


Special Process: Coating System Assessment 2nd Edition

Facility Name:Sumeeko Industries Company, Limited
Address:No. 20, Huaxi Rd., Ta-Fa Industrial Dist., Kaohsiung County 831 Taiwan, R.O.C.

Phone Number:+ 886-7-788-7199	Type(s) of Coating Processes at this Facility: Process Table A Pretreatment, Aqueous Process Table B Pretreatment, Mechanical X Process Table C Conversion Coating Process Table D Powder Coating Process Table E Spray Process Table F Electrocoat Process Table G Dip/Spin X Process Table H Autodeposition Process Table I Cure X Process Table J Anodizing Process Table K Equipment X Process Table L Part Inspection & Testing X
Fax Number:+ 886-7-788-7868	
Number of Coating Employees at this Facility:	
Captive Coater (Y/N):No	
Commercial Coater (Y/N):Yes	
Date of Assessment:2017/09/15	
Date of Previous Assessment:2016/8/23	
	

Current Quality Certification(s):SO/TS16949:2008; ISO14001:2004; GM Tier Supplier; Magna Tier Supplier; GM7111M, GMW3359; GM7114M;GMW16431; Magni Approved Coater; Ma-Thread Licensed

Date of Re-assessment (if necessary):

Personnel Contacted:

Name:	Title:	Phone:	Email:
Hason Yang	Coating Team Leader	+ 886-7-788-7199	yang@sumeeko.com

Auditors/Assessors:

Name:	Company:	Phone:	Email:
Tseng Wei Chun	Sumeeko Industries Co., Ltd.	886-7-788-9168 # 167	jai@sumeeko.com

Number of "Not Satisfactory" Findings: 0

Number of "Needs Immediate Action" Findings: 0

Number of "Fail" Findings in the Job Audit(s): 0

Number of Process Table Items not meeting Minimum Requirements: 0

Special Process: Coating System Assessment (General Facility Overview)

Question Number	Question	Requirements and Guidance	Objective Evidence	Assessment			
				N/A	Satisfactory	Not Satisfactory	Needs Immediate Action
Section 1 - Management Responsibility and Quality Planning							
1.1	Is there a dedicated and qualified coating person on-site?	To ensure readily available expertise, there shall be a dedicated and qualified coating person on the 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 coating knowledge. The qualifications shall include a minimum of 5 years experience in coating operation or a combination of a minimum of 5 years of formal chemical education and coating experience.	Both team leader Mr. Yang and operator Mr. Chiang have minimum of 5 years experience in coating operation.		X		
1.2	Does the coater perform advanced quality planning?	The coater shall incorporate a documented advanced quality planning procedure. 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 coater. After the part approval process is approved by the customer, no process changes are allowed unless approved by the customer. The coater shall contact the customer when clarification of process changes is required. This clarification of process changes shall be documented.	APQP is established. A feasibility study is performed and documented. No process changes are allowed unless approved by the customer.		X		
1.3	Are the coater's FMEA's up to date and reflecting current processing?	The coater shall incorporate the use of a documented Failure Mode and Effects Analysis (FMEA) procedure 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. In any case, they shall address all process steps from part receipt to part shipment and all key coating process parameters as defined by the coater. A cross-functional team shall be used in the development of the FMEA. All special characteristics, as defined by the coater and its customers, shall be identified, defined, and addressed in the FMEA.	PFMEAs are established for each part / part family.		X		

Special Process: Coating System Assessment (General Facility Overview)

Question Number	Question	Requirements and Guidance	Objective Evidence	Assessment			
				N/A	Satisfactory	Not Satisfactory	Needs Immediate Action
1.4	Are finish process Control Plans up to date and reflecting current processing?	The coater shall incorporate the use of a documented Control Plan procedure 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 and written for each process. In any case, they shall address all process steps from part receipt to part shipment and identify all equipment used and all key coating process parameters as defined by the coater. A cross-functional team, including a production operator, 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 coater and its customers, shall be identified, defined, and addressed in the Control Plans. Sample sizes and frequencies for evaluation of process and product characteristics shall also be addressed consistent with the minimum requirements listed in the Process Tables.	Control plans are established for each part/part family.		X		
1.5	Are all coating related and referenced specifications current and available? For example: SAE, AIAG, ASTM, General Motors, Ford, and Chrysler.	To ensure all customer requirements are both understood and satisfied, the coater shall have all related coating and customer referenced standards and specifications available for use and a method to ensure that they are current. Such standards and specifications include, but are not limited to, those relevant documents published by SAE, AIAG, ASTM, General Motors, Ford, and Chrysler. The coater shall have a process to ensure the timely review, distribution, and implementation of all customer and industry engineering standards and specifications and changes based on customer-required schedule. This process shall be executed as soon as possible and shall not exceed two weeks. The coater shall document this process of review and implementation, and it shall address how customer and industry documents are obtained, how they are maintained within the coater, how the current status is established, and how the relevant information is cascaded to the shop floor within the two-week period. The coater shall identify who is responsible for performing these tasks.	all related coating and customer referenced standards and specifications is available for use and a method to ensure that they are current.		X		
1.6	Is there a written process specification for all active processes?	The coater shall have written process specifications for all active processes and identify all steps of the process including relevant operating parameters. Examples of operating parameters include process temperatures, cycle times, load rates, rectifier settings, etc. Such parameters shall not only be defined, they shall have operating tolerances as defined by the coater in order to maintain process control. All active processes should have a written process specification. These process specifications may take the form of work instructions, job card, computer-based recipes, or other similar documents.	Standardized Work Instruction (document number:SQD-7505-17) is established for coating process.		X		

