SUPPLIER QUALITY ASSURANCE MANUAL

1 Table of Contents

17.0 Potential Failure Mode and Effect Analysis (PFMEA)

18.0 Process Control Plan (PCP)

19.0 TXM SPC Policy

19.1 Development of Pp and PPK Indices for PPAP Submissions
19.2 Development of Cp and CPK Indices for production
19.3 Ongoing process and product monitoring

SUPPLIER CONTAINMENT FLOWCHART

GLOSSARY

ACRONYMS

Procedure. Supplier Quality Assurance Manual

Purpose:

The purpose of this manual is to outline Taxan Mexico (TXM) requirements and expectations from suppliers to assure the quality and availability of supplied parts on a consistent basis. This document establishes “Quality Assurance” requirements for Purchase Orders issued by TXM, also referred to as TXM (Buyer), to all suppliers, also referred to as Suppliers.

Suppliers, Sub-Tier Suppliers, Brokers, sellers, distributors or third party. shall comply with all Purchase Order requirements and its referenced documents. Suppliers, Brokers, sellers, distributors or third party shall flow down the requirements of this document to their sub-tier suppliers.

Scope:

This document is to be used by suppliers, Brokers, sellers, distributors or third party to TXM as a guideline for the expected quality of products that TXM receives for use in the assembly of Print Circuit board (PCBA).

1.0 Policy

It is the policy TXM to select those suppliers, Brokers, sellers, distributors or third party of materials that can meet the requirements of all specifications and contract arrangements; and to expect that suppliers Brokers, sellers, distributors or third party selected will warrant that all products or services furnished are in conformance with active purchase agreements, the provisions of this Supplier Quality Assurance Manual, Standard Supplements and any special instructions stipulated on drawings, specification sheets or other TXM documents. The supplier’s level of compliance will be determined by TXM through supplier surveys, process reviews, sales reviews, statistical data monitoring, appropriate receiving inspection, verification of the production process, supplier assessments and through finished product validation.

This SQAM defines the minimum supplier quality assurance practices that are acceptable to TXM. The intent of this SQAM is to document uniform minimum requirements that lay the foundation upon which a long-term and prosperous customer/supplier relationship may grow and to secure the future activities that will enable us to continually meet the requirements and expectations of our customers in all aspects of business.

Current active agreements established by Purchasing, Engineering and Supplier Quality Engineering are not to be voided or overridden by this document. Any special instructions shown on drawings or specifications are to remain in effect unless official notice of termination is received.

2.0 TXM Purchasing

TXM Purchasing has an objective to procure components and raw materials of superior quality and reliability that exceeds customer expectations on a global basis. All sourcing decisions are confirmed based on Responsiveness, Quality, Cost and Delivery information received during the quoting process. Our focus on partnership with our suppliers is committed to continuous improvement of systems that influence quality of the incoming product. TXM promotes long term relationships with suppliers to create an environment of support with the supply chain.

Prior to sourcing to a potential supplier, our Purchasing Management will invest time and effort to understand business culture and importance of customer support at all levels of a given organization. During the quoting process, TXM Purchasing will require our suppliers, Brokers, sellers, distributors or third party to complete and forward quote

requests on TXM provided forms. Where applicable, a Cost Breakdown Worksheet would be required from the supplier prior to sourcing. It is critical that all commercially related issues that occur pre-launch or post-launch must be communicated directly with the TXM Buyer prior to finalizing the agreement. Suppliers must have in writing an approval from the Buyer prior to investing capital or time needed to support a specific program.

2.1 TXM Supplier Selection

TXM Purchasing will be based on feedback provided by KAGA Group, TXM Supplier Quality Engineering, TXM Supplier Preparation & Development, etc.

1 Supplier General evaluation (MPR) -see table # 1 below
2 Proof of compliance with ISO9000, with preference for compliance with IATF 16949
3 Supplier approval list from the Customer or the KAGA Group.
4 supplier should provide main contact list (sales, president, quality management, quality engineer, customer service, engineering)
5 supplier will be adviced for PPAP requirements
6 supplier should accomplish self evaluation.

Note: TXM encourages supplier to comply with IATF 16949

As reference, TXM classifies suppliers in a table 1 and defines them as follows:

Clasificación del Proveedor / Vendor clasification		total
A	Autorizado / Authorizated	90-100%
B	Temporal / Experimental	75%-89%
C	Descalificado / disqualified	0-74%

2.2 TXM Current Supplier Management

TXM will evaluate your current supply base using data from the Supplier's Quality Engineering Department or the Inbound Inspection Department. This data includes a monthly rating based on the quality performance of the suppliers, the number of SCARs issued must be 0, PPM must be less than 10 ppm for the score card to be 100%, otherwise the score it will be 0%. The Supplier Quality Engineering Department will use this data as a focus of its efforts; especially, where the effectiveness of countermeasures is in question. The delivery information will be used by TXM Purchasing to focus its efforts on Suppliers whose on-time delivery is <90%. The purchase objective will be 100% on-time delivery for all TXM suppliers.

3.0 Quality control Function

3.1 General

Material manufactured for TXM's use in assembly of the final product shall be produced, controlled, inspected and tested in accordance with the requirements of the SQAM. In addition, the SQAM establishes minimum control practices, procedures and the necessary documentation that may be part of the supplier's quality control system.

The supplier shall provide and maintain a quality control system that will ensure all material submitted to TXM for acceptance conforms to the provisions of the purchase agreements, whether manufactured or processed by the supplier or purchased from its suppliers.

The supplier shall perform or have performed all of the necessary inspections and tests required to substantiate product conformance to drawings, specifications and contract requirements. TXM's acceptance criteria are ZERO defects for all inspections.

The supplier must comply with the guidelines of drawings, specifications, contract requirements, purchase order issued by TXM, as well as the terms of purchase and sale "www.taxanmx.com" and must also comply with the quality manufacturing guidelines established for the type of material that is manufactured.

This will be based on the different regulations applicable to your product, the guidelines to be met must be followed.

Drawings
Documented customer requirements.
IPC/J-STD/ANSI/etc.
Regulations applicable to the manufactured product.
Purchase order and quotation speciations.

3.2 Purchased Material and Supplier Control

The Supplier shall establish a system of control of purchased materials and subcontracted processes to ensure compliance with all TXM drawings, specifications, requirements of the SQAM, SQAM Supplements and/or requirements of any alternative active purchase agreements.

Acceptable methods of supplier control include:

- incoming inspection and / or testing.
- SPC control (applicable cases)
- Verification and guarantee of satisfaction of fulfillment of requirements in TXM assembly process and TXM customers and Final customer.

TXM recommends using a combination of "supplier implementation of SPC" and "verification by the production process" in conjunction with an extensive advanced quality planning program (APQP) as outlined in Section 9.0 of this manual.

Suppliers are required to maintain a contingency plan which addresses potential shortages that could affect TXM and the immediate notification of TXM's buyers of that issue.

3.3 In-Process Inspection

The supplier shall establish the necessary in-process inspection procedures to ensure that the material continues to meet all physical, dimensional and visual requirements, as applicable. All materials produced during machine setups, tool changes and process modifications shall be checked 100% for the characteristics affected by the operation until material conformance and process capability are demonstrated.

3.4 Rework and Salvage

The supplier shall establish the necessary instructions for salvage and reclamation procedures as required for the product type. Critical products will require TXM's approval of the salvage procedure. Special handling or identification after such repair or reprocessing may be required. The necessary re-inspection and/or testing shall be performed on all rework to ensure conformance to specifications prior to shipment of reworked or salvaged product. Questions regarding the criticality of the product or requests for approval of a reprocessing procedure are to be directed to TXM's Supplier Quality Engineering Department.

3.5 Supplier Requirements, Electronic Part Counterfeit Risk Mitigation

The purpose of this Electronic part counterfeit risk mitigation requirement is to ensure TAXAN MEXICO suppliers and their sub-tier suppliers perform electronic part counterfeit risk mitigation.

It Is responsibility of all TXM suppliers, brokers, sellers and third party, to perform or request all info related to certify their material or components provided to TXM.

A counterfeit part it is an item which is purposely misrepresented to be one thing. But in fact is another. The distinction between a counterfeit and non-conforming product is the intent to deceive the user. Instead of simply failing to meet stated requirement.

The counterfeit parts include but are not limited to:

a) Parts not containing the proper internal construction (die, manufacturer, wire bonding) consistent with the ordered part.
b) Used, refurbished, or reclaimed parts represented as new product.
c) Parts with a different package style, type or surface plating/finish than the required or ordered or ordered product.
d) Parts not sucesfully completing the full production and/or test flow of the original component manufacturer (OCM) that are represented as completed product
e) Parts sold or delivered with modified labeling or markings intended to misrepresent the form, fit, function or grade of the intended product.

Both suspect material and material confirmed to be counterfeit are nonconforming material and shall be handled as SCRAP and avoid sending to TXM.

It is responsibility of all TXM Suppliers, brokers, sellers and third party must ensure all the material supplied to TXM is procured from the original component/equipment manufacturer referenced on the purchase order or their authorized distributor.

