



Supplier Quality Manual

Controlled copies of SMI documents are maintained online in subfolders of Z:\Quality\Document Master. Printed copies or electronic copies in other storage locations are uncontrolled.

REV LEVEL	REV DATE	DETAILS		DESCRIPTION OF CHANGE
		Page	Para.	
0	April 2, 2009	All	All	Original Issue

Controlled copies of SMI documents are maintained online in subfolders of Z:\Quality\Document Master. Printed copies or electronic copies in other storage locations are uncontrolled.

1. Preface

Specialty Manufacturing Inc. (SMI) is committed to working with its supplier community to ensure customer satisfaction through total conformance to quality and delivery requirements.

This supplier quality manual has been designed to help our suppliers understand the quality-related standards, requirements, methodologies and practices that suppliers should have in place to assure the on-time shipment of quality parts to SMI. Communication is key to the success of any quality system. We value straightforward and timely transmission of information in order to facilitate conformance to requirements or containment and resolution of non-conformance issues.

It is the intent of SMI to build strong and long-lasting relationships with its suppliers and we are committed to developing partnerships that mutually benefit both SMI and our supplier community. As we continually strive to improve the quality of our products and processes, it is essential that our suppliers join us in this pursuit. SMI stands ready to assist suppliers whenever possible to more fully understand product and delivery requirements, but the sole responsibility for quality and on-time delivery remains with our suppliers.

2. Quality Systems Requirements

General Quality Systems Requirements

SMI currently maintains registration to ISO 9000 and requires all present and potential component and production suppliers to operate within a comprehensive, documented quality system which meets the intent of this standard. As evidence, suppliers must provide either 1) A copy of their third party registration to an active version of ISO 9000 or TS-16949, or 2) Provide written confirmation and objective evidence of a system that is compliant to the ISO standard (self certify).

Registered suppliers must submit their initial and renewal quality system certifications to SMI procurement within 30 days of receiving the certificate from their registrar. Also, suppliers are required to immediately notify their SMI purchasing representative if their registrar places them on "Probation".

Suppliers who are not ISO 9000 or TS-16949 registered must have a working plan to become compliant within an acceptable timeframe per their SMI purchasing representative.

SMI may, at its discretion, perform an on-site quality systems assessment prior to awarding new business, or as an ongoing verification of supplier performance.

3. Quality Planning

Advanced Product Quality Planning (APQP)

Disciplined quality planning must be performed in advance of production. Suppliers are expected to meet the intent of the requirements specified in the following AIAG Reference Manuals: Advanced

Controlled copies of SMI documents are maintained online in subfolders of Z:\Quality\Document Master. Printed copies or electronic copies in other storage locations are uncontrolled.

Product Quality Planning and Control Plan (APQP), Potential Failure Modes and Effects Analysis (FMEA), Measurement Systems Analysis (MSA), and Statistical Process Control (SPC). Additional requirements are noted in this Supplier Quality Manual.

Suppliers are required to generate an Advanced Product Quality Plan in accordance with the APQP reference manual. The elements of this plan shall address:

1. Equipment, tooling and facility requirements
2. Drawings and specifications
3. Dimensional inspection and material testing
4. Appearance (cosmetic) requirements
5. Process flow diagrams
6. DFMEA/PFMEA
7. Control plans
8. Gages and test equipment
9. Gage (MSA) studies
10. Process capability studies
11. Process work instructions
12. PPAP submittals
13. Training and qualification information
14. Reliability life testing
15. Pilot lot production runs and analysis

4. Production Part Approval Process

Production Part Approval Process (PPAP)

As a supplier to SMI you are required to comply with standard PPAP guidelines unless otherwise specified by SMI Quality or Procurement. Level 3 PPAP, supplied electronically, is the default submission level unless otherwise agreed upon by the receiving site Quality department. Supplier PPAP packages shall include at a minimum all component (internal and sub-supplier) Part Submission Warrants (PSWs), and may require additional PPAP documentation as per the receiving site Quality department or Procurement representative.

Full or interim approved PPAP is required prior to shipping parts to SMI for production. Any production shipments received prior to obtaining this approval will be rejected. Any exceptions must be documented and approved on a formal deviation (Form F-PUR-001).

