condition if applicable) Manual Manual Once every 8 hours.  A19.5 Passivates									
A10.3 Fallen part removal Manual Manual Once every 24 hours for rack line. 1/24 hours worked Conforming See Control Plan Yes  A10.4 Tank and solution maintenance schedule documented and followed. 1/month Conforming N/A Complete  A11.0 Rinse (This section is to be repeated as necessary to document all individual rinse steps in the entire  A11.1 Rinse (This section is to be repeated as necessary to document all individual rinse steps in the entire  A11.1 Rinse (This section is to be repeated as necessary to document all individual rinse steps in the entire  A11.1 Rinse (This section is to be repeated as necessary to document all individual rinse steps in the entire  A11.2 Rinse (This section is to be repeated as necessary to document all individual rinse steps in the entire  A11.1 NA									
A10.4 Tank and solution maintenance schedule documented and followed.  1.0 Rinse (This section is to be repeated as necessary to document all individual rinse steps in the entire  1.1.0 Rinse (This section is to be repeated as necessary to document all individual rinse steps in the entire  1.1.1 Rinse (This section is to be repeated as necessary to document all individual rinse steps in the entire  1.1.1 Rinse (This section is to be repeated as necessary to document all individual rinse steps in the entire  1.1.1 Rinse (This section is to be repeated as necessary to document all individual rinse steps in the entire  1.1.2 Rinse (This section is to be repeated as necessary to document all individual rinse steps in the entire  1.1.3 Rinse (This section is to be repeated as necessary to document all individual rinse steps in the entire  1.1.4 NA	A10.2	Time	Automatic*	Automatic	After any program changes.	N/A	N/A	N/A	1 Min.
followed. Manual Manual Manual Per preventive maintenance program. If month Conforming IV/A Complete  11.0 Rinse (This section is to be repeated as necessary to document all individual rinse steps in the entire  A11.1 Page (Page 1) (Page 2) (Page	A10.3	•	Manual	Manual	Once every 24 hours for rack line.	1/24 hours worked	Conforming	See Control Plan	Yes
Rinse Type - Identify in comment section e.g., Flowing, Counter Flowing, Spray, Stagnant, Drag-in/out, etc.  A11.2 Water Type- Identify in comment section e.g., Municipal, Delonized (DI), Reverse Osmosis (RO), etc.  A13.4 Agitation type - Identify in comment section (fi applicable) e.g., Mechanical (Describe), Air, Ultrasonic, etc.  A14.4 Rinse Quality - Identify in comment section e.g., pH, Impurity Check, Conductivity  A15.5 Flow rate (if applicable) A16.5 Spray nozzle condition (if applicable) A17.6 Spray nozzle condition (if applicable) A18.6 Spray nozzle condition (if applicable) A19.7 Tank and solution maintenance schedule documented and followed.  A19.8 Rinse Quality - Identify in comment section Manual  A10.6 Spray nozzle condition (if applicable) A11.6 Spray nozzle condition (if applicable) A11.7 Tank and solution maintenance schedule documented and followed.  A11.8 Proventive maintenance program.  A12.8 Rinse Quality - Identify in comment section Manual  A13.9 Rinse Quality - Identify in comment section Manual  A14.1 Manual  A15.5 Flow rate (if applicable)  A16.6 Spray nozzle condition (if applicable)  A17.7 Tank and solution maintenance schedule documented and followed.  A18.7 Tank and solution maintenance schedule documented and followed.  A19.8 Pre preventive maintenance program.  A19.8 NA  A10.8 NA  A10.8 NA  A11.8 NA  A11.8 NA  A11.8 NA  A12.8 NA  A13.9 NA  A14.9 NA  A15.9 NA  A15.9 NA  A16.9 NA  A17.9 NA  A17.9 NA  A18.0 NA  A18.0 NA  A19.0 NA  A11.0 NA  A	A10.4	followed.			Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
A11.1 e.g., Flowing, Counter Flowing, Spray, Stagnant, Drag-in/out, etc.  A11.2 Water Type- Identify in comment section e.g., Municipal, Deionized (DI), Reverse Osmosis (RO), etc.  A11.3 Agitation type - Identify in comment section (if applicable) e.g., Municipal, Deionized (Di), Reverse Osmosis (RO), etc.  A11.4 Rinse Quality - Identify in comment section e.g., pH, Impurity Check, Conductivity  A11.5 Flow rate (if applicable) A11.6 Spray nozzle condition (if applicable) A11.6 Spray nozzle condition (if applicable) A11.7 Tank and solution maintenance schedule documented and followed.  A11.7 Tank and solution maintenance schedule documented and followed.  A11.8 Passivates  A11.9 NA  A12.0 NA  A13.0 NA  A14.0 NA  A15.0 NA  A15.0 NA  A16.0 NA  A17.0 NA  A17.0 NA  A18.0 NA  A18.0 NA  A18.0 NA  A19.0 NA  A11.5 Plow rate (if applicable)  A19.0 NA  A11.6 Spray nozzle condition (if applicable)  A19.0 NA  A19.0	11.0	·	ment all individual rinse step	s in the entire		1	ı		
A11.2 e.g., Municipal, Deionized (DI), Reverse Osmosis (RO), etc. A11.3 e.g., Municipal, Deionized (DI), Reverse Osmosis (RO), etc. A11.4 e.g., Mechanical (Describe), Air, Ultrasonic, etc. A11.5 Plow rate (if applicable) e.g., pH, Impurity Check, Conductivity A11.5 Plow rate (if applicable) A11.6 Spray nozzle condition (if applicable) A11.6 Spray nozzle condition (if applicable) A11.7 Tank and solution maintenance schedule documented and followed. A12.8 Per preventive maintenance program. A13.9 NA A14.0 NA A15.0 NA A15.0 NA A16.0 NA A17.0 NA A17.0 NA A17.0 NA A18.0 NA A18.0 NA A18.0 NA A19.0 NA A19.0 NA A19.0 NA A19.0 NA A19.0 NA A11.5 Plow rate (if applicable) A11.6 Spray nozzle condition (if applicable) A11.7 Tank and solution maintenance schedule documented and followed. A17.0 Na A18.0 NA A18.0 NA A18.0 NA A18.0 NA A18.0 NA A19.0 NA A11.6 NA A19.0 NA A11.6 NA A	A11.1	e.g., Flowing, Counter Flowing, Spray, Stagnant, Drag-in/out,	NA	NA	NA	NA		Spray	
A11.5   e.g., Mechanical (Describe), Air, Ultrasonic, etc.  A11.6   Rinse Quality - Identify in comment section e.g., pH, Impurity Check, Conductivity  A11.5   Flow rate (if applicable)  A11.6   Spray nozzle condition (if applicable)  A11.7   Tank and solution maintenance schedule documented and followed.  A11.7   Tank and solution maintenance schedule documented and followed.  A11.8   Per preventive maintenance program.  A11.9   Passivates  A11.7   Passivates	A11.2	e.g., Municipal, Deionized (DI),Reverse Osmosis (RO), etc.	NA	NA	NA	NA		Municipal	
A11.4 e.g., pH, Impurity Check, Conductivity Manual Manual Once every 8 nours.* N/A	A11.3	e.g., Mechanical (Describe), Air, Ultrasonic, etc.	NA	NA	NA	NA		NA	
A11.6 Spray nozzle condition (if applicable)  Manual	A11.4	e.g., pH, Impurity Check, Conductivity	Manual		·				
A11.7 Tank and solution maintenance schedule documented and followed.  A11.7 Tank and solution maintenance schedule documented and followed.  A11.7 Tank and solution maintenance schedule documented and followed.  A11.7 Tank and solution maintenance schedule documented and followed.  A11.7 Tank and solution maintenance schedule documented and followed.  A11.7 Tank and solution maintenance schedule documented and followed.  A11.7 Tank and solution maintenance schedule documented and followed.  A11.7 Tank and solution maintenance schedule documented and followed.  A11.7 Tank and solution maintenance schedule documented and followed.  A11.7 Tank and solution maintenance schedule documented and followed.  A11.7 Tank and solution maintenance schedule documented and followed.  A11.7 Tank and solution maintenance schedule documented and followed.  A11.7 Tank and solution maintenance schedule documented and followed.  A11.7 Tank and solution maintenance schedule documented and followed.  A11.7 Tank and solution maintenance schedule documented and followed.  A11.7 Tank and solution maintenance schedule documented and followed.  A11.7 Tank and solution maintenance schedule documented and followed.  A11.7 Tank and solution maintenance schedule documented and followed.  A11.7 Tank and solution maintenance schedule documented and followed.  A11.7 Tank and solution maintenance schedule documented and followed.  A11.7 Tank and solution maintenance schedule documented and followed.  A11.7 Tank and solution maintenance schedule documented and followed.  A11.7 Tank and solution maintenance schedule documented and followed.  A11.7 Tank and solution maintenance schedule documented and followed.  A11.7 Tank and solution maintenance schedule documented and followed.  A11.7 Tank and solution maintenance schedule documented and followed.  A11.7 Tank and solution maintenance schedule documented and followed.  A11.7 Tank and solution maintenance schedule documented and followed.  A11.7 Tank and schedule documented and followed.  A11.7 Ta				,					
AT1.7   followed.   Manual   Manual   Per preventive maintenance program.   17 month   Conforming   N/A   Complete   12.0   Passivates	A11.6		Manual	Manual	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes
	A11.7	followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
Type: Thick Film Trivalent	12.0								
		Type: Thick Film Trivalent							



	Size, volume: Confidential								
	Chemical supplier: Confidential								
	Concentration	Automatic or Manual		Prior to production start-up. If automatic control, once per day. If manual, once every 8 hours.	1/24 hours worked	Conforming	See Control Plan	5.52	
A12.2	Temperature (Thermocouple)	Automatic Max SAT difference allowed +/- 1°C (2°F).	Automatic	Continuous monitoring by controller. Manually verify daily.	1/8 hours worked	Conforming	See Control Plan	74	
A12.3	Time	Automatic or Manual	Automatic	Automatic - After any program changes.  Manual - every load.*	N/A	N/A	N/A	1 Min.	
A12.4	Solution Level - Parts, heaters, and transducers are completely submerged.	Automatic or Manual	Manual	Continuous monitoring by controller. Manually verify daily for automatic controls, every 8 hours for systems without controllers.	1/8 hours worked	Conforming	See Control Plan	Yes	
A12.5	1	Automatic*	Automatic	Prior to production start-up. If automatic control, once per day. If manual, once every 8 hours.	1/1 Hours worked		See Control Plan	1.9	
	Agitation	Automatic	Automatic	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan		
A12.7	Metallic Impurity level(s) (e.g., Fe, Zn)	Manual	Manual	Once per week.	1/ week	Conforming	See Control Plan	82.83   3357.75	
A12.8	Fallen part removal	Manual	Manual	Once every 24 hours for rack line.	1/24 hours worked	Conforming	See Control Plan	Yes	
A12.9	Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete	
	Rinse (This section is to be repeated as necessary to docu	ment all individual rinse ster	s in the entire						
A13.1	etc.	NA	NA	NA	NA		Counter Flowing		
A13.2	Water Type- Identify in comment section e.g., Municipal, Deionized (DI),Reverse Osmosis (RO), etc.	NA	NA	NA	NA	Municipal			
A13.3	Agitation type - Identify in comment section (if applicable) e.g., Mechanical (Describe), Air, Ultrasonic, etc.	NA	NA	NA	NA	Air			
A13.4	Solution Level - Parts, heaters, and transducers are completely submerged.	Automatic or Manual	Manual	Continuous monitoring by controller. Manually verify daily for automatic controls, every 8 hours for systems without controllers.	1/8 hours worked	Conforming	See Control Plan	Yes	
	Rinse Quality - Identify in comment section e.g., pH, Impurity Check, Conductivity	Manual	Manual	Once every 8 hours.*	1/8 hours worked	Conforming	See Control Plan	917	
A13.6	Flow rate (if applicable)	Manual	Manual	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes	
A13.7	Verify position of incoming water feed is near the bottom (if immersion tank).	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete	
A13.8	Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete	
	Rinse (This section is to be repeated as necessary to docu	ment all individual rinse ster	s in the entire						
A14.1	Rinse Type - Identify in comment section e.g., Flowing, Counter Flowing, Spray, Stagnant, Drag-in/out, etc.	NA	NA	NA	NA		Counter Flowing		
A14.2	Water Type- Identify in comment section e.g., Municipal, Deionized (DI),Reverse Osmosis (RO), etc.	NA	NA	NA	NA		Municipal		
	Agitation type - Identify in comment section (if applicable) e.g., Mechanical (Describe), Air, Ultrasonic, etc.	NA	NA	NA	NA		Air		
A14.4	Solution Level - Parts, heaters, and transducers are completely submerged.	Automatic or Manual	Manual	Continuous monitoring by controller. Manually verify daily for automatic controls, every 8 hours for systems without controllers.	1/8 hours worked	Conforming	See Control Plan	Yes	
	Rinse Quality - Identify in comment section e.g., pH, Impurity Check, Conductivity	Manual	Manual	Once every 8 hours.*	1/8 hours worked	Conforming	See Control Plan	656	
	Flow rate (if applicable)	Manual	Manual	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes	
A14.7	Verify position of incoming water feed is near the bottom (if immersion tank).	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete	
A14.8	Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete	
15.0	Supplemental Treatments - Topcoats, Sealants and Friction	n Modifiers			•	•	•		
	Type: Sealer								
	Size, volume: Confidential								
	Chemical supplier: Confidential								