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1.7	Has a valid product capability study been performed initially and after process change?	To demonstrate each process is capable of yielding acceptable product, the coater shall perform product capability studies for the initial validation of each process, after relocation of any process equipment, and after a major rebuild of any equipment. The coater shall define what constitutes a major rebuild. Initial product capability studies shall be conducted for all coating processes per line as defined in scope of work and in accordance with customer requirements. Capability study techniques shall be appropriate for the coating product characteristics, e.g., coating thickness, corrosion resistance, etc.. Any specific customer requirements shall be met. In the absence of customer requirements, the coater shall establish acceptable ranges for measures of capability. An action plan shall exist to address the steps to be followed in case capability indices fall outside customer requirements or established ranges.	Adhesion and film thickness test are performed per lot.		X		
1.8	Does the coater collect and analyze data over time, and react to this data? Are records available?	The analysis of products and processes over time can yield vital information for defect prevention efforts. The coater shall have a system to collect, analyze, and react to product or process data over time. Methods of analysis shall include ongoing trend or historical data analysis of special product or process parameters. The coater shall determine which parameters to include in such analysis. All process control and testing records must be retained for a minimum of one calendar year after the year in which they were created.	There is a system to analyze and react to product or process data over time.		X		
1.9	Are internal assessments being completed on an annual basis, at a minimum, incorporating AIAG CSA?	The coater shall conduct internal assessments on an annual basis, at a minimum, using the AIAG CSA. Concerns shall be addressed in a timely manner.	Internal assessment is performed once per year by using AIAG CSA.		X		
1.10	Is there a system in place to authorize reprocessing and is it documented?	The quality management system shall include a documented process for reprocessing that shall include authorization from 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 new processing control sheet issued by qualified technical personnel denoting the necessary coating modifications. Records shall clearly indicate when and how any material has been reprocessed. The Quality Manager or a designee shall authorize the release of reprocessed product.	It is defined in internal procedure SQD-8301-00, non-conformity product management rev 5.8"		X		

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Question Number	Question	Requirements and Guidance	Objective Evidence	Assessment			
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1.11	Does the Quality Department 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 coater. A disciplined problem solving approach shall be used.	see internal procedure SQD-8503-00 Corrective action and preventative measures procedures & SQD-8504-00 Quality claim procedure and processing		X		
1.12	Is there a continual improvement plan applicable to each process defined in the scope of the assessment?	The coater shall define a process for continual improvement for each coating process identified in the scope of the CSA. The process shall be designed to bring about continual improvement in quality and productivity. Identified actions shall be prioritized and shall include timing (estimated completion dates). The coater shall show evidence of program effectiveness.	There are evidences for continual improvement,		X		
1.13	Does the Quality Manager or designee authorize the disposition of material from quarantine status?	The Quality Manager or designee is responsible for authorizing and documenting appropriate personnel to disposition quarantine material.	It is defined in internal procedure "SQD-8301-00 How to handling non-conformity product rev 5.8"		X		
1.14	Are there procedures or work instructions available to coating personnel that define the coating process?	There shall be procedures or work instructions available to coating personnel covering the coating process. These procedures or work instructions shall include methods of addressing potential emergencies (such as power failure), equipment start-up, equipment shut-down, product segregation (See 2.8), product inspection, and general operating procedures. These procedures or work instructions shall be accessible to shop floor personnel.	see internal procedure "SQD-7505-22 MAGNI coating process procedures Rev 4.4"		X		
1.15	Is management providing employee training for coating?	The coater shall provide employee training for all coating 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 assessment of the effectiveness of the training. Management shall define the qualification requirements for each function, and ongoing or follow-up training shall also be addressed.	training records are established.		X		
1.16	Is there a responsibility matrix to ensure that all key management and supervisory functions are performed by qualified personnel?	The coater shall maintain a responsibility matrix identifying all key management and supervisory functions and the qualified personnel who may perform such functions. It shall identify both primary and secondary (backup) personnel for the key functions (as defined by the coater). This matrix shall be readily available to management at all times.	see internal procedure "SQD-5501-00 Company chart including respective departmental responsibility rev 5.6"		X		

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1.17	Is there a preventive maintenance program? Is maintenance data being utilized to form a predictive maintenance program?	The coater shall have a documented preventive maintenance program for key process equipment (as identified by the coater). 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 predictive maintenance program.	Daily maintenance are recorded. Annual maintenance schedule/plan is established		X		
1.18	Has the coater developed a critical spare parts list, and are the parts available to minimize production disruptions?	The coater shall develop and maintain a critical spare parts list and shall ensure the availability of such parts to minimize production disruptions.	critical spare parts list is established		X		