Brokers, sellers distributors, third party, etc., will be responsible of rights and trade mark conditions coming from initial manufacturer. In the same way TXM Supplier; Brokers, sellers distributors, third party, etc. will be responsible to provide to TXM if is required following info:

- Original Manufacturer´s name and Data sheets
- Test / inspections results, conditions and parameters info
- Quantity of parts tested, inspector name Identification and general info.
- Seller´s authorized agent´s name position and date.
- No fake or counterfeit info related.

3.6 About Components Shelf life

All material Delivered shall be within 80 Shelf life upon received, or refund will apply.

3.7 Cost Recoveries

Any issues regarding chargebacks over commercial issues should also be directed to your buyer in a timely manner. See Supplier Chargeback Table below.

Non – Compliance	Fee	Contact
Downtime caused in TXM Process	According final Impact	Your buyer
Overtime caused in TXM Process	According final Impact	Your buyer
Non-Quality found in TXM Process	According Final SCRAP amount (May Include Sub-assemblies)	Your buyer
SCRAP	According Final SCRAP amount (May Include Sub-assemblies)	Your buyer
Final Customer Fees charged to TXM caused by Supplier	According Customer Cost Recoveries	Your buyer
Sorting Activity in TXM due Supplier Concern *	50 USD / PER HOUR	Your buyer

* NOTE: If A sorting activity is required by TXM the supplier must agree and supplier should launch sorting activity in 3 hours or less. Otherwise the supplier can hire TXM authorized third parties in a maximum time of 3 hours, in case the supplier does not define containment action in TXM, the sorting activity will be launched by TXM and final cost will be charged to the supplier.

If there is any cost recovery or chargebacks caused by Suppliers, Sub-Tier Suppliers, Brokers, sellers, distributors or third party. TXM Will inform and present full evidence according each situation. This evidence could be, any document, pictures, database info, software reports or physical samples could support this cost recovery.

In case of non-compliance with deliveries, there is a period of 24 hours for delivery of a recovery plan.

4.0 Material Control and Quality Identification

4.1 General

The supplier shall establish a documented system for the control of all material. The inspection and test status of all material shall be identified by this system. The documentation shall include a description of the applicable containment areas and product identifying devices. Product removed from the normal process flow shall be segregated and clearly marked as to quality status.

4.2 Non-conforming Material

Non-conforming material will be clearly identified and isolated in segregated retention zones to prevent its inadvertent return to normal process flow.

1 SCAR will be applied to the supplier for a single non-conforming material detected.
2 Corrective Actions will be requested to the supplier in different types of documentation as applicable to their process
3 the supplier must respect TXM corrective actions dates and specific requirements established
4 supplier could be called to present their corrective actions in TXM facilities if is needed
5 in case of any non-compliance it will be a reason for impact on the monthly supplier SCORE CARD, as well as penalties established by TXM.

The supplier shall establish written instructions for the proper control, disposal and traceability of non-conforming materials, including the method of identification.
In no case will the supplier send material not conforming to TXM. The supplier is responsible for immediate notification to the TXM plant in use, if it is known or suspected that non-conforming materials have been inadvertently shipped.

a. Non-conforming Material Found at Supplier

- If the supplier suspects' nonconforming material may have shipped to TXM, the supplier must:

  (a) Contact TXM Receiving Inspection to report suspect shipment.

  (b) Contain the defect both at their facility and at TXM.

  (c) Provide TXM with a formal problem-solving report within 10 calendar days.

- No SCAR will be issued to the supplier and no defects will be added to your PPM as long as no non-conforming material has been assembled in TXM, shipped to the TXM customer, and all items from # 1 above are addressed.
- An analysis will be sent where you specify from which batches and invoices the risk window for non-conforming material is found.
- Upon notification, TXM's receiving inspection will confirm that there are no nonconforming material in TXM's inventory.
- The inspection of finished product in TXM, will be under TXM personnel, the supplier charges will be applied according to the number of resources used.

b. Special Shipment Identification Tags

1 All purchased components marked with Special Shipment Identification must be routed through the Receiving Inspection Department upon arrival at TXM

2 Purchased product must be marked with Special Shipment Identification Tags in the following instances:
   a. prototype samples (minimum of sample request required for release from Receiving Inspection.
   b. Pre-production samples (minimum of sample request required for release from Rec. Inspection)
   c. PPAP samples (minimum of provision TXM required for release from Rec. Inspection)
   d. 1st production shipment (minimum of provision TXM required for release from Rec. Inspection)
   e. 2nd production shipment (minimum of provision TXM required for release from Rec. Inspection)
   f. 3rd production shipment (minimum of provision TXM required for release from Rec. Inspection)
   g. Dimensional TXM data samples
   h. Certified stock shipment
   i. Countermeasure stock shipment
   j. Engineering change shipment (minimum of provision TXM required for release from Rec. Inspection)
   k. Process change (other than countermeasure) shipment.

3 All Special Shipment parts are subject to sort at the supplier's expense. The determination to sort will be made by the Quality Manager or delegate.

4 Product received at TXM that does not possess the required Special Shipment Identification is subject to the SCAR process.

5 All products received that does not meet requirements for the specified shipment or sample are subject to the SCAR process.

c. Lot Control

TXM may require the supplier to provide traceability of materials as to manufacturing, shipping and processing dates. The need for this type of lot control is based largely on product type and may be required at the discretion of the TXM Supplier Quality Engineering Department. As a rule, all products manufactured in small batch quantities, such as molding compound and periodically produced molded or machined parts, should be lot traceable. In cases such as these, when lot or batch segregation is required for proper control, lot identification procedures shall be documented and implemented, this includes FIFO requirements.

d. International Material Data System (IMDS)

Each TXM Supplier shall set up an IMDS account at URL www.mdsystem.com. TXM Suppliers can access the Material Data System by clicking on the linked web address above. Once on the homepage, click on “Public IMDS Pages” to get Training and other Services.

The ID Number for each material or component shall be provided to TXM as part of the PPAP package.

The IMDS will be required by the buyer of TXM from the beginning of the buyer-supplier relationship, this is considered within the PPAP package. And as evidence, supplier will be share a screenshot of IMDS uploaded to the portal.
As a evidence the supplier must send this screenshot to TXM supplier quality engineer.

e. Score Card

The supplier active on the month will be evaluated in base of theirs performance.
Which will be based on the following indicators by area.

AREA (AREA)		POINTS TO REVIEW (PUNTOS A REVISAR)	DESCRIPTION (DESCRIPCION)	TARGET (OBJETIVO)
MATERIALS	1	TOTAL PARTS	TOTAL PARTS RECEIVED	100%
	2	DELIVERY TIME	DELIVERY TIME ACCORDING TO THE PROVISIONS	100%
	3	INTERRUPTIONS	INTERRUPTION DUE TO LACK OF MATERIAL	0 INTERRUPTION
QUALITY	4	CUSTOMER CLAIMS	NUMBER OF CLAIMS MADE BY NG PARTS	0 CLAIMS
	5	PPM´S	IMPACT OF PARTS NG	<10 PPM 100%
	6	SERVICE	CUSTOMER SERVICE AND TREATMENT ON REQUESTS	100%
ENVIRO MENT	7	ENVIRONMENTAL COMMITMENT	IS ENVIRONMENTAL COMMITMENT OR CERTIFICATION	100%
	8	PPM´S OF SCRAP CAUSED BY PROVIDER	PPM´S represented by provider at the SCRAP level	100%

In base of the supplier performance will be categorized according to the below table

RANK	SCORE	JUDGMENT
A	90-100%	Meets the requirements Suitable supplier for new projects
B	70-89%	Partially meets the requirements Conditioned supplier, constantly monitoring.
C	0-69%	Does not meet the requirements Supplier requiring help

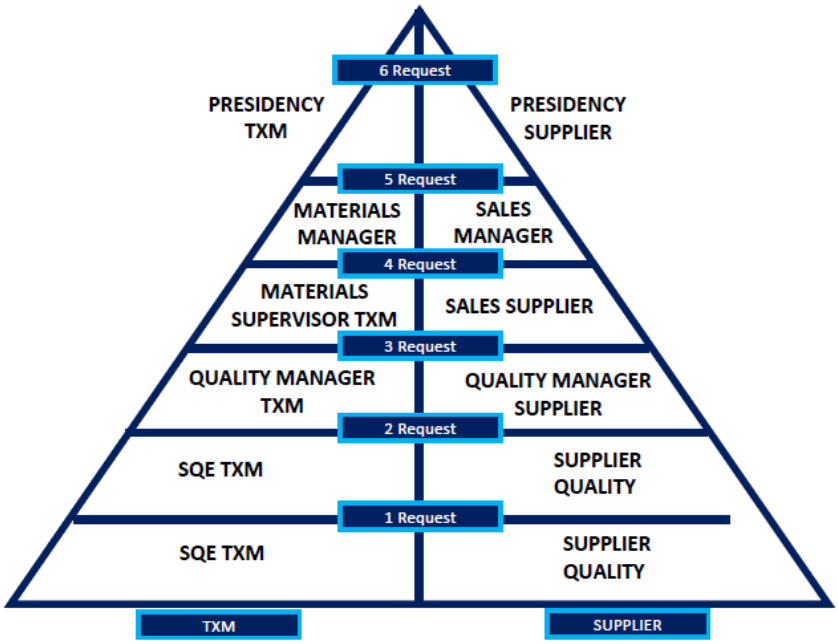
Depending on the range of the supplier, TXM will consider the actions to be applied.