A15.1	Concentration	Manual	Automatic	Prior to production start-up. If automatic control, once per day.	1/24 hours worked	Conforming	See Control Plan	32.04
				If manual, once every 8 hours.				
A15.2	Temperature (Thermocouple) (if applicable)	Automatic Max SAT difference allowed +/- 1°C (2°F).	Automatic	Continuous monitoring by controller. Manually verify daily.	1/8 hours worked	Conforming	See Control Plan	74
	pH (if applicable)	Automatic or Manual	Manual	Prior to production start-up. If automatic control, once per day. If manual, once every 8 hours.		frequency is able to maintain process control.	See Control Plan	8.43
A15.4	Time	Automatic*	Automatic	After any program changes if automatic.	N/A	N/A	N/A	1 Min.
	Solution Level - Parts, heaters, and transducers are completely submerged.	Automatic or Manual	Manual	Continuous monitoring by controller. Manually verify daily for automatic controls, every 8 hours for systems without controllers.	1/8 hours worked	Conforming	See Control Plan	Yes
A15.6	Filtration Pressure (if applicable)	Automatic		Once every 8 hours.	N/A	N/A	N/A	N/A
A15 /	Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
16.0	Drying		•					
A16.1	Drying Time	Automatic	Automatic	Per Process Sheet and TDS.	N/A	N/A	N/A	7 Min.
A16.2	Drying Temperature (Thermocouple)	Automatic Max SAT difference allowed +/- 5°C (10°F).	Automatic	Per Process Sheet and TDS.	N/A	N/A	See Control Plan	158
A16.3	Verify operation of blowers and/or rotation of dryer.	Manual	Manual	Once per 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes
A16.4	There is a procedure to ensure dryness of parts.	Manual	Manual	Every container and rack.	Every container and rack.	Conforming	Per customer requirements	N/A

#### PROCESS TABLE A - Zinc & Zinc Alloy Plating

All requirements given below are subordinate to applicable customer/OEM specific requirements.

The customer may have additional requirements, e.g., inspection testing, greater frequencies, etc. When performing the job audit, the auditor shall verify plater is conforming to customer requirements.

\*If minimum requirements are not met, provide supporting records to justify actual conditions. To justify reduced monitoring frequencies, a minimum of 30 consecutive measurements (data points) at stated frequencies must be documented. If any data points at reduced monitoring frequencies are outside of control limits, then revert back to the frequencies stated under the minimum requirements.

Columns H and I are used for the Job Audit (Section 4).

Regularly scheduled measurements (e.g., temperature, concentrations, pH) are to be entered in the appropriate row.

For sections that are not applicable mark NA in the Comments column.

Instruction for creating the table with the form builder:

Using the Populate Forms list to the right, select the box that represents the first step of the process flow.

Then select the Populate Forms banner and that section of the process table will be added below.

For each additional step of the process flow, continue adding sections to the form by selecting the applicable step from the list to the right, followed by selecting the Populate Forms banner.

Rinses between process steps are to be included.

If using multiple counter flowed rinses only insert one Rinse section, document only the condition of the last rinse tank in the series.

Process Line Identification: Line 2

Type of Line: Rack

	Category/Process Steps	Type of Cont	rol	Monitoring Frequency		Observation/ Comments	Job Audit Measurements	
ITEM #		Minimum Requirement	Actual Condition	Minimum Requirement	Actual Condition	Conforming Nonconforming NA	Range	Actual Measurements supporting time of Job Audit
	Alkaline Cleaning							
	Type: Soak							
	Size, volume: Confidential							
	Chemical supplier: Confidential							
A1.1	Temperature (Thermocouple)	Automatic Max SAT difference allowed +/- 5°C (10°F).	Automatic	Continuous monitoring by controller. Manually verify daily.	1/8 hours worked	Conforming	See Control Plan	170
	Concentration	Manual		Once per day.	1/24 hours worked	- 3	See Control Plan	10.92
A1.3		Automatic		After any program changes.	N/A		N/A	5 Min.
A1.4	Agitation (if applicable)	Automatic	Automatic	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes
A1.5	Solution Level - Parts, heaters, and transducers are completely submerged.	Automatic or Manual	Manual	Continuous monitoring by controller. Manually verify daily for automatic controls, every 8 hours for systems without controllers.	1/8 hours worked	Conforming	See Control Plan	Yes
	Impurity Content Check Per chemical supplier recommendation such as: - acid split (oil contamination) - alkalinity ratio	Manual	Not Recommended by Chemical Supplier		N/A	N/A	N/A	1.31 : 1
A1.7	Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
2.0	Alkaline Cleaning							
	Type - Electro (cathodic)		•	_	•		•	•
	Size, volume: Confidential	·	<u> </u>	·	<u> </u>		<u> </u>	
	Chemical supplier: Confidential							
A2.1	Temperature (Thermocouple)	Automatic Max SAT difference allowed +/- 5°C (10°F).	Automatic	Continuous monitoring by controller. Manually verify daily.	1/8 hours worked	Conforming	See Control Plan	154
	Concentration	Manual		Once per day.	1/24 hours worked	Ţ.	See Control Plan	10.26
A2.3		Automatic		After any program changes.	N/A		N/A	4 Min.
A2.4	Agitation (if applicable)	Automatic	Automatic	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes

A2.5	Amperage or Voltage Control (if applicable)	Automatic	Automatic	Once every 8 hours*.	1/8 hours worked	Conforming	See Control Plan	11	
A2.5	Amperage of Voltage Control (II applicable)	Automatic	Automatic	Continuous monitoring by controller. Manually verify daily for	1/6 Hours worked	Cornorning	See Control Flan	4.1	
A2.6	Solution Level - Parts, heaters, and transducers are completely submerged.	Automatic or Manual	Manual	automatic controls, every 8 hours for systems without controllers.	1/8 hours worked	Conforming	See Control Plan	Yes	
	Impurity Content Check Per chemical supplier recommendation such as:		Not						
A2.7	- acid split (oil contamination) - alkalinity ratio	Manual	Recommended by Chemical Supplier	Once per week*	N/A	N/A	N/A	1.36 : 1	
A2.8	Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete	
3.0	Rinse (This section is to be repeated as necessary to doc	ument all individual rinse ste	ps in the entire				<u>l</u>		
	Rinse Type - Identify in comment section	NA NA	NA NA	NA	NA	Flowing			
A3.2	Water Type- Identify in comment section e.g., Municipal, Deionized (DI),Reverse Osmosis (RO), etc.	NA	NA	NA	NA	Municipal			
A3.3	Agitation type - Identify in comment section (if applicable) e.g., Mechanical (Describe), Air, Ultrasonic, etc.	NA	Manual	NA	1/8 hours worked	Air			
A3.4	Solution Level - Parts, heaters, and transducers are completely submerged.	Automatic or Manual	Manual	Continuous monitoring by controller. Manually verify daily for automatic controls, every 8 hours for systems without controllers.	1/8 hours worked	Conforming	See Control Plan	Yes	
A3.5	Rinse Quality - Identify in comment section e.g., pH, Impurity Check, Conductivity	Manual	Manual	Once every 8 hours.*	1/8 hours worked	Conforming	See Control Plan	1156	
A3.6	Flow rate (if applicable)	Manual	N/A	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes	
A3.7	Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete	
4.0	Rinse (This section is to be repeated as necessary to doc	ument all individual rinse ste	ps in the entire						
A4.1	etc.	NA	NA	NA	NA	Flowing			
A4.2	Water Type- Identify in comment section e.g., Municipal, Deionized (DI),Reverse Osmosis (RO), etc.	NA	NA	NA	NA	Municipal			
A4.3	Agitation type - Identify in comment section (if applicable) e.g., Mechanical (Describe), Air, Ultrasonic, etc.	NA	Manual	NA	1/8 hours worked	Air			
A4.4	Solution Level - Parts, heaters, and transducers are completely submerged.	Automatic or Manual	Manual	Continuous monitoring by controller. Manually verify daily for automatic controls, every 8 hours for systems without controllers.	1/8 hours worked	Conforming	See Control Plan	Yes	
A4.5	Rinse Quality - Identify in comment section e.g., pH, Impurity Check, Conductivity	Manual	Manual	Once every 8 hours.*	1/8 hours worked	Conforming	See Control Plan	650	
A4.6	Flow rate (if applicable)	Manual	N/A	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes	
A4.7	Verify position of incoming water feed is near the bottom (if immersion tank).	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete	
A4.8	Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete	
5.0	Acid Pickling								
	Type: HCL								
<u> </u>	Size, volume: Confidential								
<u> </u>	Chemical supplier: Confidential	T				Ofi D :			
A5.1	Concentration	Manual	Manual	Once every 8 hours*	2/24 hours worked.	Conforming. Data points show that reduced frequency is able to maintain process control.	See Control Plan	33.5	
A5.2	Metallic impurity concentration. Obtain metallic impurity limits from chemical supplier with required corrective actions.	Manual	Manual	Once per month.	1/ month	Conforming	See Control Plan	4.39   1778.52   24.43   15.57	
	Time (Less than 10 Minutes or Customer Specific)	Automatic	Automatic	After any program changes.	N/A	N/A	N/A	5 Min.	
A5.4	Solution Level	Manual	Manual	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes	
A5.5	Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete	
6.0	Rinse (This section is to be repeated as necessary to doc								
A6.1	Rinse Type - Identify in comment section e.g., Flowing, Counter Flowing, Spray, Stagnant, Drag-in/out, etc.	NA	NA	NA	NA		Flowing		
A6.2	Water Type- Identify in comment section e.g., Municipal, Deionized (DI),Reverse Osmosis (RO), etc.	NA	NA	NA	NA	Municipal			
A6.3	Agitation type - Identify in comment section (if applicable) e.g., Mechanical (Describe), Air, Ultrasonic, etc.	NA	Manual	NA	1/8 hours worked	Air			
	•								

