GM Customer Specifics – ISO/TS 16949

Posted Date: October, 2016

Effective Date: December, 2016

Including GM Specific Instructions for PPAP 4th Ed. (see Section 5)

Preface

General Motors Customer Specific Requirements - ISO/TS16949

Including GM Specific Instructions for PPAP 4th Ed. (see Section 5)

NOTE: A revision history to the November 2014 Edition is also provided. However, it is the organization's responsibility to review and apply the requirements of this document.

Table of Contents

Revision History - March 2006 to current edition

Date	Section	Revision
March 2006	3.8 PPM - Parts Per Million	Method of calculating PPM explained.
March 2006	4.1.5 Special Characteristics	Note added: *GMW 15049 replaces GM 1805 QN for all global programs beginning with 2009 MY and all other programs beginning in 2010.*
March 2006	4.1.12 Heat Treating Processes	Note 1 revised: Implementation is 90 days following the effective date of the release of *CQI-9 Special Process: Heat Treat System Assessment (HTSA). Based on the release date of CQI-9, the effective date of implementation is August 1, 2006*
June 2006	4.1.12 Heat Treating Processes	Note 3 added: *Implementation effectiveness should be based on evidence that the organization has a process in place that includes elements such as auditors identified, schedule for self-assessment in place including schedule adherence, supplier development process identified for applicable suppliers, monitoring of progress, defined corrective action process and record-keeping.*

Date	Section	Revision
March 2006	4.2.2.10 Key Characteristic Designation System (KCDS) (GM 1805 QN)	Note added: *GMW 15049 replaces GM 1805 QN for all global programs beginning with 2009 MY and all other programs beginning in 2010.*
March 2006	4.2.8 Certification Body Notification and Certification Status – New Business Hold – Quality	Note 3 added: *When an organization is placed in NBH after a recertification site audit but before the certificate for recertification is issued:* *1. The Certification Body shall issue the certificate in accord with the IATF Rules.* *2. The Certification Body shall then place the new certificate in immediate suspension with the rules for lifting such suspension appropriately applied.*
March 2006	4.2.8 Certification Body Notification and Certification Status – New Business Hold – Quality	Note 4 added: *When an organization is placed in CSII after a recertification site audit but before the certificate for recertification is issued:* *1. The Certification Body shall issue a major nonconformance against the organization which shall be closed out in accord with the 90 day requirement.* *2. The Certification Body shall issue the new certificate in accord with the IATF Rules with this major nonconformance open.*
June 2006	4.1.12 Heat Treating Processes	Note 1 revised to include: *Based on the release date of CQI-9, the effective date of implementation is August 1, 2006.*
June 2006	3.8 PPM Parts per Million	PPM clarified*: PPM for a GM supply organization is impacted when both of the following conditions exist:* 1. *Quality PRR is written with*

Date	Section	Revision
		• *quantity discrepant and* • *There are receipts for referenced part and duns number within the previous twelve months.* *PPM for a supplier manufacturing duns is calculated monthly using the following formula:* 2. *Total all the "estimated quantity nonconforming" for all part numbers for that location* *Note: Actual quantity nonconforming is used for supplier initiated PRR's.* 3. *Divide by total receipts for that location* *Multiply by 1,000,000.*
August 2006	4.1.2 Records Retention	Note revised: *The customer or procuring division may specify alternative record retention periods applicable to designated holders of GM Business Records.*
May 2007	1 Scope 2 References 3.10 Organization 3.12 Suppliers 4.1.7 Official Language Version 4.1.11.1 Customer Acceptance of QS-9000:1998 4.2.1 Third- Party Registration Requirements	QS-9000 references and applicability removed. QS-9000 expired December 15, 2006. NOTE: 4.1.11.1 and 4.1.11.2 reflect new heading titles based on removal of *Customer Acceptance of QS-9000:1998 (formerly 4.1.11.1),*
May 2007	3.1 Accredited Laboratory	Clarified and updated to reflect ISO 17011 having replaced Guide 58.

Date	Section	Revision
May 2007	5.2.1 PSW Form	Note revised as follows . . . Final GM 1829, GM 1411, AAR(s) etc., (*as required*) shall be attached to the correct sample . . .
May 2007	5.2.7 Material / Performance Test Results	Extensive revision to verbiage of numbers 1. 2. 3; including responsibilities and process
May 2007	5.2.7. 1 International Material Data System (IMDS)	Note: Links to additional information added
May 2007	5.3.2 Saleable PPAP	#2 – grammar corrections
May 2007	5.4 Driver Codes	#3 – Link to Driver Code Matrix added
May 2007	5.4 Driver Codes	#4 – Link to Driver Code Matrix deleted
September 2007	4.1.12 Heat Treating Processes	Revised to include CQI-9 2nd Edition, Heat Treat System Assessment (HTSA)
September 2007	4.1.13 Plating Processes	Added to include CQI-11, Plating System Assessment (PSA)
September 2007	4.1.14 Coating Processes	Added to include CQI-12, Coating System Assessment (CSA)
September 2008	1. Scope	NOTE for clarification added
September 2008	2. References	Updated list of documents published
September 2008	4.2.2 General Procedures	Clarification
September 2008	4.2.3 ISO/TS 16949:2009 Applicability /Note	Clarification
Oct. 2010	4.2.2	Updated list
Oct. 2010	5.2.1	Part 4 revised
Oct. 2010	General Document	Updated editions of ISO/TS16949, TS *Rules,* ISO 9001; Updated Table of Contents; Updated References; Updated GP procedures.

Date	Section	Revision
January 2015	General Document	Updated the editions of TS *Rules.* Table of contents, Reference Docs in Section 2, GP Procedures.
January 2014	Section 3.9	Definition of Severity incidents per Billion (S-IpB) added
January 2015 `	Section 4.1	Added 4.1.15, Plastic Molding self-assessment using AIAG CQI-23
January 2015	Section 4.1	Added 4.1.16 thru 4.1.27 BIQS essential requirements including guidance on application and compliance: LOOK AT/LOOK FOR
January 2015	Section 5	Note added on Service PPAP application; Removed GM 1411 Worksheet and instructions. Users should use GM Supply Power link.
Posted: May 2015 Effective: July 2015	Section 4.1.2 Section 4.1.16 Section 4.1.29 Section 5.2.1 Section 5.2.5 Section 5.2.7.1	Revised record retention Added 4.1.16, Solder Processes Molding Assessment using AIAG CQI-17 Added 4.1.29 BIQS Essential requirements Revised PSW part number requirements Revised marked drawing status Update to IMDS requirements
October 2016	Section 4.1.2 Section 4.2.2 Section 4.2.9 Section 4.2.10 Section 4.2.11 Section 5.2.1 Section 5.2.7 Section 5.3 Section 5.4 Section 5.5	Revised record retention to reflect GM15920. Updated General Procedures and Other Requirements to the proper GM 1927 document names. Added BIQS/QSB revocation notification. Added BIQS/QSB certification requirement. Moved Management Review to 4.2.11. Updated GQTS to SQMS and GM 1411 Worksheet to SQMS Action Plan where appropriate.

1. Scope

ISO/TS 16949:2009, Second Edition, June 15, 2009, "Quality management systems – Particular requirements for the application of ISO 9001:2008 for automotive production and relevant service part organizations," and this document define General Motors fundamental quality system requirements for organizations where automotive customer-specified parts, for production and/or service are manufactured. Third party certification to ISO/TS 16949 shall meet the following conditions:

- The certification scope must include both ISO/TS 16949 and the accompanying ISO/TS 16949 GM-Customer Specific Requirements,
- The certification must be conducted in compliance with the IATF recognized automotive certification scheme by a certification body currently contracted and recognized by an IATF Oversight office.

All **ISO/TS 16949:2009** requirements including the requirements of this document shall be addressed in the organization's quality management system.