The defined time to response SCAR is as follows:

3D´S→ 24 HOURS.
8D´S → 14 DAYS
CLOSING OF ACTIONS→ 30 DAYS

f. Escalation.

The following escalation process will be used when there is no responsive from the supplier and established requirements are not meet.



5.0 Gages and Gage Control

5.1 General

The supplier shall make provisions for the proper maintenance, inspection and control of gages and testing equipment to ensure continued accuracy. Such devices shall be calibrated at established frequencies against appropriate standards. The supplier shall document the calibration status and the fitness for use of each device. Calibration shall be traceable to the National Institute of Standards and Technology (NIST) or Entidad mexicana de acreditación (EMA) u other similar association..

Measurement system. Variation shall be determined for all gages and test equipment utilized in the production process. TXM recommends the Gage R&R procedure in the Measurement Systems Analysis manual published by AIAG.

5.2 Requirements for Special Gauging and Reflex Instrumentation

The supplier is responsible for the provision of the necessary gages and testing devices required to ensure material conformance, unless provided by TXM. Those suppliers who mold reflexes for TXM shall be required to have available a certified, calibrated vertical photometer to measure reflex reflection. The reflex verification shall be a requirement in the Supplier Process Control Plan. If the photometer is temporarily out of service for maintenance or calibration, an immediate written notification shall be given to TXM's Supplier Quality Engineering Department. It is the responsibility of the assigned SQE to notify Receiving Inspection of the temporary "out of service" condition. All product not verified during the downtime shall be required to have the orange TXM Special Shipment Identification Tag on each container identifying the material as potentially non-conforming.

If production type tooling, such as jigs, fixtures, templates and patterns, are used as a media for quality control, such devices will be subject to the same controls applicable to gages or test equipment.

6.0 Corrective Action

When the supplier detects non-conforming materials, or materials are returned by TXM for non- conformance, the supplier shall take immediate action to provide containment (see containment flowchart "**6.1**") for all related lots concerning the non-conforming characteristic(s). The supplier shall take prompt and positive action to isolate and correct any conditions, which could result in the manufacture or shipment of materials that are non-conforming. Additional inspection for the non-conforming characteristic(s) shall be implemented pending the determination of the effectiveness of the corrective action. When applicable, statistical process control methods should be used to verify corrective action effectiveness and maintained to prevent recurrence (see also TXM SPC Policy, Section 19).

If a supplier receives a "Supplier Corrective Actions Request" (SCAR) from TXM, the supplier shall immediately implement containment activities as described above:

a. The non-conformity will be reported by the TXM SQE, in a period of 24 working hours in an official SCAR, containment activities must by implement immediately.

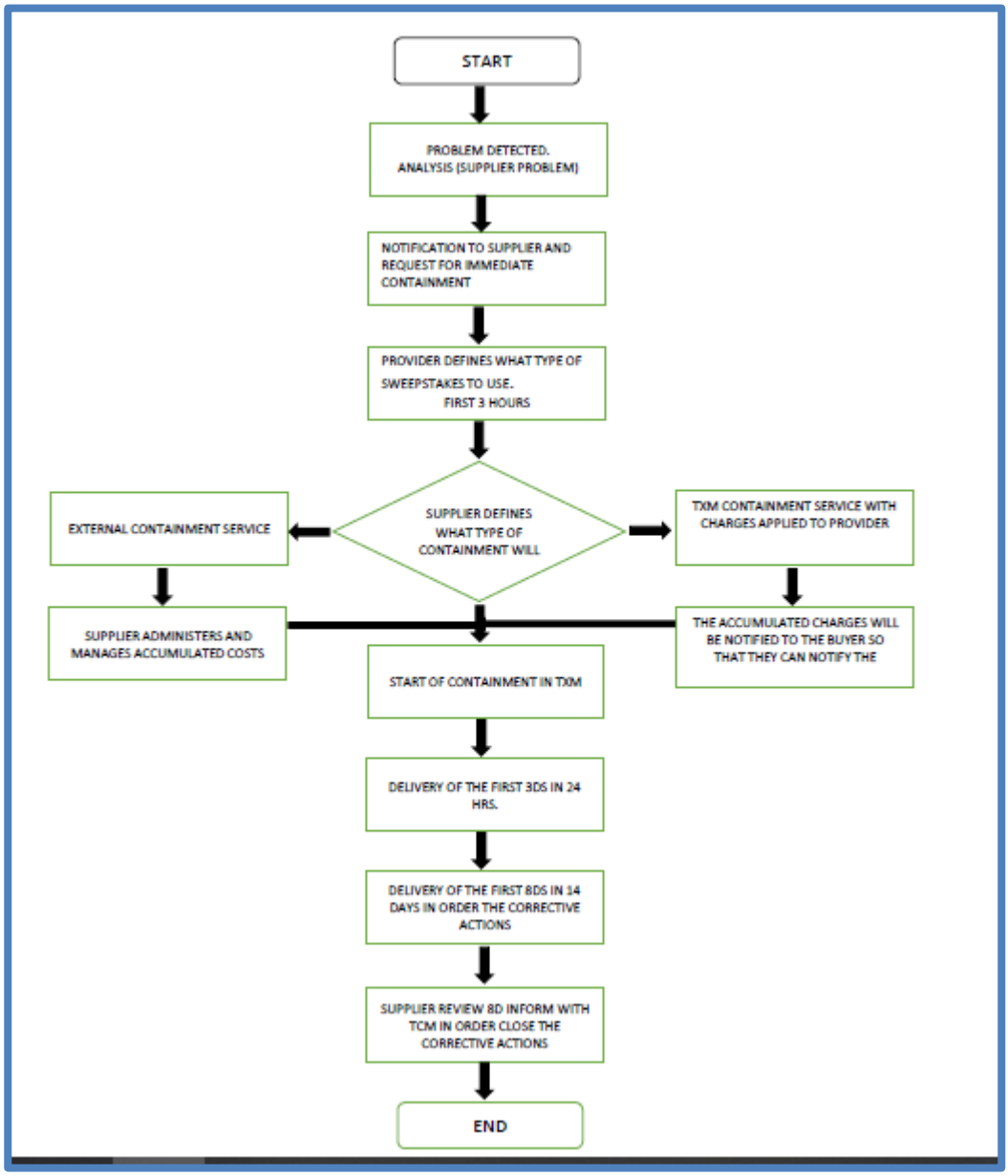
b. Immediate corrective action must be taken and those steps (Steps 1-3 on a traditional 8D) must be documented and submitted to the appropriate TXM SQE within 24 hours of SCAR issuance.

c. In addition, the supplier will submit the complete corrective action within 14 business days from the issuance of SCAR. If an 8D final cannot be completed within that time, the supplier will contact the appropriate TXM SQE and request an extension. Along with the extension request.

d. The supplier will present the 8D update with the measures adopted up to that moment and which also includes an action plan with dates and responsibilities for the rest of the future actions. All production shipments after receipt of SCAR will be 100% supplier inspected and / or tested for noted defects until permanent countermeasures are applied.

e. The first three (3) certified shipments will be labeled as such using the special shipment identification label.

6.1 Supplier containment flowchart.



7.0 Product & Process Change Control.

7.1 Drawing & Specification Control

The supplier's document control system shall ensure that the latest drawings, specifications and other pertinent information are available at the manufacturing, testing or inspection locations. The system shall provide for the removal of all obsolete drawings and specifications from all points of use. No drawing, specification, PFMEA or Control Plan shall be changed without TXM's written authorization. All blueprints and specifications should be reviewed at a minimum frequency of once per calendar year to ensure that only the latest revision level is in use. Any discrepancy shall be noted in writing to TXM's Supplier Quality Engineering Department.

7.2 Engineer change

The supplier shall establish methods and procedures for controlling changes to a process that may/will affect the form, fit, function or any combination thereof to a component used in an application at TXM.
Changes such as material change, location change, supplier change, processing parameters (plastic/rubber) outside the established process, equipment change, die and press set-up for (metal/rubber parts) a stamping process, assembly process or any other situation decided by Supplier Quality Engineering (in writing) determined as a mode that should be included in the aforementioned statement. Unless waived in writing by the Supplier Quality Engineer at TXM, a process change will require revalidation to ensure continued conformance to specifications. Refer to Sample Submission Procedure (Section 15).
Before an Engineering Supplier Process Change is initiated, is necessary to through ENGINEERING CHANGE REQUEST PROCESS (ECR), must be completed and submitted to the assigned Supplier Quality Engineer. The Supplier may not proceed until the Supplier Quality Engineer returns this request with the ANSWER/INSTRUCTION TO PLAN portion completed indicating an "APPROVED" status. Upon PPAP submission or final approval, the assigned Supplier Quality

Supplier must immediately notify to TXM SQE, TXM Product Engineer, TXM buyer and TXM projects of any type of change that is applicable to their product, process regardless the supplier must have approval of TXM to execute the engineering change.

It is the supplier's responsibility to have the necessary and required information requested by TXM in a timely manner, otherwise the charges for stoppages will be under their responsibility.

The supplier must have a robust engineering change system with exact quantities and dates established for the correct planning of the change in TXM.