				Continuous monitoring by controller. Manually verify daily for	1	1	1		
A6.4	Solution Level - Parts, heaters, and transducers are completely submerged.	Automatic or Manual	Manual	automatic controls, every 8 hours for systems without controllers.	1/8 hours worked	Conforming	See Control Plan	Yes	
A6.5	Rinse Quality - Identify in comment section e.g., pH, Impurity Check, Conductivity	Manual	Manual	Once every 8 hours.*	1/8 hours worked	Conforming	See Control Plan	47120	
A6.6	Flow rate (if applicable)	Manual	N/A	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes	
A6.7	Verify position of incoming water feed is near the bottom (if immersion tank).	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete	
A6.8	Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete	
7.0	Rinse (This section is to be repeated as necessary to doc	ument all individual rinse ste	ps in the entire		T	T			
	Rinse Type - Identify in comment section e.g., Flowing, Counter Flowing, Spray, Stagnant, Drag-in/out, etc.	NA	NA	NA	NA	Flowing			
A7.2	Water Type- Identify in comment section e.g., Municipal, Deionized (DI),Reverse Osmosis (RO), etc.	NA	NA	NA	NA	Municipal			
A7.3	Agitation type - Identify in comment section (if applicable) e.g., Mechanical (Describe), Air, Ultrasonic, etc.	NA	Manual	NA	1/8 hours worked		Air		
A7.4	Solution Level - Parts, heaters, and transducers are completely submerged.	Automatic or Manual	Manual	Continuous monitoring by controller. Manually verify daily for automatic controls, every 8 hours for systems without controllers.	1/8 hours worked	Conforming	See Control Plan	Yes	
A7.5	Rinse Quality - Identify in comment section e.g., pH, Impurity Check, Conductivity	Manual	Manual	Once every 8 hours.*	1/8 hours worked	Conforming	See Control Plan	766	
A7.6	Flow rate (if applicable)	Manual	N/A	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes	
A7.7	Verify position of incoming water feed is near the bottom (if immersion tank).	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete	
A7.8	Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete	
	Alkaline Plating Bath Type: Zinc-Nickel								
	Size, volume: Confidential								
	Chemical supplier: Confidential								
A8.1	Temperature (Thermocouple)	Automatic Max SAT difference allowed +/- 3°C (5°F).	Automatic	Continuous monitoring by controller. Manually verify daily.	1/8 hours worked	Conforming	See Control Plan	76	
A8.2	Time	Automatic or Manual	Automatic	Automatic - After any program changes. Manual - every load.*	N/A	N/A	N/A	27 Min.	
A8.3	Solution Level - Parts, heaters, and transducers are completely submerged.	Automatic or Manual	Manual	Continuous monitoring by controller. Manually verify daily for automatic controls, every 8 hours for systems without controllers.	1/8 hours worked	Conforming	See Control Plan	Yes	
A8.4	Current/Voltage	Automatic or Manual	Manual	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	5.9	
A8.5	Plating Test Cell (Hull Cell)	Manual	Manual	Once per day.	1/24 hours worked	Conforming	See Control Plan	3.29   19.37	
	Zinc Generator Tank (if applicable) -Caustic Concentration -Zinc Concentration	Automatic or Manual	Manual	Once every 8 hours.	2/24 hours worked	Conforming. Data points show that reduced frequency is able to maintain process control.	See Control Plan	2.65   19.37	
A8.7	Caustic Concentration	Manual	Manual	Once per day.	1/24 hours worked	Conforming	See Control Plan	19.05	
A8.8	Zinc Concentration	Manual	Manual	Once per day.	2/24 hours worked	Conforming	See Control Plan	1.75	
A8.9	Alloying Element Concentration (e.g., Fe, Ni, Co; if applicable)	Manual	Manual	Once per day.	1/24 hours worked	Conforming	See Control Plan	2069.65	
A8.10	Complexor Concentration (for alloy baths)	Manual	N/A	Once per month by Supplier.	1/ month	Conforming	See Letter from Supplier	See Letter from Supplier	
A8.11	Metallic impurity concentration. Obtain metallic impurity limits from chemical supplier with required corrective actions.	Manual	Manual	Once per month.	1/ month	Conforming	See Control Plan	117.97   0.68   0   0   13.12   0   6.81   0	
A8.12	Carbonate (CO <sub>3</sub> ) concentration	Manual	Manual	Once per month (Twice per month for alloy plating).	2/ month	Conforming	See Control Plan	9.4	
A8.13	Proprietary chemical additives concentration (e.g., carrier, brightener)	Manual	N/A	Once per month by Supplier.	1/ month	Conforming	See Letter from Supplier	See Letter from Supplier	
	Chemical feeders	Automatic	Automatic	Once per week.	1/24 hours worked	Conforming	See Control Plan	240   82   230	
	Agitation (Rack only - others optional) Filtration Pressure	Continuous Continuous	Continuous N/A	Once every 8 hours. Once every 8 hours.	1/8 hours worked N/A	Conforming N/A	See Control Plan N/A	Yes N/A	
AU. 10	1 1111 attori 1 1 1 2 3 at 1 2	Oonunuous	13//	Office every officure.	13/7	13/7	13/7	13//	

Fallen part removal	Manual	Manual	Rack: Once every 24 hours. Barrel: Once per week and after any lost load.	1/ week	Conforming	N/A	The part removal process may cause customer rejections and should only be done when the line is not in use.
Tank and solution maintenance schedule documented and	Manual		Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
	ımont all individual rineo eto	ne in the entire					l .
	l	ps in the entire			I		
e.g., Flowing, Counter Flowing, Spray, Stagnant, Drag-in/out, etc.	NA	NA	NA	NA	Stagnant		
Water Type- Identify in comment section e.g., Municipal, Deionized (DI),Reverse Osmosis (RO), etc.	NA	NA	NA	NA	Municipal		
Agitation type - Identify in comment section (if applicable) e.g., Mechanical (Describe), Air, Ultrasonic, etc.	NA	Manual	NA	1/8 hours worked	Air		
Solution Level - Parts, heaters, and transducers are completely submerged.	Automatic or Manual	Manual	Continuous monitoring by controller. Manually verify daily for automatic controls, every 8 hours for systems without controllers.	1/8 hours worked	Conforming	See Control Plan	Yes
Rinse Quality - Identify in comment section e.g., pH, Impurity Check, Conductivity	Manual	Manual	Once every 8 hours.*	1/8 hours worked	Conforming	See Control Plan	1300
Flow rate (if applicable)	Manual	N/A	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes
Verify position of incoming water feed is near the bottom (if immersion tank).	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
	ment all individual rinse ste	ps in the entire			•	•	•
Rinse Type - Identify in comment section e.g., Flowing, Counter Flowing, Spray, Stagnant, Drag-in/out, etc.	NA	NA	NA	NA		Stagnant	
e.g., Municipal, Deionized (DI),Reverse Osmosis (RO), etc.	NA	NA	NA	NA	Municipal		
Agitation type - Identify in comment section (if applicable) e.g., Mechanical (Describe), Air, Ultrasonic, etc.	NA	Manual	NA	1/8 hours worked	Air		
Solution Level - Parts, heaters, and transducers are completely submerged.	Automatic or Manual	Manual	Continuous monitoring by controller. Manually verify daily for automatic controls, every 8 hours for systems without controllers.	1/8 hours worked	Conforming	See Control Plan	Yes
Rinse Quality - Identify in comment section e.g., pH, Impurity Check, Conductivity	Manual	Manual	Once every 8 hours.*	1/8 hours worked	Conforming	See Control Plan	600
Flow rate (if applicable)	Manual	N/A	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes
Verify position of incoming water feed is near the bottom (if immersion tank).	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
Acid Activation (i.e., nitric, sulfuric, etc.)				•		•	
pH/concentration	Manual	Automatic	Once every 8 hours.	1/1 hours worked	Conforming	See Control Plan	6.2
Time	Automatic*	Automatic		N/A	N/A	N/A	1 Mon.
Fallen part removal	Manual	Manual	Once every 24 hours for rack line.	1/24 hours worked	Conforming	See Control Plan	Yes
Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
Passivates							
Type: Thick Film Trivalent							
Size, volume: Confidential							
Chemical supplier: Confidential							
Concentration	Automatic or Manual	Automatic	Prior to production start-up. If automatic control, once per day. If manual, once every 8 hours.	1/24 hours worked	Conforming	See Control Plan	16.25
Temperature (Thermocouple)	Automatic Max SAT difference allowed +/- 1°C (2°F).	Automatic	Continuous monitoring by controller. Manually verify daily.	1/8 hours worked	Conforming	See Control Plan	98
Time	Automatic or Manual	Automatic	Automatic - After any program changes. Manual - every load.*	N/A	N/A	N/A	1 Min.
Solution Level - Parts, heaters, and transducers are completely submerged.	Automatic or Manual	Manual	Continuous monitoring by controller. Manually verify daily for automatic controls, every 8 hours for systems without controllers.	1/8 hours worked	Conforming	See Control Plan	Yes
рН	Automatic*	Automatic	Prior to production start-up. If automatic control, once per day. If manual, once every 8 hours.	1/1 Hours worked	Conforming	See Control Plan	2.24
	Tank and solution maintenance schedule documented and followed.  Rinse (This section is to be repeated as necessary to doct Rinse Type - Identify in comment section e.g., Flowing, Counter Flowing, Spray, Stagnant, Drag-in/out, etc.  Water Type-Identify in comment section e.g., Municipal, Deionized (DI), Reverse Osmosis (RO), etc. Agitation type - Identify in comment section (if applicable) e.g., Mechanical (Describe), Air, Ultrasonic, etc.  Solution Level - Parts, heaters, and transducers are completely submerged.  Rinse Quality - Identify in comment section e.g., pH, Impurity Check, Conductivity  Flow rate (if applicable)  Verify position of incoming water feed is near the bottom (if immersion tank).  Tank and solution maintenance schedule documented and followed.  Rinse (This section is to be repeated as necessary to doct Rinse Type - Identify in comment section e.g., Flowing, Counter Flowing, Spray, Stagnant, Drag-in/out, etc.  Water Type - Identify in comment section e.g., Municipal, Delonized (DI), Reverse Osmosis (RO), etc. Agitation type - Identify in comment section (if applicable) e.g., Mechanical (Describe), Air, Ultrasonic, etc.  Solution Level - Parts, heaters, and transducers are completely submerged.  Rinse Quality - Identify in comment section e.g., pH, Impurity Check, Conductivity  Flow rate (if applicable)  Verify position of incoming water feed is near the bottom (if immersion tank).  Tank and solution maintenance schedule documented and followed.  Acid Activation (i.e., nitric, sulfuric, etc.)  pH/concentration  Time  Fallen part removal  Tank and solution maintenance schedule documented and followed.  Passivates  Type: Thick Film Trivalent  Size, volume: Confidential  Chemical supplier: Confidential  Concentration  Temperature (Thermocouple)	Tank and solution maintenance schedule documented and followed.  Rinse (This section is to be repeated as necessary to document all individual rinse ste Rinse Type - Identify in comment section e.g., Flowing, Counter Flowing, Synay, Stagnant, Drag-in/out, etc.  Water Type- Identify in comment section (e.g., Municipal, Deionized (DI), Reverse Osmosis (RO), etc. Agitation type - Identify in comment section (if applicable) e.g., Mechanical (Describe), Air, Ultrasonic, etc.  Solution Level - Parts, heaters, and transducers are completely submerged.  Rinse Quality - Identify in comment section (g.g., p.H., Impurity Check, Conductivity (Impurity (Impurit	Tank and solution maintenance schedule documented and followed.  Rinse (This section is to be repeated as necessary to document all individual rinse steps in the entire Rinse (This section is to be repeated as necessary to document all individual rinse steps in the entire Rinse (Type - Identify in comment section e.g., Hunicipal, Delonized (DI), Reverse Osmosis (RO), etc.  Aptilation type - Identify in comment section e.g., Municipal, Delonized (DI), Reverse Osmosis (RO), etc.  Aptilation (Describe), Air, Ultrasonic, etc.  Solution Level  Parts, heaters, and transducers are completely submerged.  Automatic or Manual  Manua	Faller plant removal  Same Sulforn maintenance schedule documented and final solution maintenance schedule documented and final solution maintenance program.  Manual  Per preventive maintenance program.  Per preventive maintenance program.  NA  NA  NA  NA  NA  NA  NA  NA  NA  N	Fallon part removal  Name (Triak and solution maintenance schedule documented and followed)  Ribuse (Trial section is to be repeated as necessary to document all individual rinse steps in the entire (Province) program (Courted Pleving, prays, Stagnant, Drag-indut, NA	Facility and reference of the depth of the comment of an expectation of the comment of the comme	Falson part mercens of Moderal