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Section 2 - Floor and Material Handling Responsibility							
2.1	Does the facility ensure that the data entered in the receiving system matches the information on the customer's shipping documents?	Documented processes and evidence of compliance shall exist, e.g., shop travelers, work orders, etc. The facility shall have a detailed process in place to resolve receiving discrepancies.	Shop traveler is attached to the container. Work order is placed on the site.		X		
2.2	Is product clearly identified and staged throughout the coating process?	Procedures for part and container identification help to avoid incorrect processing or mixing of lots. Appropriate location and staging within the facility also help to ensure that orders are not shipped until all required operations are performed. Customer product shall be clearly identified and staged throughout the coating process. Non-coated, in-process, and finished product shall be properly segregated and identified. All material shall be staged in a dedicated and clearly defined area.	It is defined in internal procedure "SQD-7505-22 MAGNI coating process and procedures Rev 4.4"		X		
2.3	Is lot traceability and integrity maintained throughout all processes?	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.	The batch number of all process is logged in ERP.		X		
2.4	Are procedures adequate to prevent movement of non-conforming product into the production system?	The control of suspect or non-conforming product is necessary to prevent inadvertent shipment or contamination of other lots. Procedures shall be adequate to prevent movement of non-conforming product into the production system. Procedures shall exist addressing proper disposition, product identification and tracking of material flow in and out of hold area. Non-conforming hold area shall be clearly designated to maintain segregation of such material.	SOP "SQD-7505-22 MAGNI coating process procedures Rev 4.4" paragraph 5.1.21~5.1.25		X		
2.5	Is there a system to identify trap points in the entire process to reduce risk of mixed parts (inappropriate, unfinished or improperly coated parts)?	The coater shall have documented procedures to identify and monitor trap points for each process/equipment. Monitoring of potential trap points shall occur for every part changeover.	Documented procedures (including pictures) is in place. The check list for trap point is also in place.		X		

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				N/A	Satisfactory	Not Satisfactory	Needs Immediate Action
2.6	Are containers free of inappropriate material?	Containers handling customer product shall be free of inappropriate material. After emptying and before re-using containers, containers shall be inspected to ensure that all parts and inappropriate material have been removed. The source of inappropriate material shall be identified and addressed. This is to ensure that no nonconforming coated parts or inappropriate material contaminate the finished lot.	It is defined in internal procedure "SOP-6301-PF-437 MAGNI specific container's emptying and cleaning procedures SOP 1.2"		X		
2.7	Is part loading specified, documented and controlled?	Loading parameters shall be specified, documented and controlled. Examples include parts per rack and load size. Refer to Process Tables for frequency of checks.	It is defined in internal procedure "SQD-7505-17 MAGNI coating procedures"		X		
2.8	Are operators trained in material handling, containment action and product segregation in the event of an equipment emergency including power failure?	Unplanned or emergency downtime greatly raises the risk of improper processing. Operators shall be trained in material handling, containment action, and product segregation in the event of an equipment emergency including power failure. Training shall be documented. Work instructions specifically addressing potential types of equipment emergencies and failures shall be accessible to and understood by equipment operators. These instructions shall address containment/reaction plans related to all elements of the process. Evidence shall exist showing disposition and traceability of affected product.	It is defined in internal procedure "SQD-7505-22 MAGNI coating process procedures Rev 4.4" paragraph 6		X		
2.9	Is the handling, storage and packaging adequate to preserve product quality?	The coater's loading/unloading systems, in-process handling and shipping process shall be assessed for risk of part damage or other quality concerns.	It is defined in internal procedure "SQD7509-01 \ SQD-7510-00 \ SQD-7505-22"		X		
2.10	Are plant cleanliness, housekeeping, environmental and working conditions conducive to control and improved quality?	Plant cleanliness, housekeeping, environmental, and working conditions shall be conducive to controlling and improving quality. The coater should evaluate such conditions and their effect on quality. A housekeeping policy shall be clearly defined and executed. The facility shall be reviewed for the following items: loose parts on floor; spillage around tanks; overall plant lighting; fumes etc.	It is defined in internal document for 6S in MAGNI coating		X		
2.11	Are process control parameters monitored per frequencies specified in Process Tables?	Process control parameters shall be monitored per frequencies specified in Process Tables. Computer monitoring equipment with alarms and alarm logs satisfy the verification requirement. A designated floor person shall verify the process parameters, e.g., by initialing a strip chart or data log.	It is defined in internal procedure "SQD-7505-17 MAGNI coating procedures" & "SQD-7505-22 MAGNI coating process"		X		

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2.12	Are out of control/specification parameters reviewed and reacted to?	There are documented reaction plans to both out of control and out of tolerance process parameters. There is documented evidence that reaction plans are followed.	Per product's control plan and PFMEA.		X		
2.13	Are In-Process / Final Test Frequencies performed as specified in Process Tables?	In-Process / Final Test Frequencies shall be performed as specified in Process Tables. Refer to Process Tables.	In-Process / Final Test Frequencies shall be performed as internal procedure		X		
2.14	Is product test equipment verified?	Test equipment shall be verified/calibrated per applicable customer specific standard or per an applicable consensus standard, e.g., ASTM, SAE, ISO, NIST, etc. Verification/calibration results shall be internally reviewed, approved and documented. Refer to Process Tables for frequency of checks.	Test equipment shall be verified/calibrated per applicable specification.		X		