The first shipment with the engineering change applied must be identified with a blue label

The supplier shall establish methods and procedures for controlling changes to a process that may/will affect the form, fit, function or any combination thereof to a component used in an application at TXM. Changes such as material change, location change, supplier change, processing parameters outside the established process, equipment change, die and press set up for a tramping process, assembly process or any other situation decided by SQE determined as a mode that should be included in the aforementioned statement unless waived in writing by the SQE at TXM a process change will require revalidation to ensure continued conformance to specifications.

Engineering change of product is any physical change in the component for example:
Changes in raw material
Dimension changes
Tolerances and or update of the drawing
Performance

Engineering change of process is any change in the process of manufacturing in the piece for example:
Change of parameters
Change of lay out

Change of location
Changes of tooling and / or machines.

8.0 Documentation Control

8.1 Written Procedure

The supplier shall provide and maintain written procedures covering all aspects of its quality control program.

8.2 Inspection Instructions.

All inspections and tests shall be described by clear, complete and current written instructions. The instructions shall include as a minimum requirement:

a. Method of inspection.
b. Tools to be used.
c. Standard for acceptance and rejection.
d. Sample size and frequency concerning inspection shall be documented.
e. Any TXM/Customer identified critical points/special characteristics are to be monitored (identified as such on test records).
f. All critical points/special characteristics require a 30-piece study showing capability. Points having CPK's between 1.00 to 1.32 will be required to have improvement activities.
g. Suppliers may use their own company designation for critical point/special characteristics on documentation/records.

8.3 Records

The supplier shall maintain adequate records of all inspections and tests that are performed as parts of the quality control function. The records shall contain, as a minimum requirement, the following:

1. Characteristic(s) observed
2. Frequency of observation
3. Number and type of deficiencies found
4. Material disposition
5. Identification of the recorder
6. Corrective Action
7. Date of inspection

8.4 Record Retention

Suppliers are to use the below Record Retention table to determine the length of time records are to be kept. For materials with open P.O.'s longer than 10 years, no records need to be retain longer than 13 years. Examples: bulbs, molding compound, adhesives, etc.

Record Retention Matrix

No.	Title	Description	Retention Time
1	**Production Part Approvals**	Records and documents required for Production Part Approval Process (PPAP) in accordance with PPAP Reference Manual, i.e., control plans, supplier PPAPs, PSWs, etc.	20 years
2	**Purchase orders/Purchase Amendments**	Purchasing documents for procurement of materials, components, products, and services to be incorporated into the finished product.	20 years
3	**Tooling records**	Records associated with the purchase of production tooling.	20 years
4	**Tooling Preventive Maintenance Records**	Records documenting preventive and predictive maintenance.	20 years
5	**Tooling Repair Maintenance Records**	Records documenting tool repair/modifications.	20 years
6	**Engineering Design Output Documents**	Design FMEAs, drawings, specifications, bills of material, process procedures, calculations, prototype test reports, and other documents established in the course of product design.	20 years
7	**Contract Review Records Offers**	Team Feasibility Commitments, and other documents established in the course of negotiating and implementing contracts.	20 years
8	**ECN's**		20 years
9	**CAD Data Transfer Forms**		One year.
10	**Customer Complaint Records**	Files with customer complaints and records with short and long-term resolutions.	End of production, plus twelve years.
11	**Supplier Evaluation and Performance**	Records Documents demonstrating subcontractor quality capability and quality performance.	10 years
12	**Calibration Certificates**	Inspection, measuring, and test equipment calibration certificates.	20 years
13	**Nonconforming Product Records**		20 years
14	**Corrective and Preventive Action Records**		20 years
15	**Quality Verification Records**	Inspection and test results, performance control charts (SCs), material certifications, photometric results, etc.	20 years
16	**Training Records**	Personnel training records.	20 years
17	**Management Review Records**	Minutes of management review meeting.	10 years

18	**Records of Internal Quality Systems Audits**		20 years
19	**Product Quality Records**	Work orders, traceability records, non-performance control charts (SCs), first piece, quality checks, M/C checksheets, Set-up change checksheets, PM checksheets, etc.	20 years
20	**Abnormality Logs**		20 years
21	**Project Management Documents**	Timing Charts, New Project Progress Report (NPPR), & Team Feasibility Commitment.	20 years
22	**Warranty Records**	Customer Warranty Data	20 ears

9.0 Advance Product Quality Planning (APQP)/New Part Approval Process

9.1 General

Advanced Product Quality Planning (APQP) refers to all the pre-production activities that help ensure materials being delivered to TXM consistently meet all TXM requirements and expectations. The level of control exercised over each supplier will be consistent with the criticality and the complexity of products supplied, as well as, suppliers' demonstrated capability.

9.2 Supplier Performance Measurables

It is the policy of TMX to source products to suppliers who consistently perform at acceptable levels in the areas of Product Quality, On-time Delivery performance, Service, and Total Product Cost.

9.3 Design Review Meeting

In specific situations, TAXAN MEXICO Will requiere A Design Review meeting prior to initiating production tooling. The Design Review meeting is held at the discretion of the Supplier Quality Engineer and TXM Buyer; however, a Design Review meeting will typically be required for all non-standard functional parts.

At this meeting Critical Product Characteristics will be identified. Critical Characteristics may be identified by symbols placed on the product blueprints or in related Engineering Specifications. Unless waived in writing by TXM, all Critical Characteristics require the supplier to submit proof of capability as defined in Section 9.9 and a documented method of ongoing control as defined in Section 9.8.

In addition, all product requirements and specifications will be reviewed to assure that the supplier is capable of meeting all TXM requirements and expectations. In the event a Design Review meeting is not required, the supplier shall complete the Design Review Check Sheet.

9.4 Award Job/Start Tooling

The supplier should start production tooling only after they have reviewed and agreed to all applicable TXM drawing and Engineering specifications and agree to abide by the requirements outlined in the TXM SQAM, SQAM Supplements and the requirements of any alternative active purchase agreement.

9.5 PFMEA

The supplier is required to complete a Potential Failure Mode and Effects Analysis (See Section 17) for all failure modes that might exist in the manufacturing process, as well as, any other associated processes that could (if not properly controlled) result in nonconforming product.

9.6 Production Tooling Complete

Production tooling should be completed well in advance of the target PPAP submission date in order to provide the supplier with sufficient time to complete the Process Control Plan (see Section 9.8) and attain full PPAP approval (see Section 9.13) prior to shipping to TXM under a Production Purchase Order (see Section 9.14).

9.7 Process Control Plan

A Process Control Plan shall be generated in order to ensure that the manufacturing process controls are sufficient to produce defect-free products for the duration of project life. See Purchased Product Process Control Plan Procedure (Section 14).

9.8 Process Potential Studies

Process Potential Studies shall be performed for all identified Critical Control Points Critical Characteristics (see Section 9.4) in accordance with the guidelines established in the TXM SPC/MSA AIAG manuals.

9.9 Process Review Meeting

Upon completion of the Process Control Plan (Section 9.8) a Process Review Meeting should be held. This meeting is held at the discretion of the TXM Buyer and Supplier Quality Engineer based on the complexity of the part and the suppliers' experience and past performance with similar parts.

A Process Review Meeting will typically be held for non-standard functional parts. This meeting may be held at TXM, but, when possible, will be held at the supplier's location. At this meeting all aspects of the manufacturing processes will be analyzed to determine if the process controls (as outlined in the Process Control Plan) will be capable of producing the desired result of zero defects.

9.9.1 HVPT / Run @ Rate /

After supplier has verified that all systems, equipment, and personnel are ready for the start of production and at least 2 weeks prior to submitting a PPAP, the supplier is required to conduct a final high volume production trial (HVPT) or Run @ Rate event to show evidence that they are capable of producing the quantity of parts in the timeframe they quoted to at the quality level required by TXM. The evidence from the trial will be documented on the form provided by the TXM SQE and submitted prior to PPAP.

9.10 Production Part Approval Process (PPAP) Submission

Note: The term PPAP will replace the formerly used term ISIR.

Supplier will submit a PPAP to TXM for new production parts at least 90 days prior to SOP of the program. Production samples of all new products shall be submitted to TXM for approval. See Sample Submission Procedure (Section 15) for details of when additional PPAP submissions are required and the correct procedure for submission preparation.

9.11 PPAP Verification

TXM may verify key characteristics of the PPAP.

9.12 PPAP Disposition

In conjunction with TXM Engineering, TXM Supplier Quality Engineering will review the supplier submitted PPAP package. At this time, the PPAP will either be Approved, Rejected or Provisionally Approved. The definition of each is defined in the Sample Submission Procedure (Section 15). In each case a copy of the Part Submission Warrant (PSW) and its disposition will be sent to the supplier.

9.13 First Production Shipment

A supplier shall attain an Approved or a Provisionally Approved PPAP prior to making a Production Shipment to TXM. Production materials shall be packaged in accordance with the Supplier Packaging Guidelines in Section 16.
A supplier shall submit all required statistical data (as outlined in the TXM approved Process Control Plan, Section 9.8) with each shipment for the first three (3) production shipments. **The first three (3) production shipments shall be labeled as such using the TXM Special Shipment Identification Tag. Failure to do so may result in a rejected shipment.**

10.0 Submission of Ongoing Process Control Data

If TXM requires ongoing process control data, the characteristics and frequency will be clearly defined in writing and sent to the supplier with the Approved PPAP. If the supplier has any questions or concerns regarding the request for ongoing control data, the appropriate TXM Supplier Quality Engineer should be notified immediately. This data shall be submitted at the assigned frequency or a complaint will be issued and subsequent shipments will be subject to rejection. The type of data required (check sheets, control charts, etc.) is also defined on the Process Control Plan (Section 9.8). Required process control data shall be sent with the actual material shipment and the shipment shall be identified using the TXM Special Shipment Identification Tag.