Δ12.6	Agitation	Automatic	Automatic	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes
	Metallic Impurity level(s) (e.g., Fe, Zn)	Manual	Manual	Once per week.	Once per week	Conforming	See Control Plan	272.77   8028.63
	Fallen part removal	Manual	Manual	Once every 24 hours for rack line.	1/24 hours worked	Conforming	See Control Plan	Yes
A12.9	Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
13.0	Rinse (This section is to be repeated as necessary to doc	ument all individual rinse ste	ps in the entire					
	etc.	NA	NA	NA	NA		Flowing	
A13.2	Water Type- Identify in comment section e.g., Municipal, Deionized (DI),Reverse Osmosis (RO), etc.	NA	NA	NA	NA		Municipal	
A13.3	Agitation type - Identify in comment section (if applicable) e.g., Mechanical (Describe), Air, Ultrasonic, etc.	NA	Manual	NA	1/8 hours worked		Air	
A13.4	Solution Level - Parts, heaters, and transducers are completely submerged.	Automatic or Manual	Manual	Continuous monitoring by controller. Manually verify daily for automatic controls, every 8 hours for systems without controllers.	1/8 hours worked	Conforming	See Control Plan	Yes
A13.5	Rinse Quality - Identify in comment section e.g., pH, Impurity Check, Conductivity	Manual	Manual	Once every 8 hours.*	1/8 hours worked	Conforming	See Control Plan	500
A13.6	Flow rate (if applicable)	Manual	N/A	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes
A13.7	Verify position of incoming water feed is near the bottom (if immersion tank).	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
A13.8	Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
	Supplemental Treatments - Topcoats, Sealants and Friction	on Modifiers						
	Type: Sealer							
	Size, volume: Confidential							
	Chemical supplier: Confidential			T				1
A14.1	Concentration	Manual	Manual	Prior to production start-up. If automatic control, once per day. If manual, once every 8 hours.	1/24 hours worked	Conforming. Dumped and replaced every day.	See Control Plan	Conforming. Dumped and replaced every day.
A14.2	Temperature (Thermocouple) (if applicable)	Automatic Max SAT difference allowed +/- 1°C (2°F).	Automatic	Continuous monitoring by controller. Manually verify daily.	1/8 hours worked	Conforming	See Control Plan	120
A14.3	pH (if applicable)	Automatic or Manual	Manual	Prior to production start-up. If automatic control, once per day. If manual, once every 8 hours.	1/24 hours worked	Conforming. Data points show that reduced frequency is able to maintain process control.	See Control Plan	10.95
A14.4	Time	Automatic*	Automatic	After any program changes if automatic.	N/A	N/A	N/A	1 Min.
A14.5	Solution Level - Parts, heaters, and transducers are completely submerged.	Automatic or Manual	Manual	Continuous monitoring by controller. Manually verify daily for automatic controls, every 8 hours for systems without controllers.	1/8 hours worked	Conforming	See Control Plan	Yes
A14.6	Filtration Pressure (if applicable)	Automatic	N/A	Once every 8 hours.	N/A	N/A	N/A	N/A
A14.7	Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
15.0	Drying		•		•	•	•	•
A15.1	Drying Time	Automatic	Automatic	Per Process Sheet and TDS.	N/A	N/A	N/A	6 Min.
A15.2	Drying Temperature (Thermocouple)	Automatic Max SAT difference allowed +/- 5°C (10°F).	Automatic	Per Process Sheet and TDS.	N/A	N/A	See Control Plan	160
A15.3	Verify operation of blowers and/or rotation of dryer.	Manual	Manual	Once per 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes
A15.4	There is a procedure to ensure dryness of parts.	Manual	Manual	Every container and rack.	Every container and rack.	Conforming	Per customer requirements	N/A

## PROCESS TABLE A - Zinc & Zinc Alloy Plating

All requirements given below are subordinate to applicable customer/OEM specific requirements.

The customer may have additional requirements, e.g., inspection testing, greater frequencies, etc. When performing the job audit, the auditor shall verify plater is conforming to customer requirements.

\*If minimum requirements are not met, provide supporting records to justify actual conditions. To justify reduced monitoring frequencies, a minimum of 30 consecutive measurements (data points) at stated frequencies must be documented. If any data points at reduced monitoring frequencies are outside of control limits, then revert back to the frequencies stated under the minimum requirements.

Columns H and I are used for the Job Audit (Section 4).

Regularly scheduled measurements (e.g., temperature, concentrations, pH) are to be entered in the appropriate row.

For sections that are not applicable mark NA in the Comments column.

Instruction for creating the table with the form builder:

Using the Populate Forms list to the right, select the box that represents the first step of the process flow.

Then select the Populate Forms banner and that section of the process table will be added below.

For each additional step of the process flow, continue adding sections to the form by selecting the applicable step from the list to the right, followed by selecting the Populate Forms banner.

Rinses between process steps are to be included.

If using multiple counter flowed rinses only insert one Rinse section, document only the condition of the last rinse tank in the series.

Process Line Identification: Line 3

Type of Line: Rack

	Category/Process Steps	Type of Cont	rol	Monitoring Frequency		Observation/ Comments	Job Audit N	<i>l</i> leasurements
ITEM #		Minimum Requirement	Actual Condition	Minimum Requirement	Actual Condition	Conforming Nonconforming NA	Range	Actual Measurements supporting time of Job Audit
	Alkaline Cleaning							
	Type: Soak							
	Size, volume: Confidential							
	Chemical supplier: Confidential							
	Temperature (Thermocouple)	Automatic Max SAT difference allowed +/- 5°C (10°F).	Automatic	Continuous monitoring by controller. Manually verify daily.		Conforming	See Control Plan	175.2
	Concentration	Manual	Manual	Once per day.	1/24 hours worked			9.83
A1.3		Automatic	Automatic	After any program changes.	N/A	N/A	N/A	4 Min.
A1.4	Agitation (if applicable)	Automatic	Automatic	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes
A1.5	Solution Level - Parts, heaters, and transducers are completely submerged.	Automatic or Manual	Manual	Continuous monitoring by controller. Manually verify daily for automatic controls, every 8 hours for systems without controllers.	1/8 hours worked	Conforming	See Control Plan	Yes
	Impurity Content Check Per chemical supplier recommendation such as: - acid split (oil contamination) - alkalinity ratio	Manual	Not Recommended by Chemical Supplier	Once per week*	N/A	N/A	N/A	1.22   1
A1.7	Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
	Alkaline Cleaning							
	Type - Electro (cathodic)	-	·	<del>-</del>				
	Size, volume: Confidential	<del></del>	·					
	Chemical supplier: Confidential							
	Temperature (Thermocouple)	Automatic Max SAT difference allowed +/- 5°C (10°F).		Continuous monitoring by controller. Manually verify daily.	1/8 hours worked	Conforming	See Control Plan	155
	Concentration	Manual	Manual	Once per day.	1/24 hours worked			9.72
A2.3		Automatic	Automatic	After any program changes.		N/A	N/A	4 Minutes
	Agitation (if applicable)	Automatic	Automatic	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes
A2.5	Amperage or Voltage Control (if applicable)	Automatic	Automatic	Once every 8 hours*.	1/8 hours worked	Conforming	See Control Plan	4.7

A2.6	Solution Level - Parts, heaters, and transducers are completely submerged.	Automatic or Manual	Manual	Continuous monitoring by controller. Manually verify daily for automatic controls, every 8 hours for systems without controllers.	1/8 hours worked	Conforming	See Control Plan	Yes
A2.7	Impurity Content Check Per chemical supplier recommendation such as: - acid split (oil contamination) - alkalinity ratio	Manual	Not Recommended by Chemical Supplier	Once per week*	N/A	N/A	N/A	1.15   1
A2.8	Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
3.0	Rinse (This section is to be repeated as necessary to doc	ument all individual rinse ste	ps in the entire			•		•
A3.1	Rinse Type - Identify in comment section e.g., Flowing, Counter Flowing, Spray, Stagnant, Drag-in/out, etc.	NA	NA	NA	NA		Flowing	
A3.2	Water Type- Identify in comment section e.g., Municipal, Deionized (DI),Reverse Osmosis (RO), etc.	NA	NA	NA	NA		Municipal	
A3.3	Agitation type - Identify in comment section (if applicable) e.g., Mechanical (Describe), Air, Ultrasonic, etc.	NA	NA	NA	NA		Air	
A3.4	Solution Level - Parts, heaters, and transducers are completely submerged.	Automatic or Manual	Manual	Continuous monitoring by controller. Manually verify daily for automatic controls, every 8 hours for systems without controllers.	1/8 hours worked	Conforming	See Control Plan	Yes
A3.5	Rinse Quality - Identify in comment section e.g., pH, Impurity Check, Conductivity	Manual	Manual	Once every 8 hours.*		Conforming	See Control Plan	1821
A3.6	Flow rate (if applicable)	Manual	N/A	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes
A3.7	Tank and solution maintenance schedule documented and	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
	followed.			. s. p. s. silato mantenanos program.	.,	Comoning		Complete
4.0	Rinse (This section is to be repeated as necessary to doc	ument all individual rinse ste	ps in the entire		ı	ı		
A4.1	Rinse Type - Identify in comment section e.g., Flowing, Counter Flowing, Spray, Stagnant, Drag-in/out, etc.	NA	NA	NA	NA		Flowing	
A4.2	Water Type- Identify in comment section e.g., Municipal, Deionized (DI),Reverse Osmosis (RO), etc.	NA	NA	NA	NA		Municipal	
A4.3	Agitation type - Identify in comment section (if applicable) e.g., Mechanical (Describe), Air, Ultrasonic, etc.	NA	NA	NA	NA		Air	
A4.4	Solution Level - Parts, heaters, and transducers are completely submerged.	Automatic or Manual	Manual	Continuous monitoring by controller. Manually verify daily for automatic controls, every 8 hours for systems without controllers.	1/8 hours worked	Conforming	See Control Plan	Yes
A4.5	Rinse Quality - Identify in comment section e.g., pH, Impurity Check, Conductivity	Manual	Manual	Once every 8 hours.*		Conforming	See Control Plan	526
A4.6	Flow rate (if applicable)	Manual	N/A	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes
A4.7	Verify position of incoming water feed is near the bottom (if immersion tank).	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
A4.8	Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
5.0	Acid Pickling							
	Type: HCL Size, volume: Confidential							
	Chemical supplier: Confidential							
A5.1	Concentration	Manual	Manual	Once every 8 hours*	2/24 hours worked.	Conforming. Data points show that reduced frequency is able to maintain process control.	See Control Plan	46.9%
A5.2	Metallic impurity concentration. Obtain metallic impurity limits from chemical supplier with required corrective actions.	Manual	Manual	Once per month.	1/ month	Conforming	See Control Plan	0.36   369.48   4.01 1.76
A5.3	Time (Less than 10 Minutes or Customer Specific)	Automatic	Automatic	After any program changes.	N/A	N/A	N/A	3 Minutes
A5.4	Solution Level	Manual	Manual	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes
A5.5	Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
6.0	Rinse (This section is to be repeated as necessary to doc	ument all individual rinse ste	ps in the entire		1	ı		
A6.1	Rinse Type - Identify in comment section e.g., Flowing, Counter Flowing, Spray, Stagnant, Drag-in/out, etc.	NA	NA	NA	NA		Flowing	
A6.2	Water Type- Identify in comment section e.g., Municipal, Deionized (DI),Reverse Osmosis (RO), etc.	NA	NA	NA	NA		Municipal	
A6.3	Agitation type - Identify in comment section (if applicable) e.g., Mechanical (Describe), Air, Ultrasonic, etc.	NA	NA	NA	NA		Air	
A6.4	Solution Level - Parts, heaters, and transducers are completely submerged.	Automatic or Manual	Manual	Continuous monitoring by controller. Manually verify daily for automatic controls, every 8 hours for systems without controllers.	1/8 hours worked	Conforming	See Control Plan	Yes
A6.5	Rinse Quality - Identify in comment section e.g., pH, Impurity Check, Conductivity	Manual	Manual	Once every 8 hours.*	1/8 hours worked	Conforming	See Control Plan	44340