2. References

2.1 Chrysler, Ford Motor, General Motors **Production Part Approval Process PPAP, Fourth Edition, March 2006**.

2.2 Chrysler, Ford Motor, General Motors **Statistical Process Control (SPC), Second Edition, July 2005.**

2.3 Chrysler, Ford Motor, General Motors **Advanced Product Quality Planning and Control Plan**, **APQP Second Edition July 2008.** Chrysler, Ford Motor, General Motors **Measurement Systems Analysis**, **MSA Fourth Edition**, **June 2010**

2.4 Chrysler, Ford Motor, General Motors **Potential Failure Mode and Effects Analysis**, **FMEA Fourth Edition**, **July 2008.**

2.6 **Automotive Certification Scheme for ISO/TS 16949:**, ***Rules for Achieving IATF Recognition*, Fourth Edition for ISO/TS 16949: November 2013**

2.7 **ISO/TS 16949:2009, 3rd Edition, June 2009**

2.8 Minimum Automotive Quality Management System Requirements for Sub-tier Suppliers, April 2013

The list above contains the most current editions. **However, the latest edition or most current version of the reference documents listed applies unless otherwise specified by the GM Procuring Division.** Copies of **PPAP, APQP, FMEA, MSA, SPC, ISO/TS 16949 *Rules*, , and ISO/TS 16949:2009** and other related manuals are available from AIAG at www.AIAG.org. Copies of ISO documents are available from the American National Standards Institute (ANSI) at webstore.ansi.org.

Certain documents listed above are requirements documents and are described as such in section 4 of this document. Section 5 of this document contains the GM PPAP Specific Instructions. PPAP is a requirements document.

3. Definitions

Where inconsistent terminology exists between **ISO/TS 16949:2009** and this document, this document shall take precedence. Otherwise the definitions from **ISO/TS 16949:2009** apply to this document.

3.1 Accredited Laboratory

An accredited laboratory is one that has been independently evaluated for technical competence. The criteria for evaluation are based on ISO/IEC 17025, or national equivalent. Accreditation is performed by qualified agencies (public or private) operating in accordance with ISO/IEC 17011.

NOTE: The above definition also applies to the reference manuals in Section 2 of this document and currently in effect.

3.2 Active Part

An active part is one currently being supplied to the customer for original equipment or service applications. The part remains active until tooling scrap authorization is given by the appropriate customer activity. For parts with no customer-owned tooling or situations where multiple parts are made from the same tool, written confirmation from the customer Purchasing activity is required to deactivate a part.

NOTE: For bulk material, "active part" refers to the bulk material contracted, not the parts that are subsequently produced from that material.

3.3 Aftermarket Parts

Aftermarket parts are replacement parts not procured or released by OEM for service part applications which may or may not be produced to original equipment specifications.

3.4 Consulting

For the purposes of **TS16949:2009**, consulting is the provision of training, documentation development, or assistance with implementation of quality systems to a specific customer. If these activities are open to the public, advertised, and not customer specific, they are considered training rather than consulting. Other products, processes or services may be offered directly or indirectly, provided they do not compromise confidentiality or the objectivity or impartiality of its certification process or decisions. Refer to the most current version of Automotive Certification Scheme for **ISO/TS 16949 *Rules*, (Currently in the 4th Edition). Also see ISO/IEC 17021.**

3.5 Customer

References to "customer" in **ISO/TS 16949:2009** and this document shall be interpreted as the Procuring Division of General Motors for suppliers pursuing third party registration to **ISO/TS 16949:2009** to satisfy General Motors **sourcing requirements** third party quality system assessment registration.

3.6 Ergonomics

Ergonomics is the evaluation of the design of a product or process to assure compatibility with the capabilities of human beings. Analysis of motion refers to capabilities of people with respect to tasks (e.g. lifting, twisting, reaching) to prevent or relieve problems of strain, stress, excessive fatigue, etc. Factors involved include anatomical dimensions of the worker, placement of products to be worked upon, placement of buttons/switches, physical loads imposed on the worker, and environmental effects such as noise, vibration, lighting and space.

3.7 Initial Process Study

Initial Process Studies are short-term studies conducted to obtain early information on the performance of new or revised processes relative to internal or customer requirements. In many cases, preliminary studies should be conducted at several points in the evolution of new processes (e.g. at the equipment or tooling subcontractor's plant, after installation at the supplier's plant). These studies should be based on as many measures as possible. When utilizing X-Bar and R charts, at least twenty-five subgroups (minimum of four pieces per sub-group) are required to obtain sufficient data for decision-making. When this amount of data is not available, control charts should be started with whatever data is available, or contact the authorized customer representative to develop a suitable plan. See also the **Production Part Approval Process** (PPAP) in Section 5.

NOTE: **Initial Process Studies.** The purpose of the initial process study is to understand the process variation, not just to achieve a specific index value. When historical data are available or enough initial data exist to plot a control chart (at least 100 individual samples), C_{pk} can be calculated when the process is stable. Otherwise, for processes with known and predictable special causes and output meeting specifications, P_{pk} should be used. When not enough data are available (< 100 samples) or there are unknown sources of variation, contact the authorized customer representative to develop a suitable plan.

3.8 PPM (Parts per Million)

PPM for a GM supply organization is impacted when both of the following conditions exist:

- Quality PRR is written with quantity discrepant and
- There are receipts for referenced part and duns number within the previous twelve months.

PPM for a supplier manufacturing duns is calculated monthly using the following formula:

1 Total all the "estimated quantity nonconforming" for all part numbers for that location
Note: Actual quantity nonconforming is used for supplier initiated PRR's.

2 Divide by total receipts for that location

3 Multiply by 1,000,000.

3.9 S-IpB (Severity Incidents per Billion)

S-IpB for a GM supply organization is impacted when both of the following conditions exist:

- Quality PRR is written with a documented impact towards the GM final customer, GM manufacturing plant and GM product (vehicle, powertrain or component).
- There are receipts for referenced part and duns number within the previous six months.

S-IpB for a supplier manufacturing duns is calculated monthly using the following formula:

1. Each Quality PRR receives a weight factor based on the documented impact towards the GM final customer, manufacturing plant and product
2. Total all the weight factors of all the Quality PRR's received in the last 6 months for that location
   Note: Supplier initiated PRR's and Supplier alerts are not included.
3. Divide by total receipts in the last 6 months for that location
4. Multiply by 1,000,000,000.

3.10 Quality Indices

See current edition of the DaimlerChrysler, Ford, and General Motors **Statistical Process Control** reference manual.

3.11 Organization

Organizations are defined as providers of: a) production materials, b) production or service parts, or c) heat treating, plating, painting or other finishing services, directly to General Motors or other customers subscribing to this document.

NOTE: See ISO/TS 16949:2009, Section 3, *Terms and definitions*.

3.12 Service parts

Replacement parts manufactured to OEM specifications, which are procured or released by the OEM for service part application.

3.13 Suppliers

Suppliers are defined as organizations that are providers of production materials, or production or service parts, directly to an organization who is a provider of General Motors or other customers subscribing to this document. Also included are organizations who are providers of heat-treating, painting, plating or other finishing services.

NOTE: The term “tier supplier(s)” refers to suppliers at any tier level in the automotive supply chain.

3.14 Value-Added Production Processes

Refers to activities or operations that improve the product for which a customer is willing to pay, where given the option.

See also **ISO/TS 16949:2009, 3rd Edition (June 2009)**, definition of “manufacturing” 3.1.6, “site” 3.1.11, and “remote location” 3.1.10.

4. Requirements

4.1 ISO TS 16949:2009 (Third Edition), June 2009 - Related Requirements

All references to clauses in this section pertain to ISO/TS 16949:2009, unless otherwise stated.

4.1.1 Management of production tooling

Where warehouses or distribution centers (distributors) are remote sites, the requirements for management of production tooling (cl.7.5.1.5) may not be applicable.