Section 3 - Job Audit - Finished Product Review

Job Identity: M16111670101
Customer: 1GMNAO
Shop Order Number: M16111670101
Part Number: 11546405
Part Description: MACHINE SCREW HEAVY IND HEX FLANGE HEAD, M10-1.5x45.5
Coating Requirements: GMW 3359 TYPE A SILVER (GM 7114M)

Question #	Job Audit Question	Related CSA Question #	Customer or Internal Requirement	Job (Shop) Order or Reference Documentation Requirement	Actual Condition (Objective Evidence)	Pass / Fail / N/A
3.1	Is contract review and advanced quality planning, FMEA, Control Plans, etc., performed by qualified individuals?	1.1 1.2 1.3 1.4 1.6	FMEA, control plan etc should be performed by qualified personnel.	FMEA, control plan etc should be performed by qualified personnel.	FMEA, control plan etc are performed by qualified personnel.	pass
3.2	Does the coater have the proper customer specifications for the part?	1.5	GMW 3359	GMW 3359	GMW 3359	pass
3.3	Is a shop traveler created to meet customer requirements?	1.6 2.1	Shop traveler	Shop traveler	Shop traveler for P/I No. S1611167	pass
3.4	Is material identification (part numbers, lot numbers, contract numbers, etc.) maintained throughout the coating process?	2.2 2.3 2.4	Shop traveler	Shop traveler	Shop traveler for P/I No. S1611167	pass
3.5	Is there documented evidence of Receiving Inspection?	2.1	Incoming Inspection sheet	Incoming Inspection sheet	Incoming Inspection sheet	pass
3.6	Are the Loading / Racking requirements identified?	1.6 2.7 2.9	Shop traveler	Shop traveler	Shop traveler for P/I No. S1611167	pass
3.7	Is the proper procedure or process specification used? Refer to Process Tables for specific parameters. List parameters that were verified in this audit in the spaces provided below.	1.5 1.6 2.1 2.11 2.13	MAGNI Procedure	MAGNI Procedure	SQD-7505-20 MAGNI coating stock storage and retrieval procedures SQD-7505-21 MAGNI coating stock mixing procedures SQD-7505-22 MAGNI coating production procedures SQD-7505-23 MAGNI coating machinery operation procedures SQD-7505-24 MAGNI coating specific container's emptying and cleaning procedures	PASS
3.8	What are the product inspection requirements?	1.5 2.13 2.14	product inspection sheet	product inspection sheet	product inspection sheet for PI No.:S1611167	PASS
3.8.1	Requirement: Coating Thickness					

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Question #	Job Audit Question	Related CSA Question #	Customer or Internal Requirement	Job (Shop) Order or Reference Documentation Requirement	Actual Condition (Objective Evidence)	Pass / Fail / N/A
	Test Method:		Coating Thickness tester	Coating Thickness tester	Coating Thickness tester	Pass
	Test frequency or quantity:		1LOT	1LOT	1LOT	Pass
	Selection of samples:		1PCS	1PCS	1PCS	Pass
	Specification:		12~25um	12~25um	12~25um	Pass
3.8.2	Requirement: Corrosion Resistance (if applicable)					
	Test Method(s):		Salt Spray Tester	Salt Spray Tester	Salt Spray Tester	Pass
	Test frequency or quantity:		1LOT	1LOT	1LOT	Pass
	Selection of samples:		6PCS	6PCS	6PCS	Pass
	Specification:		240W/R · 840R/R	240W/R · 840R/R	240W/R · 840R/R	Pass
3.8.3	Requirement: Hydrogen Embrittlement Relief (if applicable)					
	Test Method:		N/A	N/A	N/A	N/A
	Test frequency or quantity:		N/A	N/A	N/A	N/A
	Selection of samples:		N/A	N/A	N/A	N/A
	Specification:		N/A	N/A	N/A	N/A
3.8.4	Requirement: Adhesion					
	Test Method(s):		hundred cuts & tape test	hundred cuts & tape test	hundred cuts & tape test	Pass
	Test frequency or quantity:		1LOT	1LOT	1LOT	Pass
	Selection of samples:		1PLATE	1PLATE	1PLATE	Pass
	Specification:		GMW3359	GMW3359	GMW3359	Pass
3.8.5	Requirement: Cure					
	Test Method:		N/A	N/A	N/A	N/A
	Test frequency or quantity:		N/A	N/A	N/A	N/A
	Selection of samples:		N/A	N/A	N/A	N/A
	Specification:		N/A	N/A	N/A	N/A