A6.7 Verify position of incoming water feed is near the bottom (if immersion tank).  A6.8 Tank and solution maintenance schedule documented and followed.  A6.9 Rinse (This section is to be repeated as necessary to document all individual rinse steps in the entire)	ked Conforming	See Control Plan	Yes
A6.8 Tank and solution maintenance schedule documented and followed.  7.0 Rinse (This section is to be repeated as necessary to document all individual rinse steps in the entire			163
Acc.   followed.   Manual   Manual   Per prevenue maintenance program.   1/ month    7.0   Rinse (This section is to be repeated as necessary to document all individual rinse steps in the entire	Conforming	N/A	Complete
7.0 Rinse (This section is to be repeated as necessary to document all individual rinse steps in the entire	Conforming	N/A	Complete
			l
Rinse Type - Identify in comment section A7.1 e.g., Flowing, Counter Flowing, Spray, Stagnant, Drag-in/out, etc. NA NA NA NA NA		Flowing	
Water Type- Identify in comment section e.g., Municipal, Deionized (DI),Reverse Osmosis (RO), etc. NA NA NA NA		Municipal	
A7.3 Agitation type - Identify in comment section (if applicable) e.g., Mechanical (Describe), Air, Ultrasonic, etc.  NA  NA  NA  NA  NA		Air	
A7.4 Solution Level - Parts, heaters, and transducers are completely submerged. Automatic or Manual Manual Controllers.  Automatic or Manual Manual Controllers on transducers are completely submerged.  Automatic or Manual Manual Controllers on transducers are completely submerged.	ked Conforming	See Control Plan	Yes
A7.5 Rinse Quality - Identify in comment section e.g., pH, Impurity Check, Conductivity  Manual  Once every 8 hours.*  1/8 hours wor	ked Conforming	See Control Plan	769
A7.6 Flow rate (if applicable) Manual N/A Once every 8 hours. 1/8 hours wor	ked Conforming	See Control Plan	Yes
A7.7 Verify position of incoming water feed is near the bottom (if immersion tank).  Manual Per preventive maintenance program.	Conforming	N/A	Complete
A7.8 Tank and solution maintenance schedule documented and followed.  Manual Per preventive maintenance program. 1/ month	Conforming	N/A	Complete
8.0 Alkaline Plating Bath	•	*	•
Type: Zinc			
Size, volume: Confidential			
Chemical supplier: Confidential			
A8.1 Temperature (Thermocouple)  Automatic  Max SAT difference allowed +/- 3°C (5°F).  Automatic  Continuous monitoring by controller. Manually verify daily.  1/8 hours wor	ked Conforming	See Control Plan	81.7
A8.2 Time Automatic or Manual Automatic Automatic After any program changes. Manual - every load.*	N/A	N/A	15 Minutes
Continuous monitoring by controller. Manually verify daily for	ked Conforming	See Control Plan	Yes
A8.3 Solution Level - Parts, heaters, and transducers are completely submerged.  Automatic or Manual  Automatic or Manual  Man	tou		
A8.3 Solution Level - Parts, heaters, and transducers are completely submerged. Automatic or Manual Manual automatic controllers. 1/8 hours wor	ked Conforming	See Control Plan	4.7
A8.3 Solution Level - Parts, heaters, and transducers are completely submerged.  Automatic or Manual  Manual  Manual  automatic controls, every 8 hours for systems without controllers.  A8.4 Current/Voltage  Automatic or Manual  Manual  Once every 8 hours.  1/8 hours wor	·		
A8.3 Solution Level - Parts, heaters, and transducers are completely submerged.  Automatic or Manual  Manual  Manual  automatic controls, every 8 hours for systems without  1/8 hours wor controllers.  A8.4 Current/Voltage  A8.5 Plating Test Cell (Hull Cell)  Manual  Manual  Manual  Once every 8 hours.  1/8 hours wor Manual  Once per day.  7/1/24 hours wor 1/24 hours wor 1/25 hours wor 1/26 hours wor 1/26 hours wor 1/26 hours wor 1/26 hours wor 1/27 hours wor 1/28 hou	rked Conforming rked Conforming. Data points show that rked reduced frequency is able to maintain process control.	See Control Plan See Control Plan	1.98 4.33   19.37
A8.3 Solution Level - Parts, heaters, and transducers are completely submerged.  A8.4 Current/Voltage  A8.5 Plating Test Cell (Hull Cell)  A8.6 -Caustic Concentration  A8.7 Caustic Concentration  Automatic or Manual  Automatic or Manual  Manual  Manual  Manual  Manual  Manual  Manual  Manual  Once every 8 hours.  1/8 hours wor controllers.  1/8 hours wor controllers.  1/8 hours wor very 8 hours.  1/24 hours wor very 8 hours.  1/24 hours wor very 8 hours.  1/24 hours wor very 8 hours.	ked Conforming rked Conforming Conforming. Data points show that rked reduced frequency is able to maintain process control. rked Conforming	See Control Plan See Control Plan See Control Plan	1.98 4.33   19.37
A8.3 Solution Level - Parts, heaters, and transducers are completely submerged.  A8.4 Current/Voltage  A8.5 Plating Test Cell (Hull Cell)  A8.6 -Caustic Concentration  A8.7 Caustic Concentration  Automatic or Manual  Automatic or Manual  Manual  Manual  Manual  Manual  Manual  Manual  Manual  Once every 8 hours.  1/8 hours wor controllers.  1/8 hours wor controllers.  1/8 hours wor very 8 hours.  1/24 hours wor very 8 hours.  1/24 hours wor very 8 hours.  1/24 hours wor very 8 hours.	rked Conforming rked Conforming. Data points show that rked reduced frequency is able to maintain process control.	See Control Plan See Control Plan	1.98 4.33   19.37
A8.3 Solution Level - Parts, heaters, and transducers are completely submerged.  Automatic or Manual  Automatic or Manual  Man	ked Conforming rked Conforming Conforming. Data points show that rked reduced frequency is able to maintain process control. rked Conforming	See Control Plan	1.98 4.33   19.37 18.94 1.88 3.14   0.2   0   0   1.02   45.01   0   6.66   0
A8.3 Solution Level - Parts, heaters, and transducers are completely submerged.  A8.4 Current/Voltage  A8.5 Plating Test Cell (Hull Cell)  A8.6 -Caustic Concentration  A8.7 Caustic Concentration  A8.8 Zinc Concentration  A8.9 Metallic impurity concentration. Obtain metallic impurity limits from chemical supplier with required corrective actions.  A8.1 Manual  Automatic or Manual  Manual  Manual  Manual  Manual  Manual  Manual  Manual  Once every 8 hours.  Once every 8 hours.  1/8 hours wor controllers.  2/24 hours wor controllers.  2/24 hours wor controllers.  2/24 hours wor controllers.  A8.6 Zinc Concentration  Manual  Manual  Once every 8 hours.  2/24 hours wor controls, every 8 hours.  1/8 hours wor controls.  2/24 hours wor controls.  A8.7 Caustic Concentration  Manual  Once per day.  1/24 hours wor controls.  1/24 hours wor controls.  A8.8 Zinc Concentration. Obtain metallic impurity limits from chemical supplier with required corrective actions.	ked Conforming rked Conforming Conforming. Data points show that reduced frequency is able to maintain process control. rked Conforming rked Conforming	See Control Plan  See Control Plan  See Control Plan  See Control Plan	1.98 4.33   19.37 18.94 1.88 3.14   0.2   0   0   1.02   45.01   0
A8.3 Solution Level - Parts, heaters, and transducers are completely submerged.  A8.4 Current/Voltage A8.5 Plating Test Cell (Hull Cell) A8.6 - Caustic Concentration A8.6 - Caustic Concentration A8.7 Caustic Concentration A8.8 Zinc Concentration A8.8 Zinc Concentration A8.9 Metallic impurity concentration. Obtain metallic impurity limits from chemical supplier with required corrective actions.  A8.9 Metallic Carbonate (CO <sub>3</sub> ) concentration  A8.10 Carbonate (CO <sub>3</sub> ) concentration  A8.11 Proprietary chemical additives concentration  Manual  Once per day.  Once per day.  Once per month.  Manual  Once per month (Twice per month for alloy plating).  1/ month  Manual  Manual  Once per month (Supplier  Manual  Once per month (Supplier  Manual  Once per month for alloy plating).	ked Conforming rked Conforming Conforming. Data points show that rked reduced frequency is able to maintain process control. rked Conforming rked Conforming Conforming	See Control Plan	1.98 4.33   19.37 18.94 1.88 3.14   0.2   0   0   1.02   45.01   0   8.66   0 3.9 See Letter from
A8.3 Solution Level Parts, heaters, and transducers are completely submerged.  A8.4 Current/Voltage A8.5 Plating Test Cell (Hull Cell)  A8.6 -Caustic Concentration A8.7 Caustic Concentration  A8.8 Zinc Concentration  A8.8 Zinc Concentration  A8.9 Metallic impurity concentration. Obtain metallic impurity limits from chemical supplier with required corrective actions.  A8.9 Manual  Automatic or Manual  Automatic or Manual  Manual  Manual  Manual  Manual  Once every 8 hours.  Once every 8 hours.  2/24 hours we without 1/8 hours wor ontrollers.  1/8 hours wor ontrollers.  1/8 hours wor ontrollers.  1/8 hours wor ontrollers.  1/24 hours wor ontrollers.  Automatic or Manual  Manual  Once every 8 hours.  2/24 hours wor ontrollers.  2/24 hours wor ontrollers.  All Ocarbonate (CO <sub>3</sub> ) concentration  Manual  Manual  Once per day.  1/24 hours wor ontrols, every 8 hours.  1/8 hours wor ontrols with our ontrollers.  Manual  Once per day.  Manual  Once per day.  1/24 hours wor ontrols, every 8 hours.  2/24 hours wor ontrols wor ontrollers.  Manual  Once per day.  A8.9 Metallic impurity concentration. Obtain metallic impurity limits from chemical supplier with required corrective actions.  Manual  Once per month.  Manual  Once per month (Twice per month for alloy plating).  1/ month  A8.11 Proprietary chemical additives concentration  (e.g., carrier, brightener)  Manual  Manual  Once per month by Supplier.	ked Conforming rked Conforming Conforming. Data points show that rked reduced frequency is able to maintain process control. rked Conforming rked Conforming Conforming Conforming	See Control Plan	1.98 4.33   19.37 18.94 1.88 3.14   0.2   0   0   1.02   45.01   0   8.66   0 3.9
A8.3 Solution Level Parts, heaters, and transducers are completely submerged.  Automatic or Manual Once per month (Twice per month for alloy plating).  1/ month Manual Manual Manual Manual Once per month by Supplier.  1/ month A8.12 Chemical feeders Automatic Once per week.	ked Conforming rked Conforming Conforming. Data points show that rked reduced frequency is able to maintain process control. rked Conforming Conforming Conforming Conforming Conforming Conforming	See Control Plan N/A	1.98 4.33   19.37 18.94 1.88 3.14   0.2   0   0   1.02   45.01   0   8.66   0 3.9 See Letter from Supplier
A8.3 Solution Level Parts, heaters, and transducers are completely submerged.  Automatic or Manual Once per month (Twice per month for alloy plating).  1/ month Manual Manual Manual Manual Once per month by Supplier.  1/ month A8.12 Chemical feeders Automatic Once per week.	ked Conforming rked Conforming Conforming. Data points show that rked reduced frequency is able to maintain process control. rked Conforming Conforming Conforming Conforming rked Conforming	See Control Plan N/A See Control Plan	1.98 4.33   19.37 18.94 1.88 3.14   0.2   0   0   1.02   45.01   0   8.66   0 3.9 See Letter from Supplier 57
A8.3 Solution Level Parts, heaters, and transducers are completely submerged.  Automatic or Manual A8.4 Current/Voltage A8.5 Plating Test Cell (Hull Cell)  A8.6 Plating Test Cell (Hull Cell)  A8.6 -Caustic Concentration A8.7 Caustic Concentration A8.8 Zinc Concentration  A8.8 Zinc Concentration  A8.9 Metallic impurity concentration. Obtain metallic impurity limits from chemical supplier with required corrective actions.  A8.10 Carbonate (CO <sub>3</sub> ) concentration  A8.11 Proprietary chemical additives concentration  A8.12 Proprietary chemical additives concentration  A8.13 Agitation (Rack only - others optional)  A8.14 Continuous  A8.15 Proprietary chemical suppliers with required corrective actions.  A8.16 Continuous  A8.17 Automatic  A8.18 Agitation (Rack only - others optional)  A8.19 Continuous  A8.10 Continuous  A8.10 Continuous  A8.11 Proprietary chemical additives concentration  A8.12 Continuous  A8.13 Agitation (Rack only - others optional)  A8.14 Continuous  A8.15 Proprietary chemical suppliers with required corrective actions.  A8.16 Continuous  A8.17 Automatic  Automatic  Automatic  Automatic  Continuous  Automatic  Autom	ked Conforming rked Conforming Conforming. Data points show that rked reduced frequency is able to maintain process control. rked Conforming Conforming Conforming Conforming Conforming rked Conforming rked Conforming	See Control Plan N/A See Control Plan See Control Plan See Control Plan See Control Plan	1.98 4.33   19.37  18.94 1.88 3.14   0.2   0   0   1.02   45.01   0   8.66   0 3.9 See Letter from Supplier 57 Yes
A8.3 Solution Level A9.4 Current/Voltage A8.4 Current/Voltage A8.5 Plating Test Cell (Hull Cell) A8.6 Plating Test Cell (Hull Cell) A8.7 Caustic Concentration A8.8 Zinc Concentration A8.8 Zinc Concentration A8.8 Zinc Concentration A8.9 Metallic impurity concentration. Obtain metallic impurity limits from chemical supplier with required corrective actions.  A8.1 Carbonate (CO <sub>3</sub> ) concentration A8.1 Centrol Cools and Cools a	ked Conforming rked Conforming Conforming. Data points show that rked reduced frequency is able to maintain process control. rked Conforming Conforming Conforming Conforming Conforming Red Conforming	See Control Plan N/A See Control Plan N/A See Control Plan N/A	1.98 4.33   19.37  18.94 1.88 3.14   0.2   0   0   1.02   45.01   0   8.66   0 3.9 See Letter from Supplier 57 Yes N/A The part removal process may cause customer rejections and should only be done when the line
A8.3 - Parts, heaters, and transducers are completely submerged.  A8.4 Current/Voltage   Automatic or Manual   Manual   Once every 8 hours.   1/8 hours wor controllers.  A8.5 Plating Test Cell (Hull Cell)   Manual   Manual   Once every 8 hours.   1/8 hours wor controllers.  A8.6 Plating Test Cell (Hull Cell)   Manual   Manual   Once every 8 hours.   1/24 hours wor controllers.  A8.6 Plating Test Cell (Hull Cell)   Manual   Manual   Once every 8 hours.   2/24 hours worder worder with a concentration   Manual   Manual   Once every 8 hours.   2/24 hours worder worde	ked Conforming rked Conforming Conforming. Data points show that reduced frequency is able to maintain process control. rked Conforming Conforming Conforming Conforming Conforming Conforming Ked Conforming Rked Conforming Rked Conforming	See Control Plan N/A See Control Plan N/A N/A N/A	1.98  4.33   19.37  18.94  1.88  1.88  3.14   0.2   0   0    1.02   45.01   0    8.66   0  3.9  See Letter from Supplier  57  Yes  N/A  The part removal process may cause customer rejections and should only be done when the line is not in use.
A3.5 Patrs, heaters, and transducers are completely submerged.  A8.6 Current/Voltage Automatic or Manual Manual Once every 8 hours for systems without 1/8 hours wor controllers.  A8.6 Patring Test Cell (Hull Cell) Manual Once every 8 hours.  A8.6 Caustic Concentration Automatic or Manual Manual Once every 8 hours.  A8.6 Caustic Concentration Automatic or Manual Manual Once every 8 hours.  A8.7 Caustic Concentration Manual Manual Once every 8 hours.  A8.8 Zinc Concentration Manual Manual Once every 8 hours.  A8.9 Metallic impurity concentration Manual Manual Once per day.  A8.9 Metallic impurity concentration Manual Manual Once per day.  A8.9 Metallic impurity concentration Manual Manual Once per month.  A8.10 Carbonate (CO <sub>3</sub> ) concentration Manual Manual Once per month.  A8.10 Carbonate (CO <sub>3</sub> ) concentration Manual Manual Once per month (Twice per month for alloy plating).  A8.11 Proprietary chemical additives concentration Manual Manual Once per month by Supplier.  A8.12 Chemical feeders Automatic Automatic Once per week.  A8.13 Agitation (Rack only - others optional) Continuous Continuous Once every 8 hours.  A8.16 Fallen part removal Manual Manual Per preventive maintenance program.  A8.16 Tank and solution maintenance schedule documented and followed.  A8.16 Tank and solution maintenance schedule documented and followed.  A8.16 Tank and solution maintenance schedule documented and followed.  A8.16 Tank and solution maintenance schedule document and followed.  A8.16 Tank and solution maintenance schedule documented and followed.  A8.16 Tank and solution maintenance schedule documented and followed.  A8.16 Tank and solution maintenance schedule documented and followed.  A8.16 Tank and solution maintenance schedule documented and followed.  A8.16 Tank and solution maintenance schedule documented and followed.  A8.16 Tank and solution maintenance schedule documented and followed.  A8.16 Tank and solution maintenance schedule documented and followed.  A8.17 Tank and solution maintenance schedule documented and f	ked Conforming rked Conforming Conforming. Data points show that reduced frequency is able to maintain process control. rked Conforming Conforming Conforming Conforming Conforming Conforming Ked Conforming Rked Conforming Rked Conforming	See Control Plan N/A See Control Plan N/A N/A N/A	1.98  4.33   19.37  18.94  1.88  1.88  3.14   0.2   0   0    1.02   45.01   0    8.66   0  3.9  See Letter from Supplier  57  Yes  N/A  The part removal process may cause customer rejections and should only be done when the line is not in use.
A8.4 Current/Voltage Automatic or Manual Manual automatic controles, every 8 hours for systems without 1/8 hours wor controllers.  A8.4 Current/Voltage Automatic or Manual Manual Once every 8 hours.  A8.5 Plating Test Cell (Hull Cell) Manual Manual Once per day.  Automatic or Manual Manual Once every 8 hours.  Automatic or Manual Manual Once every 8 hours.  A8.6 Caustic Concentration Automatic or Manual Manual Once every 8 hours.  A8.7 Caustic Concentration Manual Manual Once per day.  A8.8 Zinc Concentration Manual Manual Once per day.  A8.9 Inc Concentration Obtain metallic impurity limits from chemical supplier with required corrective actions.  A8.10 Carbonate (CO <sub>3</sub> ) concentration Manual Manual Once per month.  A8.10 Carbonate (CO <sub>3</sub> ) concentration Manual Manual Once per month (Twice per month for alloy plating).  A8.11 Proprietary chemical additives concentration Manual Manual Once per month (Twice per month for alloy plating).  A8.13 Againation (Rack only - others optional) Continuous Once per week.  A8.13 (Carbonate (CO <sub>3</sub> ) concentration Manual Manual Once per month (Twice per month for alloy plating).  A8.14 Filtration Pressure Continuous Once every 8 hours.  A8.15 Fallen part removal Manual Manual Per preventive maintenance schedule documented and followed.  A8.16 Tank and solution maintenance schedule documented and followed.  A8.17 Tank and solution maintenance schedule documented and followed.  A8.16 Tank and solution maintenance schedule documented and followed.  A8.17 Tank and solution maintenance schedule documented and followed.  A8.18 Tank and solution maintenance schedule documented and followed.  A8.19 Carbonate (This section is to be repeated as necessary to document all individual rinse steps in the entire Rinse (Type - Identify in comment section	ked Conforming rked Conforming Conforming. Data points show that reduced frequency is able to maintain process control. rked Conforming Conforming Conforming Conforming Conforming Conforming Ked Conforming Rked Conforming Rked Conforming	See Control Plan N/A See Control Plan See Control Plan N/A See Control Plan N/A N/A N/A	1.98  4.33   19.37  18.94  1.88  1.88  3.14   0.2   0   0    1.02   45.01   0    8.66   0  3.9  See Letter from Supplier  57  Yes  N/A  The part removal process may cause customer rejections and should only be done when the line is not in use.