The data submitted shall be legible and clearly explained. As a minimum the data sheets should include:

1. TXM Part Number
2. Date of report
3. Manufacturing period covered by data
4. Characteristic being monitored
5. Reactions to all runs, trends or any other noted process instability.

If a supplier wishes to reduce the frequency of data submission, the Process Control Plan shall be revised and approved by TXM as described in Section 14.

11.0 Impact Activities

11.1 General

TXM could train and support its suppliers to perform “Impacts” on the manufacturing processes in an effort to reduce manufacturing:

1. Scrap
2. Inventory
3. Floor Space
4. Cycle Time
5. Labor
6. Costs

TXM could provide initial training regarding the Impact process and will be present for the initial event (typically 5 working days); however, most of the ideas and improvements will be originated by the supplier’s Impact Team Members. This is designed to make the process rewarding for all and increase the probability of success.
If improvement is achieved through the TXM Impact Activity, both TXM and TXM Suppliers will benefit from the reduction of manufacturing related costs. TXM expects suppliers to implement the continual improvement/cost reduction techniques taught during the Impact Activity.

11.2 New Suppliers

A new supplier who is awarded business from TMX may be required to conduct an Impact Activity after Start of Production (SOP).

11.3 New Projects

A supplier who is awarded new business from TMX may be required to conduct an Impact Activity after Start of Production (SOP).

11.4 Out-Sourced Projects

A supplier who is awarded an existing production part with the support of TMX production tools and/or equipment may be required to conduct an Impact Activity after receipt of such tooling and/or equipment.

12.0 Returned Materials

The supplier will review all returned materials to determine the cause of the nonconformity and to ensure that timely effective corrective action is taken.

For nonconformity material found in TXM. All suppliers, brokers, sellers, distributors or third parties will be noted with complete testing and SCAR if applicable. The supplier must notify the final disposition of its nonconformity or suspicious material, during the next 24 hours, the disposition of the material will be at the discretion of TXM and supplier.

The disposition of the material will be indicated in SCAR applied, in case the supplier does not accept the disposition, it will look for a way to reach an agreement with TXM in the first 24 hours..

13.0 Quality System Assessment Reference Materials

Quality System reference publications such as ISO9001, IATF16949, PPAP, MSA, etc. may be purchased by calling or writing the Automotive Industry Action Group (AIAG) at the address or telephone numbers listed below:

AIAG
Automotive Industry Action Group
4400 Town Center
Southfield, MI 48075-1104 USA
Customer service: +1 (248) 358-3003
AIAG headquarters: +1 (248) 358-3570
International Customer Service: +1 (877) 275-2424

Email: General AIAG information (products, training and projects): order_inquiry@aiag.org

14.0 Process Control Plan (PCP)

The form to be used for new PCPs shall be that stated in the AIAG manual, latest edition, and can be obtained from the address in Section 13.0. Current or established PCPs should be revised to latest AIAG format where appropriate. A Production Control Plan shall be written for all purchased “production” products that appear on the Bill of Materials of any TXM project that is purchased from a supplier.

14.1 Completing the form

When completing the PCP form the anticipated effectiveness of the chosen process controls shall be in direct correlation with the “Risk Priority Number” (RPN) established on the PFMEA. The PCP shall:

1. Identity of each manufacturing process and the process and/or product control methods to be used.
2. Include the methods utilized to control purchased products and continue to follow the process flow through final inspection.
3. Have all areas of the form completed.
4. Specify that all SPC data to be supplied is to comply with the guidelines established in the “TXM SPC Policy”. (see section 19.0)

14.1.1 Safe Launch Control Plan

Suppliers will be required to create/implement a safe launch plan with a zero defect mentality for a standard duration of 90 days post SOP. The supplier will be required to provide documentation in the form of a safe launch control plan or equivalent to the appropriate SQE prior to 30 days before SOP to receive approval of plan by TXM.

14.2 PCP Review and Approval

The completed “TXM Purchased Part Process Control Plan” shall be reviewed at a TXM process review meeting prior to PPAP submittal. The PCP shall be submitted as part of the PPAP package. TXM will give final PCP approval as part of the PPAP package approval. Once the PPAP is approved, TXM Supplier Quality Engineering will determine if control items will be monitored on an ongoing basis by TXM’s Receiving Inspection Operations. A copy of the approved or rejected PSW – Part Submission Warrant will be returned to the supplier by the TXM Quality Secretary. A copy will also be filed by TXM Receiving Inspection for use in monitoring the incoming product.

14.3 Control Data

When TXM requires the supplier to send process control data, the data type and frequency will be identified on the approved PCP. If the supplier is using a form different than the one in the AIAG manual, TXM will identify the required control data by clearly stating it in a letter which will be attached to the PSW – Part Submission Warrant package when forwarded to the supplier with disposition. Required process control data shall be sent with the actual material shipment, and the shipment shall be identified using the TXM Special Shipment Tag. Required process control data shall be sent to TXM with every shipment for the first three (3) shipments following the Start of Production and every quarter thereafter. Unless otherwise specified, data shall be received by the last day of the month.

Data not received by the end of month will be considered late, and the material becomes subject to rejection. If a supplier receives a Supplier Corrective Action Request (SCAR), any relevant process control data shall be sent with every shipment, until the SCAR is closed. TXM may require an increase in the frequency of data submission, if the process stability or capability becomes questionable.

The data submitted shall be legible and clearly explained. As a minimum the data sheets shall include:

1. TXM Part Number
2. Date of report
3. Manufacturing period covered by the data
4. Characteristic being monitored
5. Reactions to all runs, trends or any other noted process instability.

TXM Receiving Inspection will receive the submitted data, verify that it meets the requirements of the PPAP and ensure that the supplier has properly reacted to all runs and trends in the data. The existence of trends indicates the process is no longer predictable and action shall be taken to bring the process back into control. All reactions to trends and out-of-control conditions shall be documented by the supplier and records maintained.

14.4 Control Plan Changes

Any modifications to an existing approved PCP shall require the submission of the revised documents and the Part Submission Warrant – PSW to TXM Supplier Quality Engineering for approval.

14.5 Supplier Corrective Action

If TXM discovers defective material (product that does not meet all current TXM requirements), a Supplier Corrective Action Request (SCAR) will be issued and corrective action required. In the event that a SCAR is issued, supplier corrective action reports shall include, where applicable, a modification of the PFMEA and PCP.

The efficiency of corrective actions will be monitored in the first 3 shipments after establishing the supplier clean point as well as zero recurrences in the previously reported problem.

15.0 Sample Submission Procedure

Sample submission provides the supplier an opportunity to ensure that all purchased materials meet or exceed all TXM requirements prior to receiving production shipments of these materials. The supplier also demonstrates its initial part quality and its ability to maintain ongoing part quality for the life of the project through the use of Process Control Plans and capability studies. All submitted samples shall be manufactured, inspected and tested in accordance with the requirements set forth in the purchased material contract.

Sample submissions shall be made under the conditions established in Table 1.

TABLE 1

This table contains those instances when a supplier is expected to notify TXM and submit documentation of changes and product samples prior to making a design or process change. The assigned TXM Supplier Quality Engineer is to be consulted in the case of questions/ambiguity of requirements.

NUMBER	TXM REQUIREMENT	TXM CLARIFICATION
1	Use of construction or material than was used in the previously approved part of product.	For example, other construction as documented on a written deviation or included as a note on the design record and not covered by an engineering change. This includes but is not limited to changes in process parameters outside those noted on or referenced by the control plan, and/or changing production from one size/class/rating of production equipment to another.
2	Production from new or modified tools (except perishable tools), dies, molds, patterns, etc., including additional or replacement tooling.	This requirement only applies to tools which due to their unique form or function, can be expected to influence the integrity of the final product. It is not meant to describe standard tool (new or repaired), such as standard measuring devices or drivers (Manual or Power).
3	Production following refurbishment or re-arrangement of existing tooling or equipment.	Refurbishment means the re-construction and/or modification of a tool or machine or to increase the capacity, performance, or change its existing function. This is not meant to be confused with normal maintenance, repair or replacement of parts, etc., for
		which no change in performance is expected and post repair verification methods have been established. Re-arrangement is defined as activity, which changes the sequence of product/process flow from that documented in the process flow diagram, (including the addition of a new process). Minor adjustments of production equipment may be required to meet safety requirements such as, installation of protective covers, elimination of potential ESD risks, etc. These changes can be made without TXM approval unless the process flow is changed as a result of this adjustment.
4	Production from tooling and equipment transferred to a different plant location or from an additional plant location.	Production process tooling and/or equipment transferred between buildings or facilities in one or more location.
5	Change of subcontractor for parts, non-equivalent materials or services (e.g.: heat treating, plating).	Suppliers are responsible for approval and notification to TXM regarding a change of subcontracted material and/or services.