Production Part Approval Process (PPAP), Continued

PPAPs shall be submitted to the SMI Quality department, and any associated PPAP sample parts shall be clearly labeled. Samples submitted for evaluation must be from production tooling and equipment.

PPAP submittal packages normally consist of the following elements:

Controlled copies of SMI documents are maintained online in subfolders of Z:\Quality\Document Master. Printed copies or electronic copies in other storage locations are uncontrolled.

- Part submission warrant (PSW)
- Appearance approval report
- Dimensional inspection results
- Gage repeatability and reproducibility (GRR) studies
- Process capability studies
- Process flow diagram
- Process FMEA
- Process control plan
- Sample parts

Determining when to submit a PPAP package

When any of the following conditions occur, contact your SMI Procurement representative to determine submission requirements:

- New part
- New supplier for new or existing part
- Engineering change
- Material change
- Significant manufacturing process change, e.g., line move, new tooling, dies, etc.
- Manufacturing location change
- Other circumstances per SMI Quality

Manufacturing Process Review

A systematic review of a supplier's manufacturing process may be conducted at the supplier's facility prior to PPAP submission.

Annual Re-qualification

Unless waived in writing, the supplier shall inspect and test on an annual basis a sample of each active product supplied to assure conformance to all SMI specified requirements (e.g. dimensional, material and performance). These inspection requirements shall be included in the supplier's production control plan. Material testing shall be carried out by a qualified laboratory. Annual validation documentation shall be on file at the supplier and available upon request. If a nonconformance is found during the annual validation, the supplier must notify SMI Quality immediately so that appropriate action can be determined and implemented.

5. Special Characteristics

Special Characteristics are any product or process characteristics that affect safety or compliance with regulations, fit, function, performance or subsequent processing of product. Special Characteristics shall be identified and specifically addressed in the DFMEA, PFMEA, Control Plans, Process Flows, Work Instructions and other associated documents. Designated Special Characteristics are identified on

Controlled copies of SMI documents are maintained online in subfolders of Z:\Quality\Document Master. Printed copies or electronic copies in other storage locations are uncontrolled.

drawings/specifications or in a separate document. Suppliers are also responsible for ensuring that relevant Special Characteristics are explained, understood and controlled by their sub-suppliers.

6. Material Performance Test Data

The supplier is responsible for conducting and submitting all design and/or performance testing as specified by SMI to validate conformance to specifications. Specifications include, but are not limited to, print dimensions and specifications, functional specifications, or established industry standards. In the event that the supplier does not have the capability for such testing, the supplier may outsource the services to a qualified and accredited sub-supplier or third-party laboratory or test facility. All testing costs are the responsibility of the supplier.

In addition, the supplier is responsible for maintaining and submitting certificates of analysis and updated test results as specified and required by SMI.

7. Process Capability and Control

Suppliers are required to meet the process capability requirements as defined in the AIAG PPAP and SPC reference manuals, unless otherwise specified. The supplier is responsible to ensure process capability and control requirements are documented in their control plan, and that capability indices are achieved, monitored and improved throughout production. Suppliers may be required to provide SMI with process capability and control data at any time, or on an ongoing basis as circumstances dictate.

8. Sub-Supplier Control

Each supplier is responsible for the control and continuous improvement efforts of its suppliers. Suppliers shall require their suppliers of production goods and services to conform to the requirements specified herein and must implement and document appropriate controls.

9. Supplier Problem Solving and Prevention

Suppliers shall have trained personnel with the ability to quickly and permanently resolve product and process issues using structured data driven problem resolution tools and techniques. Problem resolution must be conducted using a defined, structured process that includes verification of root cause and validation of corrective action effectiveness. Problem solving activities must also be documented utilizing a formal process, e.g., the 8-Discipline (8-D) process.

10. Supplier Incoming Quality Process

SMI 3-Step Incoming Quality Process

SMI utilizes a 3-Step Incoming Quality Process to resolve supplier performance issues.

Controlled copies of SMI documents are maintained online in subfolders of Z:\Quality\Document Master. Printed copies or electronic copies in other storage locations are uncontrolled.