4.1.2 Records Retention

Supplier Business records shall be retained as specified in GMW15920:

4.1.2.1 Production part approvals, tooling records, Advanced Product Quality Planning (APQP) records, purchase orders and amendments shall be maintained for the length of time that the part (or family of parts) is active for production and service requirements plus one calendar year unless otherwise specified by the customer. (See 6.1).

Note: Customer purchase orders/amendments are included in this requirement. Organization purchase orders/amendments for customer-owned tooling are included in this requirement.

4.1.2.2 Quality performance records (e.g., control charts, inspection and test results) shall be retained for one calendar year after the year in which they were created.

4.1.2.3 Records of internal quality system audits and management review shall be retained for three years.
Note: Retention periods longer than those specified above may be specified by an organization in their procedures. The organization shall eventually dispose of records.

Note: These requirements do not supercede any regulatory requirements. All specified retention periods shall be considered "minimums".

4.1.2.4 As a reference, the following is a list of the 18 requirements from Production Part Approval Process (PPAP). See Retention/Submission Requirements and the GM Information Lifecycle Management (ILM) retention period for each item:

4.1.2.4.1 Design Record. For proprietary components/details, Production Run +50 years with review. For all other components/details Production Run +50 years with review.

4.1.2.4.2 Engineering Change Documents, if any. Production Run +50 years with review

4.1.2.4.3 Customer Engineering Approval, if required. Production Run +50 years with review.

4.1.2.4.4 Design Failure Mode and Effects Analysis (DFMEA). Production Run +50 years with review.

4.1.2.4.5 Process Flow Diagram. Production Run +50 years with review.

4.1.2.4.6 Process Failure Mode and Effects Analysis (FMEA). Production Run +50 years with review.

4.1.2.4.7 Control Plan. Production Run +15 years.

4.1.2.4.8 Measurement System Analysis Studies. Maximum three years.

4.1.2.4.9 Dimensional Results. Production Run +50 years with review.

4.1.2.4.10 Material and Performance Test Results. Production Run +15 years.

4.1.2.4.11 Initial Process Studies. Production Run +15 years.

4.1.2.4.12 Qualified Laboratory Documentation. Production Run +50 years with review.

4.1.2.4.13 Appearance Approval Reports (AAR), if applicable. Production Run +15

4.1.2.4.14 Sample Products. Production Run +50 years with review.

4.1.2.4.15 Master Sample. Maximum three years.

4.1.2.4.16 Checking Aids. Production Run +15 years.

4.1.2.4.17 Records of Compliance with Customer Specific Requirements. Production Run +50 years with review, including sub-suppliers.

4.1.2.4.18 Part Submission Warrant (PSW) (including GM3660 - the supplier obtains GM3660 from Automotive Industry Action Group/Supplier Quality (AIAG/SQ) team – the documents are part of PPAP

– those documents are not handled by IHS but by Purchasing directly) and related documentation). Production Run +50 years with review.

4.1.3 Electronic Communication

Reference cl.7.2.3.1

> NOTE: Examples of such systems for suppliers to GM's North American Operations are: 1) requirement planning information such as the Electronic Data Interchange (EDI) ANSI ASC X12 830 transaction set or the EDIFACT DELFOR message, and 2) shipping schedules such as the ANSI ASC X12 862 or 866 transaction sets or the EDIFACT DELJIT message.

4.1.4 Shipment Notification System

Reference cl. 7.2.3.1

> NOTE: Examples of such systems for suppliers to GM's North American Operations are: 1) the ANSI ASC X12 856 transaction set, or 2) the EDIFACT DESADV message.

4.1.5 Special Characteristics

The supplier shall use General Motors **Key Characteristic Designation System** definitions and symbols to comply with **ISO/TS 16949:2009** special characteristics requirements

(e.g. cl. 7.2.1.1), and as provided in 4.2.2, General Procedures and Other Requirements, and 4.2.2.11, **Key Characteristic Designation System (KCDS),** (GM 1805 QN) which defines GM's approach to "special" characteristics.

> NOTE: **GMW 15049 replaces GM 1805 QN for all global programs beginning with 2009 MY and all other programs beginning in 2010.**

4.1.6 Design Changes

All design changes, including those proposed by suppliers, shall have written approval by the authorized customer representative, or waiver of such approval, prior to production implementation. See cl. 7.3.7 and 7.1.4. See also the **Production Part Approval Process (PPAP)** manual.

For proprietary designs, impact on form, fit, function, performance, and/or durability shall be determined in conjunction with the authorized customer representative so that all effects can be properly evaluated.

4.1.7 Official Language Version

The English language version of **ISO/TS 16949:2009** or related reference documents shall be the official version for purposes of third party registration.

Sanctioned translations shall:

- be for reference only,
- reference the English language as the official version,
- not contain **ISO 9001:2008** text verbatim, and
- include an appropriate copyright statement.

Any other language translations are not authorized.

4.1.8 Part Approval Process

The organization shall comply with the Chrysler, Ford, and GM **Production Part Approval Process (PPAP)** manual to comply with cl. 7.3.6.3

NOTE: ***PPAP-Vehicle Assembly Centers (Assembly Plants)***
Unless otherwise specified by the Customer, PPAP requirements for vehicle assembly centers shall be taken from a specified production run of saleable pilot vehicles.

4.1.9 Customer Satisfaction

Trends in quality system performance and customer satisfaction (see Cl. 5.2, 5.6.1.1, 7.4.3.2, and 8.2.1.1) should be compared to those of competitors, or appropriate benchmarks, and reviewed by top management.

4.1.10 Internal Auditor Qualifications

Internal auditors should be qualified as recommended in **ISO 19011:2011 – Sections 7, Competence and Evaluation of Auditors,** In addition internal auditors should be competent in understanding and applying the Process Approach of Auditing (See “Process Approach”, Section 0.2 of ISO/TS 16949:2009), Core Tools including PPAP and other reference manuals including APQP, MSA, SPC, and FMEA and GM Customer Specifics, as applicable.

NOTE: A process and plan with implementation monitoring for assurance of qualified internal auditors is evidence of compliance.

4.1.11 Supplier Quality Management System Development (cl. 7.4.1.2)

“Goal of supplier conformity with [ISO/TS 16949]” may be met by either of the following:
• Sub-tier suppliers to achieve accredited third party certification to ISO/TS 16949, or the current version of ISO 9001.
• Successful assessments of the Sub-tier suppliers in conjunction with the requirements in 4.1.11.1 of this document for 2nd party auditor.
The frequency of these reviews shall be appropriate to the sub-tier supplier impact on customer satisfaction.

NOTE: 1: This supplier development clause, cl. 7.4.1.2, applies to suppliers of the organization who are providers of production materials, or production or service parts, directly to a supplier to Chrysler, Ford, General Motors or other customers subscribing to this document. Also included are providers of heat-treating, painting, plating or other finishing services.
Indirect and service providers are not included in this requirement, e.g. distributors adding no manufacturing value, logistics, sequencers, parts packagers, tooling & equipment.

NOTE 2: The use of customer-designated suppliers to the organization (subcontractors) does not relieve or eliminate the responsibility of the supplier for ensuring the quality of subcontracted parts, materials and services.

4.1.11.1 Customer acceptance of 2nd Party Audits and Criteria for Approval

General Motors will recognize 2nd Party audits as compliance to ISO/TS 16949:2009, Clause 7.4.1.2 and as an alternative to ISO 9001:2008 certification. The statement of authorization below provides the requirements and conditions for GM approval.
The organization that utilizes 2nd party assessment to comply with clause 7.4.1.2 is required by General Motors to utilize second party assessors who satisfy all elements of the criteria specified as "GM approved 2nd Party requirements" stated below.