A9.4	Solution Level - Parts, heaters, and transducers are completely submerged.	Automatic or Manual	Manual	Continuous monitoring by controller. Manually verify daily for automatic controls, every 8 hours for systems without controllers.	1/8 hours worked	Conforming	See Control Plan	Yes
A9.5	Rinse Quality - Identify in comment section e.g., pH, Impurity Check, Conductivity	Manual	Manual	Once every 8 hours.*	1/8 hours worked	Conforming	See Control Plan	2830
A9.6	Flow rate (if applicable)	Manual	N/A	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes
A9.7	Verify position of incoming water feed is near the bottom (if immersion tank).	Manual	Manual	Per preventive maintenance program.	1/Month	Conforming	N/A	Complete
A9.8	Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
10.0	Acid Activation (i.e., nitric, sulfuric, etc.)		•			•		•
A10.1	pH/concentration	Manual	Automatic	Once every 8 hours.	1/1 hours worked	Conforming	See Control Plan	1.98
A10.2		Automatic*	Automatic	After any program changes.	N/A	N/A	N/A	1 Minute
A10.3	Fallen part removal	Manual	Manual	Once every 24 hours for rack line.	1/24 hours worked	Conforming	See Control Plan	Yes
A10.4	Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
11.0	Rinse (This section is to be repeated as necessary to doc	ument all individual rinse ste	ps in the entire					
A11.1	Rinse Type - Identify in comment section e.g., Flowing, Counter Flowing, Spray, Stagnant, Drag-in/out, etc.	NA	NA	NA	NA		Spray	
A11.2	Water Type- Identify in comment section e.g., Municipal, Deionized (DI),Reverse Osmosis (RO), etc.	NA	NA	NA	NA		Municipal	
A11.3	Agitation type - Identify in comment section (if applicable) e.g., Mechanical (Describe), Air, Ultrasonic, etc.	NA	NA	NA	NA		N/A	
A11.4	Rinse Quality - Identify in comment section e.g., pH, Impurity Check, Conductivity	Manual	Manual	Once every 8 hours.*	N/A	N/A	N/A	572
A11.5	Flow rate (if applicable)	Manual	N/A	Once every 8 hours.	N/A	N/A	N/A	Yes
A11.6	Verify position of incoming water feed is near the bottom (if immersion tank).	Manual	Manual	Per preventive maintenance program.	1/8 hours worked	Conforming	See Control Plan	Complete
A11.7	Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
12.0	Passivates							
	Type: Thin Film AND Thick Film Trivalent							
	Size, volume: Confidential							
	Chemical supplier: Confidential		T	In the state of th	1	T	1	T
A12.1	Concentration	Automatic or Manual	Automatic	Prior to production start-up. If automatic control, once per day. If manual, once every 8 hours.	1/24 hours worked	Conforming	See Control Plan	5.42
A12.2	Temperature (Thermocouple)		Automatic	Continuous monitoring by controller. Manually verify daily.	1/8 hours worked	Conforming	See Control Plan	84
A12.3		Automatic or Manual	Automatic	Automatic - After any program changes. Manual - every load.*	N/A	N/A	N/A	1 Minute
A12.4	Solution Level - Parts, heaters, and transducers are completely submerged.	Automatic or Manual	Manual	Continuous monitoring by controller. Manually verify daily for automatic controls, every 8 hours for systems without controllers.	1/8 hours worked	Conforming	See Control Plan	Yes
A12.5	•	Automatic*	Automatic	Prior to production start-up. If automatic control, once per day. If manual, once every 8 hours.	1/1 Hours worked	Conforming	See Control Plan	2
	Agitation	Automatic	Automatic	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes
	Metallic Impurity level(s) (e.g., Fe, Zn)	Manual	Manual	Once per week.	1/ week worked	Conforming	See Control Plan	16.98   3663.4
	Fallen part removal	Manual	Manual	Once every 24 hours for rack line.	1/24 hours worked	Conforming		Yes
A12.9	Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
13.0	Rinse (This section is to be repeated as necessary to doc	ument all individual rinse ste	ps in the entire		1	I.	I.	I.
	Rinse Type - Identify in comment section e.g., Flowing, Counter Flowing, Spray, Stagnant, Drag-in/out, etc.		NA NA	NA	NA		Flowing	
A13.2	Water Type- Identify in comment section e.g., Municipal, Deionized (DI),Reverse Osmosis (RO), etc.	NA	NA	NA	NA		Municipal	
A13.3	Agitation type - Identify in comment section (if applicable) e.g., Mechanical (Describe), Air, Ultrasonic, etc.	NA	NA	NA	NA		Air	
A13.4	Solution Level - Parts, heaters, and transducers are completely submerged.	Automatic or Manual	Manual	Continuous monitoring by controller. Manually verify daily for automatic controls, every 8 hours for systems without controllers.	1/8 hours worked	Conforming	See Control Plan	Yes
A13.5	Rinse Quality - Identify in comment section e.g., pH, Impurity Check, Conductivity	Manual	Manual	Once every 8 hours.*	1/8 hours worked	Conforming	See Control Plan	747
A13.6	Flow rate (if applicable)	Manual	N/A	Once every 8 hours.	N/A	N/A	See Control Plan	Yes
A13.7	Verify position of incoming water feed is near the bottom (if immersion tank).	Manual	Manual	Per preventive maintenance program.	Conforming	N/A	N/A	Complete
A13.8	Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
14.0	Rinse (This section is to be repeated as necessary to doc	ument all individual rinse ste	ps in the entire					