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3.8.6	Requirement: Torque Tension (if applicable)					
	Test Method:		RS torque tension test machine	COF inspection form	COF inspection form	Pass
	Test frequency or quantity:		1LOT	COF inspection form	COF inspection form	Pass
	Selection of samples:		5PCS	5PCS	5PCS	Pass
	Specification:		48+-8Nm	48+-8Nm	48+-8Nm	Pass
3.8.7	Requirement: Appearance (Decorative)					Pass
	Test Method:		Visual check	Visual check	Visual check	Pass
	Test frequency or quantity:		1 LOT	1 LOT	1 LOT	Pass
	Selection of samples:		5PCS	5PCS	5PCS	Pass
	Specification:		visual			Pass
3.8.8	Requirement: Dimensional (if applicable)					
	Test Method:		various measurement equipments	Inspection record	Inspection record	Pass
	Test frequency or quantity:		1LOT	1LOT	1LOT	Pass
	Selection of samples:		12PCS	12PCS	12PCS	Pass
	Specification:		By drawing			Pass
3.8.9	Requirement: Color and Gloss (Decorative)					
	Test Method:		N/A	N/A	N/A	N/A
	Test frequency or quantity:		N/A	N/A	N/A	N/A
	Selection of samples:		N/A	N/A	N/A	N/A
	Specification:		N/A	N/A	N/A	N/A
3.8.10	Requirement: Customer Specific					
	Test Method(s):		N/A	N/A	N/A	N/A
	Test frequency or quantity:		N/A	N/A	N/A	N/A
	Selection of samples:		N/A	N/A	N/A	N/A
	Specification:		N/A	N/A	N/A	N/A

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Operator or Inspector Responsibilities						
3.9	Were appropriate process steps signed off?	1.4 1.6 2.2 2.3 2.11	MAGNI General Process Steps	MAGNI General Procedure	Step is signed off	Pass
3.10	Were all inspection steps, as documented in the Control Plan performed?	1.2 1.4	Inspection steps in Control Plan	Inspection steps in Control Plan	Inspection steps in Control Plan are performed	Pass
3.11	Were steps/operations performed that were not documented in the Control Plan?	1.2 1.4 1.6	The step which is not documented in CP is not allowed	The step which is not documented in CP is not allowed	No steps which are not documented in CP are performed	Pass
3.12	If additional steps were performed, were they authorized?	1.2 1.4 1.6 1.10 1.16	They should be authorized.	They should be authorized.	No additional step	pass
3.13	Does the governing specification allow reprocessing or rework?	1.5 1.10	not allowed	not allowed	no reprocessing and rework	pass
3.14	If the order was certified, did the certification accurately reflect the process performed?	2.11 2.13	accurately reflect the process performed	accurately reflect the process performed	accurately reflect the process performed	pass
3.15	Was the certification signed by an authorized individual?	1.16	signed by an authorized individual	signed by an authorized individual	signed by an authorized individual	pass
3.16	Are the parts and containers free of inappropriate objects or contamination?	2.6	No inappropriate objects	No inappropriate objects	No inappropriate objects	Pass

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Packaging Requirements						
3.17	Are packaging requirements identified?	2.6 2.7 2.9	identification label	identification label	identification label	Pass
3.18	Are parts packaged to minimize mixed parts (for example, parts packed over height of container)?	2.6 2.7 2.9	Parts should be packed under 80% of height of container.	Parts should be packed under 80% of height of container.	Parts are packed under 80% of height of container.	Pass
Shipping Requirements						
3.19	Were the parts properly identified?	2.3 2.9	After coating the parts should be placed in orange container	After coating the parts should be placed in orange container	After coating the parts are placed in orange container	Pass
3.20	Were the containers properly labeled?	2.3 2.9	identification tag	identification tag	identification tag	Pass

PROCESS TABLE B - Pretreatment (Mechanical)

All requirements given below are subordinate to customer specific requirements.

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

*If minimum requirements are not met, provide supporting records to justify actual conditions.

Item #	Related CSA Question #	Category/Process Steps	Type of Control		Monitoring Frequency		Observation/Comments (Pass / Fail / N/A)
			Minimum Requirement	Actual Condition	Minimum Requirement	Actual Condition	
ABRASIVE BLAST PROCESS							
B1.1	1.4	There shall be an incoming part assessment procedure with criteria. (Parts have been pre-cleaned and are free of oil and grease contaminations).	Manual	Manual	Per load	Per load	PASS
B1.2	2.11	The following checks shall be performed during production:					
B1.3		Load Weight人工磅重	Manual / Automatic	Manual	Per load	Per load	PASS
B1.4		Blasting Media Size / type 沙子種類與番數	Manual	Manual	Per load	Per load	PASS
B1.5	1.4 1.6 2.11 2.12	Dwell time is clearly defined. If additional blasting is required, management approval is needed. 噴多久的規定/若要加砂上層須批准	Manual / Automatic	Automatic	Per load	Per load	PASS
B1.6		Blasting force is set and maintained within control limits (Amperage Draw). 噴砂力道含公差	Manual / Automatic	N/A		N/A	N/A
B1.7	1.4 1.6 2.11 2.12	Abrasive media level 附著程度	Manual	N/A	1 time / 8 hr	1 time / 4 hr	PASS
B1.8	1.4 2.11 2.12	Dust collector efficiency/air flow 集塵方式	Manual	Manual	1 time / 4r	Automatic dust collector	PASS
B1.9	1.4 2.11 2.12	Blasting media size / life: 沙子尺寸/狀況 Media size is being checked on a regular schedule to determine effective cleaning and life for product mix.	Manual / Automatic	Manual	Once per week	Every Lot	PASS
B1.10	1.4 2.11	Surface cleanliness is checked after process. Surface cleanliness check must be conducted using a chemical ("Copper Sulfate") or other qualitative method. 用銅硫酸檢查表面潔淨度	Manual	Manual	Once every 4 hours	Per load	PASS
B1.11	1.4 2.11 2.13	Surface profile is checked after process (if applicable). 如有必要檢查外觀	Manual	Manual	Per load	Every lot	PASS

PROCESS TABLE G - Dip/Spin

All requirements given below are subordinate to customer specific requirements.