GM-approved 2nd Party requirements:

1. The organization (2nd Party) must be IATF certified and registered to ISO/TS16949:2009.

2. The organization (2nd Party) cannot be on ISO/TS 16949:2009 probation or suspension.

3. The organization (2nd Party) must utilize a qualified ISO Lead Auditor, or a qualified Internal Auditor with evidence of their successful completion of training, such as PPAP "Internal Auditing for ISO/TS 16949:2009," or evidence of a minimum of five internal ISO/TS 16949 audits under the supervision of a qualified Lead Auditor.

4. The organization (2nd Party) must audit annually each qualifying supplier for whom it has performed a 2nd Party assessment, and maintain records of these audits.

5. The duration of these audits must conform to the full application of the Audit Day Requirements table of the current edition of *Automotive Certification Scheme for ISO/TS 16949 Rules for Achieving IATF Recognition*.

6. Any of the IATF recognized and currently approved auditors may perform such audits when contracted by the organization.

4.1.11.2 Supplier Development of Specially Designated Small Suppliers

When a supplier to an organization is so small as to not have adequate resources to develop a system according to ISO/TS 16949:2009 or ISO 9001:2008, certain specified elements may be waived by the organization of their supplier. The organization shall have decision criteria for determining "specially designated small suppliers"'. Such decision criteria will be in writing, and applied consistently in the application of this provision. The existence and use of such decision criteria shall be verified by 3rd party auditors.

NOTE 1: ISO9001:2008 and ISO/TS16949:2009 contain fundamental quality management system requirements of value to any size of provider of production/ service parts/ materials. There are a number of methods to implement a compliant system, so it is recognized that a simpler Quality Management System approach could be used for the smaller suppliers of organizations to which ISO/TS 16949, clause 7.4.1.2 applies.

NOTE 2*: "Small"* may also refer to volume supplied to automotive.

4.1.12 Heat Treating Processes

Clause 8.2.2.2 of ISO/TS 16949:2009 requires that the organization shall audit each manufacturing process to determine its effectiveness. Applicability and effectiveness of heat treating processes shall be determined utilizing the most current version of CQI-*9, (Currently in the3rd Edition),, Special Process: Heat Treat System Assessment (HTSA),* published by AIAG*,* and records maintained. The effectiveness evaluation shall include the organization's self-assessment, actions taken, and that records are maintained.

This requirement shall also apply to heat treat suppliers to the organization pursuant to ISO/TS 16949:2009 Clause 7.4.1.2 (supplier development clause).

.
NOTE 1: 2nd Party assessment by a competent auditor and meeting the above requirements will satisfy the self-assessment requirement.
NOTE 2: Implementation effectiveness should be based on evidence that the organization has a process in place that includes elements such as auditors identified, schedule for self-assessment in place including schedule adherence, supplier development process identified for applicable suppliers, monitoring of progress, defined corrective action process and record-keeping.

4.1.13 Plating Processes

Clause 8.2.2.2 of ISO/TS 16949:2009 requires that the organization shall audit each manufacturing process to determine its effectiveness. Applicability and effectiveness of plating processes shall be determined utilizing the most current version of *CQI-11 Special Process (Currently 2nd Edition), Plating System Assessment (PSA),* published by AIAG*,* and records maintained. The effectiveness evaluation shall include the organization's self-assessment, actions taken, and that records are maintained.

This requirement shall also apply to plating suppliers to the organization pursuant to ISO/TS 16949:2009 Clause 7.4.1.2 (supplier development clause).

NOTE 1: 2nd Party assessment by a competent auditor and meeting the above requirements will satisfy the self-assessment requirement.
NOTE 2: Implementation effectiveness should be based on evidence that the organization has a process in place that includes elements such as auditors identified, schedule for self-assessment in place including schedule adherence, supplier development process identified for applicable suppliers, monitoring of progress, defined corrective action process and record-keeping.

4.1.14 Coating Processes

Clause 8.2.2.2 of ISO/TS 16949:2009 requires that the organization shall audit each manufacturing process to determine its effectiveness. Applicability and effectiveness of coating processes shall be determined utilizing the most current version *CQI-12 Special Process (Currently 2nd Edition),: Coating System Assessment (CSA),* published by AIAG*,* and records maintained. The effectiveness evaluation shall include the organization's self-assessment, actions taken, and that records are maintained.

This requirement shall also apply to coating suppliers to the organization pursuant to ISO/TS 16949:2009 Clause 7.4.1.2 (supplier development clause).

NOTE 1: 2nd Party assessment by a competent auditor and meeting the above requirements will satisfy the self-assessment requirement.
NOTE 2: Implementation effectiveness should be based on evidence that the organization has a process in place that includes elements such as auditors identified, schedule for self-assessment in

place including schedule adherence, supplier development process identified for applicable suppliers, monitoring of progress, defined corrective action process and record-keeping.

4.1.15 Plastics Molding Processes

Clause 8.2.2.2 of ISO/TS 16949:2009 requires that the organization shall audit each manufacturing process to determine its effectiveness. Applicability and effectiveness of plastics molding processes shall be determined utilizing the most current version *CQI-23 Special Process: Molding System Assessment (CSA),* published by AIAG*,* and records maintained. The effectiveness evaluation shall include the organization's self-assessment, actions taken, and that records are maintained.

This requirement shall also apply to molding suppliers to the organization pursuant to ISO/TS 16949:2009 Clause 7.4.1.2 (supplier development clause).

NOTE 1: 2nd Party assessment by a competent auditor and meeting the above requirements will satisfy the self-assessment requirement.
NOTE 2: Implementation effectiveness should be based on evidence that the organization has a process in place that includes elements such as auditors identified, schedule for self-assessment in place including schedule adherence, supplier development process identified for applicable suppliers, monitoring of progress, defined corrective action process and record-keeping.

4.1.16 Solder Processes

Clause 8.2.2.2 of ISO/TS 16949:2009 requires that the organization shall audit each manufacturing process to determine its effectiveness. Applicability and effectiveness of the solder processes shall be determined utilizing the most current version CQI-17 Special Process (Currently version 1), Soldering System Assessment (CSA), published by AIAG, and records maintained. The effectiveness evaluation shall include the organization's self-assessment, actions taken, and that records are maintained.

This requirement shall also apply to sub tier suppliers to the organization that provide product manufactured using the techniques described in section 1.2 of the CQI-17 assessment pursuant to ISO/TS 16949:2009 Clause 7.4.1.2 (supplier development clause).

NOTE 1: 2nd Party assessment by a competent auditor and meeting the above requirements will satisfy the self-assessment requirement.
NOTE 2: Implementation effectiveness should be based on evidence that the organization has a process in place that includes elements such as auditors identified, schedule for self-assessment in place including schedule adherence, supplier development process identified for applicable suppliers, monitoring of progress, defined corrective action process and record-keeping.

The following clauses, 4.1.17 thru 4.1.29 are additional GM Customer Specific Requirements and essential GM Built In Quality Supply based (BIQS) audit requirements. It is important that there is full implementation of these clauses in order to demonstrate compliance to ISO/TS16949 and certification to BIQS.

Non-Conforming Material Control

4.1.17 Nonconforming Material/Material Identification (Reference ISO/TS16949 clause 8.3)

The organization shall have a process for controlling Nonconforming Material including Material Identification.