6	Product produced after the tooling has been inactive for volume production for 12 months or more.	For product that has been produced after the tooling has been inactive for 12 months or more. Notification is required when the part has had no active purchase orders and the existing tooling has been inactive for volume production for 12 months or more. The only exception is when the part has low volume, e.g. Service or specialty vehicles. However, TXM may specify certain PPAP requirements for service parts.
7	Product and process changes related to components of the production product manufactured internally or manufactured by sub-contractors that impact fit, form, function, performance and/or durability. Additionally, the supplier shall concur with any requests by a sub-contractor before submission to TXM	Any change that affects TXM performance requirements for fit, form, function, performance and/or durability requires notification to TXM. NOTE: The fit, form, function, performance and/or durability is agreed on during contract review.
8	For bulk materials only: New source of raw material with special characteristics from new or existing sub-contractor. Change in product appearance attributes where there is no appearance specification. Revise parameters in the same process (outside PFMEA parameters of the approved product, includes packaging). Change outside of DFMEA (product composition, ingredient levels) of The approved product.	These changes would normally be expected to have an effect on the performance of the product.
9	Change in test/inspection method – new technique (no effect on acceptance criteria).	For change in test method, supplier should have evidence that the new method provides results equivalent to the old method.

15.1 Fabrication of Samples

The samples shall be made from specified material(s), on the regular production tooling, with no operations included which will not be incorporated into regular production processing. All applicable material handling and or application specific tooling must be accepted, in writing, by the sub-component supplier for fitness of use.

The number of parts required for sample approval by the using TXM plant shall be requested by Purchasing or SQE. The number of samples required may vary depending on the nature of the part. Unless otherwise specified, the supplier will submit six (6) samples of each part number requested or a minimum of the one (1) piece per cavity when multi-cavity tooling exceeds six (6) cavities.

15.2 Measurement of Conformance to Specifications

Suppliers are responsible for performing all inspection and test requirements called out on prints. They must also ensure conformance to the components design intent. Example: are conductors must conduct, fasteners must fasten and seals must seal.

All laboratory requirements, i.e. tensile, electrical, functional, shall be performed by the supplier or a qualified laboratory and be properly documented.

They will be presented to TXM if required.

All assemblies submitted for approval shall have all assembly dimensions shown on the drawing documented. When detail parts are specified on an assembly drawing, each detail part shall be dimensionally and laboratory checked and documented.

Multiple mold, die and cavity parts shall have a part from each mold, die or cavity checked and submitted. All tooling shall be 100% checked.

15.3 Marked Print Procedure

All suppliers of parts to TXM are required to follow this procedure, which simplifies the checking and review of sample submissions and reduces misinterpretation of sample submissions.

All drawings used for sample submissions shall have each dimension, note and specification numbered in an orderly manner. To permit a systematic review, drawings should be numbered from left to right across the drawing, or in a similarly organized method.

The marked print is used in conjunction with the TXM Inspection, Laboratory and Supplemental Sample Report forms. The numbers on the drawing shall correspond with the numbers recorded on the appropriate Sample Report Form.

15.4 Supplier Preparation of Sample Reports

In conjunction with the marked print procedure, TXM PPAP shall be submitted
The signature and the title of the responsible officially certifies the correctness of the sample and the report findings. The results of all inspections and test shall be documented on a fully completed Sample Report. Forms to be used are:

15.4.1 Part Submission Warrant – Dimensional (See Forms)

This form is used to report all dimensional findings on the parts to be submitted. When a gage, template or fixture is used to check a sample, “OK to Gage” or “OK to Template” notation is to be reported in the supplier findings column. The supplier is responsible for verifying that the checking device used is to the latest engineering level release, and that the checking device has been verified for accuracy. All cavities of multiple tooling shall be checked and reported. Where applicable, the actual measured samples shall be submitted to TXM with the PPAP package.

The measurement device (calipers, optical comparator, CMM, etc.) should be identified for each dimension measured. The method of part staging or setup should also be described on the PPAP Dimensional Form (attached sketches as necessary).
If any dimension is found to not meet drawing requirements, the supplier shall identify this condition by checking the “N/G” (no good) judgment column.

15.4.2 Part Submission Warrant – Material (See Forms)

Supplier must ensure that the material supplied to TXM is supplied under the applicable quality standards, seeking compliance with the applicable guarantee of use and aesthetics.

The supplier must comply with all applicable legal and regulatory requirements according to the city and the manufactured product.

The supplier must request the following information to the customer:

• The "receiving country" is where the organization is located. (Country of manufacturing site)
• The "shipping country" is the customer's receiving location. (Country to which the manufacturing site is shipped)
• The “destination country” is the country where the vehicle is sold. (Country where the final product is initially sold

Compliance with OFFICIAL MEXICAN STANDARD NOM-004-SSA1-2013, PB FREE.

15.4.3 Part Submission Warrant – Performance (See Forms)

This form should be used to report all functional testing required by TXM's Engineering activity or as defined on TXM drawings (i.e. ASTM B117 Corrosion Resistance, Max. /Min. torque requirement, insertion/ removal force, etc.).
Any test result found to not meet TXM drawing or Engineering specifications shall be identified by marking the "N/G" judgment column.

Copies of certification reports from sub-contractors and independent laboratories should be attached as supporting documentation to the information described on the Sample Report; however, all material and performance test data shall be in the format outlined in the laboratory form (i.e. Test Method, followed by Requirement, followed by Actual Test Result 1,2 &3, followed by a Judgment OK/N/G).

15.4.4 Appearance Approval

Any products that may be rejected by the customer on the basis of visual/cosmetic defects (i.e. painted parts, exterior trim parts, etc.) shall be submitted for Appearance Approval. Using the boundary sample tags the supplier shall submit marked boundary samples with the PPAP. Approved boundary samples shall be retained by the supplier for the life of the project.

15.4.5 Process Potential Studies

As defined in Section 9.9, Process Potential Studies shall be submitted as part of the PPAP package. Special forms are not required; however, the characteristics being evaluated should be clearly identified on each report.

15.4.6 PSW – Part Submission Warrant (See Forms)

The PPAP summary page will be completed and shipped as the first page of the PPAP package. The components
The PPAP will be required by the supplier quality engineer

PPAP LEVEL 4 → Catalog suppliers (PSW, data sheet)
PPAP LEVEL 3 → Customized suppliers (Specific points of PPAP and PSW).

A PPAP will be issued at the start of each project prior to the Taxan Mexico SOP date.
In case of not complying with the requirement in a timely manner, the applicable escalation of request for information will be used.

Note: You must follow all the specifications and requirements established in the AIAG manual for the issuance of PPAP and the issuance of PSW in the processes and cases that apply.

The PSW must contain the PPAP summary in which it is complemented with the applicable information required.

The supplier must follow the guidelines established by TXM in a stipulated time and manner.

The supplier will keep the samples and the sample reports until the end of the project's useful life

15.5 Shipping PPAP Samples

The completed PPAP package shall be sent to the Supplier Quality Engineer using the Special Shipment Identification Tag.

FAILURE TO SUBMIT PROPER DOCUMENTATION AS DESCRIBED IN THIS PROCEDURE MAY RESULT IN A REJECTED PPAP AND (if applicable) A DELAY IN PAYMENT FOR PRODUCTION TOOLING.

Questions regarding the sample submission procedure should be directed toward the responsible TXM Supplier Quality Engineer or TXM Buyer.

15.6 Sample Status Definition

The supplier will be notified by TXM Purchasing or TXM Supplier Quality Engineering as to the disposition of submitted samples. The disposition will meet one (1) of the following criteria:

15.6.1 Approved

The disposition of “Approved” indicates that the supplier has met all TXM requirements and may begin shipment. This shall include all functional testing required by TXM’s Product Engineering group.

15.6.2 Rejected

The disposition of “Rejected” indicates that the supplier has failed to meet TXM requirements as specified and cannot begin shipment. Corrected samples shall be submitted and approved prior to any shipment.

15.6.3 Provisional Approval

The disposition of “Provisional Approval” permits the shipping of parts on a limited time or piece basis. A

“Provisional Approval” status is generally issued in the following categories:

- Parts pending additional inspections and/or tests, such as laboratory requirements of other qualifications under assembly conditions. Additional samples are not generally required.
- Parts that do not conform to specifications for some minor characteristic, and although not desirable, may be used without rework and would not affect durability or performance. Corrected samples will be required.

A part covered by a “Provisional Approval” that is not corrected is automatically in a “Rejected” status after the time frame or quantity designated on the Provisional Approval is exceeded. No additional shipments are authorized unless superseded by an approval or an extension of the “Provisional Approval”.

16.0 Supplier Packaging and Shipping Guidelines

The packaging guidelines in this section are to inform TXM suppliers of the general packaging and shipping requirements, which are necessary for the TMX Production System. The goal of the TMX Production System is to provide the customer with a quality product at a competitive price.

Just-In-Time Production and Zero Defects at TMX does not allow for defective parts due to poor packaging or shipping methods, nor does it allow for the waste in handling of non-standard packaging materials.

16.1 Package Design

All part quotations are to include expendable and/or returnable packaging. Approval of the packaging design is the responsibility of TXM ME, QE, PM, SQE with the support of the Purchase Part Packaging Engineer. However, TXM approval does not waive Supplier liability for packaging design.