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

*If minimum requirements are not met, provide supporting records to justify actual conditions.

Item #	Related CSA Question #	Category/Process Steps	Type of Control		Monitoring Frequency		Observation/ Comments
			Minimum Requirement 最低要求	Actual Condition 實際作法	Minimum Requirement 最低要求	Actual Condition 實際作法	
1.0							
Coating Material Application							
G1.1	2.9	Final pretreatment and/or phosphating shall be completed in the same building.除磷與預處理在同一廠內	Yes/No	Yes	Ongoing	Every Lot	PASS
G1.2	1.4 2.11	After pretreatment, parts are inspected for flash rust, wetness, oil or other defects.預處理後檢查溼氣油閃塵之類缺點.	Manual	Manual	Every lot	Every Lot	PASS
G1.3	1.4 2.11	Pretreated parts are visually inspected for cleanliness and/or uniform phosphate coating (when phosphate is used). 預處理目視檢查潔淨與磷酸鹽層.	Automatic/Manual	Manual	Once every 8 hours	Every Lot	PASS
G1.4	1.17 2.6 2.9	Containers used to hold parts between coating operations are free of oil, grease or other contaminants. 船桶內沒有油污其他各污染物	Yes/No	Yes	Ongoing	Every Lot	PASS
G1.5	2.9	Parts shall be stored indoors in a staging area that does not affect the quality of parts. The staging area shall not be adjacent to open doorways or windows exposing parts to water, dirt, and other contaminations. 工件保存室內隔離區域不被水氣,戶外灰塵污染	Yes/No	Yes	Ongoing	Every Lot	PASS
G1.6	1.4 2.11	Parts shall be coated within the time limit specified by the chemical supplier application manual.限定時間內化學物質塗層上去	Per application manual	Manual	Ongoing	Every Lot	PASS
G1.7	1.4 2.11	Prior to loading into coating machines, parts are inspected for flash rust, wetness, oil or other defects.落入塗裝機器前還要再檢查有無被灰塵溼氣油污所污染	Manual	Manual	Every lot	Every Lot	PASS
2.0							
Coating Bath							
G2.1	1.4 2.11 2.12	Incoming paint viscosity is checked. 進料時漆粘度有檢查	Manual	Manual	Each new lot of paint	Each new lot of paint	PASS

PROCESS TABLE G - Dip/Spin

All requirements given below are subordinate to customer specific requirements.

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

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Item #	Related CSA Question #	Category/Process Steps	Type of Control		Monitoring Frequency		Observation/ Comments
G2.2	1.4 2.11 2.12	Incoming solids checks are performed. 進料時固形物有檢查	Manual	Manual	Each new lot of paint	Each new lot of paint	PASS
G2.3	1.4 1.17 2.11 2.12	Appropriate mixing equipment is used, capable of dispersing settled solids. 使用適當攪拌機器能均勻攪拌	Manual	Manual	Ongoing	appropriate mixing equipment is used,	PASS
G2.4	2.9 2.10	Coating material (paint) must be stored per chemical supplier requirements. 漆保存環境有依照製造商要求的環境	Manual	Manual	Ongoing	stored indoors ,and temperature not over 45°C	PASS
G2.5	2.9 2.10	When not in use, coating material (paint) is kept covered and/or sealed per chemical supplier requirements. 不用時漆保存密封方式有照製造商要求的方式	Manual	Manual	Ongoing	coating material (paint) is kept covered and/or sealed per chemical supplier requirements	PASS
G2.6	2.9 2.10	Paint storage area is clean and organized so each paint is easily found and to prevent contamination. 漆保存環境乾淨有序以防互相污染	Manual	Manual	Ongoing	each paint is easily found and to prevent contamination	PASS
G2.7	2.9 2.10	Paint filtration procedures are in place. 漆過濾的程序有出示	Preventive maintenance schedule	see document number SQD-7505-23	Ongoing	the procedure is in place.	PASS
G2.8		The following checks shall be performed during production: 以下是製程中稽核的					
G2.9	1.4 2.11 2.12	Paint Temperature 漆溫溫控	Automatic/Manual	Automatic	every day	every day	PASS
G2.10	1.4 2.11 2.12	Viscosity 粘度	Manual	Manual	Prior to start of production and once every 3 hours.	check every 30 min	PASS
G2.11	1.4 2.11 2.12	Basecoat % Solids (by weight). 底塗的固形物百分比(重量單位)	Manual	Manual	Prior to start of production and every process change and/or addition. For continuous operations once per day.	once per day	PASS
G2.12	1.4 2.11 2.12	Volume (paint depth in coating vat). 塗量(哈士片的厚度)	Automatic/Manual	Automatic	Prior to start of production and once every 3 hours.	Prior to start of production and once every 3 hours.	PASS

PROCESS TABLE G - Dip/Spin

All requirements given below are subordinate to customer specific requirements.

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

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Item #	Related CSA Question #	Category/Process Steps	Type of Control		Monitoring Frequency		Observation/ Comments
G2.13	1.4 2.11 2.12	Equipment surfaces in contact with wet coating (ex. Vibratory feed tables) are free of loose debris and excess coating build-up.設備接觸到濕的塗層地方不能黏上掉屑或積漆	Manual	Manual	Once per day	Once per day	PASS
G2.14	1.4 1.17 2.11 2.12	Basket condition (basket mesh clean and undamaged).鐵籃內的清潔完整	Manual	Manual	Once per day	Once per day	PASS
G2.15	1.4 2.11 2.12	Paint and/or viscosity reducing agent additions are documented and the viscosity verified before production continues.調漆黏度方式有指導書.工作前要確認黏度	Manual	Manual	Each addition	Each addition	PASS
G2.16	2.10	Viscosity cups are cleaned after each use.每次用過後黏度杯有清潔	Manual	Manual	Ongoing	Every time	PASS
G2.17	2.14 1.17	Viscosity cups are verified against calibrated standards or master cup.黏度杯有校正還是當作主杯用	Manual	Manual	Twice per month	Every week	PASS
G2.18	2.14 1.17	Thermometers are verified against calibrated standards.熱偶器有校正	Manual	Manual	Once per 6 months	Every month	PASS

PROCESS TABLE G - Dip/Spin

All requirements given below are subordinate to customer specific requirements.

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

*If minimum requirements are not met, provide supporting records to justify actual conditions.

Item #	Related CSA Question #	Category/Process Steps	Type of Control		Monitoring Frequency		Observation/ Comments
3.0		Application Parameters					
G3.1	1.4 1.6	A system is in place to ensure proper basket weights for specific parts, such as processing manual, traveler, or process recipe.各工件的每籃重量 操作手冊 起重機 配方	Automatic/Manual	Automatic	Every lot	Every Lot	PASS
G3.2	1.4 1.6	Baskets are kept less than 2/3 full by volume.每籃只能放2/3滿	Automatic/Manual	Automatic	Every lot	Every Lot	PASS
G3.3	1.4 1.6	Coating parameters are controlled and verified via external display (dip time, spin speed, spin time, spin cycle, spin direction and tumbling).塗裝參數(浸時間 離心速度 離心時間 離心周期 離心方向與滾動)	Automatic/Manual	Automatic	Every lot	Every Lot	PASS
G3.4	1.4 1.6 1.17	There is a system (raking, vibrate table, etc.) to uniformly distribute parts prior to curing to ensure proper cure and prevent parts from sticking and minimize touch marks.應該要有一套讓塗佈均勻防止相粘降低撞痕方式	Automatic/Manual	Automatic	Every lot	Every Lot	PASS
G3.5	2.10	Vibratory feed tables are cleaned (if used).用過的振動盤要清潔	Manual	N/A	As needed	N/A	N/A
G3.6	2.9	There is evidence of steps taken to assist in soft handling of parts (shallow drops, lined chutes and hoppers, bumper boards, etc.).有證據執行防撞	Automatic/Manual	Manual	Every lot	Every Lot	PASS
G3.7	1.4 2.9 2.11	Parts are cool to touch before each coating step.下階段塗裝前工件須已冷卻	Manual	Manual	Every lot	Every Lot	PASS
4.0		Cure (See Cure Process Table I)					

PROCESS TABLE I - Cure

All requirements given below are subordinate to customer specific requirements.

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

*If minimum requirements are not met, provide supporting records to justify actual conditions.

Item #	Related CSA Question #	Category/Process Steps	Type of Control		Monitoring Frequency		Observation/ Comments
			Minimum Requirement	Actual Condition	Minimum Requirement	Actual Condition	(Pass / Fail / N/A)
1.0							
11.1		Oven conditions are monitored and recorded continuously by a data recorder. Convective - Temperature Gas IR - Gas flow Electric IR - Power (wattage)	Automatic	Automatic	Prior to start of production and once every 2 hours. With a control alarm, frequency may be reduced to once every 8 hours.	every hour	Pass
11.2		Oven and part temperature profile is verified. The verification shall be performed under production load conditions and with thermocouples located to cover all areas of the part curing window.	Manual	Manual	Once every 3 months and after oven modification or repair.	every 1months	Pass
11.3	1.4 1.6 2.11 2.12	For each coating in use, proper cure or drying time parameters are verified based upon oven temperature profile and product technical data sheet.	Manual	Manual	Once every 3 months and after oven modification or repair.	every 3months	Pass
11.4	1.4 1.6 1.17 2.11 2.12	Conveyor speed set point is verified. If conveyor is not used, time in oven is verified.	Automatic/Manual	Automatic	For manual process, prior to start of production and every part change. For automated process, at the start of production and every process change.	every process changer	Pass
11.5		Air filter (if used) change is scheduled.	Manual	N/A	Per oven manufacturer, filter supplier recommendation.	N/A	N/A
11.6	2.13	Cure testing is performed per part specification on a production part.	Manual	Manual	At oven start-up, every process change and once every 8 hours.	once every 8 hours	Pass
11.7	2.13	Coating adhesion test is performed per part specification on a production part.	Manual	Manual	At oven start-up, every process change and once every 8 hours.	once every 8 hours	Pass
11.8	2.13	Appearance requirements checks (color, gloss etc.) are performed per part specification.	Manual	Manual	At oven start-up, every process change and once every 8 hours.	once every 8 hours	Pass

PROCESS TABLE K - EQUIPMENT

All requirements given below are subordinate to customer specific requirements.

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

Item #	Related CSA Question #	Equipment Type	Pretreatment/Aqueous Cleaning	Powder Coat	E-Coat	Spray	Dip/Spin	A-Coat	Cure	Anodize	Verification Frequency	Calibration / Certification Frequency *	Included in Preventative Maintenance Plan	Comment
PROCESS EQUIPMENT														
K1.1	2.14	PH / Conductivity Meter 酸鹼導電計	X		X	X	X	X		X	Daily	Once per year	N/A	
K1.2	2.14	PH / Conductivity Probe Solution compatible probes must be used.								X	Before each use	N/A	N/A	
K1.3	2.14	Temperature Controller 溫度控制器	X	X	X	X	X	X	X	X	Every 3 months	N/A	Every 1 month	
K1.4	2.14	Rectifier			X					X	Ripple Checked every 12 months	N/A	Every Year	
K1.5	2.14	Amp Meter/Volt Meter 電流電壓表	X		X	X	X	X		X	Checked every 12 months	N/A	N/A	
K1.6	2.14	Wet Analysis: Before use, chemicals must be checked for shelf life and/or expiration date 濕度測試	X		X	X	X	X		X	Daily	N/A	N/A	
K1.7	2.14	Filters	X	X	X	X	X	X	X		Per process table	N/A	Every 6months	
K1.8	2.14	Laboratory Balance (Weight Scale)	X		X		X	X			Once per month	N/A	Once per month	
K1.9	2.14	Conductivity Meter	X		X	X		X		X	Once per month	N/A	Once per month	
K1.10	2.14	Viscosity cup				X	X				Twice per month	N/A	Once per weekly	compare by standard cup
K1.11		Thermocouple	X		X	X	X	X	X	X	N/A	Once every 6 months	Once per month	
K1.12	2.14	Lab Oven Controller 控制器	X		X	X	X	X	X		N/A	Once per year	N/A	

PROCESS TABLE K - EQUIPMENT

All requirements given below are subordinate to customer specific requirements.

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

Item #	Related CSA Question #	Equipment Type	Pretreatment/Aqueous Cleaning	Powder Coat	E-Coat	Spray	Dip/Spin	A-Coat	Cure	Anodize	Verification Frequency	Calibration / Certification Frequency *	Included in Preventative Maintenance Plan	Comment
MINIMUM REQUIRED TESTING CAPABILITY														
K2.1	2.14	Salt Spray Cabinet	X	X	X	X	X	X	X	X	Daily per ASTM B117	N/A	Daily	by customer required
K2.2	2.14	Water Immersion bath		X	X	X		X	X		Daily	N/A	Daily	
K2.3	2.14	Cure Testing		X	X	X	X	X	X		Per Part	N/A	Daily	
K2.4	2.14	Adhesion Testing		X	X	X	X	X	X		Per Part	N/A	Daily	
K2.5	2.14	Thickness Testing		X	X	X	X	X		X	Per Part	Once per year	Daily	
K2.6	2.14	Solids Testing	X		X	X	X	X			Daily	N/A	Daily	

PROCESS TABLE L - Part Inspection and Testing

All requirements given below are subordinate to customer specific requirements.

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

Item #	Related CSA Question #	Category/Process Steps	Monitoring Frequency		Observation/Comments (Pass / Fail / N/A)
			Minimum Requirement	Actual Condition	
1.0					
L1.1	1.4	Procedures are in place to prevent damage to the finish or part during the inspection and packaging processes.	System in place	System in place	PASS
L1.2		Appearance of the coating shall be verified per specification and applications manual.	Ongoing	YES	PASS
L1.3		Initial adhesion (Tape, bend, impact)	At the start of production and once every 8 hours.	once for per shift	PASS
L1.4		Intercoat / final adhesion	Per customer specification	YES	PASS
L1.5		Color and Gloss (if applicable)	At the start of production and once every 8 hours.	N/A	N/A
L1.6		Film thickness / coating weight	At the start of production, every part family change and every process change. Once every 8 hours.	Once per shift	PASS
L1.7		Corrosion resistance: - Neutral salt spray - Humidity - Water immersion	Once per week per line per coating process being used. If the same coating system is used for multiple customers with different requirements, test to the highest requirement.	Every Lot to check salt spray	PASS
L1.8		Torque tension/Coefficient of Friction	Once per week per line per coating process being used.	Every Lot	PASS
L1.9		Dimensional check (e.g., Go-no go, Plug and Ring gage)	Per customer specification	Every Lot	PASS
L1.10		Hydrogen Embrittlement	Per customer specification	N/A	N/A
L1.11		Cyclical Corrosion Testing	Per customer specification	N/A	N/A