NOTE – Look at: Team members have standardized work and understand what to do with non-conforming / suspect material.
Conforming material is handled, stored and identified appropriately.
Non conforming / suspect material is clearly identified and/or segregated for review/disposition (i.e. appropriate color coding for foot printing – red, yellow, green).
A containment method is in place to ensure that an effective breakpoint has been established.
Containment activities and results are documented.
Traceability is applied according to the traceability methods of the finished product.
Look for: Sample audit to verify that team members understand what to do with nonconforming / suspect material. Confirm that conforming material is handled, stored and identified appropriately. Confirm that nonconforming / suspect material is clearly identified and/or segregated. Red, Yellow, Green stoplight approach is adhered to for foot printing, containerization, table marking and tagging. Audit that all parts removed from the process are identified, accounted for (FTQ), and reconciled to eliminate mishandling of material. Verify use of Department Containment Worksheets, with potential parts locations by operation identified to ensure no parts are missed during a containment and all parts are reconciled. The containment worksheets must cover from the incoming material, process and shipment. Scrap or Suspect parts/containers clearly segregated from other parts.
Auto Reject stations with Locked reject bins, with controls on how bins are emptied to ensure all parts are reconciled. Parts should be physically tagged or painted for identification purposes and to drive a physical act during handling, which will reduce the chances of Mis-handling parts.
Overall WPO use 5S

Layered Audit Process

4.1.18 Layered Audit (Reference ISO/TS16949 clause 8.2)

The organization shall have an internal Layered Audit process including identifying frequency, schedule, findings and corrective action. Records shall be maintained.

NOTE – Look at: Layered audits are in place to assess compliance to standardized processes, to identify opportunities for continuous improvement, and to provide coaching opportunities.
Layered audit process is led by Management who are competent to conduct the audits.
Follow up to address noncompliance is in place.
Look for: Layered Audit is utilized as an effective tool to confirm the processes are operating at standard, and enhance continuous improvement. Leadership utilizes an audit process by going and seeing on the shop floor to check process compliance, employee behavior and knowledge. Leadership uses Layered Audit as an opportunity for coaching. Recognition is used to reinforce the right behaviors. Ask Leadership how Layered Audit works in the organization, who is involved in the layered audit process, what is the frequency of layered audits. Is the layered audit sheet content relevant for the user (have each principle calibrator review respective part of the audit sheet)? Layered audit questions are

reviewed from time to time to focus on the plant weaknesses. Check that all findings are recorded on the audit sheet and those not solved within the shift are transferred to countermeasure sheets.

Managing Risk

4.1.19 PFMEAs (Reference ISO/TS16949 clauses 7.3.1.1; 7.3.2.2; & 7.5.1.1)

All operations shall be analyzed for risk using PFMEA and PFMEA methodology including cross functional teams.

NOTE – Look at: Operations have been analyzed for risk using PFMEA. PFMEA workshops must be done by cross functional teams, including manufacturing team member input. Risk Priority Number (RPN) values must be consistently applied using Severity, Occurrence and Detection ranking tables. Material handling failure modes are comprehended in the PFMEA (i.e. wrong parts, mixed parts, containment control, etc.).
Look for: PFMEAs to be available for all operations within the plant. Confirm PFMEA workshops are done by cross functional teams, including mfg. team member input. Confirm RPN values are consistently applied using Severity, Occurrence and Detection ranking tables.

4.1.20PFMEAs - Risk Reduction & Annual Review (Reference ISO/TS16949 clauses 7.3.1.1; 7.3.2.2; & 7.5.1.1)

The organization shall annually conduct risk reduction reviews by product.

NOTE – Look at: Monthly RPN risk reduction reviews by product focused on preventing defects from leaving the work station are held to drive continuous improvement. Action plans for top issues must include: 1. Recommended actions, 2. Responsibility, 3. Timing.
Reverse PFMEA process is in place to identify new potential failure mode in the shop floor
Look for: For evidence of monthly cross functional risk reduction reviews focused on preventing defects from leaving the work station. Confirm action plans for top issues include: 1. Recommended actions, 2. Responsibility, 3. Timing.
Plant Management shall be included in top risk reporting and approval of countermeasures.
Verify if Reverse PFMEA (On-station reviews) findings are driven back into the Process Flow, PFMEA, Control Plan, and Work Instructions as applicable
Best practice cross functional line site review for RPN reductions

4.1.21 Bypass Management (Reference ISO/TS16949 clause 8.2.2.2 & 8.5.2.2)

The organization shall have a process to identify and review manufacturing processes and error proofing devices that can be bypassed.

NOTE – Look at: The plant shall identify manufacturing processes and error proofing devices which can be bypassed. Risk Priority Number (RPN) for all approved Bypass processes are evaluated and risks are reviewed. Standard work instructions are available for each Bypass process. Implemented bypasses are reviewed in daily Leadership Meeting with the goal to reduce or eliminate bypassed operations. Processes/devices in bypass must have a quality focused audit performed. Restart verification is documented for defined period (e.g. 5 units for serial defects / 100% check for intermittent defects).A6

Look for: Look for the plant list of manufacturing processes and error proofing devices which can be bypassed. Confirm that Risk Priority Number (RPN) for all approved bypass processes are evaluated and that Standardized Work is available for each bypass process. Ensure implemented bypasses are reviewed in Fast Response with the goal to reduce or eliminate bypassed operations. Look for evidence of the bypass checklist being used for processes/devices in bypass.

Error Proofing

4.1.22 Error proofing Verification (Reference ISO/TS16949 clauses 7.5.1.1 & 8.5.2.2)

The organization shall have a process for error proof verification including frequency requirements and included in the Process Control Plan.

NOTE – Look at: All Error Proofing Devices are checked for function (failure or simulated failure) at the beginning of the shift, when feasible, otherwise according to the process control plan. Error Proofing Masters/Challenge parts (when used) are clearly identified. Records of verification are available.
Look for: Confirm that a list of error proofing devices is available. Confirm that the method of the error proofing verification is defined and documented in the standardized work. Verify that all error proofing devices are checked for function (failure or simulated failure) at the beginning of the shift, when feasible, otherwise according to the process control plan. Look to see that error proofing masters (when used) are clearly identified. Confirm records of verification are available. Verify that a reaction plan is available in the event of error proofing device failure and is understood by the team member.

Gage Control

4.1.23 Gage Calibration / Measurement System Analysis (Reference ISO/TS16949 clause 7.6 & 8.1)

The organization shall have a process for gage calibration and capability.

Note – Look at: Gage capability (e.g. gage R&R, bias, linearity, stability, etc.) of monitoring and measuring equipment is determined and the equipment is certified/calibrated at a scheduled frequency.
Look for: Evidence Gage R&R and certifications are completed on time per local procedure. Check that no gages are past due for calibration. Write down 3 gage numbers at random and verify they are in the gage control system and on some calibration schedule.

Fast Response

4.1.24 Fast Response Problem Solving Process (Reference ISO/TS16949 clause 8.5.2.1)

The organization shall have a fast response problem solving process including minimum criteria for implementation and timeliness.

Note – Look at: Minimum criteria for initiating GM Fast Response are met. Plant Quality Manager ensures the applicability and the timely completion of the items being tracked. Plant Staff level personnel actively participate in daily meeting. Required documents are reviewed (Fast Response Tracking Sheet, Problem Solving Document, PFMEA, Process control plan, standardized work, etc.). There is read across of corrective actions to like operations.

Look for: Verify that the GM Fast Response process is used for all quality issues (customer/Visual Inspection station/GP12). Confirm that the Plant QM ensures the applicability and the timely completion of the items being tracked. Confirm that the plant staff level personnel actively participate in daily meeting. Verify that the required documents are reviewed and updated (e.g. Fast Response tracking sheet, problem solving document, PFMEA, Process control plan, standardized work, layered audits, etc.) Confirm that there is read across of corrective actions to like operations.