A14.1	Rinse Type - Identify in comment section e.g., Flowing, Counter Flowing, Spray, Stagnant, Drag-in/out, etc.	NA	NA	NA	NA		Flowing	
A14.2	e.g., Municipal, Deionized (DI),Reverse Osmosis (RO), etc.	NA	NA	NA	NA		Municipal	
A14.3	Agitation type - Identify in comment section (if applicable) e.g., Mechanical (Describe), Air, Ultrasonic, etc.	NA	NA	NA	NA		Air	
	<ul> <li>Parts, heaters, and transducers are completely submerged.</li> </ul>	Automatic or Manual	Manual	Continuous monitoring by controller. Manually verify daily for automatic controls, every 8 hours for systems without controllers.	1/8 hours worked	Conforming	See Control Plan	Yes
A14.5	Rinse Quality - Identify in comment section e.g., pH, Impurity Check, Conductivity	Manual	Manual	Once every 8 hours.*	1/8 hours worked	Conforming	See Control Plan	525
A14.6	Flow rate (if applicable)	Manual	N/A	Once every 8 hours.	N/A	N/A	See Control Plan	Yes
A14.7	Verify position of incoming water feed is near the bottom (if immersion tank).	Manual	Manual	Per preventive maintenance program.	Conforming	N/A	N/A	Complete
	Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
15.0	Drying							
A15.1	Drying Time	Automatic	Automatic	Per Process Sheet and TDS.	N/A	N/A	N/A	6 Min
		Automatic Max SAT difference allowed +/- 5°C (10°F).	Automatic	Per Process Sheet and TDS.	N/A	N/A	See Control Plan	123.9
A15.3	Verify operation of blowers and/or rotation of dryer.	Manual	Manual	Once per 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes
A15.4	There is a procedure to ensure dryness of parts.	Manual	Manual	Every container and rack.	Every container and rack.	Conforming	Per customer requirements	N/A

## **PROCESS TABLE A - Zinc & Zinc Alloy Plating**

All requirements given below are subordinate to applicable customer/OEM specific requirements.

The customer may have additional requirements, e.g., inspection testing, greater frequencies, etc. When performing the job audit, the auditor shall verify plater is conforming to customer requirements.

\*If minimum requirements are not met, provide supporting records to justify actual conditions. To justify reduced monitoring frequencies, a minimum of 30 consecutive measurements (data points) at stated frequencies must be documented. If any data points at reduced monitoring frequencies are outside of control limits, then revert back to the frequencies stated under the minimum requirements.

Columns H and I are used for the Job Audit (Section 4).

Regularly scheduled measurements (e.g., temperature, concentrations, pH) are to be entered in the appropriate row.

For sections that are not applicable mark NA in the Comments column.

Instruction for creating the table with the form builder:

Using the Populate Forms list to the right, select the box that represents the first step of the process flow.

Then select the Populate Forms banner and that section of the process table will be added below.

For each additional step of the process flow, continue adding sections to the form by selecting the applicable step from the list to the right, followed by selecting the Populate Forms banner.

Rinses between process steps are to be included.

If using multiple counter flowed rinses only insert one Rinse section, document only the condition of the last rinse tank in the series.

Process Line Identification: Line 4

Type of Line: Rack

	Category/Process Steps	Type of Conf	trol	Monitoring Frequency		Observation/ Comments	Job Audit I	Measurements
ITEM #		Minimum Requirement	Actual Condition	Minimum Requirement	Actual Condition	Conforming Nonconforming NA	Range	Actual Measurements supporting time of Job Audit
1.0	Alkaline Cleaning		•		•	•	•	
	Type: Soak							
	Size, volume: Confidential							
	Chemical supplier: Confidential							
A1.1	Temperature (Thermocouple)	Automatic Max SAT difference allowed +/- 5°C (10°F).	Automatic	Continuous monitoring by controller. Manually verify daily.	1/8 hours worked	Conforming	See Control Plan	180
A1.2	Concentration	Manual	Manual	Once per day.	1/24 hours worked	Conforming	See Control Plan	8.74
A1.3	Time	Automatic	Automatic	After any program changes.	N/A	N/A	N/A	4 Min.
A1.4	Agitation (if applicable)	Automatic	Automatic	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes
A1.5	Solution Level - Parts, heaters, and transducers are completely submerged.	Automatic or Manual	Manual	Continuous monitoring by controller. Manually verify daily for automatic controls, every 8 hours for systems without controllers.	1/8 hours worked	Conforming	See Control Plan	Yes
A1.6	Impurity Content Check Per chemical supplier recommendation such as: - acid split (oil contamination) - alkalinity ratio	Manual	Not Recommended by Chemical Supplier	Once per week*	N/A	N/A	N/A	1.4   1
A1.7	Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
2.0	Alkaline Cleaning							
	Type - Electro (cathodic)					•	•	
	Size, volume: Confidential	·		· · · · · · · · · · · · · · · · · · ·				
	Chemical supplier: Confidential							
A2.1	Temperature (Thermocouple)	Automatic Max SAT difference allowed +/- 5°C (10°F).	Automatic	Continuous monitoring by controller. Manually verify daily.	1/8 hours worked	Conforming	See Control Plan	155
A2.2	Concentration	Manual	Manual	Once per day.	1/24 hours worked	Conforming	See Control Plan	7.2

A2.3	Time	Automatic	Automatic	After any program changes.	N/A	N/A	N/A	4 Min.
A2.4	Agitation (if applicable)	Automatic	Automatic	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes
A2.5	Amperage or Voltage Control (if applicable)	Automatic	Automatic	Once every 8 hours*.	1/8 hours worked	Conforming	See Control Plan	3.5
A2.6	Solution Level - Parts, heaters, and transducers are completely submerged.	Automatic or Manual	Manual	Continuous monitoring by controller. Manually verify daily for automatic controls, every 8 hours for systems without controllers.	1/8 hours worked	Conforming	See Control Plan	Yes
A2.7	Impurity Content Check Per chemical supplier recommendation such as: - acid split (oil contamination) - alkalinity ratio	Manual	Not Recommended by Chemical Supplier	Once per week*	N/A	N/A	N/A	1.21   1
A2.8	Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
3.0	Rinse (This section is to be repeated as necessary to docu	ment all individual rinse step	os in the entire					
A3.1	etc.	NA	NA	NA	NA		Flowing	
A3.2	Water Type- Identify in comment section e.g., Municipal, Deionized (DI),Reverse Osmosis (RO), etc.	NA	NA	NA	NA		Municipal	
A3.3	Agitation type - Identify in comment section (if applicable) e.g., Mechanical (Describe), Air, Ultrasonic, etc.	NA	NA	NA	NA		Air	
A3.4	Solution Level - Parts, heaters, and transducers are completely submerged.	Automatic or Manual	Manual	Continuous monitoring by controller. Manually verify daily for automatic controls, every 8 hours for systems without controllers.	1/8 hours worked	Conforming	See Control Plan	Yes
A3.5	Rinse Quality - Identify in comment section e.g., pH, Impurity Check, Conductivity	Manual	Manual	Once every 8 hours.*	1/8 hours worked	Conforming	See Control Plan	1278
A3.6	Flow rate (if applicable)	Manual	N/A	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes
A3.7	Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
4.0	Acid Pickling					!		•
	Type: HCL							
	Size, volume: Confidential							
	Chemical supplier: Confidential							
A4.1	Concentration	Manual	Manual	Once every 8 hours*	2/24 hours worked.	Conforming. Data points show that reduced frequency is able to maintain process control.	See Control Plan	36.81
A4.2	Metallic impurity concentration. Obtain metallic impurity limits from chemical supplier with required corrective actions.	Manual	Manual	Once per month.	1/ month	Conforming	See Control Plan	1.09   1794.29   34.3   4.91   1245
A4.3	Time (Less than 10 Minutes or Customer Specific)	Automatic	Automatic	After any program changes.	N/A	N/A	N/A	4 Min.
A4.4	Solution Level	Manual	Manual	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes
A4.5	Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
5.0	Rinse (This section is to be repeated as necessary to docu	ment all individual rinse step	os in the entire					
A5.1	Rinse Type - Identify in comment section e.g., Flowing, Counter Flowing, Spray, Stagnant, Drag-in/out, etc.	NA	NA	NA	NA		Flowing	
A5.2	Water Type- Identify in comment section e.g., Municipal, Deionized (DI), Reverse Osmosis (RO), etc.	NA	NA	NA	NA		Municipal	
A5.3	Agitation type - Identify in comment section (if applicable) e.g., Mechanical (Describe), Air, Ultrasonic, etc.	NA	NA	NA	NA		Air	
A5.4	Solution Level - Parts, heaters, and transducers are completely submerged.	Automatic or Manual	Manual	Continuous monitoring by controller. Manually verify daily for automatic controls, every 8 hours for systems without controllers.	1/8 hours worked	Conforming	See Control Plan	Yes
A5.5	Rinse Quality - Identify in comment section e.g., pH, Impurity Check, Conductivity	Manual	Manual	Once every 8 hours.*	1/8 hours worked	Conforming	See Control Plan	9897
A5.6	Flow rate (if applicable)	Manual	N/A	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes
A5.7	Verify position of incoming water feed is near the bottom (if immersion tank).	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
A5.8	Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
6.0	Rinse (This section is to be repeated as necessary to docu	ment all individual rinse ster	s in the entire					1
	Rinse Type - Identify in comment section	NA	NA	NA	NA		Flowing	
A6.2	Water Type- Identify in comment section e.g., Municipal, Deionized (DI),Reverse Osmosis (RO), etc.	NA	NA	NA	NA		Municipal	

			1	1	1			
A6.3	Agitation type - Identify in comment section (if applicable) e.g., Mechanical (Describe), Air, Ultrasonic, etc.	NA	NA	NA	NA		Air	
A6.4	Solution Level - Parts, heaters, and transducers are completely submerged.	Automatic or Manual	Manual	Continuous monitoring by controller. Manually verify daily for automatic controls, every 8 hours for systems without	1/8 hours worked	Conforming	See Control Plan	Yes
A6.5	Rinse Quality - Identify in comment section e.g., pH, Impurity Check, Conductivity	Manual	Manual	Controllers.  Once every 8 hours.*	1/8 hours worked	Conforming	See Control Plan	1284
A6.6	Flow rate (if applicable)	Manual	N/A	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes
A6.7	Verify position of incoming water feed is near the bottom (if immersion tank).	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
A6.8	Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
	Alkaline Plating Bath							
	Type: Zinc-Nickel							
	Size, volume: Confidential							
	Chemical supplier: Confidential  Temperature (Thermocouple)	Automatic Max SAT difference allowed +/- 3°C (5°F).	Automatic	Continuous monitoring by controller. Manually verify daily.	1/8 hours worked	Conforming	See Control Plan	75
A7.2	Time	Automatic or Manual	Automatic	Automatic - After any program changes. Manual - every load.*	N/A	N/A	N/A	26 Min
A7.3	Solution Level - Parts, heaters, and transducers are completely submerged.	Automatic or Manual		Continuous monitoring by controller. Manually verify daily for automatic controls, every 8 hours for systems without controllers.	1/8 hours worked	Conforming	See Control Plan	Yes
A7.4	Current/Voltage	Automatic or Manual	Manual	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	4.9
A7.5	Plating Test Cell (Hull Cell)	Manual	Manual	Once per day.	1/24 hours worked	Conforming	See Control Plan	3.24
A7.6	Zinc Generator Tank (if applicable) -Caustic Concentration -Zinc Concentration	Automatic or Manual		Once every 8 hours.	2/24 hours worked	Conforming. Data points show that reduced frequency is able to maintain process control.	See Control Plan	3.25   19.26
A7.7	Caustic Concentration	Manual	Manual	Once per day.	1/24 hours worked	Conforming	See Control Plan	18.73
A7.8	Zinc Concentration	Manual	Manual	Once per day.	2/24 hours worked	Conforming	See Control Plan	1.88
A7.9	Alloying Element Concentration (e.g., Fe, Ni, Co; if applicable)	Manual	Manual	Once per day.	1/24 hours worked	Conforming	See Control Plan	1858.5
A7.10	Complexor Concentration (for alloy baths)	Manual	N/A	Once per month by Supplier.	1/ month	Conforming	See Letter from Supplier	See Letter from Supplier
A7.11	Metallic impurity concentration. Obtain metallic impurity limits from chemical supplier with required corrective actions.	Manual	Manual	Once per month.	1/ month	Conforming	See Control Plan	81.64   0   0   0   8.68   0   4.2   0
A7.12	Carbonate (CO <sub>3</sub> ) concentration	Manual	Manual	Once per month (Twice per month for alloy plating).	2/ month	Conforming	See Control Plan	8.4
A7.13	Proprietary chemical additives concentration (e.g., carrier, brightener)	Manual	N/A	Once per month by Supplier.	1/ month	Conforming	See Letter from Supplier	See Letter from Supplier
	Chemical feeders	Automatic	Automatic	Once per week.	1/24 hours worked	_	See Control Plan	220   68   240
	Agitation (Rack only - others optional)	Continuous	Continuous	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes
	Filtration Pressure Fallen part removal	<u>Continuous</u> Manual	N/A Manual	Once every 8 hours.  Rack: Once every 24 hours.  Barrel: Once per week and after any lost load.	N/A 1/ week	N/A Conforming	N/A	N/A The part removal process may cause customer rejections and should only be done when the line is not in use.
A7.18	Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
8.0	Rinse (This section is to be repeated as necessary to docu	ment all individual rinse ste	ps in the entire					
A8.1	Rinse Type - Identify in comment section e.g., Flowing, Counter Flowing, Spray, Stagnant, Drag-in/out, etc.	NA	NA	NA	NA		Flowing	
A8.2	Water Type- Identify in comment section e.g., Municipal, Deionized (DI),Reverse Osmosis (RO), etc.	NA	NA	NA	NA		Municipal	
	Agitation type - Identify in comment section (if applicable)	NA	NA	NA	NA		Air	

A8.4	Solution Level - Parts, heaters, and transducers are completely submerged.	Automatic or Manual	Manual	Continuous monitoring by controller. Manually verify daily for automatic controls, every 8 hours for systems without controllers.	1/8 hours worked	Conforming	See Control Plan	Yes
A8.5	Rinse Quality - Identify in comment section e.g., pH, Impurity Check, Conductivity	Manual	Manual	Once every 8 hours.*	1/8 hours worked	Conforming	See Control Plan	3218
A8.6	Flow rate (if applicable)	Manual	N/A	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes
A8.7	Spray nozzle condition (if applicable)	Manual	Manual	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes
A8.8	Verify position of incoming water feed is near the bottom (if immersion tank).	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
A8.9	Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
9.0	Passivates							
	Type: Thick Film Trivalent							
	Size, volume: Confidential							
	Chemical supplier: Confidential							
A9.1	Concentration	Automatic or Manual	Automatic	Prior to production start-up. If automatic control, once per day. If manual, once every 8 hours.	1/24 hours worked	Conforming	See Control Plan	6.02
A9.2	Temperature (Thermocouple)	Automatic Max SAT difference allowed +/- 1°C (2°F).	Automatic	Continuous monitoring by controller. Manually verify daily.	1/8 hours worked	Conforming	See Control Plan	78
A9.3	Time	Automatic or Manual	Automatic	Automatic - After any program changes.  Manual - every load.*	N/A	N/A	N/A	1 Min
A9.4	Solution Level - Parts, heaters, and transducers are completely submerged.	Automatic or Manual	Manual	Continuous monitoring by controller. Manually verify daily for automatic controls, every 8 hours for systems without controllers.	1/8 hours worked	Conforming	See Control Plan	Yes
A9.5	рН	Automatic*	Automatic	Prior to production start-up. If automatic control, once per day. If manual, once every 8 hours.	1/1 Hour worked	Conforming	See Control Plan	4.31
A9.6	Agitation	Automatic	Automatic	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes
A9.7	Metallic Impurity level(s) (e.g., Fe, Zn)	Manual	Manual	Once per week.	1/ week worked	Conforming	See Control Plan	2.71   807.75
A9.8	Fallen part removal	Manual	Manual	Once every 24 hours for rack line.	1/24 hours worked	Conforming	See Control Plan	YES
A9.9	Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
10.0	Rinse (This section is to be repeated as necessary to docu	ment all individual rinse ster	s in the entire					
A10.1	Rinse Type - Identify in comment section e.g., Flowing, Counter Flowing, Spray, Stagnant, Drag-in/out, etc.	NA	NA	NA	NA		Flowing	
A10.2	Water Type- Identify in comment section e.g., Municipal, Deionized (DI),Reverse Osmosis (RO), etc.	NA	NA	NA	NA		Municipal	
A10.3	Agitation type - Identify in comment section (if applicable) e.g., Mechanical (Describe), Air, Ultrasonic, etc.	NA	NA	NA	NA		Air	
A10.4	Solution Level - Parts, heaters, and transducers are completely submerged.	Automatic or Manual	Manual	Continuous monitoring by controller. Manually verify daily for automatic controls, every 8 hours for systems without controllers.	1/8 hours worked	Conforming	See Control Plan	Yes
A10.5	Rinse Quality - Identify in comment section e.g., pH, Impurity Check, Conductivity	Manual	Manual	Once every 8 hours.*	1/8 hours worked	Conforming	See Control Plan	2649
A10.6	Flow rate (if applicable)	Manual	N/A	Once every 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes
A10.7	Verify position of incoming water feed is near the bottom (if immersion tank).	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
A10.8	Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
11.0		n Modifiers						
	Type: Sealer							
	Size, volume: Confidential							
	Chemical supplier: Confidential							
A11.1	Concentration	Manual	Manual	Prior to production start-up. If automatic control, once per day. If manual, once every 8 hours.	1/24 hours worked	Conforming. Dumped and replaced every day.	See Control Plan	Conforming. Dumped and replaced every day.
A11.2	Temperature (Thermocouple) (if applicable)	Automatic Max SAT difference allowed +/- 1°C (2°F).	Automatic	Continuous monitoring by controller. Manually verify daily.	1/8 hours worked	Conforming	See Control Plan	125

A11.3	pH (if applicable)	Automatic or Manual	Manual	Prior to production start-up. If automatic control, once per day. If manual, once every 8 hours.	1/24 hours worked	Conforming. Data points show that reduced frequency is able to maintain process control.		10.55
A11.4	Time	Automatic*	Automatic	After any program changes if automatic.	N/A	N/A	N/A	1 Min
A11.5	Solution Level - Parts, heaters, and transducers are completely submerged.	Automatic or Manual	Manual	Continuous monitoring by controller. Manually verify daily for automatic controls, every 8 hours for systems without controllers.	1/8 hours worked	Conforming	See Control Plan	Yes
A11.6	Filtration Pressure (if applicable)	Automatic	N/A	Once every 8 hours.	N/A	N/A	N/A	N/A
A11.7	Tank and solution maintenance schedule documented and followed.	Manual	Manual	Per preventive maintenance program.	1/ month	Conforming	N/A	Complete
12.0	Drying							
A12.1	Drying Time	Automatic	Automatic	Per Process Sheet and TDS.	N/A	N/A	N/A	6 Min.
A12.2	Drying Temperature (Thermocouple)	Automatic Max SAT difference allowed +/- 5°C (10°F).	Automatic	Per Process Sheet and TDS.	N/A	N/A	See Control Plan	160
A12.3	Verify operation of blowers and/or rotation of dryer.	Manual	Manual	Once per 8 hours.	1/8 hours worked	Conforming	See Control Plan	Yes
A12.4	There is a procedure to ensure dryness of parts.	Manual	Manual	IEVery container and rack	Every container and rack.	Contormina	Per customer requirements	N/A

## PROCESS TABLE I - Process Control and Testing Equipment Verification and Calibration

All requirements given below are subordinate to applicable customer/OEM specific requirements.

The customer may have additional requirements, e.g., inspection testing, greater frequencies, etc. The auditor shall verify plater is conforming to customer requirements.

"If minimum requirements are not met, provide supporting records to justify actual conditions. To justify reduced monitoring frequencies, a minimum of 30 consecutive measurements (data points) at stated frequencies must be documented. If any data points at reduced monitoring frequencies are outside of control limits, then revert back to the frequencies stated under the minimum requirements.

ITEM#	EQUIPMENT TYPE	Verification Frequency	Conforming Nonconforming NA	Calibration / Certification Frequency	Conforming Nonconforming NA	Observation / Comments
1.0			1	1	1	1
I1.1	Before use, chemicals must be checked for shelf life and/or expiration date.	Daily	Conforming	NA	N/A	
I1.2	Temperature Controller	Per Section 3 Pyrometry (Daily per 3.3.1.2)	Conforming	Annually	Conforming	
I1.3	Thermocouple	Per Section 3 Pyrometry (N/A not referenced in any section or table)	Conforming	Per Section 3 Pyrometry	Conforming	
I1.4	pH Meter	Per equipment manufacturer's specifications	Conforming	Annually	Conforming	
I1.5	pH Probe	Once every 4 hours, using a minimum of 2 buffer solutions near the min and max of the chemical control range.*	Conforming	NA	N/A	1x per Day
I1.6	Conductivity Meter	Per equipment manufacturer's specifications	Conforming	Annually	Conforming	
11.7	Conductivity Probe	Once every 4 hours, using a minimum of 2 reference solutions near the min and max of the chemical control range.	N/A	NA	N/A	
I1.8	Ion Selective (ISE ) Probe	Once every 4 hours, using a minimum of 2 reference solutions near the min and max of the chemical control range.	N/A	NA	N/A	
I1.9	Laboratory Balance	Monthly using a minimum of 2 reference mass standards.	Conforming	Annually	Conforming	
I1.10	Atomic Absorption (AA)	Before each use.	N/A	Annually	N/A	
11.11	Inductively Coupled Plasma (ICP)	Before each use.	Conforming	Annually	Conforming	
I1.12	Ion Chromatography (IC)	Before each use.	N/A	Annually	N/A	
I1.13	X-Ray Fluorescence (XRF)	Daily. Thickness and alloy for each combination of plating and substrate.	Conforming	Annually	Conforming	
I1.14	Hardness Tester	Daily	N/A	Annually	N/A	
I1.15	Profilometer	Daily	N/A	Annually	N/A	
I1.16	Lab Rectifier	NA	N/A	Annually	Conforming	
11.17	Hand held digital thermometer	NA	N/A	Annually	Conforming	
I1.18	Glass thermometer	Visual inspection before each use.	N/A	Annually	N/A	
I1.19	Pipettes - Before use, pipettes must be checked for broken tips	Before each use	Conforming	NA	N/A	
I1.20	Salt Spray Cabinet	Daily	Conforming	Annually	Conforming	
I1.21	Thickness Tester	Every 8 hours	Conforming	Annually	Conforming	
I1.22	CASS Cabinet	Daily	N/A	Annually	N/A	
I1.23	Microscope (Min 100X) with calibrated grid reticle for Pore/Crack Count	Daily	N/A	Annually	N/A	
I1.24	Lab Oven	Per Section 3 Pyrometry (Once every 6 Months per 3.3.1.1)	Conforming	Annually	Conforming	
I1.25	Torque-tension/Friction Tester	NA	N/A	Annually	N/A	
I1.26	Refractometer	Monthly	N/A	NA	N/A	
I1.27	Spectrophotometer	Monthly	N/A	Annually	N/A	
I1.28	Color Meter	Daily	N/A	Annually	N/A	
I1.29	Gloss Meter	Monthly	N/A	Annually	N/A	
I1.30	Digital Temperature Recorder (i.e., DataPaq)	NA	N/A	Annually	N/A	