Step 1 - Remedial Communication (SCAR Process)

A Supplier Corrective Action Request (SCAR) is issued when an SMI receiving site receives material or service that fails to conform to applicable quality and delivery specifications. Within 24 hours of receipt, the supplier is required to return the SCAR to the receiving plant Procurement representative who issued the SCAR with the following minimum information completed:

1. Acknowledgement of the problem
2. The immediate containment actions that have been implemented to protect SMI and its customers
3. The team members who will address the problem

A completed SCAR with root cause identified shall be submitted no later than thirty (30) calendar days after receipt of the nonconformance report, unless otherwise specified. A short-term and / or long-term plan to address root cause may also be required.

Costs and charges incurred associated with shipping, handling, processing, reworking, inspecting, engineering verification and replacing supplier responsible defective material including the costs of value-added operations prior to its discovery are the responsibility of the supplier.

Step 2 – On-Site Procurement/Quality Meeting

An on-site working meeting at SMI with SMI's Procurement and Quality departments is a plant-led activity to address specific supplier performance issues not resolved in a timely fashion at Step 1. Working meetings focus on the development of an action plan to prevent or eliminate the root cause of the issue. The supplier is expected to submit periodic updates until the issue is resolved.

SMI 3-Step Incoming Quality Process, Continued**Step 3 – On-Site Leadership Meeting**

An on-site leadership meeting is a plant-led activity involving the supplier's leadership team, and which addresses supplier performance issues not resolved in a timely fashion at Step 2. The purpose of this meeting is to identify at the leadership level of the supplier organization, all actions required for the permanent resolution of the systemic issues that led to the Supplier's unsatisfactory performance.

The supplier shall come prepared to address the following:

- Summary of events relating to the Supplier's performance concerns.
- Completed SCARs including containment actions, root cause analysis, corrective action, verification data and status.
- Preventive action plans and status to address systemic root cause(s)
- Strategic improvement plans

Controlled copies of SMI documents are maintained online in subfolders of Z:\Quality\Document Master. Printed copies or electronic copies in other storage locations are uncontrolled.
--

At the leadership meeting, both the receiving plant and the Supplier must agree on the Corrective Action Criteria. In addition, action plans that exceed 90 days duration may require supplier justification and may warrant interim leadership meeting reviews. The supplier is expected to submit periodic updates until the issue is resolved.

Following the leadership meeting, the supplier's situation will be included on the SMI internal Management Review agenda for discussion and determination of future business.

Suppliers may be prohibited from bidding on new business and/or may be in jeopardy of losing current business at any stage of the process. Suppliers who are placed on New Business Hold must improve their performance and remain in tolerance for six consecutive months in order to be removed from New Business Hold. Suppliers will be formally notified by their SMI Procurement representative when they are placed on or removed off of New Business Hold.

11. Product Identification and Traceability

Product identification shall permit traceability to the specific supplier raw material lot numbers, as well as the manufacturing, inspection and test records. The supplier should also be able to trace where products made under similar conditions (same raw material lot, same manufacturing line/batch, etc.) were shipped. Suppliers are required to utilize and ship material on a first in first out (FIFO) basis. Sequence of batches must be identified on the packaging label by either a date code or batch/lot number. Safety related identification criteria shall conform to all government regulatory and SMI requirements. No exceptions to this requirement shall be permitted unless acknowledged in writing by SMI.

12. Gaging

Suppliers are expected to establish and maintain a gaging system that provides accurate data to support product conformance requirements. The system should provide inspection, measuring and test equipment necessary to assure quality conformity throughout the process. All measuring equipment must be controlled, calibrated at scheduled intervals, properly used and maintained in good working condition.

Gage repeatability and reproducibility (GRR) studies are required on all gages identified in the control plan. GRR studies are explained in the AIAG Measurement Systems Analysis (MSA) reference manual.

SMI GRR acceptance criteria are as follows:

- Under 20% is considered acceptable
- 20-30% is considered marginal, and may need to be improved
- Over 30% is considered not acceptable and should not be utilized until the measurement system is improved

Controlled copies of SMI documents are maintained online in subfolders of Z:\Quality\Document Master. Printed copies or electronic copies in other storage locations are uncontrolled.

13. Material Rejection and Corrective Actions

Non-conforming products present major problems for SMI and its customers. The avoidance of non-conforming product through rigorous testing and process control is vital. When non-conformances are detected, containment of non-conforming product is essential and full containment of non-conforming product must be achieved within twenty-four (24) hours of initial notification.