4.1.25 Team Problem Solving (Reference ISO/TS16949 clauses 8.4.1 & 8.5.2.1)

The organization shall have a defined and implemented team problem solving process involving all levels of the organization. Records shall be maintained.
NOTE – Look At: A well developed, standardized problem solving process exists at all levels of the organization. Formal problem solving activities are initiated according to a specified criteria.
Issues are identified, root causes analyzed and robust actions completed in a timely manner.
Problem solving is driven at the Team level and all Teams are involved. Leaders are actively involved coaching and guiding the process.
Look for: Common methods for solving problems that are understood and used by all.
A standardized problem solving process exists. A range of problem solving activities are conducted for different problem types and complexities, including single (special) cause, common (repetitive) cause, as well as more complex multiple-cause problems.
Ask to talk through some problems with Team Leaders and Supervisors.
Ask how many formal problem solving activities the team has worked on in recent months?
All teams should be involved in problem solving activities. There should be a standardized process that includes: issue description and definition, containment, probable cause analysis, root cause analysis (5 Whys), countermeasures, implementation plan, verification, approval to close, and escalation or read across if needed. Look for Leadership involvement (reviews, coaching, escalation, support, read across)

4.1.26 Quality Focused Checks (Reference ISO/TS16949 clauses 8.2.1.1 & 8.2.2.3)

The organization shall have a process to identify high risk items at critical operations including quality focused checks conducted on each shift.

Note – Look at: High risk items from Critical (Delta) operations have a Quality Focused check performed each shift. High risk quality focused items from customer feedback and problem solving are included in the Quality Focused audit, or other suitable checklist, and checked each shift.
Look for: Look for high risk quality focused items from Fast Response, customer feedback and problem solving to be included in the quality focused section of the layered audit, or other suitable checklist and checked each shift. Look for high risk quality focused items from Delta C operations to be included in the quality focused section of the layered audit and checked each shift.

Standardized Work

4.1.27 Standardized Work (Reference ISO/TS16949 clause 7.5.1.2)

The organization shall document cyclic and non-cyclic work using a standard format that meets safety, quality and element time requirements.

Note – Look at: All cyclic work is documented using a standard format and meets all safety, quality and element time requirements. All non-cyclic work is documented using a standard format and meets all safety, quality and task time requirements.
Look for: To establish a Standard to facilitate training and understanding of documentation across the entire plant/organization. Use the plant approved documents to capture Standardized Work. Standardize Work Documents should include what, how & why for tasks performed. Check if standardized work is available at the workstations and followed.

Managing Change

4.1.28 Process Change Control (Reference ISO/TS16949 clause 7.1.4)

The organization shall follow a documented change control process including validation of product and process. Documentation shall be updated to reflect any changes to product or process.

Note – Look at: Plant processes are validated relative to changes in Design, Man, Machine, Material, Method and Environment. The plant follows a documented change control process. The PFMEA is updated to reflect any change, as required.
Look for: Confirm that all plant changes are processed through the plant cross functional process change approval system.

4.1.29 Verification Station/Final Inspection /CARE / GP12 *(Reference ISO/TS16949 clause 7.1.4)*

The organization shall have a process for Final Inspection/CARE/GP12.

Note – Look at: Final Inspection / GP12 must be conducted on all finished product prior to shipping. Can be 100% inspection or audit based on risk. All items checked in the Verification Station (Final Inspection /CARE / GP12) must be included in a check at an upstream station. Quality checks are included in standardized work. Point, touch, listen and count inspection methods are incorporated. Successive Production/Quality checks are increased in case of high risks such as model launch, pass through components and characteristics pass through, major changes, shut down or customer feedback.
Look for: Confirm that Verification Station (Final Inspection /CARE / GP12) is implemented per the local requirement. Look for point, touch, listen and count inspection methods incorporated into quality checks. Look for increased quality checks for launch, shut down or based on customer feedback (eg. Fast Response).

.

4.2 General Motors - Specific Requirements

4.2.1 Third-Party Registration Requirements

Production and Service Part Organizations (direct supply organizations) to General Motors, including GM Holdens, shall be third-party registered to **ISO/TS 16949:2009,** including the requirements in this document, by an IATF-recognized certification body using the current edition in effect of the automotive registration scheme, "**Automotive Certification Scheme for ISO/TS 16949, *Rules for Achieving IATF Recognition*."**

NOTE 1: Waiver of supply organization certification for those organizations who meet the applicability requirements of ISO/TS 16949:2009 is not permitted unless approved in writing by an authorized representative of GM and consistent with current GM GPSC policy and procedure.

4.2.2 General Procedures and Other Requirements

The GM publications listed below contain additional requirements or guidance that shall be met, if applicable, by GM supply organizations, or unless otherwise specified by GM Procuring Divisions. Specific questions on the content of these publications should be directed to the appropriate authorized customer representative at the GM Procuring Division. (The latest revisions for these documents can be found on the GM SupplyPower website.)

GM Supply Organizations shall verify annually that they are using the latest version of these documents:

4.2.2.1 Pre-Production/Pilot Material Shipping Procedures, (GM 1407).

4.2.2.2 Shipping Parts Identification Label Standard, (GM 1724).

4.2.2.3 GM 1927-17 SQ Processes and Measurements Procedure, (GP-5).

4.2.2.4 Global Pre-Production Part Quality Process (PPQP) – GP11.

4.2.2.5 Supplier Technology Information Global, (GM1825) (replaced C4 and is currently found in GM SupplyPower / Engineering Library / Global / GEES Operations / Supplier Connectivity / GM 1825 doc.)

4.2.2.6 GM 1927-28 Early Production Containment, (GP-12).

4.2.2.7 GM 1927-35 Run at Rate Procedure, (GP-9).

4.2.3 ISO/TS 16949:2009 Applicability

ISO/TS 16949:2009 with this document applies to all applicable contracted GM supply organizations (see Definitions 3.10) utilizing ISO/TS 16949 to satisfy General Motors third party certification requirements for quality system assessment unless otherwise approved by the GPSC authorized management representative. (GPSC – GM Global Purchasing and Supply Chain).

4.2.4 UPC Labeling For Commercial Service Applications

GM Service Parts Operations (SPO) requires use of UPC labeling for certain commercial applications. Contact your SPO buyer for instructions.

4.2.5 Layout Inspection and Functional Test

Unless specified otherwise by a GM Procuring Division, there is no customer-established frequency for layout inspection after receiving production part approval (**PPAP**). Reference is made to **ISO/TS 16949:2009,** cl..8.2.4.1

4.2.6 Customer Signature on Control Plan

General Motors does not provide waivers to organizations for control plan approval because General Motors signatures on the Control Plan are not required.

4.2.7 Certification Body Notification and Certification Status – "New Business Hold – Quality"

The organization shall notify its Certification Body within 5 business days after being placed in GM New Business Hold – Quality. The status of "New Business Hold – Quality" shall be a violation of clause 8.2.1.1 Customer satisfaction – Supplemental.
The Certification Body (CB) of record to the organization shall take the decision to place the organization on immediate suspension * upon receiving notice of GM "New Business Hold – Quality."

*See ***Automotive Certification Scheme for ISO/TS 16949:2009, Rules for Achieving IATF Recognition."***

1. In the event of certification suspension as a result of an organization receiving notice of General Motors "New Business Hold – Quality," the organization shall complete a corrective action plan. The organization shall submit the corrective action plan to the Certification Body of record and to the affected customer(s) within 10 business days of the date of the letter of notification of probation. The corrective action plan of the organization shall be consistent with the affected customer(s) requirements including correction steps, responsibilities, timing information, and key metrics to identify effectiveness of the action plan.

2. Before any suspension can be lifted, the Certification Body of record shall take the decision to conduct an on-site assessment of appropriate length to verify effective implementation of all corrective actions.

If suspension is not lifted within four months of its issuance, the Certification Body of record shall revoke the ISO/TS 16949 certificate of the organization. Exceptions to this revocation shall be justified in writing by the Certification Body based upon its on-site review of the effectiveness of the organization's corrective action plan and agreement obtained in writing from the authorized GM customer representative.

NOTE 1: The permitted suspension period for General Motors Europe (GME) is six (6) months.

