Toray Composites (America), Inc.

Quality Policy

TCA’s commitment to Quality is central to our mission of delivering high quality prepreg that exceeds our customer’s expectations.

Our Quality Management system focuses on effectiveness, efficiency and continuous process improvement.

The principles central to this policy are:

- **Delighting** our customers and inspiring their confidence
- **Complying** with statutory, regulatory and customer requirements
- **Innovation** in our products, processes and service
- **Business processes** that meet or exceed industry standards
- **Motivate** associates to take ownership of their work
- **Consistent** and clear internal and external communication
- **Integrity** through process and product evaluations
- **Establish** and review annual quality objectives
Core Processes


Support Processes

- Management
- Quality

Key Measures

- Planning & Analysis
  - Production Output (YTD)
  - Web Yield

- Customer Requirement Review & Realization
  - Sales Volume (YTD)

- Design & Development
  - OT Development

- Material Management
  - Inventory Days

- Manufacture & Post Sales/Customer Feedback
  - Production Output (YTD)
  - Employee Turnover

Management

- OSHA Rate
- Employee Turnover
- Project Management (OTD)
- Resource Usage
- Operating Profit (YTD)

Quality

- Cost of Quality
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SCOPES

Toray Composites (America), Inc. (TCA) Scope Statement:
The design and manufacture of prepreg (composite material) to company and customer specifications.

This Quality Manual applies to TCA’s production facility located in Tacoma, Washington, USA & is applicable to processes from receipt of customer requirements through finished product, handling, storage & delivery & customer feedback.

TCA maintains a Process Map, TCPCS-Q-Q100 that references general process overview and a Process Interaction Matrix, TCPCS-Q-Q200 that references applicable document’s associated to the processes listed herein.

TCA is ISO 14001 certified & Nadcap AC7003 accredited.

Changes to this Quality Manual are produced at the direction of TCA management & in coordination with TCA customers as they may apply. At a minimum this Quality Manual is approved by the Management Representative & the President. These approvals are electronically filed & are available upon request.

Portions of AS9100:2009 requirements for processes or products, which do not exist at TCA, are excluded from the Quality Management System. Specifically these are:

a) 7.5.1.4 - Post-Delivery Support—Sections a), c), d) and e) TCA does not provide nor does it operate servicing products. TCA does not employ processes for production or service where the resulting output cannot be verified by subsequent monitoring or measurement.
1. PLANNING AND ANALYSIS
1.1 Customer Requirements
1.1.1 Customer Contract Review
Customers provide contracts to Sales. Sales, with Legal assistance, review contracts including EAR requirements prior to signing contracts or making long term agreements.

1.1.2 Purchase Order Review
Customers provide purchase orders to Sales. Sales works with Supply chain Management using a Production Request & Requisition Form. Sales works with Accounting to obtain customer credit limits.

1.1.3 90 day Forecast & Production Request
Customers provide purchase orders to Sales. Sales complete Production Requests for Planning & Production and a forecast is created.

1.2 Supplier, Quality & Work Transfer
1.2.1 Supplier Review Need to address anything missing
a) Supplier Quality
Technical selects & approves suppliers. Procurement flows down applicable requirements to Suppliers. Quality rates, assesses & evaluates Suppliers. Quality & Procurement work with Suppliers who receive supplier corrective action requests (SCAR’s). Quality files supplier quality ratings, assessments, evaluations & SCAR’s.

b) Supplier Selection & Approval
Technical associates determine a need for material or service, identify a supplier, and perform material or service qualification & a supplier qualification with the Supplier. Issues identified are resolved. TCSC documents are negotiated & approved with the Supplier. Technical associates forward approved TCSC to Quality Associates. Quality implements the TCSC on QA Doc’s, update the approved supplier list & the Supplier database. Quality performs periodic evaluations & surveys with Suppliers, resolve any issues & continue with periodic evaluations.

c) Supplier Flow Down
Technical creates & approves TCSC documents. Technical approves Suppliers
for the ASL. Purchasing prepares & Quality approves purchase orders. Suppliers follow the TCSC’s & PO’s.

d) Supplier Rating/Assessment Evaluation
Quality, Procurement & Supply Chain Management associates rank & determine what Suppliers to visit based on Procurement concerns, supplier corrective action requests & audit findings. Quality adds Suppliers to the audit schedule perform the evaluations, initiate supplier corrective actions (SCAR’S) as applicable, resolve issues with Suppliers. They file evaluations & SCAR’s & forward information to Procurement associates.

e) Supplier Corrective Action Request (SCAR)
Associates identify & notify Quality of supplier discrepancies. Quality prepares a supplier corrective action request (SCAR). Procurement forwards it to the Supplier who completes the SCAR & forwards back to Procurement for Quality to approve or request improvements.

1.2.2 Work Transfer Review
Sales receives Customer PO’s, and create External Service Processing Order (ESP) based on review of material availability and customer due dates. If any delivery or material concerns are identified (Inventory Levels, Lead-times, Out-time, Nonconforming material), Sales electronically notifies affected departments. Sub-contractor receives data and material for processing. Sub-contractor processes material and notifies TCA of any identified delivery or material concerns (Inventory Levels, Lead-times, Out-time, Nonconforming material), forward data for TCA review. TCA forwards acceptance or disposition of material. Once accepted, Sales coordinates CoC with QA and forwards along with Test Reports to Sub-contractor. Sales associates coordinate shipment with Off-site cold storage and Sub-contractor.

1.2.3 Quality & Product Review
Quality and Technical review customer requirements to determine if one of TCA’s Quality Plans or Process Control Documents meets the Customers’ needs. If no Quality Plan or Process Control Document exists for these requirements, one will be prepared to identify suitable production equipment and working environment as well as workmanship criteria. These documents in-
clude: flow of the production process; approved raw material list; production equipment list; inspection equipment list, property requirements for in-process and final products; and any special quality assurance requirements.

1.3  Equipment & Process Review

1.3.1  Product Change & Revision Status
When necessary, changes to the computer systems used by TCA’s manufacturing processes will occur. A requestor submits a Computer System Maintenance Request. Prior to work occurring, the Technical Director confirms that the proposed changes will NOT affect the form, fit or function of an existing approved product. Once approved, the updates are performed. After completion, the request is sent to the originator to confirm the work has been properly completed.

1.3.2  Equipment Implementation & Modification
When it is determined that a new piece of equipment, or a modification to an existing piece of equipment is required, an Equipment Change Notice (ECN) is submitted. The ECN can be initiated by any department within TCA. Once submitted, affected departments are notified of the pending change, & the work is performed by the appropriate department. Once work is completed, the ECN is approved by the departments involved, with Technical having the final responsibility of determining if the work performed could affect the configuration of any existing products.

1.3.3  Change Control
Change Control
Technical submits a Change Board Approval Checklist prior to work when changes within TCA’s manufacturing processes occur that could affect the configuration (form, fit or function) of existing products, or when new products are transferred to Production. The affected departments are notified before the changes occur. Once the work is complete, but prior to be released to the Production floor, the affected departments review & sign the Change Board Approval Checklist, verifying their approval of this change. Technical Associates verify that the proposed changes do not affect the configuration of existing products, with the Technical Director having final approval.
1.3.4 Software Change & Revision Status
A need for software change is identified & a Requestor, [(Supply Chain Management (SCM), Information Systems (IS), Operations, Engineering, Maintenance, or Technical)] initiate a computer system change request & route for approvals. When approved, IS associates review for understanding. Once understood, IS performs changes in a development environment & demonstrates changes to requestor. Once verbally accepted, IS trains requestor. The requestor tests the changes. When changes are approved IS closes the request, the IS dept transfers the revision into the live company & stores as a quality record.

1.3.5 Product Qualification
Customer approval to conduct the Qualification typically occurs in the form of a signed Test Plan, approving the volume and testing of the product. Product is produced, and tested in accordance with the Test Plan. Test data is compiled and provided to the customer for review in the form of a Test Report, typically. Customer approval of the product occurs with approval of the Test Report. Technical communicates the status/timing of the qualification, in order for other departments to support as necessary.

1.4 Scheduling & Planning Production
1.4.1 Scheduling & Planning
Sales provide Planning a Sales Production Request/90 Day Rolling Forecast. Maintenance provides Planning a Maintenance Calendar. Technical provides Planning a Production Experiment List. Planning creates a Monthly Meeting Agenda, Proposed Plan, Schedule, Shop Orders, & Discrepancy Reports as required. They update Material Analysis Spreadsheet, & Material Requirements Planning (MRP) Spreadsheet for Sales, Production & Procurement associates.

1.5 Risk Management
1.5.1 Risk Management
Sales Associates assess every PO, Contract and Work Transfer then communicate the risk to Planning using the forecast and to Test Lab using special customer requests and/or requests to move OTD dates. Inventory Control assesses raw material risks and communicates to planning using MRP spreadsheet.
Inventory Control also provides Planning and Procurement MRP spreadsheet, Material Requirements spreadsheet and requisitions. Planning and Procurement assess Machine and Time Capacity risks then communicate to Planning. Planning assesses the overall risk to Production on Shop Orders and communicates the Schedule to the Test Lab. Test Lab communicates Test Level Changes to Production and identifies OTD risks to the overall Test Lab on the Test Log.

2. CUSTOMER REQUIREMENT REVIEW AND REALIZATION

2.1 Customer Review

2.1.1 Research & Obtain Customer Order
The Sales department reviews business plans, market trends & industry requirements to identify market sectors where request for quotes can be obtained. The Sales Managers gathers & researches outside information from potential & current Customers. Market dynamics, supply & demand are researched. From this information Sales associates develop a marketing plan for Executive & Department Management, potential & current Customers. Sales Managers research & develop marketing plans using business plans & marketing activity to target specific markets & products, & create plans of action to obtain customers. Sales Managers use market research, identified product offerings & material solutions to obtain customer contacts & requests for quotes. Sales Managers use their sales contact data from potential customers & then validate request for quote numbers to determine affectivity of the marketing plan, & strengths/weaknesses in order to provide improvement feedback to Sales.

2.1.2 Processing Request For Quote
Sales provides a Design Request Form to Technical who reviews the request & works with Operations to determine costs/lead-times to decide feasibility to move to a formal design process or respond to the customer with a decline to quote. The Sales Director & Sales Account Managers provide customer requests to Operations & Supply Chain Management to determine if current product is feasible. Sales works with internal customers to determine quote costs. The Sales Director & Sales Account Managers provide Technical feasibility decision to Capacity/Lean, Accounting & Sales associates for price deter-
2.2 Contract Review Process

2.2.1 Customer Contract Review – Reference section 1.1.1

2.2.2 Credit and Financial Stability Review

The Sales team works with Customers, to complete Request for Credit Forms & the credit checks. The Sales team uses this data to make decisions for credit extensions & enters credit limits into TCA’s ERP system.

2.2.3 Security Trade Control

Sales & Technical associates send security trade control forms (LOA, CP, BIS) to Customers who complete the forms & return to Sales or Technical associates. Sales & Technical forward to Executive Compliance Manager (ECM). ECM performs an internet security screening. If a customer doesn’t pass the screening, Sales & Technical notify the Customer that there will be no sale. If a Customer passes the internet screen & is not military, Sales & Technical notify Customer of material or technology shipment. If Customer is Military General Affairs, Executives, Toray Industries & Toray Headquarters work together to determine if shipments will be made or not.

2.2.4 Purchase Order Review – Reference Section 1.1.2

2.2.5 90 Day Forecast & Production Request – Reference section 1.1.3

2.2.6 Customer Order Process

Sales associates enter PO requirements, allocate material to orders, coordinate pick-up of material, review out-time and select temperature recorders. Sales generate CoC and Quality completes CoC and forwards back to Sales. Sales email shipping notifications, and send shipping envelope with Packing List, CoC and Test Report to Off-site Cold Storage/Logistics. Off-Site Cold Storage/Logistics forward material and documentation to Customer.

2.2.7 Customer Property
Customers supply Test Materials, Ship in Place product, Intellectual Data and/or Personal Data and coordinate through Customer requests. Sales Receives PO’s for Test Materials and Ship in Place product. The Sales associate forwards PO to Receiving, Test Lab & Logistics as applicable per Purchase Order Review. Receiving associates receive customer supplied Test Materials and forward to the Test Lab. The Test Lab processes in accordance with Sample Receiving Protocol. The Test Lab follows the Laboratory Sample and Specimen Retention unless otherwise noted by Customer. Logistics works with Cold Storage Facility to ship or receive Ship in Place products in accordance with Shipping and Receiving Product From Off Site Cold Storage. General Affairs, Sales, Technical and QA receive customer supplied intellectual and/or personal data and process in accordance with Document Control Requirements, Design Change Control Design Input, Development Planning, Contract Review, and Visitor Registration Access Procedure.

2.3 Technical Review
2.3.1 Design Input
Technical associates receive Design Request Forms from Sales associates. The Design Request Form can come from internal or external sources & are routed through Sales. A discussion occurs where both Sales & Technical review the accuracy/completeness of the request. After both departments agree the information provided to Technical is complete, the Design Request Forms move to Design Planning.

2.3.2 Design Planning
Technical associates take the Design Request Forms & establish the required raw materials, equipment, special requirements & critical items required for manufacture. As needed, Technical associates work with members of other departments, to determine if any raw materials, or machine/machine modifications are required. At this point, an initial Risk Assessment is performed. Technical associates compile a design plan, perform an internal review & then submit the Design Request Form for approval.

2.3.3 Development Trials
The PE plan is circulated to all affected departments for review/approval. After approval, the PE plan is placed into the Production schedule, & executed.
When the necessary sampling & testing are finished, the data is reviewed & analyzed to determine if the product produced under PE achieved its target. Technical completes a PE test report to document the results of this PE. This process is repeated as necessary, until the requirements identified in the design and development plans have been confidently met, which is recorded on the Product Development Form.

2.4  Risk Management
2.4.1  Risk Management (Long Term)
Sales perform a preliminary risk assessment to received contracts and forward to Department Executives who assess and assign identified risks and hold a review meeting if high risks are identified. Sales communicates risks to the customer through contract revisions. Customer provides a signed contract.

3.  DESIGN AND DEVELOPMENT
3.1  Design
3.1.1  Design Input – Reference section 2.3.1
3.1.2  Design Planning – Reference section 2.3.2
3.1.3  Design Output
Technical associates provide a design proposal to the customer, through Sales. Sales review the proposal & interfaces with the Customer. Based on Customer feedback the proposal is either terminated, delayed or proceeds to the Development process. The decision is recorded on the Design Request Form.

3.2  Develop
3.2.1  Development Planning
Once a Design Request Form is approved, Technical associates determine requirements to begin producing material. As required, a Risk Assessment is performed. These items can include Bill of Materials (BOM), raw material procurement, Equipment Change Notice, & may require coordination with Associates in other departments. These planning steps create the development plan, and are recorded on a Product Development Form. Once the necessary steps are taken, Technical associates generate a Production Experiment (PE) plan
3.2.2 Development Trials – Reference section 2.3.3

3.2.3 Selection & Control of Key Properties & Key Characteristics
Key Properties (KP) and Key Characteristics (KC) may be established based on the following: Customer request; Process Capability of Property is not high enough and it is decided that close control is required; the property is thought to greatly affect final product quality or performance; or similar product properties selected as a KP or KC. Initial Control Limits (CL’s) are determined by Technical and reviewed by Quality annually. Quality plot and review CL’s and if any are determined out-of-control or not capable they are reported through SPC Trouble Reports and resolved through cross-functional meeting.

3.2.4 Selection & Control of Key Process Parameters
Key Process Parameters (KPP) may be established based on the following: the process parameter is thought to greatly affect the KP or KC of and in-process or final product; or similar product process parameter selected as a KPP. Initial control limits and specification limits for KPP’s are determined by Technical associates, documented in either a Process Control Document (PCD), Quality Plan, or Condition Table. Technical may revise control or specification limits in accordance with the applicable PCD or Quality Plan with approval by the Director of Technical. KPP’s are recorded by the OMS computer system and closely monitored to ensure process control. Out-of-Tolerance KPP’s are documented on a Discrepancy Report (DR) and handled per the nonconforming process.

3.2.5 General Test Lab Requirements
a) Sample Receiving
Register samples (assigns unique identifiers) provided by Production and Special Request Customers (Technical, Technical Center, Production, Sales and Outside Customers), create / distribute samples and associated documentation (Travelers / Test Requests) to respective labs (Layup, Machining, Mechanical, Chemical, and/or Physical) for analysis.

b) Layup
Receives prepreg and associated documentation from
Sample Receiving to be cut into samples as specified by the customer (Travelers / Test Requests) and forward to the appropriate labs (Physical, Chemical, Machining and Mechanical), fabricate and cure panels for Machining and Mechanical testing or submit to test requestor.

c) Machining
Receives panels and associated documentation from Sample Receiving and/or Layup to be machined into specimens, measured, documented (Travelers / Test Requests), and forwarded to the appropriate labs (Mechanical and Chemical) for specific analysis or return to test requestor.

d) Mechanical
Receives specimens and associated documentation from Sample Receiving and/or Machining to be analyzed for mechanical properties as required by documentation provided (Travelers / Test Requests) disposition specimens as prescribed by customer, and forwards test reports to the Test Lab Supervisor or designee for data review.

e) Chemical
Receives specimens and associated documentation from Sample Receiving, Layup, Machining, and/or Mechanical, conducts specific chemical / thermal analysis as required (Travelers / Test Requests), disposition specimens as prescribed by customer, and forwards test reports to the Test Lab Supervisor or designee for data review.

f) Physical
Receives samples and associated documentation from Sample Receiving and/or Layup, conduct specific physical analysis as required (Travelers / Test Requests), disposition specimens as prescribed by customer, and forwards test reports to the Test Lab Supervisor or designee for data review.

3.2.6 Batch File Review
a) Production associates & Test Lab Supervisor prepare batch files. Quality reviews batch files to requirements & identify product with acceptance or rejection status. They scan/file/forward applicable batch files to Sales & Ac-
counting associates

b) Aircraft Batch File
Test Lab associates generate & review test reports/batch files & forward to Quality. Quality reviews batch files to requirements (test levels, specifications, process control documents). If suspected nonconforming, applies pends & create MSO’s. If accepted, approves in Inventory Management System & scans/ stores certification packages. Sales associates pick product, prepare & forward CoC to Quality for signature. Quality forwards signed CoC to Sales. Sales scans CoC to approved packages & forwards complete package for delivery shipment.

c) Sports Grade Batch File
Production associates enter sports grade data into Inventory Management System. Quality reviews Inventory Management System sports grade batch file PPAW & RCFAW to quality plans, specifications & process control documents. Quality applies pends & create MSO’s, if suspected nonconforming or accepts, signs a CoC & scans the batch file. Sales associates compile CoC packet & product then forwards for delivery shipment.

3.2.7 Product Qualification - Reference section 1.3.5

3.2.8 Product Transfer
After Customer approval (e.g. TCQAL, ACN), Technical prepares the documents necessary for transfer of ownership to the Operations department. Affected departments are notified of the planned product transfer. Once all the necessary documentation is prepared, the product moves to Change Control.

3.3 Equipment & Software Identification
3.3.1 Product Change & Revision Status – Reference section 1.3.1

3.3.2 Equipment Implementation & Modification – Reference section 1.3.2

3.3.3 Software Change & Revision Status – Reference Section 1.3.4
4. MATERIAL MANAGEMENT

4.1 Procurement

4.1.1 Scheduling & Planning – Reference section 1.3.3

3.3.4 Change Control – Reference Section 1.3.3

4.1.2 Supplier Quality – Reference section 1.2.1

Technical identifies Suppliers and materials for use in the development and manufacture of products. They work with Purchasing to obtain materials for development. Once product is complete Technical works with the Suppliers (with assistance from SCM) to establish an agreed upon TCSC (raw material specification). Additionally, Technical works with Quality Assurance to add the supplier to the Approved Supplier List (ASL). Suppliers are rated annually by Quality Assurance and placed on an audit schedule as necessary. Purchasing procures material from Suppliers as schedule demands.

4.1.3 Purchasing

Inventory Control, Operations & Associates provide Requisitions to Procurement. Procurement uses the Budget & Requisitions to create Purchase Orders for Suppliers. Receiving, Inventory Control, Operations & Associates obtain and verify products or services based on these purchase orders.

4.1.4 Receiving

Raw materials being received at TCA against open purchase orders or transferred from off sight storage vendors are physically and electronically processed by the Receiving department. Raw materials being drop shipped at off sight cold storage vendor are electronically processed. Processing includes certification retention and requests to the Lab for required testing.

4.2 Risk Management

4.2.1 Risk Management

Reference section 1.5.1. Additionally, Procurement works with and obtains Supplier Readiness Surveys from Suppliers. Procurement and Quality Assurance review supplier responses and identifies and analyzes risks. Procurement scores and reports risk ratings to Executives and Quality Assurance who use the information during assessments and evaluations.
5. MANUFACTURE, POST SALES AND CUSTOMER FEEDBACK

5.1 Production Control

5.1.1 Production Control
Together, Planning and Inventory Control execute a monthly planning cycle. Raw materials and capacity are reviewed to assure availability of required resources. Inventory Control interfaces with Procurement to verify material availability, submitting requisitions as required. Requests for changes during the month are processed expeditiously, using same procedures.

5.1.2 Traceability
Technical establishes the traceability system; approves individual Quality Plans or Process Control Documents and review quality record forms to ensure the trace back route. Operations identifies product and control raw materials, intermediates, final and delivered product records to individual lot, roll and batch numbers to implement and ensure the traceability system and trace back route. Operations ensure the identification, access, storage location and disposition of quality records created for intermediate, final and delivered product. Supply Chain Management ensures identification, access, storage location and disposition of quality records for raw materials.

5.2 Calibration

5.2.1 Calibration
Metrology receives a request from Technical to place an item on a calibration schedule. Technical provides the requirements of the calibration through the Request to Add Item for Calibration form. The items requiring calibration are put onto the item status report and monitored by Metrology to create a calibration schedule. The results of calibration are kept with Maintenance unless there is an out of tolerance item. In that case, the out of tolerance notification is sent to the Maintenance Manager, Department and Quality Manager in order to disposition the results.

5.2.2 Maintenance
Maintenance oversees Total Productive Maintenance (TPM) of equipment and facilities which includes maintaining process and product quality utilizing Preventive Maintenance (PM), Corrective Maintenance
(CM), Breakdown Maintenance (BM) and the reduction of Down Time. Maintenance controls calibrated measurement and test equipment and develop and implement Total Productive Maintenance for maintaining quality of output of the equipment and facilities.

### 5.3 Manufacture Products

#### 5.3.1 Production Process

**a) Resin Mixing**

Planning provides a resin requirement list & Receiving provides accepted raw materials to Resin Mixing. Resin Mixing creates test samples & provides to the Test Lab. Resin Mixing provides Inventory Management System data to Accounting. Resin Mixing provides formulated resin with printed labels to Filming or to the shipping department for direct shipment to the customer.

**b) Paper Rewind**

Receiving, Filming & Prepreg provide paper rolls to Paper Rewind who provides Inventory Management System data to Accounting & paper rolls with printed labels to Prepreg & Slit & Rewind.

**c) Filming**

Planning provides a planning schedule & shop orders. Receiving provides new paper rolls. Resin Mixing provides resin. Paper Rewind provides paper rolls to Filming. Filming provides; Inventory Management System data to Accounting, areal weight samples for their use, film rolls to Prepreg, finished goods film rolls to Slit & Rewind, paper rolls to Paper Rewind, & printed labels to go with each item.

**d) Prepreg**

Planning provides a planning schedule & shop orders. Receiving provides carbon fiber bobbins or fabric rolls. Filming provides film rolls. Prepreg provides Accounting with Inventory Management System data, PPAW samples, prepreg width samples, precursor/master rolls to Slit & Rewind & paper rolls to Paper Rewind.

**e) Slit & Rewind**
Planning provides a planning schedule & shop orders. Filming provides film rolls. Prepreg provides precursor/master rolls. Slit & Rewind & Packaging & Shipping provide product rolls to Slit & Rewind. Slit & Rewind provides; Accounting with Inventory Management System data, Test Lab with test samples, Packaging & Shipping with printed labels & product rolls, & Quality with visual inspection reports, tape width, & roll edge alignment data (as needed).

5.3.2 Handling, Storage, Packaging, Preservation & Delivery
The handling, storing, packaging, preservation and delivery of raw materials are defined for in-process product and final products for all materials manufactured at TCA. Specific requirements for individual raw materials, in-process product, and final product are in the applicable quality plans (Process Control Documents) and TCA Technical Specifications. Technical generate quality plans and technical specifications that protect the quality of materials and prevents deterioration, degradation, or substitution of products. Operations: a. Perform material handling, storage, preservation, and packing in accordance with the applicable quality plan, engineering specifications and Receiving and Accepting Raw Materials. b. Prevent damage, loss and substitution of materials due to handling, storage, preservation, packaging and delivery.

5.3.3 Foreign Object Debris/Damage Prevention
TCA has many FOD prevention programs including steel toed shoes purchased for every technician that stay at TCA, full coveralls with daily cleaning available; hats for all associates and visitors; lab coat, hat and shoe covers for all visitors; dedicated shoe changing area to avoid bringing outside shoes debris into the manufacturing environment; sticky tape on the floor to remove shoe debris; air shower to remove large debris from clothing; filtered air into the plant; double doors with air showers, air nozzles and door opening/closing sequence in the receiving and shipping area; entomology study for insect prevention; bug zappers at strategic locations near outside entry ways; restriction of wood pallets in certain areas and dedicated tools for the job.

5.4 Inspection & Test
5.4.1 Inspection
Delegated associates review manufactured products to requirements & determine acceptance or reject & identify applicable product status using
Delegated Test Lab associates determine if test results meet control & specification limits & identify the applicable status on the reports using delegated electronic or physical stamp. Delegated Quality associates follow the batch file process, determine acceptance or reject & identify the applicable status on the batch files using delegated electronic or physical stamp.

5.4.2  Test Lab (Sample Receiving, Layup, Machining, Mechanical, Chemical, Physical) – Reference section 3.2.5

5.4.3  SPC & Batch File Review – Reference section 3.2.6
Statistical Process Control (SPC)
Technical associates identify KC’s, set initial CL’s, perform, analyze & validate test methods using a PE. Quality associates post initial CL’s. Technical associates determine CL accuracy, gage functionality & need for process changes. Quality associates receive data from Receiving, Test Lab and Production associates and identify SPC chart types and rules. Quality associates review, monitor, revise and summarize SPC data then determine if the process is within control and specification limit requirements. Quality associates initiate SPC Trouble Reports (TR’s) for out-of-control conditions. Discrepancy Reports (DR’s) are written for out-of-specification conditions. Area Managers perform corrective action and a cross-functional group determines and assigns causes. Chart data is revised, if applicable. Quality associates review Quarterly Cpk Reports and revise, if applicable. The Director of Quality reviews and approves as applicable. The Quarterly Cpk Reports are placed within the Batch File Review process and forwarded to Customers. Quality associates review Control Limits per Technical direction. The Operations, Quality and Technical Directors review and approve, as applicable. Quality posts new and revised Control Limits. Quality, Production & Test Lab associates follow PCD requirements for test level changes.

5.4.4  *Control of Work Transfer – Reference section 1.2.2

5.5  Product Delivery
5.5.1  Packaging & Shipping
Resin Mixing provides formulated resin. Slit & Rewind provide product rolls & film rolls to Packaging & Shipping. Packaging & Shipping ship product rolls, film rolls & formulated resin in a condition suitable for customer shipment requirements.

5.5.2 Logistics

a) To Customers:
Sales provide pack-slip/shipping documents. Logistics associates provide shipping schedule & work with Cold Storage associates to update records in the inventory management system.

b) To WEB:
Sales provide ESP order/pack-slip. Logistics provides shipping schedule & Cold Storage associates provide notification of carrier arrival to Logistics associates. Logistics updates records in the inventory management system & sends product to Web & End Customer.

c) Inbound:
Production creates an email & bill of lading that is forwarded with product to Cold Storage associates. Cold Storage associates enter product into inventory management system, notify Logistics associates of product arrival & then off-load product in freezer. Logistics enters product dock location into inventory management system. Cold Storage associates notify Logistics when all material is put away in freezer.

d) Backhauls:
Production initiates a return release request form & forwards to Logistics. Logistics use the shipping schedule to work with Cold Storage Facility associates to pick the order. Logistics creates a backhaul pallet type in inventory management system & bill of lading & works with Cold Storage Associates to load product. Product is returned to Production.

e) Transfers Between Cold Storage Facilities:
Logistics associates determine a need to transfer product between cold storage facilities & then create bill of lading, shipping schedule & release form & forward to Cold Storage associates.
associates process the shipment in the inventory management system, pick & stage product, load & ship product from current facility. They then notify Logistics when product arrives at receiving facility. Logistics associates receive bill of lading into the inventory management system & file.

f) Product Delivery
Customers provide purchase orders. Quality & Sales provide CoC & shipping documents for shipment with material to Supply Chain Management, SCS & Customers.

5.5.3 *Control of Work Transfer – Reference section 1.2.2
Control of Work Transfer
External Customers provide purchase orders, Logistics arranges transportation of materials, Slit converts Tape & provide to customers after Quality review of batch file data.

5.5.4 Customer Order Processing (Product Delivery Activities) – Reference section 2.2.6

5.6 Post Sales & Customer Feedback
5.6.1 Post Sales & Customer Feedback
Accounting receives bill of lading & pick list & reconciles bill of lading to pick list, posts invoice to inventory & bills invoice. Accounts Receivable prints aging report & determines if there is an issue & follows up on any issues with the Customer. If a Customer has a receiving issue, (damaged shipment, certification concerns or shipping issues) Sales works the resolution with the Customer so they can receive their product. If a Customer reports a product complaint, TCA’s customer complaint process is initiated. If product is to be returned, TCA’s customer return process is initiated. Whether product is returned or not TCA’s corrective action process is initiated & the issue is resolved. Customer data (Product readiness assessments, survey’s, compliments, on-time delivery & quality status) is received & TCA’s customer satisfaction process is initiated. Associates visit Customers & communications can come in the form of trip reports, teleconference minutes, etc. The end of this process is a satisfied Customer.
5.6.2 Customer Satisfaction
Sales associates combine customer On-Time-Delivery and Customer Complaint scores and develop an overview for Management to Review and take action if scores fall below the target. Sales also forwards customer Compliments with the overview. Sales works with Customers to resolve any disputes identified.

6. MANAGEMENT
6.1 Management Responsibility
6.1.1 Management
Executive Management delegates Customer, Statutory & Regulatory requirement activities to Department Management & Associates. Management communicates QMS activities to TCA Associates during the quarterly Executive Business Review.

6.1.2 Quality Management Review
Quality associates collect data regarding the health of TCA’s QMS. The Quality Manager/Management Representative schedules the quality management review meeting with Executive Management & takes action items from the review & assessments of the QMS. Actions are then taken & followed-up for effectiveness at the next quality management review meeting.

6.1.3 Resource Project Management
Project Management
Customer, Suppliers, Statutory & Regulatory bodies & Associates identify risk issues (perceived or actual). Department & Project Management select risks to analyze & determine potential impacts.

Project Lifecycle
Department Managers, Associates, Out-side Contractors, Consultants etc., use Customer Request, Problem Resolution Request, Improvement Request or Associate Request to create, complete & review a project. They report to Department & Executive Management, Associates, and Customers.
Project Approval

Project Initiators create project charters from Customer, problem resolution, improvement or Associate requests. Department &/or Executive Management approve, deny or save projects for later. Human Resources update the master projects list when updates are provided.

Project Management

Project Leader uses the approved project charter to create & follow an action item list, complete the review section of the project charter, wrap up the project with Department Management & update/report to Executive Management.

6.2 Resources

6.2.1 Resource Management & Budget

a) Resource Management

Accounting provides an approved budget & monthly spending meeting schedule. Department Management provide monthly spending reports, roadmaps, quality objectives, quarterly quality management review actions & quarterly resource management look ahead meeting schedule to Executive Management. The Executives re-allocate resources as needed with the President’s approval & maintain approved resource management meeting minutes

b) Budget

Accounting provides previous 1 1/2 year actual budget results & the budget template. The Sales associate provides the mid-term plan. General Affairs provides the TCA strategy to Department Management. Sales provide a sales forecast. Production provides a production plan. Department Management determine constraints, Associates headcount, department spending, capital project spending, environment & compensation benefits & complete the budget templates for Accounting. Accounting develops an approved budget. Executive Management, the President & Corporate approve this budget.

6.2.2 Training

a) Personnel Qualification

Department Management train Associates to qualifications with on-the-job
need to retest. If justification is chosen, this information is forwarded to Quality for review.

b) Recruitment Qualification Verification
Department Management fills out position request forms. Candidates are chosen, hired & report to Department Management/Supervisors.

c) External Training
Associates request external training by third party training providers; through Human Resources.

d) Internal Training
Standardization Lead (SL) Team, Environmental Compliance Specialist, Safety Manager, Training Coordinator or other TCA associates schedule courses in Document approval system, prepares attendance roster & certificate of completions. Associates complete rosters & course evaluations. Electronic & hardcopy training records are maintained.

e) Training Matrix Measure Effectiveness
Department & Executive Management determine/create basic training requirements, Human Resources publish & update training matrix.

f) Training Budget
Human Resources & Department Management uses the current & proposed budget for upcoming year to determine training budget for Department Associates.

6.2.3 Work Environment
The environmental conditions including noise, temperature, humidity and lighting are controlled in a manner that ensures safety of personal as well as product conformity

7. QUALITY
7.1 QMS Requirements
7.1.1 QA Manual & Maps
Quality establishes and maintains a Quality Assurance Manual (this document
identifies TCA’s scope of work, applicable Process Map and Interaction Matrix. The manual and process map identifies, at a high level how product flows through TCA’s facilities and processes. The Interaction Matrix identifies TCA’s procedures related to the current revision of AS9100 standard and TCA’s Core and Support Processes.

7.1.2 Document Control
Document Owners, Customers, Industry Standard Providers provide documents to Quality for entry into Document approval system, Document Control Database & posting to QA Doc’s. This happens after Document approval with Revision Status. Document Control Notifications & Distributions are provided. Documents are maintained in a master list.

7.1.3 Control of Records
Associates & Suppliers follow internal, Customer, Statutory & Regulatory requirements to create, store, track, retrieve & disposition hardcopy &/or electronic records.

7.2 Improvement & Analysis
7.2.1 Internal Audit
Internal audits are performed by Internal Auditors to internal, Customer, Statutory & Regulatory requirements using Audit Schedule, Report, Findings, Corrective Actions, Follow-up & Verifications, as applicable. Department Management offer Associates as candidates for Internal Auditors. Internal auditors are assigned audit activities if they have taken internal audit training at TCA or have had past internal audit experience/training and the Quality Manager has given their Approval. Quality prepares & publishes an internal audit schedule that addresses Customer, Statutory & Regulatory requirements, Department Management for areas being audited & Internal Auditors. Lead Auditors follow the audit schedule, hold pre-meetings with internal auditors. Auditors perform internal audits to applicable requirements and Departments. Lead Auditors hold post-meetings. Lead Auditors prepare audit reports, audit findings, update audit database & perform auditor evaluations. Department Management prepares corrective actions. Quality reviews the audit findings database for corrective ac-
tions, follow-up & verification statements. Then they verify the effectiveness of the actions with Department Management &/or Executive Management, as needed.

7.2.2 Nonconforming Material
Suppliers, Associates & Delegated Inspection associates identify suspected nonconforming materials/products (customer, raw, in-process & final products) in electronic & hardcopy formats. Material & products are segregated, dispositioned by MDB & identified as Scrap/Material Conforms to Customer Requirements (MCCR)/Use-as-is (UAI)/Rework/Re-grade, Return to Vendor (RTV) Product on labels, status & reports.

7.2.3 Corrective Action
Associates, Customers, Registration Bodies forward findings, Customer Complaints, Discrepancy Reports, Audit Findings &/or SPC Trouble Reports. A Corrective Action Board is held to facilitate corrective actions. Cross-functional meetings are held for SPC Trouble Reports & Customer Complaints. Department Management complete corrective actions & forward to Quality for approval. If corrective actions are required to be returned to Customers or Registration Bodies, Quality coordinates submittal of corrective actions.

7.2.4 Preventive Action
Associates, Department Management, & Executive Management through Quality Management Review (QMR) Actions, identify areas that may have a potential to become non-conformances using a Preventive Action Form. Associates implement & document actions to prevent potential non-conformances.

7.2.5 SPC—Reference section 5.4.3
## Revision History

<table>
<thead>
<tr>
<th>Revision</th>
<th>Release Date</th>
<th>Change Requested By</th>
<th>Description of Change</th>
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<tbody>
<tr>
<td>F</td>
<td>6/7/08</td>
<td>C. Saunders</td>
<td>Updated President; revised references to AS9100; revised &amp; updated Reference to Procedures section; added section titles</td>
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<tr>
<td>G</td>
<td>8/22/08</td>
<td>C. Saunders</td>
<td>Added item e) to section 1.0</td>
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<tr>
<td>H</td>
<td>5/13/09</td>
<td>C. Saunders, M. Avril</td>
<td>Removed area for “wet” signature; revised the References to Procedures section; modified exclusion section; added Definitions section; revised Customer Property statements</td>
</tr>
<tr>
<td>K</td>
<td>4/13/11</td>
<td>C. Saunders</td>
<td>Added exclusion to 7.3 Design &amp; Development</td>
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<tr>
<td>L</td>
<td>7/20/11</td>
<td>C. Saunders</td>
<td>Revised Scope &amp; Quality Statements</td>
</tr>
<tr>
<td>M</td>
<td>10/6/11</td>
<td>C. Saunders</td>
<td>Complete restructure of document to be compliant with AS9100 Revision C</td>
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<tr>
<td>N</td>
<td>1/30/12</td>
<td>C. Saunders</td>
<td>Complete restructure of document to align with TCA’s process map and process interaction matrix. Included Calibration, Control of Work Transfer, and Design and Development processes.</td>
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<tr>
<td>Amendment</td>
<td>3/19/12</td>
<td>C. Saunders</td>
<td>Reference the interaction matrix in scope and added date next to Rev level.</td>
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<tr>
<td>P</td>
<td>4/27/12</td>
<td>C. Saunders</td>
<td>Changed titles, updated measures, clarified Product &amp; Risk Management</td>
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<tr>
<td>Q</td>
<td>8/7/12</td>
<td>C. Saunders</td>
<td>Basic key measures clarified</td>
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<tr>
<td>R</td>
<td>10/29/13</td>
<td>C. Saunders</td>
<td>Revised exclusion to 7.5.1.4 a), c), d) &amp; e) to reflect current processing</td>
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Customer Focused

Reaching Out
Creating Solutions
Crafting Product
Meeting Needs
Ensuring Delight