14. Charges for Supplier Responsible Non-conformances

The costs associated with non-conforming product are the responsibility of the supplier. Such costs may include, but are not limited to:

- Nonconformance Report (SCAR) costs
- Nonconforming Product Deviation Requests
- Sorting, rework and/or handling fees at SMI established rates for actual time associated with non-conforming components or assemblies.
- Reimbursement of initial shipping costs and replacement part expedite charges.
- Reimbursement of SMI customers' charges for SCAR processing fees, and customer or third-party labor/rework charges.
- PPAP submission rejections or delays which impact project timelines
- Shipments of unapproved product

If a supplier believes that they have been unfairly charged for administrative fees, they shall contact their Procurement representative to initiate a dispute resolution process.

15. Documentation and Record Retention

General Record Retention Requirements

Suppliers are required to maintain production part approval process (PPAP) packages, annual layout and validation records, tooling records, traceability records, engineering records, purchase orders and amendments for the length of time that the part (or part family) is active for production and service requirements plus one calendar year unless otherwise specified. Quality performance records such as control charts and inspection and test results as well as Corrective Action records are to be retained for the length of time that the part (or part family) is active for production plus the SMI warranty period unless otherwise specified.

The above time periods are considered "minimum". All retention times shall meet or exceed the above requirements and any governmental requirements.

Change Approval

Controlled copies of SMI documents are maintained online in subfolders of Z:\Quality\Document Master. Printed copies or electronic copies in other storage locations are uncontrolled.

Engineering changes to purchased components and assemblies may be made by SMI to meet changing customer requirements, to improve product quality, or to reduce costs. Prior to the implementation of such changes, SMI will work with its suppliers to communicate the changes and effectively transition to the new designs. Suppliers must be prepared to provide all necessary samples and testing to ensure full compliance to specification prior to production.

Under no circumstances are suppliers permitted to make product changes or deviations without the prior written consent of SMI. Suppliers will be held liable for all direct or indirect problems and costs resulting from unauthorized changes.

Suppliers desiring to implement changes or deviations are required to complete the SMI Supplier Engineering Change Request (SECR) form (F-PUR-001) and submit it to the appropriate SMI Procurement representative in advance of such change so that the necessary review and approval can be completed prior to implementing the change in production. The supplier *must receive written authorization* to proceed with the change from the receiving site Procurement representative prior to change implementation.

SECR forms are required for changes including, but not limited to, the following:

- Material change
- Manufacturing process change, e.g., line move, new tooling, dies, etc.
- Physical or Functional Design change (Engineering change)
- Manufacturing Location change
- Sub-Supplier/Contractor change

Product or Process Deviations

It is SMI's policy to accept only product that meets the requirements of the applicable drawings and specifications. Suppliers desiring temporary deviations are required to complete the SMI Supplier Engineering Change Request (SECR) form (F-PUR-001) and submit it to the appropriate SMI Procurement representative in advance of shipment of the deviated product so that the necessary review and approval can be completed prior to shipment. The supplier *must receive written authorization* to proceed with the deviation from the receiving site Procurement representative prior to product shipment.

Deviations shall be approved only for a specific time period or quantity of parts. The deviation request shall include the identification of the containment period and the manner in which product will be identified, including how traceability will be maintained.

16. Delivery

SMI depends upon its supplier community to comply with the delivery requirements specified on SMI purchase orders. Suppliers are expected to achieve 100% on-time delivery defined as Full Product Quantity Receipt at SMI on the purchase order due date. If suppliers are unable to meet scheduled ship

Controlled copies of SMI documents are maintained online in subfolders of Z:\Quality\Document Master. Printed copies or electronic copies in other storage locations are uncontrolled.

dates, immediate notification to the appropriate SMI Procurement representative via phone and/or e-mail is required. Such notification shall include the reason(s) for the late shipment and the target date for delivery. A Supplier Corrective Action Request (SCAR) may be initiated based on impact as determined by the SMI Procurement representative.

Expedited freight charges required to meet SMI requirements due to late shipments shall be the responsibility of the supplier.