NOTE 2: The GM special status conditions of CS I (Controlled Shipping – Level I), or CS II (Controlled Shipping – Level II) are performance indicators of organization product realization problems. Such status should have resolution, or credible resolution and corrective plans in place, which are confirmed by the customer.

NOTE 3: When an organization is placed in NBH after a recertification site audit but before the certificate for recertification is issued:

1. The Certification Body shall issue the certificate in accord with the IATF *Rules*.
2. The Certification Body shall then place the new certificate in immediate suspension with the rules for lifting such suspension appropriately applied.

NOTE 4: When an organization is placed in CSII after a recertification site audit but before the certificate for recertification is issued:
1. The Certification Body of record shall take the decision to issue a major nonconformance against the organization which shall be closed out in accord with the 90 day requirement.
2. The Certification Body shall issue the new certificate in accord with the IATF *Rules* with this major nonconformance open.

4.2.8 Controlled Shipping Level II (CSII) - Notice to Certification Body

The organization shall notify its Certification Body within 5 business days after being placed in Controlled Shipping – Level II (CS II) Status.

4.2.9 BIQS revocation – Notice to Certification Body

The organization shall notify its Certification Body within 5 business days after having BIQS or QSB revocation.

4.2.10 BIQS Certification Requirement

Suppliers shall have BIQS or QSB certification. Lack of certification shall be written as a major finding by the supplier's Certification Body.

4.2.11 Management Review

Management review of quality system performance (Cl. 5.6.1.1) at a minimum shall be conducted at planned intervals, but not less than annually.

5. PPAP – GM Specific Instructions

5.1 Applicability

These requirements shall apply to production, service, and unitized service parts, raw materials purchased by or contracted to GM, These requirements also apply to all commodities supplied by external independent organizations, GM Allied and Affiliated supply organizations, plus all commodities supplied to these organizations (e.g. subcontractors and tier suppliers). Please note that for bulk, raw, or indirect material, it is the Procuring Division's decision whether **PPAP** is required. When conducting a bulk material PPAP, use conventions as detailed in Section 1 and Appendix F – Bulk Material – Specific Requirements.
NOTE: *PPAP 4th Edition (or most current edition) shall apply to organizations providing service parts to GM unless otherwise specified by an authorized GM Service Parts Organization (GMSPO) representative that the application of the Service Production Part Approval Process (Service PPAP) Manual can apply.*

5.2 Requirements for Part Approval

5.2.1 PSW Form (CFG-1001and Appendix A) (See PPAP 4th Edition Section 2 PPAP Process Requirements 2.2.18

NOTE: A copy of all signed PSW Forms and any related PPAP forms that require approval signatures (e.g. GM 3660, Proof of Validation, Final GM 1829, AAR(s) etc., as required) shall be attached to the correct sample submission in the GM SQMS system and submitted electronically using the GM SQMS system.

1. Multiple part numbers can be submitted on the PSW, or on a separate attached sheet, as long as all information on the PSW applies to all part numbers listed.
2. The Supplier code referred to on the PSW and on the Appearance Approval Report is the full code assigned to the manufacturing location on the Purchasing Order, also referred to as DUNS number
3. PSW forms will not be accepted if any information is missing.
4. **Reporting of Part Material Composition (See PPAP 4th Ed., 2.2.1.1 and GM Specifics 5.2.7.1) - the organization shall use the International Material Data System (IMDS) to report required information. Approval in IMDS is required in order to obtain an Approved PPAP Status in the IMDS Lab; lack of IMDS approval shall result in the maximum of a Saleable PPAP status in the IMDS Lab.**
5. Marking of Polymeric Parts (See PPAP 4th 2.2.1.2) - Polymeric parts shall be identified with appropriate ISO marking codes if applicable
6. The organization shall confirm that all Customer Tooling is properly tagged and numbered.

5.2.2 Appearance Approval Report (See PPAP 4th Edition Section 2, Appearance Approval Report (AAR) 2.2.13

1. Appearance Approval Report (AAR) (CFG-1002 is required for all parts with color, grain. gloss or textiles

NOTE: An AAR is not required for surface quality of body in white (BIW) parts. Refer to the General Motors North America Surface Buyoff Procedure for Surface Requirements of BIW parts.

2. Appearance Approval may occur concurrently with part inspection and testing.
   NOTE: Organizations should contact the appropriate Appearance Approval group for the specified GM PPAP Approval organization **as soon as possible** to make arrangements for AAR sample submission. Parts may be submitted for AAR approval as soon as all materials are approved

5.2.3 Sample Production Parts (See PPAP 4th Edition Section 2, Sample Production Parts 2.2.14)

1. If submitting for level 2 or 3, the organization shall submit two sample parts unless otherwise specified by the Procuring Division. For multiple processes, two sample parts per process e.g. two parts per cavity, tool, cells assembly lines are required unless otherwise specified by the Procuring Division. The sample parts do not have to be the same part(s) that were dimensionally measured and documented on the marked drawing or check sheet. All sample parts should be labeled with part number, change level, and organization name.

5.2.4 Control Plans (See PPAP 4th Edition Section 2, Control Plan 2.2.7)

1. GM requires organizations to document and submit (depending on submission level, see PPAP 4th Edition Retention/Submission Requirements Table 4.2) their Pre-Launch Control Plan. General Motors General Procedure GP-12 "Early Production Containment" provides procedures for the Pre-Launch Control Plan. All parts requiring production part approval (PPAP) shall also comply with GM-12 Early Production Containment.

   NOTE: Whenever an organization is required to submit a Production Control Plan, they shall also submit a Pre-Launch Control Plan, as defined by GP-12.

5.2.5 *Design Records (See PPAP 4th Edition Section 2, Design Records 2.2.1*)

1. A marked drawing can be used for PPAP submission provided the drawing is signed by the GM Lead Engineer, contains an EWO number and is dated. A marked drawing can be used to achieve up to a Saleable PPAP status. A complete drawing is required for Approved PPAP status.
2. All Organizations design records shall be GM approved.
3. The Organization shall furnish evidence of conformance to print specifications of each detail component when requested.
4. For CAD parts that are data-banked, the current level in the GM design databank is the inspection referee. The source of the data shall be provided with change level and date.

   NOTE: The Engineering Change Level and Drawing Date listed on the PSW must match the GM record on file.

5.2.6 Design Failure Mode and Effects Analysis (Design FMEA) if the organization is product design-responsible (See PPAP 4th Section 2, 2.2.4)

Organizations that are design responsible should contact the Customer Engineering organization for clarification of acceptance of a single DFMEA to be applied to a family of similar parts or material. Conditions impacting the applicability of a single DFMEA include differences in environment, and any change that impact the physics of the design.

5.2.7 Material / Performance Test Results (See PPAP 4th Edition Section 2, Records of Material / Performance Test Results 2.2.10 and Performance Test Results 2.2.10.2)

1. If the Supplier (Organization) is design/validation responsible, the Organization shall obtain approval from the specified GM representatives per the Commodity Validation Sign-off process GM 3660. Detailed instructions explaining this process may be accessed at the GM Supply Power/Covisint website.

2. An approved GM 3660 form accepted by the appropriate GM engineering representatives is required to obtain Approved PPAP status for the Functional/Durability evaluation in SQMS, when the Supplier Organization is design/validation responsible. If an Organization's PPAP submission lacks a GM 3660 form accepted by the specified GM engineering representatives a PPAP status of either Non-Saleable or Saleable will be entered for the Functional/Durability lab as applicable. Signature requirements may vary by region, reference the above web site for details or contact the appropriate GM Engineering organization.