Package design shall conform to the minimum container standards described in these guidelines and must meet TXM timing. TXM suppliers do not develop the packaging but must follow/understand the need as this should be a part of their pre-production activity.

Packaging shall conform to all government and transportation rules and regulations.

The package shall deliver the part to the point of use, in a production ready and damage-free condition, assuming normal handling in transportation, storage and in-plant movement.

Packaging shall be designed to deliver and present parts in a condition that does not result in part quality degradation. Packages shall have sufficient vertical strength and stability to a maximum height of 50 inches from floor to the highest point, unless previously agreed upon by TXM. Package design and parts count shall not vary between shipments.

The packaging design must be under a risk analysis previously carried out by the supplier, which must consider an action plan applicable to the supplier in case of need to modify it.

16.2 Package Material

Whenever possible, recyclable material should be used; such as, corrugated paper, reusable containers, etc. but only for MI Components TXM Encourage all suppliers to avoid paper board for SMT Process.

Plastic material shall be labeled with a code in accordance with “The Society of the Plastic Industry” (SPI) guidelines and/or in accordance with local government regulations, which may apply.

All fiberboard containers, trays, caps and multi-wall tubes shall have a box maker’s certificate with bursting strength or ECT visible on the assembled containers.

Reuse of packaging materials and/or containers, pallets and other shipping aids shall have prior written approval from TXM Purchasing.

Packaging for ESD sensitive items must meet appropriate ESD packaging requirements. Packaging must protect components from damage and contamination.

16.3 Expendable Packaging

The sourced supplier is responsible for design and approval prior to TXM SOP for approved expendable packaging. The design of the expendable pack should reflect the outer dimensions of production packaging and quantity per tote.

If expendable packaging is used, special authorization should be received from your SCS the day prior to shipping product. The SCS will provide approval via email.

If the supplier does not have an approved alternate pack, they must notify SCS and provide a picture of planned expendable with dimensions and qty per pack to be used to their SQE and Buyer for review.

16.3.1 Handling

Unique packaging requirements dictated by a part (i.e. excessive part oiliness, rust prevention, weight or fragility) not covered by these specifications are the responsibility of part suppliers and shall be approved by the TXM Manufacturing Engineering.

16.3.2 Pallets and Top Caps

Unless otherwise approved, the standard TXM pallet (45”x48” w/ max height of 50 shall be utilized to help create uniformity in storage and disposal. All pallets are to be made of durable returnable and recyclable materials unless other special packaging specifications are authorized. In addition, all pallets must have an approved top cap. If standard top cap is not available, please contact your SCS.
Palletized loads shall be adequately secured to the pallet. The preferred method of palletizing is plastic banding. However, plastic stretch-wrap may be substituted, if necessary. Under no circumstances will metal banding be acceptable.

16.3.3 Unique Containers

Full pallet sized cartons shall not overhang their base and shall be banded to the pallet.
All Half-Slotted Carton (HSC) style boxes (corrugated cardboard container which is not completely covered on the top) shall be secured with a cover.
In some cases, small component parts such as fasteners, plastic clips, etc. may be required to be packaged inside a plastic bag inside the container. This requirement is to be determined at PPAP by the TXM Supplier Quality Engineering Department.

16.4 Returnable Containers

Due to environmental, cost and quality considerations TMX encourages the use of returnable packaging. This portion of the guidelines will assist in the development of returnable packaging.

16.4.1 Standard Containers

Many parts can be shipped in standard containers, which are available and require little or no modification. Some examples include plastic tote boxes and steel/wire racks. Contact the Purchasing Department for additional information and recommended containers.

16.4.2 Unique Containers

Frequently, parts may require a unique or specialized packaging design due to part characteristics, automated handling, ergonomics, etc. Special characteristics include part geometry, fragility, cleanliness, etc., requirements. Specialized packaging can be constructed from various materials, which are dependent upon the part. The most common materials used are plastic, wood and metal. Common examples include plastic trays and pallets, and tubular steel racks. Sizing, when possible, should follow the guidelines stated in the expendable container section (Section 16.3).

Returnable packaging should be made of materials that are disposable or recyclable. Examples of difficult to dispose or recycle materials include thermoset plastics and paint containing lead.

16.4.3 Economics

TXM strives to receive packaged parts utilizing the most economical method possible, while, at the same time, maintaining part quality. It is the supplier's responsibility to maintain the cleanliness of the packaging to ensure that parts arrive at TXM at the acceptable quality level. The cleaning frequency should be determined at PPAP and is the responsibility of the supplier.
Economic factors that influence the use of returnable packaging include material, quality, labor, freight, cleaning, disposal, recycling and tooling costs.

16.5 Labeling and Identification

TXM has made bar coded labels a vital part of its manufacturing process. The following are guidelines for the printing and placement of supplier bar coded labels using the Plex portal.
Suppliers must complete the following steps. Not doing so will prevent TXM from receiving the items into Plex and may result in supplier charge backs.
TXM requires that all individual packages (totes, cartons, gaylords, housing racks, etc.) have clear, identifiable labels affixed to them in an easily accessible and consistent location.
Plex Portal – Suppliers using the Plex portal must select "Ship" in order for the items to be placed into "Supplier Shipped" status.

EDI - Suppliers using EDI must send an ASN within 15 minutes of the truck leaving.

16.5.1 Contents Identification

Label Requirements

- Labels should be printed using an output resolution of 200 dpi. Using a higher or lower output resolution may cause the print to be too large or small for the label.
- Labels should contain code bars with information about Lot, Part Number and description as minimum.

Label Specifications

- Part No. (P) - This area contains a human readable TXM part number and is auto-populated when printed from Plex.
- Quantity (Q) - This area contains a human readable quantity for the labeled container and is auto-

populated when printed from Plex. When shipping in alternate packaging, this quantity must be changed manually if different from the standard packaging quantity.

- Serial # (S) - This area contains a human readable serial number and scannable bar code. This is auto-populated when printed from Plex. The bar code must be clearly printed and free of any damage or tears. Light print, tears or damage to the label may prevent the bar code from being scanned.
- Supplier Code (V) - This area contains the human readable supplier name and is auto-populated when printed from Plex.
- P.O. # (N) - This area contains the human readable purchase order number and is auto-populated when printed from Plex.
- Manufacture date: In this area, the date on which the product was manufactured must be entered.
- Expiration date: In this area must be the expiration date applicable to the product

In the Case that your labels do not meet the minimum requirements established and listed above, it will be a reason for the application of guarantees for everything already assembled in Taxan Mexico as well as the damages caused by the supplier.

16.5.2 Special Shipment Identification Tags

Special Shipment Identification Tags shall be required to identify all irregular shipments (pre-production samples, reworked material, etc.) and should, also, be used to identify the first 3 shipments of new product.

Monitoring Label	
# OF SHIPMENT	
# PART	
NAME OF WHO PERFORMED THE REVIEW	
DATE SHIPMENT	
TYPE OF INSPECTION PERFORMED	
RESPONSIBLE FOR SHIPPING	

16.6 Shipping Documents

All shipments shall be accompanied by a Bill of Lading and a Packing List. The packing list must be located on the shipment in plain sight of the unloader. In addition, an Advanced Shipping Notice (ASN) must be sent to TXM at the time the shipment leaves the suppliers dock.

All invoices and packing lists shall include:

- TMX, Inc. Part Number
- Purchase Order Number and release number (if applicable).
- Total Quantity shipped per part number
- Part Description
- Number of cartons shipped.

The Packing List number shall be referenced on all invoices Only one (1)

document shall bear the title “Packing List”.

If possible, invoices and packing lists should be identical. Bill of Lading should be referenced on both the packing list and invoice.

16.7 Freight Preparation

- All labels must be on the short side of the container and visible on the outside of the skid
- When possible, like part numbers should be grouped together and contained on the same pallet facing the same direction
- All staged pallets must meet the standard size requirements noted in 16.3.2
- All containers must be palletized so the pallet is stable and secure
- When shipping the TXM the final destination must be clearly identified on the 45" side of each pallet. Multiple locations should NEVER be placed on the same skid unless authorized by SCS or buyer.
- Skids containing more than one part number must be identified as mixed labeled as a "mixed" palled and include a Mixed Pallet Manifest.
- Packing List must be clearly visible on the outside of the skid.

16.8 Transportation Guidelines

16.8.1 Truck Shipments

1. Freight must be staged prior to dock time.
2. In applicable, sort freight by final destination. Load the freight for the last stop first and the first stop last. Contact SCS for loading sequence if unknown.
3. Stack freight as necessary to ensure safe handling and transport.
4. Stack freight as necessary to ensure safe handling and transport.
5. All heavy freight must be placed on the bottom of the stack.
6. Expendable freight may stack on top of heavy freight only when a top cap is used.
7. Expendable packaging must be placed on top of layer of skids when stacked with returnable.

16.8.2 Transportation Requirements

The transportation of product from Supplier to TXM is determined by your Buyer and should be known by your SCS. If you have question or concerns please contact one of these persons.

