# METHODE ELECTRONICS SUPPLIER REQUIREMENTS MANUAL











A Methode Electronics Company





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# **Global Forms for Supplier Use:**

itle
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equest for Change

Latest version is located at http://supplier.methode.com

# 1. Introduction

### A) Scope and Purpose:

- This Methode Supplier Requirements ("MSR") manual conveys quality and delivery requirements for all production purchase orders and supply agreements between Methode Electronics Inc., and all of its affiliated companies, ("Methode"), and its suppliers.
- This MSR covers Methode's specific requirements. This MSR, as well as the requirements set forth in the ISO 9001 standard or related standards shall be considered a supplement to Methode's Purchasing Terms and Conditions.

## **B)** Documentation:

- 1) Methode documents are available on the website <u>http://supplier.methode.com</u> or by contacting the Methode purchasing representative.
- 2) Where required, customer specific requirements in addition to or in replacement of the requirements in this document will be provided to the supplier by the Methode purchasing representative.

## C) Document and Record Retention:

Requirements for retention of documents and records vary widely by the type of record, project, and OEM customer. Suppliers shall retain relevant documents and records in accordance with OEM customer requirements. Please contact the Methode purchasing representative for questions regarding a particular project.

#### D) Engineering change notices:

For engineering changes requested by Methode, whether in a specification or a drawing, Methode shall send the revised documents to the supplier. Since the supplier is responsible for meeting all drawing and specification requirements, any questions pertaining to any new requirements must be resolved prior to the acceptance and implementation of the change.

Should the revised drawing not be available, the supplier may proceed with a written approval from the Methode purchasing representative.

#### E) Written Language:

Any written reports submitted to Methode shall be in English or contain English translations.

# 2. Supplier Delivery Requirements

#### A) 100% On-Time Delivery:

- 1) Methode requires all suppliers to provide 100% on-time delivery performance with the correct quantity and contracted pricing.
- 2) Suppliers shall use the communication methods (e.g. EDI, Web EDI, ASN's) as directed by Methode.
- 3) Suppliers shall review orders weekly and are required to confirm ability to fulfill requirements for quantity and timing within two working days from receipt of orders.
- 4) A missed delivery is defined as one that is received one day or more either before or after the due date, or a delivery that is short of the required quantity, while taking into account the specific Incoterms and ordering lead times that may apply.
- 5) If the supplier expects a missed delivery, they shall notify Methode's material scheduler immediately and arrange for expedited delivery at supplier's expense.
- 6) Supplier packaging, labels, and associated documents are required to meet the standards communicated by Methode.

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- 7) Neither the quantity shipped nor the delivery timing can vary from Methode requirements without the appropriate Methode written consent.
- 8) Over shipments and early shipments are subject to rejection and return at supplier's expense.
- 9) Suppliers must coordinate all expedited shipments with Methode.
  - a) Any changes to the coordinated schedule must be approved by Methode prior to shipment.
  - b) AETC (authorized excess transportation cost) numbers must be provided by Methode prior to shipment. Shipments made without an AETC number may result in debit to the supplier.
- 10) Supplier delivery performance will be monitored and feedback provided as needed. Suppliers are required to respond within 24 hours, and are expected to cooperate in identifying the causes of missed deliveries and implementing effective corrective actions.
- 11) The supplier may be charged back for costs and expenses incurred as a result of any missed delivery or line shutdown.

## B) Capacity:

- Methode and the supplier will work together to protect the supply chain by assuring the process has sufficient capacity to meet the Standard Weekly Requirement (SWR) and Maximum Weekly Requirement (MWR). Upon Methode request, the supplier shall demonstrate capacity in the form of a run at rate onsite at the manufacturing process.
- 2) The format and requirements for the run at rate will be provided by Methode.
- 3) Any subsequent reduction in capacity commitment must have the written approval of the Methode Purchasing Representative before the supplier re-allocates any equipment, personnel or facilities.
- C) Obsolescence and Release Authorization: The definitions below are provided for suppliers that receive regular releases.
  - a) Firm: Supplier is authorized to produce and ship product as released.
  - b) Fabrication: Supplier is authorized to fabricate but not ship until released.
  - c) Raw Material: Supplier is authorized for raw material purchase only.
  - d) **Forecast:** Informational only. Methode is not responsible for any completed product or raw material against forecast or planning quantities.

All authorization types are subject to change based on customer demand. Supplier has 60 days after production shipments end to file an obsolescence claim to Methode. Payment for obsolete material will be issued after verification of responsibility by Methode.

#### D) Suspension of Production at Supplier

#### 1) Tooling or Production Line Modifications:

a) For both Pre-Production and Production periods, authorization must be granted by Methode before stopping production for 5 days or more while any requirements are open for delivery.

## 2) Supplier Factory Shutdown and Startup:

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- a) This section shall apply to all suppliers with open delivery requirements to Methode that are planning a factory shutdown of 5 days or more.
- b) As a preventive measure, the supplier must complete the G-MW 01 Shutdown and Startup Checklist. This checklist is intended to expose the common types of risk that occur during these periods.
- c) Suppliers must notify Methode as early as possible and at least 2 weeks in advance of the shutdown. The checklist will be available to Methode upon request.
- d) The checklist is available at http://supplier.methode.com or from the Methode purchasing representative.

## E) MMOG/LE:

The Global Materials Management Operations Guidelines/Logistics Evaluation (MMOG/LE) is a selfassessment based on industry best-practices for supply chain management processes. Suppliers are encouraged to use this self-assessment as a continuous improvement tool to improve materials management efficiency.

# 3. Supplier Quality Requirements

#### A) Quality Management System:

- Suppliers are expected to implement and operate a total quality management system that ensures that only defect free products are produced and delivered to Methode. Suppliers shall adopt the standards of zero defects and 100% on-time delivery to Methode. Suppliers shall assume full responsibility for their product quality and delivery.
- 2) Suppliers must be certified to one of the following Quality Management Systems:
  - a) ISO 9001 Quality Management Systems
  - b) IATF 16949 Automotive
  - c) ISO 13485 Medical devices
  - d) AS 9100 Aerospace

Manufacturers who deliver Automotive, Medical, and/or Aerospace components to Methode are ultimately expected to attain certification to the respective specialized standard(s).

Additional certifications may be required based on industry and customer requirements including:

- a) ISO 14001 Environmental Management
- b) ISO 26262 Functional Safety Management
- c) ISO/TS 22163 Railway applications
- d) ITAR International Traffic in Arms Regulations
- e) Others

Note: Upon expiration of a certificate, the supplier shall certify to the latest edition of the standard.

- 3) Suppliers shall provide current copies of upgraded or renewed certifications to the Methode supplier quality representative.
- 4) Additional Standards:
  - a) **Engineering Drawings:** Methode engineering drawings are created in accordance with the American Society of Mechanical Engineers standard ASME Y14.5M-2009. Use this standard to understand the requirements documented in Methode drawings.
  - b) **Electronics and Printed Circuit Boards:** Quality assurance and visual acceptance of unpopulated printed circuit boards shall be based on the IPC-A-600 industry standard. Quality assurance and visual acceptance of electronic assemblies shall be based on the IPC-A-610 industry standard.

c) **Molded and Decorated Parts:** General appearance evaluations shall be conducted according to the drawing and Methode's visual quality standards.

#### B) AIAG Manuals:

If a PPAP is required, suppliers are required to comply with current AIAG manuals. For items not covered in the MSR, a supplier should refer to these manuals for direction and clarification:

- 1) APQP (Advanced Product Quality Planning and Control Plan)
- 2) FMEA (Potential Failure Mode and Effects Analysis)
- 3) MSA (Measurement Systems Analysis)
- 4) PPAP (Production Part Approval Process)
- 5) SPC (Statistical Process Control)

#### C) Packaging, Material Identification and Traceability:

- The supplier shall establish and maintain an effective traceability system that will ensure that the final components and subcomponents used in production can be traced back to the manufacturing date, shift, equipment, tool number, cavity, and the respective inspection/conformity results. Lot sizes will be established to economically minimize risk based on an internal risk assessment.
- 2) Lot number traceability must be identified on the shipping label and any accompanying data. (e.g. SPC, CpK, PpK, etc.)
- 3) FIFO (First In, First Out) Inventory Requirements: Suppliers must have a system of inventory control to assure that shipments are received in sequential production order.
- 4) Supplier packaging, labels, and associated documents are required to meet the standards communicated by Methode.
- 5) The supplier shall use product and package labels as approved by Methode. Suppliers are required to print labels as indicated by Methode.

#### D) Materials Compliance:

#### 1) **REACH Compliance**:

- a) Unless a written deviation is received from Methode, suppliers shall be responsible for ensuring that all Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) legislation requirements are met for the product/s supplied and through the complete upstream supply chain for all sub-suppliers in accordance with REACH Regulation (EC) No. 1907/2006. This also applies to substances that were registered in accordance with Directive 67/548/EEC (registration of new substances). Suppliers are governed by the last applicable versions in each case of Directive (EC) No. 1907/2006.
- b) Suppliers shall inform Methode about the presence of any substances of a very high concern (SVHCs) and must update information about parts and materials delivered, following any update of the candidate list, twice a year when required (<u>http://echa.europa.eu/candidate-list-table</u>). If SVHC's are present in the supplied product but they are not banned by these or subsequent directives, the supplier is still required to submit an action plan and timing to eliminate them.
- c) Suppliers of chemicals must classify, label and package the substances and mixtures in accordance with the most recent Classification, Labelling & Packaging ("CLP") Regulation (EC) No 1272.

#### 2) RoHS Compliance

Unless a written deviation is received from Methode, suppliers shall be responsible for ensuring that all Restriction of Hazardous Substances ("RoHS") requirements are met for the product/s supplied. The RoHS directive (2011/65/EU) restricts the use of certain hazardous substances, in the manufacturing of electrical and electronic equipment. Suppliers shall ensure that the presence of these substances do not

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exceed the permitted concentration in non-exempt products. This directive restricts the presence of lead, mercury, cadmium, hexavalent chromium, poly-brominated biphenyls, and poly-brominated diphenyl ether, with a maximum concentration of 0.1% (except for cadmium, limited to 0.01%) by weight.

## E) Continuous Improvement:

- 1) Part of the ongoing business relationship with Methode includes support for Methode-initiated improvements as well as supplier-initiated improvements. The supplier's support is a basic business expectation.
- 2) VA/VE is a process of rediscovering the product to improve its functionality, durability, reliability, manufacturability and cost. Value is defined as the ratio of function to cost. Methode's approach toward VA/VE is not just reducing cost. Value may be increased by either improving function or reducing cost.
- 3) The supplier is requested to suggest any changes deemed necessary to achieve the above stated improvements. Basic functions must be preserved. These improvements shall lead to mutual benefits for Methode and its suppliers by:
  - a) Increasing product competitiveness
  - b) Decreasing unnecessary costs
- 4) The supplier shall submit such suggested improvements to Methode for approval using the **G-MB 35 Request For Change** form.

## F) Sub-Supplier Requirements:

- The supplier shall manage all sub-suppliers to achieve Methode's quality and delivery requirements. This
  includes all activities through launch (e.g. APQP), periodic auditing and serial production. Methode and
  Methode's customers may audit the critical processes of the supplier and sub-suppliers to assure that
  proper controls are in place throughout the entire supply chain.
- 2) All materials purchased through distribution must be from a manufacturer's franchised distributor unless otherwise authorized in writing by Methode.

## G) Risk Assessment and Contingency Planning:

The supplier shall prepare and document a risk assessment and corresponding contingency plans to satisfy Methode requirements in the event of a deviation or disruption from the normal business process, such as utility interruptions, labor shortages, key equipment or systems failure, or field returns. This could include failures in EDI, transportation, packaging, equipment, etc.

The supplier shall provide these plans to Methode upon request.

# 4. APQP (Advanced Product Quality Planning)

If required by Methode, suppliers will use the Advanced Product Quality Planning and Control Plan (APQP) and Potential Failure Mode and Effects Analysis (FMEA) reference manuals provided through AIAG for all Methode components.

- A) Process Flow Chart: There are no Methode specific requirements for this beyond the AIAG manuals above.
- B) Design Failure Mode and Effects Analysis (DFMEA): Suppliers with design responsibility are required to develop and maintain a DFMEA.
- C) Process Failure Mode and Effects Analysis (PFMEA): In addition to the AIAG manuals above, Methode's specific requirements are given below.

#### 1) Special Characteristic Classification:

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- All products and processes have features described by characteristics that are important and need to be controlled. However, some characteristics require special controls to minimize the risk of adverse consequences.
- b) For Special Characteristics, manufacturing processes must demonstrate statistical capability and/or apply Statistical Process Control (SPC) to ensure product will meet all engineering requirements.

#### 2) Action Priorities:

The initial focus should be on failure modes with the highest severity rankings. All failure modes with severity rankings of 9 and 10 must be addressed with a consideration toward error-proofing

#### 3) Corrective Action:

When corrective actions are required, the PFMEA should be the first document reviewed, followed by supporting documents in order to ensure the concern is addressed. If the concern is not addressed, the PFMEA must be updated to address the issue. It is recommended that the corrective action report number is noted in the PFMEA to maintain the history.

#### 4) Pass-Through Defect:

#### a) **Definition:**

A pass-through defect is any characteristic or feature that is not inspected, checked or used at one point in manufacture and is then passed through to the next user, operation or facility in the line of manufacture. If not detected and segregated or corrected, a pass-through defect will be passed on through the system and may reach the customer. A pass-through defect can occur with a purchased part or during manufacture or assembly of a part.

#### b) Objective:

The supplier shall ensure the PFMEA addresses all assembly process or testing limitations that could result in a risk to the next operation or the final customer.

D) Control Plan: There are no Methode specific requirements for this beyond the AIAG manuals above.

# 5. Production Part Approval Process (PPAP)

Methode's specific requirements for supplier PPAP may be found in the document **Methode Supplier PPAP Requirements**.

# 6. Request for Change (RFC)

#### A) Conditions that Require an RFC:

The supplier shall use form **G-MB 35 Request For Change** for all change requests after initial part approval, including changes requested at launch and during production. Applicable changes include, but are not limited to:

- 1) Design changes
- 2) Process changes
- 3) Manufacturing location changes
- 4) Internal tool location changes
- 5) New or additional tooling
- 6) Tool modification above and beyond normal maintenance
- 7) Material changes
- 8) Packaging or Standard Pack changes
- 9) Sub-supplier changes
- 10) Any location change of tooling owned by Methode or our customers.

## B) Process Overview:

- 1) The supplier can download G-MB 35 Request For Change from http://supplier.methode.com/
- 2) The supplier shall include all relevant and required information so that Methode can clearly understand and act upon the request. Except in the case of an emergency, the supplier shall submit the RFC as soon as the change is known and no later than 8 weeks prior to the proposed implementation timing of the change.
  - a) Electronics components: In the event of a PCN (Product Change Notice) or announcement of EOL (End-Of-Life) of components the supplier shall inform Methode no fewer than twelve (12) months before the last-time purchase date for the product. Methode will evaluate the change and provide instructions.
- 3) All required information must be included on RFC's. If not, Methode will return the request to the supplier for correction.
- 4) Requestor submits the completed RFC according to the routing instructions provided on the form.
- 5) Methode will send the requestor a confirmation that the request was received. This acknowledgement is not authorization to proceed.
- 6) *If approved*, Methode will notify the requestor with authorization to proceed along with PPAP requirements for the change.
- 7) *If rejected*, Methode will notify the requestor of the rejection. The supplier shall not proceed with the change.
- 8) **G-MB 35 Request For Change** must be approved in writing by Methode before any changes are made in the production part or process.

# 7. Methode Concerns and Supplier Response

Methode expects suppliers to strive toward 0 PPM for nonconforming product.

#### A) Production issues:

The supplier shall have processes and systems in place to prevent delivery of non- conforming products to Methode. If a non-conformance to specification is discovered, a concern report may be initiated and sent to the supplier.

#### B) Evidence of Nonconformity:

Methode will provide evidence of nonconformity, including the following, as applicable, to the supplier to communicate the problem.

- 1) Non-conforming sample(s) supplier to provide RMA and shipping account/authorization number if returned nonconforming samples are needed for investigation.
- 2) Digital pictures
- 3) Dimensional measurement(s)
- 4) Test results and data
- 5) Video file of the issue

#### C) Material Containment and Supplier Response:

- 1) No reasonable effort will be spared in organizing an effective and immediate containment to protect Methode and its customers from nonconforming product.
- 2) The containment method will be one of the following:
  - a) Methode returns suspect stock to supplier.

- b) Methode certifies stock at supplier's expense.
- c) Supplier sorts at Methode. The supplier travels to Methode to certify stock. Or, with Methode approval, the supplier may use a third-party company to certify product at Methode.
- 3) The supplier shall initiate an 8D report, completed through section D3 and submit it to Methode within 24 hours from the time the concern was issued.
- Within 10 working days, an 8D report will be completed through section D8 with all supporting documentation and submitted to Methode.
   When a failure analysis is conducted and the failure is isolated to a single component, the analysis shall determine and document whether or not the failure is due to a suspect or confirmed counterfeit component.
- 5) Time to final closure is not to exceed 25 working days from the date the concern was issued, unless written agreement is received from Methode.
- 6) Once the nonconformity is communicated and confirmed, the deliveries must be certified and clearly identified until the permanent corrective action parts are received and accepted. The supplier will inform Methode in advance the method used to identify the sorted stock.

#### D) Material Disposition:

A Methode quality representative will determine material disposition, with input and support from the supplier.

#### E) Supplier Chargebacks

The supplier will be charged back costs and expenses incurred as a result of the nonconformance.

# 8. Supplier Performance Report

#### A) Introduction:

- 1) Supplier performance is continuously monitored and communicated periodically by each Methode Division. It is a key input to sourcing decisions for future business.
- 2) A Supplier Performance Report is not sent to all suppliers. If a Supplier Performance Report is issued by Methode, it shall be included in the supplier's regular management review.
- 3) If a supplier delivers products to a Methode factory that does not use systems that support the format below, then the factory will use the local procedure and format.

## B) Report Format:



#### **C) Scoring Details:**

All suppliers will start each scoring period with 100 points. This system is based on 100 to 0 points. Points are deducted based on supplier performance in the areas listed below.

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## Supplier Performance Report Scoring Details

Each reporting period begins with 100 points. Issues as outlined below deduct points from 100. Best Score = 100 pts, Worst Score = 0 pts.						
Data Entry	Category	Criteria	Monthly Performance	Points	Definition / Notes	
Supplier Quality Qu		Quality PPM Level 1	25pts Max 0 PPM = 25 points 1 - 1500 PPM = 20 points 1501 - 12,000 PPM = 15 Points 12,000 - 25,000 PPM = 10 Points >25,000 PPM = 0 Points	25 Max	<ul> <li>PPM is based on confirmed supplier rejections from Methode and Customer returns, including warranty.</li> <li>PPM is calculated as [Number of units rejected x 1 million/Number of units received in the reporting period], maintaining a consistent unit of measure for number rejected and number received.</li> </ul>	
		Quality PPM Level 2	25pts Max 0 PPM = 25 points 1 - 500 PPM = 20 points 501 - 2,000 PPM = 15 Points 2,000 - 5,000 PPM = 10 Points > 5,001 PPM = 0 Points		<ul> <li>In the case where a rejection is made and there were no units received in the reporting period, the penalty is 25 points assessed (subtracted) out of 25.</li> <li>In the case of a supplier quality issue results in disruptions at Methode's customer, including yard holds, stop ships, or other special-status customer notification, the penalty is 25 points assessed (subtracted) out of 25.</li> </ul>	
	Quality	Quality PPM Level 3	25pts Max 0 PPM = 25 points 1 - 50 PPM = 20 points 51 - 200 PPM = 15 Points 200 - 500 PPM = 10 Points > 500 PPM = 0 Points		If the supplier replaces the stock with certified stock, nonconformity quantity will be counted as the confirmed defective units detected at incoming goods/ assembly line/ customer, not the quantity of returned stock.     Rejects found by supplier sorting or supplier-coordinated 3rd party sorting are not counted.     If Methode must sort the stock at supplier's expense then all defects found in sorting will be counted toward supplier PPM.	
		Quality Concerns	10 points assessed (subtracted) per Methode or Customer Quality Concern. Concerns designated as FYI are not counted.	20 Max	Applies to all Quality Concerns that require a Corrective Action Report. Ten points will be deducted for each Methode or Customer Quality Concern issued during the reporting period.	
		QCR Responsiveness	5 points assessed (subtracted) if late on each of Short Term Response, 10-day Long Term Response, and 25-day closure. Maximum: 15 Points	15 Max	Applies to all Quality Concerns that require a Corrective Action Report. 5 points assessed (subtracted) if late on each of Short Term Response, 10-day Long Term Response, and 25-day closure, up to a maximum of 15 points.	
Production Control	Delivery	On Time Delivery	% Missed Deliveries: 0% = 30pts >0%, $\leq 2\%$ = 25pts >2%, $\leq 5\%$ = 20pts >5%, $\leq 10\%$ = 10pts >10%, $\leq 20\%$ = 5pts >20% = 0pts 1 occurrence or more of premium freight will result in a deduction of 3 pts. Any missed delivery that results in disruptions at Methode's customer, including yard holds, stop ships, or other special-status customer notification will result in a deduction of all points, up to 30 max.	30 Max	A missed delivery is defined as one that is received one day or more either before or after the due date, or a delivery that is short of the required quantity, while taking into account the specific Incoterms and ordering lead times that may apply. Percent calculated as (Number of Late Deliveries/Total Number of Deliveries Received during evaluation period) x 100	
Production Control	Material	Line Shutdown	5 points assessed (subtracted) per hour of Methode Line Stop. Maximum: 10 Points	10 Max	Line Shutdown is when one or more Methode lines shut down because of supplier quality or delivery. 5 points assessed (subtracted) per hour of Methode Line Shutdown, to a maximum of 10 Points.	

Printed copies are not controlled.

#### 1) The guideline for Supplier PPM Levels:

Level 1	Examples: Decorated components with class A cosmetic surfaces Parts with surface finishing, plating, or other surface treatment with Class A cosmetic surfaces Complex electronics Glass	25pts Max       = 25 points         0 PPM       = 25 points         1 - 1500 PPM       = 20 points         1501 - 12,000 PPM       = 15 Points         12,001 - 25,000 PPM       = 10 Points         >25,000 PPM       = 0 Points
Level 2	Examples: Casting Tactile switches Cables & connector assemblies	25pts Max         0 PPM       = 25 points         1 - 500 PPM       = 20 points         501 - 2,000 PPM       = 15 Points         2,001 - 5,000 PPM       = 10 Points         > 5,000 PPM       = 0 Points
Level 3	Examples: Circuit Boards Electrical components Injection molded product without class A surfaces Machining, Stamping, Packaging Foam, Gaskets, Felt, Film, Conductors, Labels Metals, Resins, Chemicals Paints, adhesives, coatings Connectors Electromechanical components	25pts Max       9 PPM       = 25 points         1 - 50 PPM       = 20 points         51 - 200 PPM       = 15 Points         201 - 500 PPM       = 10 Points         > 500 PPM       = 0 Points

2) The performance ratings are:

A+: 95-100

- A: 80-94
- B: 60-79
- C: < 60

#### D) Supplier Response:

- 1) When the supplier's performance is rated as a "B" or "C", the supplier must submit an 8D Corrective Action Report which permanently addresses the systemic root cause of the low performance to the scorecard issuer within 10 days of receiving the scorecard.
- 2) When a supplier's 3-month average performance is rated as "B" or "C", Methode may require the involvement of the supplier's top management and periodic systemic reviews at Methode or at the supplier location until corrected. No effort will be spared to improve performance.
- 3) In the case of sustained unacceptable performance, Methode may require the supplier to submit corrective action plans to their quality system registrar for review and/or assessment and authorize the registrar to submit the review and/or assessment findings to Methode.

#### E) Dispute Process:

- 1) The supplier shall outline the specific disputed items and provide the supporting documentation to the scorecard issuer within 10 days of receiving the scorecard.
- 2) Methode will not process the dispute if the supporting documentation is not included.