3. If the Supplier (Organization) is design/validation responsible and **all items are not completed at the time of PPAP submission**, an SQMS Action Plan shall be completed by the Organization and submitted with the PPAP Part Submission Warrant (PSW). The SQMS Action Plan shall contain a detailed action/recovery plan for each item including the organization's individual responsible for completing each item with timing. (See GM Customer Specifics, SQMS Action Plan 5.5)

5.2.7.1 International Material Data System (IMDS) (See PPAP 4th Ed., PSW Appendix A)

The International Material Data System (IMDS) is to be used by Tier 1 supply organizations to report material content information. IMDS reporting is required for all GM components globally. The IMDS requirements are:

1. PPAP Approval in SQMS in the IMDS Lab, including overall part Approval, will not be attained until parts receive approval in IMDS.
2. Any part that requires a PPAP submission that contains changes impacting material or part weight shall require a new IMDS submission.
3. Information entered into IMDS will generate a unique IMDS ID Number and IMDS Version,
4. The PSW requires the IMDS ID Number, IMDS Version, IMDS Status and the Create Date of the IMDS record for the submission.
5. The DUNS number on the PSW must match the DUNS number of the IMDS submission; separate IMDS entries are required for each DUNS location on contract.
6. If at the at time of PPAP PSW submission the IMDS submission is not approved and/or the GMW3059 requirements are not completed, an SQMS Action Plan shall be completed listing all items not completed including timing to complete each.
7. IMDS information must be submitted to the correct facility code; commonly requested codes include the following:
   GM North American Powertrain Facility Code: 5754
   GM North American Vehicle Operations (includes GM Mexico) Facility Code: 5751
   GM North American Service Pars Operations Facility Code: 31433

Adam Opel AG (includes GM Portugal and Vauxhall) Facility Code: 104

NOTE: Access the following web sites for additional Facility Codes and additional information:
www.mdsystem.com – site includes information on the system, a substance list (GADLS), training, Frequently Asked Questions (FAQs) contacts plus additional information.
www.gmw3059.com –site includes IMDS Instruction manual, various presentations, on-line video, FAQs, Global regional contacts plus additional information.

5.2.8 Customer Notification of Supplier – Initiated Changes

Note: The following does not include initial submissions or changes described in PPAP 4th Ed. Submission to Customer Table 3.2. Prior notification to, or communication with, the authorized customer representative is assumed

1. The Organization shall review the proposed change with the Procuring Division prior to implementation to obtain concurrence per the division's local practice. A Production Trial Run may be required, contact the GM organization authorized customer representative for applicability.
2. Sufficient information shall be provided to explain the detailed reason(s) for the change. Attachments and graphics are encouraged
3. Upon approval of the proposed change, the Organization shall complete the appropriate level of documentation required per the PPAP level of submission.
   Note: PPAP Level 3 is the default level for PPAP submission unless otherwise directed by the authorized GM representative.

5.2.9 Submission Levels (See PPAP 4th Section 4 – Submission to Customer – Levels of Evidence and Retention / Submission Requirements Table 4.2)

1. organizations are not required to maintain full documentation from their suppliers (subcontractors) if they have decision criteria and a process in place to establish the level of evidence required from their suppliers (subcontractors), and the appropriate level of evidence on file at their location. Upon a Procuring Division's request for PPAP documentation, organizations must comply within a reasonable period of time.

5.3 Part Submission Status (See PPAP 4th Customer PPAP Status Section 5)

5.3.1 Approved – Approved PPAP status indicates the part meets all customer requirements per the design record. The SQMS system will reflect an Approved status.

1. Upon customer notification of an Approved status in SQMS, the Organization is authorized to ship quantities per customer releases.

5.3.2 Saleable PPAP – (See PPAP 4th Section 5, Interim Approval 5.2.2)

1. If a part does not meet all design record requirements necessary to obtain an Approved PPAP status and the customer has deemed it acceptable for limited use a part may receive a status of **Saleable PPAP** in SQMS. The Saleable PPAP status will authorize the organization to ship to the customer for a limited number of pieces or a specified period of time.

2. All Saleable PPAP submissions require a corrective action/recovery plan to be submitted with the PPAP submission. Upon agreement of the authorized customer representative, where it is determined that the submission will not impact vehicle assembly or customer satisfaction, items are to be identified that do not meet requirements as specified. The SQMS Action Plan is to be used for this purpose and submitted by the Organization with the PSW submission. (See GM Specifics Section 5, SQMS Action Plan 5.5 for detailed instructions)

5.3.2.1 Examples of conditions resulting in a Saleable PPAP status include but are not limited to the following (contact the designated PPAP approval organization for clarification:

1. Documentation improvements required; examples include DFMEA, PFMEA, Process Flow Diagram, Process Control Plan, Work instructions.
2. Process Capability Studies do not meet requirements; capability study completed on less than 300 pieces and in the judgment of the SQE, satisfactory stability and capability has not been achieved. The supplier shall implement containment actions to ensure no defective parts escape the process until capability is achieved.
3. Dimensional layout with one or more dimensions out of specification requiring rework to bring part to specification prior to shipment.
4. Parts are produced off non-production process or Low Volume/temporary tooling
5. Parts have not been manufactured completely at the manufacturing site/environment
6. Part and drawing (design record) do not match and a part change is not desired or anticipated. The direction for correction is to make a drawing change; the SQMS Action Plan must document the change required and the date to be corrected. GM Engineer signature required on the SQMS Action Plan.
7. Dimensional, material testing, or appearance characteristics do not meet design record requirements but, will not impact vehicle assembly or customer satisfaction; GM Validation and or Lead Engineer signatures required on the SQMS Action Plan as applicable to items listed.
8. Performance/Validation requirements specified in the Commodity Specific SOR to be completed by the Organization (supplier) are not completed, but requirements 1 & 5 on the GM 3660 are completed. Performance / Validation requirements specified in the Commodity Specific SOR to be completed by the Organization (supplier) are NOT fully met and or validation is incomplete; **however**, status is acceptable to status the part as "Saleable PPAP".

5.3.3 Non-Saleable PPAP – (See PPAP 4th Section 5, Interim Approval 5.2.2)

1. If a part does not meet all design record requirements necessary to obtain an Approved or Saleable PPAP status the customer may deem it acceptable for limited use and assign a PPAP status of **Non-Saleable** in SQMS. These parts require retrofit with an Approved or Saleable PPAP level part.

2. A Non-Saleable PPAP status authorizes the Organization to ship a specified number of pieces or for a specified period of time. A corrective action/recovery plan is required to be submitted with the PPAP PSW submission. The SQMS Action Plan is to be used for this purpose and submitted by the Organization with the PSW submission. (See GM Specifics Section 5, SQMS Action Plan 5.5 for detailed instructions)

5.3.3.1 Examples of conditions resulting in a Non-Saleable PPAP status include but are not limited to the following (contact the designated PPAP approval organization for clarification:

1. Dimensional, material testing, or appearance characteristics do not meet design record requirements and will impact vehicle assembly or customer satisfaction.

5.3.4 Rejected PPAP – (See PPAP 4th Section 5, Rejected 5.2.3)

1. The part, associated documentation, testing etc. does not meet design requirements. A resubmission shall be required.
2. The Organization is not authorized to ship any additional parts with a Reject PPAP status.

5.4 SQMS Action Plan

The Organization is responsible to complete an SQMS Action Plan and ensure all information is accurate prior to obtaining any customer signatures. The use of English language is mandatory, in addition, a regional language can also be used for all Action Plan content starting Calendar Year 2017 and forward. When GM Engineering signatures are required, these shall be obtained prior to the SQMS Action Plan being submitted to the responsible customer PPAP organization/SQE. The GM 1927-09 GM1411 PPAP Worksheet shall be referenced when selecting approvers/recipients of the Action Plan. Select parts that do not use the normal SQMS Action Plan process shall use a 1927-09 GM1411 PPAP Worksheet to document issues and gather signatures of approvers. See the SQE for parts that meet this criteria. (Reference ECCN/Export Compliance) Signed 1927-09 GM1411 PPAP Worksheet will be loaded into SQMS.

End of Document