METHODE ELECTRONICS, INC.

METHODE
SUPPLIER REQUIREMENTS

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METHODE POWER SOLUTIONS

METHODE DATA SOLUTIONS

MDC METHODE DEVELOPMENT COMPANY

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

1. Introduction

A) Scope and Purpose:

1) 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.

2) 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) Abbreviations:

AAR	-	Appearance Approval Report
AIAG	-	Automotive Industry Action Group
APQP	-	Advanced Planning Quality Process
CpK	-	Process Capability Index
DFMEA	-	Design Failure Mode Effects Analysis
EDI	-	Electronic Data Interchange
IMDS	-	International Material Data System
MSA	-	Measurement Systems Analysis
MSR	-	Methode Supplier Requirements
OEM	-	Original Equipment Manufacturer
PFMEA	-	Process Failure Mode Effects Analysis
PO	-	Purchase Order
PPAP	-	Production Part Approval Process
PpK	-	Process Performance Index
PPM	-	Parts Per Million (Defective Parts per Million Parts Delivered)
PSW	-	Part Submission Warrant
RFC	-	Request For Change
RMA	-	Return Material Authorization
SC	-	Special Characteristic
SPC	-	Statistical Process Control
VA/VE	-	Value Analysis/ Value Engineering

C) Documentation:

1) Methode documents are available on the website http://supplier.methode.com 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.

D) 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.

E) 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.

F) 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) 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.

3) The quantity shipped cannot vary from the quantity ordered without the appropriate Methode written consent.

4) Over shipments and early shipments are subject to rejection and return at supplier's expense.

5) The supplier may be charged back for costs and expenses incurred as a result of any missed delivery or line shutdown.

6) 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.

B) Capacity:

1) 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 on-site 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) MMOG/LE:

The Global Materials Management Operations Guidelines/Logistics Evaluation (MMOG/LE) is a self-assessment based on industry best-practices for supply chain management processes that is aligned with the ISO/TS 16949 Quality Management System requirements. 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:

1) 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 9001:2015 Quality Management Systems
   b) ISO/TS 16949:2009 Quality Management Systems, Automotive
   c) ISO 13485:2003 Medical devices
   d) AS 9100 Aerospace

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

a) ISO 14001:2015 Environmental Management
b) ISO 26262:2011 Functional Safety Management
c) IRIS – International Railway Industry Standard
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 Methode's Supplier Quality Manual, 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) Material Identification and Traceability:

1) 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) All materials purchased through distribution must be from a manufacturer's franchised distributor unless otherwise authorized in writing 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 (http://echa.europa.eu/candidate-list-table). 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 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.

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.

H) Supplier Shutdown and Startup:

1) This section shall apply to all suppliers with open delivery requirements to Methode that are planning a factory shutdown of 5 days or more**.**

2) 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.

3) 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.

4) The checklist is available at http://supplier.methode.com or from the Methode purchasing representative.

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:**
   a) 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)

A) Reference:

1) This section explains Methode's PPAP requirements.

2) A PPAP may be required for DV (Design Validation) and PV (Process Validation) level components during development and launch, and after subsequent design revisions or process changes.

3) Unless otherwise directed, the supplier shall reference the Automotive Industry Action Group (AIAG) manual, **Production Part Approval Process (PPAP), 4th Edition** for any questions regarding the PPAP submittal to Methode.

4) Supplier PPAP documentation different from Methode's format may be accepted only upon request by the supplier and written agreement by Methode.

B) PPAP Elements:

1) **Design Record:**

a) The supplier shall use the drawing provided by Methode. The supplier should contact its Methode purchasing representative if it has not received this drawing, or has any issues with the drawing.

b) The supplier shall identify each dimension, characteristic, and specification, as noted on the design record, with a unique identifier for reference on the dimensional results (see Figure 1 below for example).

c) The supplier shall use Methode identification numbers on the drawing, as provided, and add more as needed to cover each drawing characteristic listed below:

i) Regular Dimensions.
ii) Reference Dimensions.
iii) Basic Dimensions along with the Geometric Dimensioning and Tolerancing (GD&T) control frame.
iv) Material Specifications.
v) Multiple dimensional call-outs.
vi) Performance Specifications.
vii) Appearance Requirements.
viii) Drawing Notes.

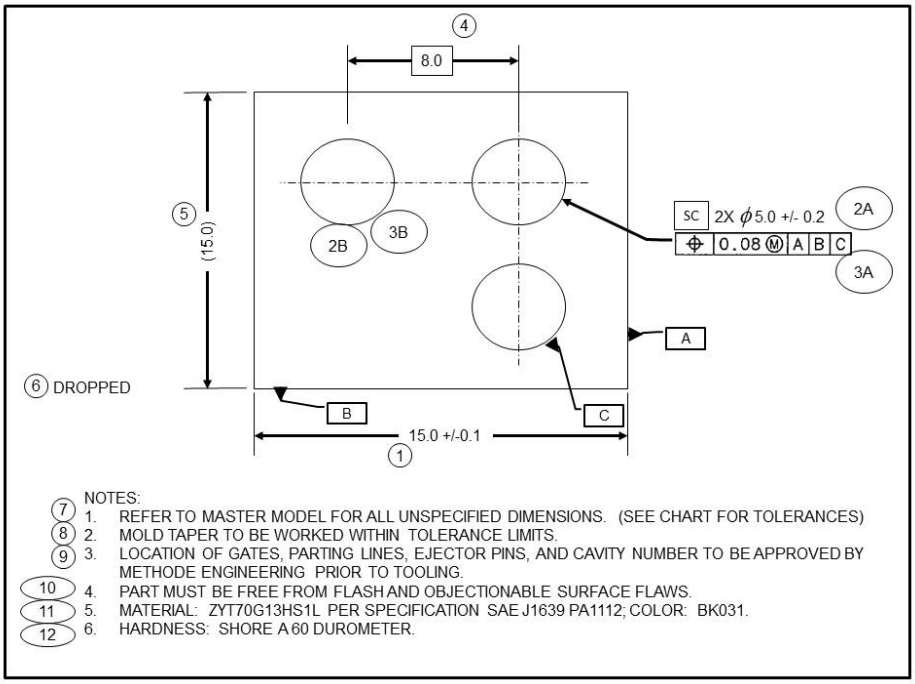
d) Once an identification number is applied to a dimension, it may be later deleted if needed, but cannot be re-assigned to another dimension/specification on any re-checks and revision checks. When adding an identification number, the supplier shall use the next available number in sequence. If a dimension is removed from the drawing, the corresponding identification number will remain on the drawing with the word "dropped" next to it.

e) For all dimensions with multiple locations, the supplier shall identify all feature locations on the drawing so there is correlation to the dimensional results. The example below illustrates a valid method to uniquely identify each feature to its associated dimensional result.

1. Regular Dimensions.
2. Multiple dimensional call-outs.
3. Geometric Dimensioning and Tolerancing (GD&T) control frame.
4. Basic Dimensions
5. Reference Dimensions.
6. Dropped Dimension

7-12. Drawing Notes

10. Appearance Requirements.
11. Material Specifications.
12. Performance Specifications.



Associated Dimensional Results

DIM. NO.	DRAWING SPECIFICATION	Tol -	Tol +	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6
1	15	0.1	0.1	15.02	15.01	15.02	15.03	15.02	15.05
2A	5	0.2	0.2	5.11	5.12	5.10	5.11	5.13	5.10
2B	5	0.2	0.2	5.12	5.14	5.13	5.12	5.12	5.11
3A	True Position	0	0.08	0.055	0.058	0.051	0.055	0.060	0.050
3B	True Position	0	0.08	0.042	0.044	0.040	0.044	0.043	0.045
4	8	BASIC		7.97	7.98	7.99	8.01	8.06	7.99
5	15	REFERENCE		15.05	15.06	15.02	15.05	15.04	15.05
6	DROPPED								
7	Drawing Note 1			OK	OK	OK	OK	OK	OK
8	Drawing Note 2			OK	OK	OK	OK	OK	OK
9	Drawing Note 3			OK	OK	OK	OK	OK	OK
10	Drawing Note 4			OK	OK	OK	OK	OK	OK
11	Drawing Note 5 - material			OK	OK	OK	OK	OK	OK
12	Drawing Note 6 - hardness			60	60	60	60	60	60

f) The supplier shall submit the completed drawing as the design record.

2) **Authorized Engineering Change documents:**

a) If the supplier is unable to meet one or more of the design record requirements, and every effort was made to correct the process, the supplier shall submit a **G-MB 35 Request For Change** to make recommendations to the design record requirements.

b) The supplier must submit a **G-MB 35 Request For Change** form to Methode for all change requests at initial PPAP and afterwards. Please see **Section 6 Request For Change (RFC)** for additional instructions.

c) **G-MB 35 Request For Change** must be approved in writing by Methode before any changes are made in the production part or process.

3) **Design Failure Mode and Effects Analysis (DFMEA), *if applicable*:**
A DFMEA is required if the supplier is design-responsible.

4) **Process Flow Diagram:**
a) The supplier shall prepare a Process Flow Diagram which clearly describes the production process steps and sequences in order to meet the specified customer needs, requirements and expectations.

b) A Process Flow Diagram for "families" of parts is acceptable if the new parts have been reviewed for commonality.

c) The numbering system in the Process Flow Diagram must match the corresponding production process steps and sequence numbers shown on the PFMEA and Control Plan.

d) The supplier shall follow the **AIAG Advanced Product Quality Planning and Control Plan** guidelines.

5) **Process Failure Mode and Effects Analysis (PFMEA):**
a) A single Process FMEA may be applied to a process manufacturing a family of similar parts or materials if reviewed for commonality.

b) The numbering system must match the corresponding production process steps and sequence numbers on the Process Flow Diagram and Control Plan.

c) The supplier shall follow the **AIAG Potential Failure Mode and Effects Analysis (FMEA), 4th Edition** guidelines, in preparing the PFMEA.

d) The PFMEA is a living document and must be reviewed and updated as new failure modes are discovered to ensure protection of both the supplier as well as the customer.

e) The PFMEA must be effective.

6) **Control Plan:**
a) The supplier shall prepare a Control Plan which defines all methods used for process control and which complies with customer-specified requirements.

b) A single Control Plan for "families" of parts is acceptable if the new parts have been reviewed for commonality.

c) The numbering system must match the corresponding production process steps and sequence numbers on the Process Flow Diagram and PFMEA.

d) The Control Plan shall follow the **AIAG Advanced Product Quality Planning and Control Plan** guidelines.

e) The Control Plan is a living document which reflects the current methods of control and the measurement systems used. The Control Plan should be updated as measurements systems and control methods are evaluated and improved.

f) The Control Plan must be effective.

7) **Measurement System Analysis Studies:**
   a) The supplier must include a Gage R&R (Repeatability & Reproducibility) study for each initial process study.

   b) The supplier must conduct a Gage R&R for each SC unless otherwise directed by Methode Quality Engineering.

   c) The supplier must identify each Gage R&R with the corresponding drawing dimension number.

   d) For Gage R&R methods and formats, the supplier shall reference **AIAG Measurement System Analysis (MSA), 4th Edition.** For Gage R&R acceptability criteria, the supplier shall reference the same manual, **Chapter II - Section D, Analysis of the Results** (pgs. 77-79).

   e) The supplier must include an Attribute GR&R for the evaluation system of all decorated parts [painting, pad printing, laser etching].

8) **Dimensional Results:**
   a) Measure the appropriate quantity of samples for the type of tooling as listed below:

Type of Tooling:	Quantity of Samples:
Single Cavity *, Progressive Die, etc.	6
2 to 8 Cavities *	3 per Cavity *
> 8 Cavities *	1 per Cavity *

* *Cavity could also mean a die, pattern or assembly line.*

   b) Dimensional results may be recorded on a Methode form, as specified by the respective Methode Division, or another format provided that it includes the following information:

      i) Part Number
      ii) Design revision level
      iii) Part Description
      iv) Dimensional measurements
         (a) For each drawing dimension number, complete the following on a separate row:
            (i) Drawing dimension number
            (ii) Drawing Specification and Tolerance
            (iii) Measure and record the measurement results for each associated feature on every sample
            (iv) Record the method of measurement
            (v) Record the judgement for each dimension (e.g. Pass/Fail, OK/Not OK)

         (b) While reference dimensions are not acceptance criteria, measure and document the associated feature for informational purposes only

      v) Cavity identification, if applicable
      vi) Signature
      vii) Date

9) **Records of Material / Performance Test Results:**
   a) Material Test Results are required for all parts and product materials, including plating, when chemical, physical, or metallurgical requirements are specified by the design record or Control Plan. They must record:
      i) The appropriate specification, as shown on the drawing.
      ii) Complete test results (*current within 9 months*)

iii) Methode's part number and corresponding drawing dimension number.

The supplier shall reference **AIAG Production Part Approval Process (PPAP), 4th Edition, section 2.2.10.1** for other requirements.

b) Performance Test Results are required for all parts or product materials when performance or functional requirements are specified by the design record or Control Plan. The supplier shall reference **AIAG Production Part Approval Process (PPAP), 4th Edition, section 2.2.10.2** for requirements.

c) All reports must be legible and in English or contain English translations.

d) Test results must be included. (e.g., a Certificate of Analysis). A general Certificate of Compliance is unacceptable.

10) **Initial Process Studies:**

a) An initial process study is required for each SC on the design record. The supplier may define these internally when SC's are not called out on Design Record.

b) The initial process study must include the corresponding drawing dimension number.

c) The initial process study shall be based on a minimum of 25 subgroups containing at least 100 measurements.

d) The supplier shall submit the measurement data to Methode along with the calculated results.

e) In each study, combine all unique production processes (*i.e.: duplicate assembly line and/or work cell, each position of a multiple cavity die, mold, tool or pattern*.). Studies of individual cavities/patterns are required to be submitted as information only. Acceptance or rejection is dependent upon the combined cavity report. *Exception*: In the case of bimodal distributions, evaluation by combined PpK is not appropriate. Distributions other than normal (caused by parallel process steps, separate cavities, etc.) should be analyzed separately. In these cases, acceptance criteria will be based on individual cavity/pattern PpK.

f) For special characteristics at multiple locations, the readings from similar locations may be combined into one study. For example, as to a dimension for some holes of 5X Ø5.5 ± 1.10 SC, there could be one capability study that combines the readings on all five holes per sample and has at least 25 samples.

g) PpK of 1.67 is the minimum acceptable value for each study.

h) Each study shall display the distribution of the date. Possible display techniques include, but are not limited to, a histogram or a normal probability plot.

i) PpK is described above, but another index for estimating process capability or performance or methods that are more appropriate for certain processes or products may be substituted with prior Methode approval.

11) **Qualified Laboratory Documentation:**

When inspection and testing for PPAP is performed by a qualified laboratory (internal or external):

a) The qualified laboratory must have a laboratory scope and documentation that shows the laboratory is qualified for the type of measurements or tests conducted. The supplier must provide this documentation in the PPAP submission.

b) The supplier must submit the test results on the laboratory's letterhead or in the laboratory's usual report form and must identify the laboratory name, test dates, and the standards used to perform the tests.

12) **Appearance Approval Report (AAR):**

a) AAR typically only applies for parts with color, texture (grain), or surface appearance requirements.

b) Some typical wording on a Methode drawing which reflects AAR requirements include:
   i. Class A surface.
   ii. Gloss or polish.
   iii. Texture, stipple, etching.
   iv. A specific color specification number.

c) First shots for each step in the appearance approval process (i.e.: unpainted, painted, etched, etc.) shall be submitted to Methode, along with a completed AAR form for approval. The Methode Engineering contact will indicate the sample quantity and shipping location. If the part is difficult to measure, a painted plaque for color and/or gloss measurements may be required.

d) IMPORTANT: Samples for AAR approval must be randomly selected from accepted product.

e) Methode will use the samples to build finished assembly AAR samples for the OEM Customer.

f) The supplier shall submit to Methode the AAR, complete with disposition and an authorized customer representative signature, with its PPAP submission.

13) **Sample Production Parts:**

a) The supplier shall submit samples from the dimensional study with its PPAP submission to Methode.

b) If the measurement process requires destroying the samples, include the quantity of "whole" samples as outlined above in **MSR 5, Section B, Item 8, Dimensional Results**.

c) The supplier shall submit samples in accordance with the instructions in the PPAP request.

d) Samples must be bagged, with the following information on the bag:
   i. Methode Part Number
   ii. Revision Level
   iii. Supplier Name
   iv. Cavity Number
   v. Material used
   vi. Date of Manufacture

e) Each bag must be labeled, clearly identifying the part name, part number, revision level, and quantity per bag.

f) Each carton containing bagged and labeled samples must also be labeled in accordance with the PPAP request, clearly identifying the part name, part number, revision level, and quantity per carton.

g) Additional relevant information (new material, etc.) should be included below the Purchase Order number.

h) Sample parts must be shipped in a manner where their arrival coincides as close as possible with the arrival of the PPAP documentation.

14) **Master Sample:**
The supplier shall retain master samples per the AIAG manual **Production Part Approval Process (PPAP), 4th Edition**.

15) **Checking Aids, if requested**:

a) Checking aids may include fixtures, variable and attribute gauges, models, templates, etc. for evaluation of parts to ensure conformance with the drawing.

b) The supplier shall certify that all aspects of the checking aid agree with part dimensional requirements. The supplier shall further ensure that all released engineering changes are documented and incorporated in the checking aid.

c) The supplier shall include inspection methods in its PPAP package.

16) **Customer Specific Requirements:** The following items may be included:

a) **International Material Data System**

1) The End-of-Life Vehicle (ELV) Directive, 2000/53/EC, enacted by the European Commission, was created to minimize the impact of end-of-life vehicles on the environment and specifically bans the use of lead, mercury, cadmium and hexavalent chromium in vehicles and their components. (Certain exemptions are outlined in Annex II of the Directive.) This directive is a mandated requirement for the European Union (EU) Member States and also required by North American and Japanese vehicle manufactures.

2) All suppliers in all regions shall ensure that all components and materials supplied to Methode comply with the above requirement.
To this effect, all automotive suppliers are required to report information on materials within their respective components on the International Material Data System (IMDS). Suppliers are required to submit the required EL/IMDS data to Methode as soon as possible upon award of new business, but in any case prior to the respective PPAP submission. As part of the PPAP submission the suppliers shall provide confirmation of Methode's acceptance of the ELV/IMDS data, by submitting a copy of the IMDS Initial Sample Report, including the respective reference number from the international database.

3) In the IMDS system, all materials used for automotive manufacture are archived and maintained.
The supplier shall use the website (http://www.mdsystem.com/index.jsp) to register the component.
Once the supplier has been registered with IMDS, the supplier shall submit information about the specific part supplied. The process for each part is outlined below.

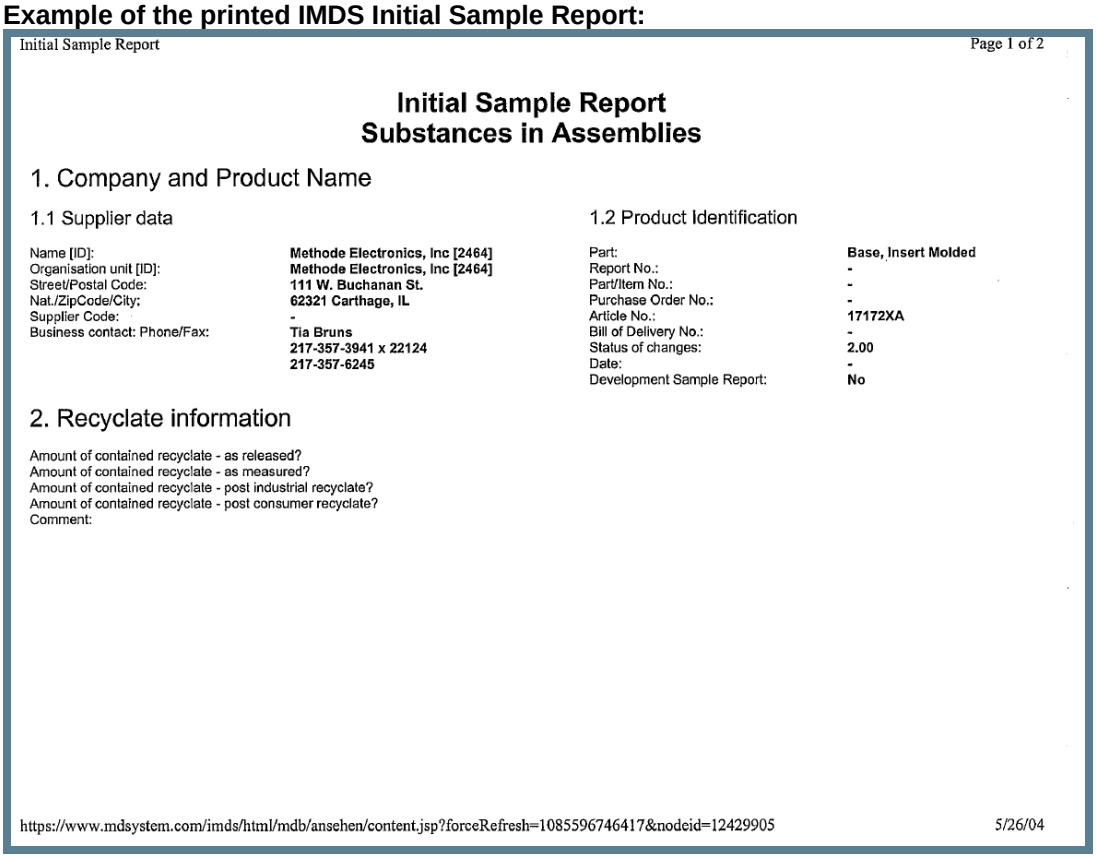
4) The supplier shall submit into the IMDS system a proposal for Methode's approval. A listing of Methode's IMDS identification numbers may be found in the table below:

Company Name	Org Unit	ID	zip code	City
Methode Surface Treatment Co Ltd	Methode Surface Treatment Co Ltd	131729	212132	JiangSu, China
Methode Development Company	Methode Development Company	26361	60706	Chicago, Illinois
Methode Electronics (Shanghai) Co.,Ltd. Auto Plant	Methode Electronics (Shanghai) Co.,Ltd. Auto Plant	69164	201206	Shanghai, China
Methode Electronics (Shanghai) Co.,Ltd. Auto Plant	PSG plant	135021	201206	Shanghai, China
Methode Electronics Malta Ltd.	Methode Electronics Malta Ltd.	310	BKR 3000	Mriehel, Malta
Methode Electronics Malta Ltd.	Samaya Electronics Egypt Ltd.	128638		
Methode Electronics NBP	Methode Electronics NBP	75881	60008	Rolling Meadows, IL
Methode Electronics Shanghai Co.,Ltd	Methode Electronics Shanghai Co.,Ltd	55327	201206	Shanghai, China
Methode Electronics UK	Methode Electronics UK	19396	BB11 1BS	Burnley, United Kingdom
Methode Electronics, Inc	Methode Electronics, Inc	2464	62321	Carthage, IL
Methode, Rolling Meadows	Methode, Rolling Meadows	20592	60008	Rolling Meadows, IL
Advanced Molding And Decoration	Advanced Molding And Decoration	118428	66350	Santa Catarina, Mexico
TouchSensor Technologies, LLC	TouchSensor Technologies, LLC	57112	60187	Wheaton, IL

5) Methode will accept or reject the supplier's proposal within IMDS.

If accepted, the supplier shall print the IMDS Initial Sample Report and include it with its PPAP submission. The supplier data will be rolled into Methode's top level BOM. If rejected, the supplier shall review the comments of the rejection and correct its proposal in the IMDS system. If the supplier does not understand the rejection comments, the supplier shall contact the Methode PPAP requestor.

Example of the printed IMDS Initial Sample Report:



Initial Sample Report Page 1 of 2

Initial Sample Report
Substances in Assemblies

1. Company and Product Name

1.1 Supplier data

Name [ID]:	**Methode Electronics, Inc [2464]**
Organisation unit [ID]:	**Methode Electronics, Inc [2464]**
Street/Postal Code:	**111 W. Buchanan St.**
Nat./ZipCode/City:	**62321 Carthage, IL**
Supplier Code:	**-**
Business contact: Phone/Fax:	**Tia Bruns** **217-357-3941 x 22124** **217-357-6245**

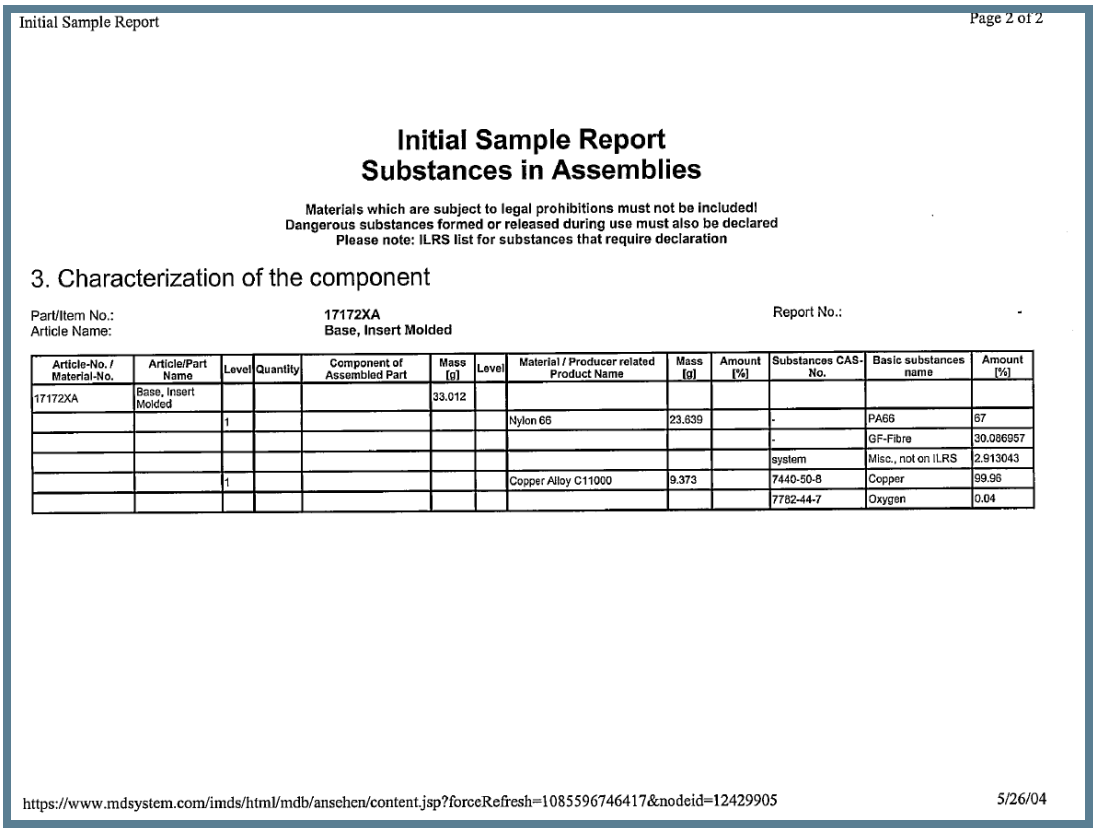
1.2 Product Identification

Part:	**Base, Insert Molded**
Report No.:	**-**
Part/Item No.:	**-**
Purchase Order No.:	**-**
Article No.:	**17172XA**
Bill of Delivery No.:	**-**
Status of changes:	**2.00**
Date:	**-**
Development Sample Report:	**No**

2. Recyclate information

Amount of contained recyclate - as released?
Amount of contained recyclate - as measured?
Amount of contained recyclate - post industrial recyclate?
Amount of contained recyclate - post consumer recyclate?
Comment:

https://www.mdsystem.com/imds/html/mdb/ansehen/content.jsp?forceRefresh=1085596746417&nodeid=12429905 5/26/04



Initial Sample Report Page 2 of 2

Initial Sample Report
Substances in Assemblies

Materials which are subject to legal prohibitions must not be included!
Dangerous substances formed or released during use must also be declared
Please note: ILRS list for substances that require declaration

3. Characterization of the component

Part/Item No.: 17172XA Report No.: -
Article Name: Base, Insert Molded

Article-No. / Material-No.	Article/Part Name	Level	Quantity	Component of Assembled Part	Mass [g]	Level	Material / Producer related Product Name	Mass [g]	Amount [%]	Substances CAS-No.	Basic substances name	Amount [%]
17172XA	Base, Insert Molded				33.012							
		1					Nylon 66	23.639		-	PA66	57
										-	GF-Fibre	30.086957
										system	Misc., not on ILRS	2.913043
		1					Copper Alloy C11000	9.373		7440-50-8	Copper	99.96
										7782-44-7	Oxygen	0.04

https://www.mdsystem.com/imds/html/mdb/anschen/content.jsp?forceRefresh=1085596746417&nodeid=12429905 5/26/04

b) Material Safety Data Sheet, if applicable.

c) **G-MW 133 Supplier Packaging Data Sheet:**
   1) The supplier shall select adequate packaging (bulk, layer, cell, individually wrapped, etc.) to ensure components are shipped and received to the specification on the drawing.

   2) The supplier shall submit to Methode the **G-MW 133 Supplier Packaging Data Sheet** along with pictures to illustrate empty packaging, full packaging and a full skid to Methode's Purchasing representative.

   3) The supplier shall submit the **G-MW 133 Supplier Packaging Data Sheet**, complete with Methode signature, with its PPAP submission to Methode.

   4) The supplier shall include an example of the box label to be applied to the boxes.

d) **REACH Compliance**
   The supplier shall provide to Methode evidence of REACH compliance.

e) **RoHS Compliance**
   The supplier will provide to Methode evidence of RoHS compliance.

f) **AIAG-CQI Requirements:**
   Suppliers of automotive components shall provide evidence of the system assessment below as part of the PPAP Requirements as applicable to the process performed:

Suppliers of ***heat-treated components*** shall complete the System Assessment AIAG-CQI-9.
Suppliers of ***plated components*** shall complete the System Assessment AIAG-CQI-11.

Suppliers of ***coated components*** shall complete the System Assessment AIAG-CQI-12.
Suppliers of ***welded components*** shall complete the System Assessment AIAG-CQI-15.
Suppliers of ***soldered components*** shall complete the System Assessment AIAG-CQI-17.
Suppliers of ***molded components*** shall complete the System Assessment AIAG-CQI-23.

Each year, the supplier shall perform a self-audit. Upon Methode's request the supplier shall provide all audit results including documentation and action plans.

g) **Travel Sheet.**
The travel sheet is an additional requirement applicable for all painted, pad printed, laser etching processes. It consists of a list of the specific manufacturing dates or lot numbers associated with each of these processes. Each carton must be identified with a travel sheet. The supplier shall also provide a copy to Methode in its PPAP package.

18) **Part Submission Warrant (PSW):**
a) The supplier shall reference **AIAG PPAP, 4th Edition, and Appendix A, Completion of the Part Submission Warrant (PSW)** for instructions on how to complete this form.

b) A PSW must be included with every level of PPAP submission.

c) The supplier must check all applicable reasons for submission on the PSW.

d) No empty fields are allowed on the PSW. The supplier shall enter N/A if the field does not apply to its submission.

e) The supplier shall select the proper PPAP Submission level.

f) Capacity information must be supported with Run at Rate data.

g) The supplier shall provide any explanatory details in the "Explanation/Comments" field. Additional information may be attached as appropriate.

h) The Part Number field should include the part number as found on Methode's Purchase Order. The drawing number is not sufficient.

i) The PSW must be signed by the supplier's authorized agent.

ADDITIONAL PPAP REQUIREMENTS:
1) **On Time:** It is absolutely critical that the PPAP is received by the due date given in the request. If any delay is foreseen, the supplier must contact its Methode purchasing representative immediately.

2) **Language:** All PPAP documentation must be in English or contain English translations.

3) **Order of Documents:**
The supplier shall put the documentation in its PPAP submission in the same numerical order indicated on the PPAP checklist (if provided), with an initial summary page and section cover pages.

4) **Electronic PPAP Submissions:**
a) The supplier's PPAP submission must be electronic only, and according to instructions provided in the PPAP request.

b) The supplier's PPAP submission shall be in one pdf file for each part number submitted or a compressed file with individual folders by PPAP element by part number.

c) The supplier shall use zip compression only.

d) The supplier shall not put multiple compressed files inside of other compressed files. Compression programs need only be used once.

C) Part Submission Status:

1) Once Methode has reviewed the supplier's PPAP, Methode will return the signed PSW to the supplier indicating the resulting PPAP status.

2) There are 3 possible levels of status:
   a) Full Approval: The supplier has been approved to ship product to schedule.

   b) Interim Approval: The supplier has been approved to ship product to schedule provided the interim approval is not expired. Material covered by an interim approval that fails to meet the agreed-upon action plan either by the expiration date or the shipment of the authorized quantity will be rejected. No additional shipments are authorized unless an extension of the interim approval has been granted, or full approval is obtained.

   c) Rejected: The supplier has not been approved to ship product.
      i) PPAP submission does not meet Methode requirements, based on the production lot from which it was taken and/or accompanying documentation.

      ii) The supplier shall correct the PPAP and/or process in order to meet Methode's requirements. The revised PPAP must be approved before production quantities may be shipped.

D) Annual Revalidation Requirements:

If an initial PPAP is required by Methode, the supplier shall submit annual validations for components in accordance with the table below. The annual validations shall be submitted to Methode on the anniversary date of the original or latest PPAP approval date.

Component Category	Description*	Annual PPAP Requirement
Engineered Component	A unique product for Methode production. Typically items for which a detailed Methode drawing exists (other than Cut-to-Form).	Level 3 PPAP
Cut-to-Form	Simple engineered components that convert a larger item (roll of paper/material/adhesive, wire, strip) into a smaller item (labels, pins for electrical connectors, etc.) with minimal additional processing.	Level 4 PPAP containing: • PSW • Design Record • Process Flow Diagram • PFMEA • Control Plan • Full Dimensional Layout (one part for each cavity requires measured) • Material, Performance Test Results • All SPC Process Studies data, if required on drawing (only combined studies required, CpK values allowed). • IMDS
All Others		None

*This description is a guideline unless otherwise directed by Methode.

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) Sub-supplier changes
9) 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 may contact a Methode approved third party company to certify product at Methode or travel to Methode to certify stock. Contact the Methode quality representative for a list of approved third party sort companies.

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.

4) 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:

METHODE ELECTRONICS, INC.

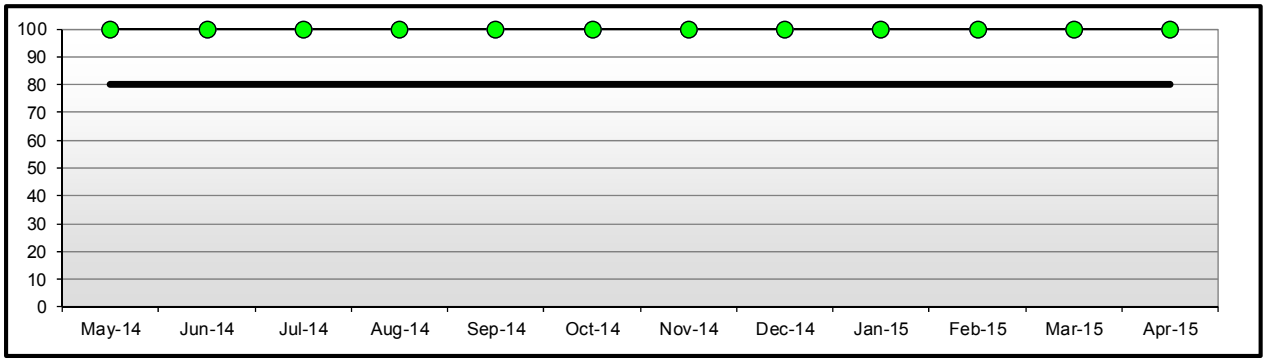
Supplier Performance Report

Supplier: _____
Address1: _____
Address2: _____
City: _____
State: _____
Country: _____

Period: _____
Report Date: _____

Performance:	
95 - 100	A
90 - 94	B
80 - 79	C
< 80	C

Executive Summary:	Performance this Period	Rolling 3 Month Average
	100	100
	A	A



Category	Criteria	Nov-14	Dec-14	Jan-15	Feb-15	Mar-15	Apr-15	3 Mo Avg
Supplier Quality	Quality PPM	0	0	0	0	0	0	0
	Quality Concern	0	0	0	0	0	0	0
	QCR Responsiveness	0	0	0	0	0	0	0
Delivery	On Time Delivery	0	0	0	0	0	0	0
Material	Line Shutdown	0	0	0	0	0	0	0
	TOTALS	100	100	100	100	100	100	100

Comments:

0

Quantity Received	Quantity Defective	PPM

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.

METHODE ELECTRONICS, INC.

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	Quality	**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**	• PPM based on confirmed supplier rejections from Methode Incoming, Methode Assembly, and may include Customer Incoming and Factory. • 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 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		
		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		
		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%, ≤2% = 25pts >2%, ≤ 5% = 20pts >5%, ≤ 10% = 10pts >10%, ≤ 20% = 5pts >20% = 0pts	**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.

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 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 0 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, B, C and D.
   A: 95-100
   B: 80-94
   C: 60-79
   D: < 60

D) Supplier Response:

1) When the supplier's performance is rated as a "C" or "D", 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 "Unacceptable", 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.