



Supplier Quality Assurance Manual (SQAM)

June 2018 Edition

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1. Introduction

The quality level produced by JAC Products, Inc. (JAC) depends largely on the quality of products and services provided to us by our suppliers. Therefore, this document outlines the main requirements for quality, which all suppliers to JAC must fulfill with no exceptions. Additionally, correct fulfillment of delivery and quantity requirements must also be ensured by all JAC suppliers.

This Supplier Quality Assurance Manual (SQAM) is intended to supplement IATF 16949 standard requirements by outlining JAC-specific expectations and requirements. JAC expects its' supply base to develop quality systems based on the latest edition of the IATF 16949 standard.

The latest editions of *Advanced Product Quality Planning (APQP)*, *Production Part Approval Process (PPAP)*, *Measurement System Analysis (MSA)*, *Potential Failure Mode and Effects Analysis (FMEA)*, and *Fundamental Statistical Process Control (SPC)* reference manuals should be followed and can be purchased at www.aiag.org. Suppliers may also be required to comply with OEM, or JAC customer-specific requirements – as applicable.

2. JAC Products U.S. Locations

The following is a list of each JAC facility in North America. Please direct all questions regarding quality issues or concerns to the Plant Quality Manager or applicable Supplier Quality Engineer (SQE). If further assistance is needed, please contact your JAC buyer.

Manufacturing Facilities

Saline **Phone:** 734-944-8844 **Fax:** 734 429-4314

SALINE NORTH:
151 S. Industrial Drive
Saline, MI 48176

SALINE SOUTH:
225 S. Industrial Drive
Saline, MI 48176

Franklin **Phone:** 706-675-3341 **Fax:** 706-675-0209

FRANKLIN:
266 Mary Johnson Drive
Franklin, GA 30217

LaGrange:
1570 Lukken Drive W.
LaGrange, GA 30240

Shelby **Phone:** 586-254-1534 **Fax:** 586-254-1538

12000 Shelby Tech Drive
Shelby Township, MI 48315

Portugal **Phone:** 011.351.263.850.300

Quinta da Boa Agua Estrada Nacional No. 3
Carregado 2580-595

China

No 28 Xingbin Road
Yuyao Economic Development
Zhijiang Providence

Corporate Offices

Saline

225 S. Industrial Drive
Saline, MI 48176

Phone: 734-944-8844 **Fax:** 734 429-4314

Pontiac

3937 Campus Drive
Pontiac, MI 48341

Phone: 248-874-1800 **Fax:** 248-874-1824

JAC website: www.jacproducts.com

3. Supplier Approval Process

JAC evaluates and approves new suppliers based on their ability to meet our requirements. The selection process is initiated by the Purchasing Department. An Approved Supplier List (ASL) is maintained and updated regularly. JAC Products will purchase production and service components and raw materials from only those suppliers on the ASL.

Approved Supplier Criteria

Criterion for addition to the ASL includes, but is not limited to:

- Acceptable rating on the JAC Supplier Assessment
- Quality/ Performance History (including ISO and IATF 16949 status)
- Cost
- Delivery
- Financial Stability
- Customer Directed

Note: Substandard performance in any of the above areas can result in the supplier being removed from the ASL.

4. Quality Management System (QMS)

Management Responsibility

The supplier's management with executive responsibility shall define and document its policy for quality. This policy shall be understood, implemented and maintained at all levels of the organization.

Responsibilities for personnel, who manage perform and verify work affecting quality shall be defined and documented. A management review of the quality system shall take place at regular intervals to insure its effectiveness. Additionally, a process for determining customer satisfaction shall be documented and supported by objective evidence.

Quality Documentation/ Procedures

The supplier shall establish and maintain documented procedures that ensure that product or services conform to JAC-specific requirements. A quality manual shall be prepared and used to outline the structure of the supplier's quality system. Controlled documents including Process Control Plan, PFMEA and Process Flow shall be developed in accordance with the AIAG guidelines for these documents. They must also include key characteristics identified by JAC Products or the supplier. The supplier

must ensure that they will be using only pertinent documents provided by JAC Products. Any ambiguities, missing documents or specifications must be clarified and or requested without delay prior to PPAP submission to ensure complete understanding and smooth cooperation with JAC.

Advanced Product Quality Planning - (Product Launch)

Suppliers are required to conduct evaluations of processes and products in advance of initial production. Advanced Product Quality Planning (APQP) is intended to identify and correct any potential problems, permit the early selection of appropriate and best processing methods, and involves a participative, cross-functional team (including JAC) approach in launching products. Additionally, suppliers are expected to participate in the Supply Base Review Process which will be used to provide important program information and requirements to suppliers during the development and launch phases.

It is recommended that suppliers utilize the AIAG APQP manuals, or agreed upon format, to insure that coordination of product launches go as planned.

Additionally for new product launches, the *JAC Supplier Launch Readiness Sheet (SLRS)* will be used to verify launch readiness status throughout the development process. Please refer to the JAC *SLRS* for understanding of activities monitored.

Production Part Approval Process (PPAP)

Suppliers shall submit PPAP's for new or changed products. New product PPAP's will be managed by the appropriate JAC Corporate Supplier Quality Engineer (SQE), while PPAP's for changed products that are already in regular production or service phases will be managed by the JAC receiving plant's Quality Engineer (PQE). The remainder of this section will refer to SQE/PQE to address JAC responsibilities for the PPAP activity depending on whether the product is new or in current production.

Submissions need to meet the latest *AIAG Production Part Approval Process (PPAP)* publication and JAC Products customers' PPAP requirements, when applicable. Unless otherwise directed by JAC Products SQE, suppliers are required to submit Level III PPAP's.

Submissions shall be made in accordance with the Retention Requirements table as identified in the AIAG PPAP manual prior to the processing of any production shipments. Each element as noted in the retention table must be satisfied for full PPAP approval and or review.

PPAP samples or quantities shall be delivered to the appropriate SQE/PQE to the specified JAC location unless otherwise directed. Suppliers may be required to fulfill OEM requirements for CQI and IATF per www.iatfglobaloversight.org.

All submitted PPAPs must have the JAC SQE approval on the Part Submission Warrant (PSW) prior to the shipment of any production parts or services. Deviations or interim approvals will be granted on an as-needed basis.

➤ *Interim Approval of PPAP*

Interim Approval permits the shipment of material for production requirements on a limited time or piece quantity basis. Interim Approval will only be granted with a defined expiration date and when the supplier has:

- a) Clearly defined the root cause of the nonconformance(s) preventing production approval; and
- b) Prepared an interim approval action plan, agreed upon by the JAC using facility. Re-submission to obtain full PPAP approval is required.

Control of JAC-Supplied Product

The supplier shall establish and maintain a system for the control, storage and maintenance of JAC-supplied product provided for use into their manufacturing work flow. Product that is lost or unsuitable for use should be reported to the JAC using facility Materials Department.

JAC-supplied (owned) product includes, but is not limited to:

- Tooling, molds or fixtures
- Returnable packaging material, containers or bins
- Consigned material

Direct any questions concerning the determination of JAC supplied product to the appropriate JAC plant's Materials Department.

Transfer/Out Source of Tooling

Transfers of tools, molds, or other equipment to any other location or outside source shall be approved in advance by the JAC receiving facility in writing and be closely monitored by both parties to insure a smooth transition which meets the requirements of JAC and the JAC customer impacted by the transfer.

Product Identification and Traceability

The supplier shall establish and maintain documented procedures for identifying the product by suitable means from receipt of the product and during all stages of production, delivery and installation. This includes any product that may have an expiration date or shelf life.

Process Control

The supplier shall establish controlled conditions and documented procedures for their production processes, which directly affect product quality. The supplier shall maintain documented process monitoring and operator instructions for all employees that have responsibility for operation processes. Job set-ups shall be verified whenever a set-up is performed.

JAC must be notified for guidance on approval requirements for any changes to the manufacturing process, prior to the change being implemented. Note: Some JAC customers require approval for process changes. These requirements must be met.

Preventive Maintenance

A preventive maintenance program shall be established which includes, as a minimum:

- A procedure that describes planned maintenance activities
- Scheduled maintenance activities
- Predictive maintenance methods
- Availability of replacement parts for key manufacturing equipment

Appearance Items

Suppliers that manufacture parts where appearance items are significant (i.e. paint, chrome suppliers and other applicable processors), shall provide:

- Appropriate lighting for inspection of parts (min. 100 foot-candles)
- Masters for color, grain, gloss, texture, and other visual features
- Maintenance/control of appearance masters, boundary samples, evaluation equipment and appropriate written appearance standards
- Verification that personnel making appearance evaluations are qualified to do so

All appearance items must meet the JAC Products *Corporate Appearance Standard* (CAS) for the specific surface finish and program.

The supplier's facility shall maintain a state of order and cleanliness appropriate to the products manufactured for JAC.

Inspection and Testing

➤ In-process Inspection

Sufficient control shall be maintained over manufacturing processes to prevent excessive product variability and to assure conformance of the characteristics of product which can be verified only at the time and point of manufacture:

- Characteristics defined by JAC as critical or safety-related shall be closely monitored.
- Parts and / or Characteristics identified as pass-through may call for annual layout requirements that will be defined by the JAC Corporate Supplier Quality Engineer during the launch phase or Plant Quality Engineer during normal serial life production.
- Written operating instructions shall be accessible at each station.
- Routing sheets or shop travelers may be used to control the material flow throughout the manufacturing process.
- Visual inspection aids should be available to plant personnel and the repetitive non-conformances shall be highlighted on the visual aids.

Suppliers shall comply with the appearance/inspection requirements provided in the JAC quote package. If no requirements are specified, the *JAC Corporate Appearance Standard (CAS)* and “Foreign Particle Size Template” shall be used for molded, painted and/or chrome surface components. If needed, see your JAC SQE or plant QE to attain better clarification of appearance requirements and copies of these documents. Inspection standards for other finishes shall be mutually agreed upon between the JAC-receiving plant, JAC SQE (if applicable) and the supplier. When customer-specific appearance standards are available they shall be used and supersede any JAC requirements.

Product Design/Production Validation

Suppliers shall use ISO 17025 accredited or certified commercial labs for all JAC Products or OEM defined specifications.

Audit and Verification

JAC Products will have potential suppliers self-conduct an *Initial Supplier Assessment* to establish how they rate in key measurables. Depending on the initial score, JAC Products may implement Action Items up to and including an onsite follow-up assessment by a JAC Products associate. JAC Products reserves the right to conduct periodic surveillance audits to ensure QMS maintenance. Further, for chronic and/or recurring issues, the supplier will grant JAC access to their production facility based on a previously agreed date. The visit will be of adequate extent and the supplier will provide JAC an appropriately qualified associate for support. The supplier is responsible for optimizing any agreed weaknesses, and for submitting an action plan for those weaknesses, discovered during the JAC visit. Additionally, if deemed necessary the supplier shall allow JAC access to its sub-suppliers and the right to audit any sub-supplier if warranted.

Measurement and Calibration Testing

A calibration system shall be used for all inspection instruments and testing equipment. All measuring devices or equipment should bear an indicator which verifies the current status and shows the date on which the next inspection or recalibration is required. Certified standards and methods (traceable to national standards) shall be used when validating or recalibrating measurement devices. Records of calibrations must be maintained as noted in applicable IATF or ISO standards.

Measurement System Analysis (MSA) shall be in accordance with the latest AIAG MSA guidelines by performing gage repeatability and reproducibility (GR&R) studies that show evidence of type of device. For variable data collection gages the ANOVA GR&R method should be followed unless otherwise directed. This includes acceptance or approval criteria for the completed GR&R. Furthermore, the gage shall be designed and built to the JAC Products Check Fixture Design and Build Standards document. Revisions to the fixture should be traceable to part and drawing changes, if applicable.

Control of Nonconforming Product

The supplier shall establish and maintain a system to ensure that nonconforming and suspect product is prevented from unintended use or processing. This system must provide for identification, documentation, evaluation, segregation and disposition of nonconforming product.

The supplier shall provide visual identification for any nonconforming or suspect material/product and any quarantine areas.

In-process nonconforming product must be appropriately tagged, segregated from good product, and shall be removed from the production area to a designated location for rework or material review.

Review and Disposition of Nonconforming Product

The responsibility for review and authority for the disposition of nonconforming product shall be defined. Nonconforming product shall be reviewed in accordance to procedures and it may be:

- *Reworked:* To meet specified requirements
 - Ref: JAC procedure for *Authorization of Supplier Rework*
- *Accepted:* With or without repair
- *Rejected:* current condition is unacceptable
- Designated for an alternate application

JAC Consigned Material Disposition

Suppliers processing JAC consigned material must provide quality data defining the defects daily to their JAC Customer plant. Supplier must obtain the appropriate approval from the appropriate JAC facility through a Returned Goods Authorization (RGA) from the JAC Plant. Suppliers must return all material on the next available truck following receipt of the approved RGA; this timeframe should not extend longer than one week.

All JAC non-conforming consigned material that cannot be reworked must be returned to the appropriate JAC facility unless directed otherwise in writing.

Sorting or Rework of Nonconforming or Suspect Product

When product must be sorted or reworked, the preferred method is to return product to the supplier for sort/rework at the supplier's location. Sort/rework completed on JAC's premises requires plant quality department approval. Regardless of the arrangement, the JAC receiving plant quality department needs to be involved. Written instructions for rework or repair are required. The reworked parts must be identified and re-inspected by a JAC quality representative to assure conformance to standards.

JAC will initiate cost recovery when sorting/rework by JAC personnel is required to maintain production. These charges will be documented with the *Cost Recovery Form*.

Authorization of Temporary Change of Material or Process

The supplier shall not make any changes to material, packaging, processing, or other aspect that may affect product quality, or deviate from original approved specifications without explicit written authorization from the appropriate JAC receiving plant.

Refer to the latest version of the AIAG PPAP Manual for changes requiring notification to JAC Products. Check with the Corporate SQE, or the appropriate JAC plant Quality Manager, or plant Quality contact for PPAP requirements.

Corrective and Preventive Action

➤ Corrective Action

When a supplier is notified of a nonconformance by a JAC plant quality representative through SupplyWeb at <http://suppliers.jacproducts.net> the following minimum corrective actions need to be taken:

- **Immediately:** *Containment of the problem:*
 - In-House product
 - Work-in-process
 - Product in transit
 - Product at subcontractor's facility

- **Within 24 hours:** *Provide disposition*
 - Of nonconforming and/or suspect product
 - Response of interim corrective action

• **Within 10 working days:** Documented permanent *Corrective Action Plan*
Suppliers shall document corrective actions using *JAC Products SupplyWeb*. With the prior approval of the JAC issuing plant, other formats can be used as long as they provide the following information:

- Description of problem
- Identification of root cause
- Interim corrective actions (with dates of implementation)
- Permanent corrective actions (with dates of implementation)
- Verification of permanent corrective actions (with date verified)
- Prevention methods

Returned products shall be analyzed and customer concern information collected to effectively determine the root cause of the problem and how to prevent it from recurring. Use of statistical tools such as, Pareto Analysis, Cause and Effect Diagrams and Control Charting should be employed, as appropriate.

As required, the supplier will send the necessary representatives to the JAC receiving location or JAC Product's customer to provide support in solving issues resulting from the nonconformance.

Additionally when chronic, recurring and/or customer-related issues occur; JAC reserves the right to place suppliers on 3rd Party Containment.

➤ *Preventive Action*

Appropriate sources of information from processes and work operations which affect product quality, audit results, quality records, service reports and customer complaints will be used to detect and eliminate potential causes of nonconformance's.

Procedures on preventive action, as a minimum, will include:

- Determine actions needed to solve any problems requiring preventive action
- Implementation of preventive action and verification of its effectiveness

Suppliers are encouraged to implement mistake-proofing strategies such as fixtures, automation, color-coding, etc.

Packaging, Handling and Labeling

➤ *Packaging and Handling*

Packaging requirements for all components and raw material shall start during the initial quoting process. Unless otherwise specified, all suppliers are required to submit packaging information, with their quote, to the appropriate buyer.

All packaging must provide the appropriate amount of protection against damage, contamination, and any other defect that will cause a rejection at JAC or our external customers. It is the supplier's responsibility to ensure that packaging has been designed and constructed to fulfill this requirement and that it meets the requirements of JAC Products.

NOTE: If packaging has been designated by JAC, it is the supplier's responsibility to sign off on all packaging designs as fit for use and ensure that the appropriate packaging material is utilized with the designated product. Any deviation from using the intended packaging or container should be approved (in writing) by the JAC receiving facility. If packaging (designed by JAC) is insufficient for use, it is the supplier's responsibility to notify the JAC Packaging Engineer in writing.

All packaging changes must be submitted to - and approved by - a JAC Packaging Engineer. A brief explanation of the need for the change, along with any other pertinent information should accompany the request.

The supplier shall provide methods of handling product that prevent damage or deterioration.

➤ *Labeling*

Labeling must conform to the *JAC Products Supplier Labeling Guidelines*. All material identification labels or tags must remain intact from the original point of manufacture, through JAC's receipt and at the affected receiving location. All labels must include the JAC part number on them. For returnable containers, old labels must be removed or covered to insure that product identification is maintained.

Training and Statistical Methods

The supplier shall establish and maintain documented procedures which identify and provide for the training of all personnel performing activities affecting quality. Suppliers that supply product where appearance items are defined are also required to demonstrate training of personnel performing visual inspection activities to the JAC Products *Corporate Appearance Standard (CAS)*.

As appropriate, suppliers shall determine the need for statistical methods required for controlling and verifying process capability and product characteristics. Basic statistical tools should be utilized, when applicable, to maintaining process consistency.

5. Supplier Performance

JAC Products monitors supplier performance, to **a)** determine those suppliers who need assistance **b)** recognize outstanding supplier performance, and **c)** promote continual improvement throughout the supply base.

Suppliers are rated by the following metrics:

Metric	Weight
<i>Delivery</i> 1) Number of DPR's Issued 2) Responsiveness to DPR's	50%
<i>Quality</i> 1) Number of DMN's Issued 2) Responsiveness to DMN's	50%

The rating scale for these metrics is:

Rating	Points Range
Excellent	>85%
Acceptable	50% - 85%
Unacceptable	<50%

Supplier Report Cards will be issued monthly. When you receive the report card, review it for accuracy as these initial scores will be the baseline that future performance will be compared to. The following steps will occur for Suppliers that receive "Unacceptable" ratings:

- 1st Unacceptable Report Card: Supplier will be given notice of "Unacceptable" status and asked to show improvement by next reporting cycle.
- 2nd Unacceptable Report Card: Supplier will be asked to submit an Action Plan enumerating DPR's/DMN's issued, how they're being addressed and how the actions will improve performance.
- 3rd Unacceptable Report Card: A representative from Corporate Supplier Quality will schedule an onsite assessment of the supplier location to verify production worthiness. This visit will include an Action Plan to be monitored and followed up on and, depending on responsiveness and subsequent results, may lead to a decision to de-source.

Unless otherwise specified, all suppliers listed on the Approved Supplier List are required to be ISO 9001 certified with the goal of supplier conformity to IATF16949. Conformity to ISO 9001 is the first step in achieving this goal.

If deemed necessary, JAC Products will perform an assessment on any supplier which exhibits recurring quality issues. Additionally, JAC may disqualify a supplier for any of the following:

- Poor supplier performance scores
- Recurring and chronic quality issues
- Habitual delivery problems
- Pricing (non-competitive)
- Non-compliance to governmental and/or safety regulations
- Financial instability
- Poor response to quality concerns
- Conflict of interest
- Any criteria that does not serve in the best interest of JAC Products

Revision History

Revised Date	Revision Initiator	Change Details
08/26/13	A. Gorney	Initial Registration
09/25/13 Document Rev 08/26/13	W. Houston	Quality Documentation/Performance on page 6 -removed redundancy by eliminating 2 nd paragraph; added revision history tracking. This was clerical error - document rev change not required.
5/10/2015	K. Tadd	- Page 9 – added reference to CAS - Page 12 – added reference to SupplyWeb - Page 14 – added JAC Products Packaging and Labeling Guidelines - Page 14 – added requirement to train to CAS - Page 15 – added "poor supplier performance scores"
9/01/2015	C. Dawson	Page 15 – updated rating scale for overall scores
8/11/2017	S. Campbell	- Pg 3 – Replaced TS16949 w/ IATF 16949 - Pg. 15 - Updated Supplier Scoring method and refreshed supplier objective from TS16949 to IATF16949. - General format Refreshes including hyperlink fixes
10/01/2017	S. Campbell	Added China and Portugal locations Refreshed references to include IATF 16949 General format improvements including broken hyperlinks, etc.
5/1/18	K. Kish	Added Supplier Scorecard information to Supplier Performance section and minor IATF updates.
6/20/18	P. Travis	Page 10 - Added Supplier requirement for pass-through characteristics.