17. Packaging and Shipping Guidelines

Suppliers shall ensure their products are packaged and transported in a manner that prevents damage or deterioration to the product. Suppliers shall maintain documentation detailing proper packaging, cleanliness level, storage and shipping instructions of its products. These instructions must conform to SMI receiving site requirements.

Each container, rack, box, or pallet of material shipped shall be identified as instructed by the SMI receiving site. Unique requirements will be identified and documented at a Pre-Award Meeting or other formal communication.

Packaging and Shipping Guidelines, *Continued*

At a minimum, each physical carton of product shall be identified with the following information:

- Supplier Name
- SMI Item Number
- SMI Item Revision Number
- SMI Item Description
- Carton Quantity
- SMI Purchase Order (and Release Number, in the case of Blanket Orders)
- Manufacture Date
- Lot Number/Serial numbers

In addition, electronic components/sub-assemblies may be required to be individually labeled/identified with the following information.

- Supplier Name
- SMI Item Number
- SMI Item Revision Number
- Manufacture Date
- Lot Number/Serial numbers

Controlled copies of SMI documents are maintained online in subfolders of Z:\Quality\Document Master. Printed copies or electronic copies in other storage locations are uncontrolled.

18. Preventive Maintenance

Suppliers shall maintain machines, equipment and tooling in sound working condition through the use of current preventive maintenance techniques. Preventive maintenance should include documented procedures and schedules for evaluation of tooling, dies, molds, fixtures, etc. at the start or end of each production run. Machines and processes should have a recorded history of periodic preventive maintenance. The preventive maintenance schedule should be based on unplanned downtime records, and should be used in future production planning.

Suppliers may be required to provide SMI with preventive maintenance records at any time, and a systematic review of a supplier's preventive maintenance process may be conducted at the supplier's facility as determined by the SMI Procurement representative.

19. Supply Agreement

For the mutual benefit of SMI and its suppliers, it may be desirable to enter into long-term supply agreements. SMI will consider such requests on a case-by-case basis. The SMI Manufacturing and Supply Agreement (F-PUR-002) shall govern all such agreements.

20. Supplier Performance Ratings

While there are numerous metrics that can be tracked regarding supplier performance, the two primary metrics that SMI uses to determine supplier performance are outlined below.

- ***On-Time Delivery Percentage***
 - Defined as the percentage of purchase order line items that are received complete on or before the purchase order line due date.
- ***Quality Rating (PPM)***
 - Defined as the percentage of conforming product quantity divided by the total product quantity received multiplied by one million.

Production suppliers are required to monitor their performance monthly and keep records accordingly.

Comparison of a supplier's performance to established targets is one method used by our plants to determine if a supplier should be issued a Supplier Corrective Action Request (SCAR), invited to an on-site quality review meeting, or placed on New Business Hold. Meeting established improvement targets does not relieve the supplier of the responsibility for 100% on-time delivery of defect free parts.

Controlled copies of SMI documents are maintained online in subfolders of Z:\Quality\Document Master. Printed copies or electronic copies in other storage locations are uncontrolled.

21. Product Certification

Circumstances may require that a signed certificate of analysis accompany each shipment of specified components or materials, as determined by the SMI Procurement representative or Quality department. The certificate of analysis must contain the actual results of physical testing, measurements and/or analysis specified by the contract confirming compliance with all identified requirements.

The supplier should have a system capable of providing the requested certificate of analysis within 24 hours of such a request.

22. Third Party Sorting and Rework

In the event of a non-conformance in which the supplier cannot supply certified replacement product in a timely manner, SMI may elect, at its discretion, to sort and rework product in house or to contract for third-party sorting and rework of product. Charges for sorting and rework are the responsibility of the supplier.

23. Product control and Containment Requirements

Control of New Production Parts

- a) Suppliers are required to provide for heightened control of new production parts. New production parts start with Pre-Production builds and continue through the first 90 days of production after PPAP approval.
- b) New Production control requirements will be documented by the supplier in their Pre-Production Control Plan, and must be reviewed by the SMI receiving site Quality department for concurrence prior to any Pre-Production builds. Concurrence from the receiving site does not relieve the supplier of any responsibility or accountability to deliver 100% conforming product.
- c) Suppliers may exit heightened new production control requirements once they have achieved zero defects at the SMI receiving plant for 90 days after PPAP approval unless otherwise specified. If defects are found at the SMI receiving plant during this time the counter is reset and 90 clean days must be achieved from that point.
- d) Suppliers may be required to submit inspection data with each lot shipped. This may include variable measurement data, where applicable.
- e) Suppliers shall develop action plans to address missed failure modes or capability improvement needs.

Containment for Nonconforming Parts

Suppliers shall implement standard product containment immediately upon notification of a nonconformance. Containment shall include at a minimum:

Controlled copies of SMI documents are maintained online in subfolders of Z:\Quality\Document Master. Printed copies or electronic copies in other storage locations are uncontrolled.

- a) Submission of a documented action plan for the containment of all parts within the supply chain. This includes, but is not limited to parts at the supplier, in transit and at the receiving plant. Regular communication of the containment results directly to SMI.
- b) Communication of the manner in which product will be identified as quality assured/inspected by container or individual product.
- c) On-site support as necessary.
- d) Utilization of a third party inspection service when circumstances prevent the supplier from providing expedient and efficient containment.

Suppliers whose standard containment actions are found to be ineffective may be placed on Third-Party Containment. Third-Party Containment includes all of the standard containment requirements specified above, with the added requirement of inspection by a third party. The third party will be contracted and paid for by the supplier. SMI may elect to have the supplier go directly to Third-Party Containment.

Containment for Nonconforming Parts, Continued

The supplier shall remain in containment (either standard or third-party) unless otherwise notified by SMI until permanent corrective action has been implemented and its effectiveness validated. Suppliers may exit from standard or third-party containment when the following criteria have been met:

- a) 30 days of production have shown zero defects at the point of containment unless otherwise specified. If a defect is found at containment during this time the counter is reset and 30 clean days must be achieved from that point.
- b) A Supplier Corrective Action Request (SCAR) with supporting evidence for the concern that caused the containment to be initiated has been submitted to the SMI receiving site Procurement representative and closure has been accepted by SMI.

Suppliers are expected to accept all costs and charges associated with the containment activity such as shipping, handling, processing, reworking, inspecting, and replacing defective material including the costs of value-added operations prior to the discovery of the nonconformance, as well as third-party inspection costs.

24. Warranty and Cost Recovery

Supplied product to SMI is expected to perform free of defects or failure for the life of the SMI standard warranty period. Suppliers are expected to sign a binding warranty agreement outlining the reimbursement terms for warranty claims made against their product.

A copy of SMI's standard warranty policy will be provided by your SMI procurement representative, and can also be found on the SMI web site at www.smiglobal.net

Controlled copies of SMI documents are maintained online in subfolders of Z:\Quality\Document Master. Printed copies or electronic copies in other storage locations are uncontrolled.

25. Confidentiality

In the course of normal business activities, confidential SMI information may need to be shared with the supplier community. In such cases, SMI requires its suppliers to complete and submit a copy of the SMI Confidential Disclosure Agreement (F-PUR-004) in order to protect proprietary information and intellectual property. Failure to submit this agreement when requested will result in disqualification for new business projects.

26. Supporting Documents

Supporting SMI documents or forms can be obtained directly from the SMI receiving plant site Procurement representative.

Supporting Industry Documents

ISO9001-2008 quality standard

American Society for Quality

P.O. Box 3005
Milwaukee, WI 53201-3005
or
600 North Plankinton Avenue
Milwaukee, WI 53203
USA

Web: www.asq.org

The following publications are available from the Automotive Industry Action Group (AIAG):

- Quality System Requirements ISO/TS-16949 (ISO9001-2000)
- Quality System Assessment (QSA)
- Production Part Approval Process (PPAP)
- Advanced Product Quality Planning and Control Plan (APQP)
- Potential Failure Modes and Effects Analysis (FMEA)
- Measurement Systems Analysis (MSA)
- Statistical Process Control (SPC)

These documents can be purchased from:

Automotive Industry Action Group
26200 Lahser Road, Suite 200
Southfield, MI 48034
Web: www.aiag.org

Controlled copies of SMI documents are maintained online in subfolders of Z:\Quality\Document Master. Printed copies or electronic copies in other storage locations are uncontrolled.