16.8.3 Small Packaging Shipments

1. Over 150 lb less than 5000 lb or 12 linear feet.
2. Under 150 lb the preferred small shipment carrier is Fed Ex Ground (less than 150 boxes).
3. Utilize a plastic band to connect all small boxes when possible. This will ensure product is delivered at the same time. Also, you can place smaller boxes inside a larger box.
4. Each small package shipment must contain a copy of a packing slip clearly identified on the OUTSIDE of the box whether shipping LTL, Fed Ex or another method of shipment.

16.9 Conclusion

Although, it is the responsibility of the supplier to design packaging for their products is interested in obtaining the most economical packaging, transportation and handling costs, while ensuring part protection and quality.

17.0 Potential Failure Mode and Effect Analysis (PFMEA)

The supplier shall have a PFMEA for each component that is manufactured and shipped to TXM, which will ultimately be a part of a finished lamp that is to be shipped to the OEM's. Refer to the latest edition of the AIAG Manuals for this format.

18.0 Process Control Plan (PCP)

The supplier shall have a PCP for each component that is manufactured and shipped to TXM, which will ultimately be a part of a finished lamp that is to be shipped to the OEM's. Refer to the latest edition of the AIAG Manuals for this format.

19.0 TXM SPC Policy

19.1 Development of Pp and Ppk indices for PPAP Submissions

Stability shall be indicated prior to the capability indices. The calculation is to be based on criteria established during design review.

Stability for Ppk is defined by TXM as having no out of control points or trends based on a minimum of 25 subgroups of 5 consecutive pieces each; utilizing short run X-R Chart format.

Ppk ≥ 1.67 is required for submission to the customer unless otherwise approved by that customer.

19.2 Development of Cp and Cpk indices for production

The supplier is to utilize control limits developed from the Ppk study for the first 25 subgroups, then recalculate the control limits from actual production data.

Stability shall be indicated prior to the capability index calculation.

Stability for Cpk is defined by TXM as having no out of control points based on a minimum of 25 subgroups of 5 consecutive pieces each

Calculate Cp and Cpk using this data (25 subgroups of 5 consecutive pieces each, minimum). A Cpk of ≥ 1.33 is required unless otherwise approved by the customer.

19.3 Ongoing process and product monitoring

Suppliers are to follow the rules established below (Table 2).

TXM defines control of ongoing monitoring as having no points outside of the control limits and no adverse trends.

TXM requires all runs, trends, and out-of-control points to be properly identified and documented. TXM requires countermeasure action plans for any out-of-control on non-capable processes.
The Cpk and Control Limits are to be recalculated for any of the following reasons: upon significant process change; quarterly or necessity for continuing control.

Note: For additional information regarding standard automotive SPC practices, please, refer to the *Fundamental SPC Reference Manual* published by AIAG.

TABLE 2

TXM SPC POLICY

Ongoing Process and Product Monitoring Chart

	ACTIONS ON THE PROCESS OUTPUT		
POINT	**Cpk History < 1.33**	**Cpk History 1.33 – 1.67**	**Cpk History > 1.67**
IN CONTROL	- Accept production - Action plan required to improve capability	- Accept production	- Accept production
	Cpk History < 1.33	**Cpk History 1.33 – 1.67**	**Cpk History > 1.67**

OUT-OF-CONTROL	- Immediate action plan required to correct special cause - Immediate sample of stock produced since last in-control point (twice as many as subgroup size min.) to determine required action - Action plan to improve capability required	- Immediate action plan required to correct special cause - Immediate sample of stock produced since last in-control point (twice as many as subgroup size min.) to determine required action	- Immediate action plan required to correct special cause.
	< 1.33		**> 1.67**
OUT-OF-CONTROL ONE OR MORE OUT OF SPEC.	- Immediate action plan required for special cause - 100% sort all in-house stock for the out of spec. characteristic - Double sample frequency (i.e. current 3 pcs/4 hrs go to 3 pcs/2 hrs until control re-established) - TXM to reject shipment if the parts have not been 100% inspected for the out of spec characteristics at the supplier		

GLOSSARY

CALIBRATION:
The function of determining the accuracy of measuring devices and adjusting such devices to indicate exact conditions as established by standards of known accuracy.

CHARACTERISTIC:
An individual specification on a part or product.

CONTAINER LABEL:
This label is to be used on a returnable container that is meant to be returned to the supplier. This label must include the following information: Return to Supplier XYZ, Part Number and description of part.

CRITICAL CHARACTERISTIC:
A characteristic which, if not within specifications, may affect the performance of vital components and systems, result in major repair expense or result in a hazard for the individual assembling the product.

CHECKS AND TEST:
The evaluation of conformance of characteristics to prescribed limits and standards.

DEFECT/DEFECTIVE:
Nonconforming parts or products. Any variation from or failure to meet specifications.

FUNCTIOTXM TEST:
The evaluation performed on samples to ensure they assemble properly, conform to operational requirements, meet TXM engineering specifications and are adaptable to production usage. TXM will be responsible for final determination of functionality.

HSC:
Half-slotted carton.

INITIAL SAMPLE:
A small quantity of parts made from production tooling and set-up and requiring TXM approval prior to volume shipment.

INSPECTION:
Examination of parts or products to determine conformance to specifications.

INSTRUCTIONS:
Written documents which detail operations and procedures to be performed.

KANBAN:
A small card that is the day control tool for Just-In-Time Production. The KANBAN provides instructions for production and conveyance of product.

LOT INSPECTION:
Lot inspection is the inspection performed on random samples taken from an isolated aggregation of parts, which are essentially alike and which were produced from the same production processes. Lot size shall normally represent parts produced during a specific operating period of up to eight hours or a working shift. Production rates shall be a determining factor in establishing lot size, which shall be acceptable to the TXM representative.

MAJOR CHARACTERISTIC:
A characteristic, which if not within specification, is not likely to reduce materially the usability of the item for its intended purpose, or is a departure from established specifications or standards having little bearing on the effective assembly performance, function or customer acceptance of the item.

PROCESS CAPABILITY:
Refers to the normal behavior of a process when operating in a state of statistical control.

PROCESS CAPABILITY STUDY:
Refers to the systematic study of a process by means of statistical control charts in order to discover whether it is behaving naturally or unnaturally.

PROCESS CONTROL:
The establishment and maintenance of all of the circumstances necessary to ensure that any variation in product quality beyond the established limits for the process is attributable to change causes only, and that any such variations resulting in end product nonconformance will be detected and corrected on all products produced prior to shipment of finished materials.

PROCESS CHANGE:
As used in this specification, any change in the processing concept, which could alter the design requirements or durability of the part. This will include new, different or rehabilitated production machinery or equipment which might cause the characteristic of the part being processed to change in a way that would not be measurable in the normal inspection procedure, the use of Engineering approved alternate materials and new process concepts, including major changes in the sequence of operations.

PURCHASE AGREEMENT:
Contract arrangement between TXM Purchasing Department (Buyer) and Source (Seller) detailing specific conditions or requirements that each party is obligated to meet.

RANDOM SAMPLE:
A sample selected in a manner whereby any given item in the lot has an equal chance to be examined.

RECORDS:
Documented evidence of performance.

SOURCE:
A person, company or organization which signs a purchase agreement or contract to supply materials to TXM.

SPECIFICATIONS:
The limits established which describes the requirements for conformance to all characteristics.

SUBCONTRACTOR:
A person, company or organization to which a source sublets processing.

IATF16949/ISO 9001:
All references to these items assumes the most current standard.

ACRONYMS

AIAG	Automotive Industry Action Group
APQP	Advanced Product Quality Planning
ASTM	American Society of Testing and Materials
CMM	Coordinate Measuring Machine
EOL	End Of Life
ESD	Electrostatic Discharge
HSC	Half-Slotted Carton
IMDS	International Material Data System
N/G	Not Good
OEM	Original Equipment Manufacturer
PCP	Process Control Plan
PFMEA	Process Failure Mode and Effects analysis
PPAP	Production Part Approval Process
PPM	Parts Per Million
PSW	Product Submission Warrant
RPN	Risk Priority Number
SAE	Society of Automotive Engineers
SOP	Start Of Production
SPC	Statistical Process Control
SPI	Society of the Plastics Industry
SCAR	Supplier Corrective Action Required
SQE	Supplier Quality Engineering

REVISION		DESCRIPTION	RESPONSIBLE
No.	**Date:**		
0	28-10-2018	Initial Release	Jorge M. Reyna
1	20-12-2019	3.5 Supplier Requirements, Electronic Part Counterfeit Risk Mitigation, 3.6 About Components Shelf life. 3.7 Cost Recoveries. All chapters were Added.	Julio Esparza
2	11-12-2020	In point 3.7 was include the specific cost for sorting Activity in TXM due Supplier Concern.	Julio Esparza

SQAM

REVISION		DESCRIPTION	RESPONSIBLE
No.	**Date:**		
3	15/06/2021	Points are modified: 2.1supplier selección 3.1 general 3.2 purchased material and control supplier 3.7 cost recoveries 4.2 Non-conforming material (E) score card (F) scalation 6.0 corrective action 7.2 Engineer change 12. returned materials 14.5 supplier corrective actions 15.4.2 part submission warrant 15.4.6 PSW 16.1 package design specification.	Jennifer Corpi

Author	Approved by	Date:
Julio Esparza	Julio Esparza	11-12-2020
Quality Manager	Quality Manager	

ACKNOWLEGMENT AND CONSENT:

_____ _____

Supplier signature Date: