

Tenneco Clean Air Global Supplier Manual

Any procedure changes within this Manual will result in an update of the complete manual revision date and number.

This Manual is a controlled document. No changes or revisions to be made unless submitted by Tenneco Inc.

Each supplier wishing to do business with Tenneco is required to meet the guidelines indicated in this Tenneco Clean Air Global Supply Chain Manual, as well as the Regional Appendix for the respective region for which business transpires.

Latest changes in blue font.

Tenneco Clean Air Global Supplier Manual

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Acknowledgements

Tenneco acknowledges contributions from the cross functional team preparing this manual.

Preface

Tenneco places the highest emphasis on the **performance, quality, reliability** and **integrity** of its products.

To achieve this goal, we expect our suppliers to match Tenneco's level of commitment to achieve the performance and quality levels our customers expect. Only together will we be successful in the market.

Vision

Pioneering global ideas for cleaner air, and smoother, quieter and safer transportation.

Acceptance of binding obligation

The objective of this Supplier Manual ("Manual") is to provide you with clear requirements in a concise manner. While we attempt to make these requirements transparent and easily understood, it is recognized that due to the nature of your products or services, some exceptions may be required. In the latter cases, please document your concerns and recommendations, providing a sound rationale for your position and direct them to our purchasing group.

Please note, however, that raising concerns or proposing recommendations shall not relieve your responsibility to comply with all the provisions and obligations in this Manual. Please be further advised that no exceptions or changes to this Manual will be deemed to exist unless a Tenneco management team member executes a formal contract accepting such exceptions or changes. Absent a written agreement signed by a Tenneco management team member, all additional or conflicting terms proposed by you are hereby rejected.

We welcome suggestions and constructive comments related to the content of these requirements.

1 Introduction

1.1 Scope

This Manual is provided to define both our customary and general guidelines of how Tenneco conducts business. These binding global purchased material requirements outline our expectations to create what Tenneco believes is a strong, competitive, and value-added supply chain.

Tenneco's success is dependent upon our ability to provide the highest value to our customers through quality, service, and cost. A close working relationship with our supply base is critical to the achievement of this objective. This Manual will provide you with the necessary information that will be valuable to our mutual efforts of conducting business in a professional, ethical, efficient, and profitable manner. This updated Manual supersedes all other supplier manuals previously provided to you by Tenneco.

Should you have any questions, please contact respective Global Purchasing (GP) buyer.

Thank you for your continued interest and support.

In this Manual, the following terms will have the following meanings:

- "shall" indicates a requirement
- "should" indicates a recommendation
- "may" indicates a permission
- "can" indicates a possibility or a capability

Information marked as "NOTE" is for guidance in understanding or clarifying the associated requirement.

1.2 Definitions and Abbreviations

AIAG – Automotive Industry Action Group

AM – Aftermarket

ASN – Advanced Shipping Notice

APQP – Advanced Product Quality Planning

ASTM – American Society for Testing and Materials

AS400 – Advanced Systems 400

BOS – Business Operating System

CAD – Computer Aided Design

CB – Commodity Buyer

CBU – Customer Business Unit

CC/SC – Critical Characteristics/Significant Characteristics

Chemical raw materials – Refers in this Manual to a group of raw materials, often referred to as compounding materials, for the use as direct material (i.e. production material)

CI – Continuous Improvements

CQI – Continuous Quality Improvements – Special Process Assessments with AIAG

CMM – Co-ordinate Measuring Machine

CMRT – Conflict Minerals Reporting Template

CP – Control Plan

Cp, Cpk

Cp = Process Capability. A simple and straight forward indicator of process capability.

Cpk = Process Capability Index. Adjustment of Cp for the effect of non-centered distribution.

CSRs – Customer Specific Requirements

CSR – Corporate Social Responsibility

CSI / CSII – Controlled Shipping (level 1/ level 2)

DFMEA – Design Failure Mode Effects Analysis

ECM – Engineering Change Management

EDI – Electronic Data Interchange

FMEA – Failure Mode Effects Analysis

Gage R&R (Variable/Attribute) – Repeatability & Reproducibility

GP – Global Purchasing (Tenneco)

GWC – Global Working Conditions

G8D – Global Eight Disciplines of Problem Solving

HIC – High Impact Characteristics

IATF – International Automotive Task Force

ILAC MRA – International Laboratory Accreditation Cooperation Mutual Recognition Arrangement

IMDS – International Material Data System

ISO – International Organization for Standardization

LCR – Least Contracted Requirement (Daily/Weekly)

LTA – Long-term Agreements

MAQMSR – Minimum Automotive Quality Management System (IATF)

MCR – Maximum Capacity Requirement (Daily/Weekly)

MDS – Material Data Sheets

MSA – Measurement System Analysis

MSC – Measurement System Correlations Studies

MSDS – **Material** Safety Data Sheet – See Regional Appendices for Requirements

NPI – New Product Introduction

OE – Original Equipment

Packaging unit – Subunit of the shipping unit, which wraps the material or holds it together.

PCN – Process Change Notification

PFMEA – Process Failure Mode Effects Analysis

Poka-Yoke – A poka-yoke is any mechanism in any process that helps an equipment operator avoid (yokeru) mistakes (poka). Its purpose is to eliminate product defects by preventing, correcting, or drawing attention to human errors as they occur.

PPAP – Part Production Approval Process

PPM – Parts Per Million

PSW – Part Submission Warrant

PTC – Pass Through Characteristic

PTP – Pass Through Parts

QMS – Quality Management System

Raw materials – Used in this Manual as a collective term for chemical raw materials and reinforcements

RCA – Root Cause Analysis

REACH – Registration, Evaluation, Authorization and Restriction of Chemicals (the regulation (EC) No. 1907/2006)

RoHS – Restriction of Hazardous Substances

SA –Scheduling Agreements

SCAR – Supplier Corrective Action Report

SDS – Supplier Development Specialist

SIP – Supplier Improvement Process

SPC – Statistical Process Control

SSC – Supplier Score Card

TITAN – Tenneco’s Interactive Tendering Alliance Network

TPO – Tooling Purchase Order

TSP – Tenneco Supplier Portal (TITAN)

TVR – Tooling Vendor Registration (form)

VA/VE – Value Analysis/Value Engineering

VDA 6.3 – Developed by VDA QMC and the German automotive industry, VDA 6.3 defines a process-based audit standard for evaluating and improving controls in a manufacturing organization’s processes.

3L5Y - Three Legged Five Why – RCA problem solving tools

2. Organization – For more information on Tenneco, see www.tenneco.com.

2.1 Quality Statement

We are committed to delivering Customer Satisfaction by fostering a zero-defect mindset with a commitment to meet requirements using continuous improvement with teamwork, engagement, and ownership to, GET IT RIGHT THE FIRST TIME, EVERY TIME.

2.2 Product Compliance and Quality Policy

Each business unit must establish governance, roles, and responsibilities to achieve the following for products sold by the Company:

- Foster a quality mindset with the objective of providing products and services with zero defects by applying continuous improvement strategies to deliver competitive advantage;*
- Comply with relevant laws, regulations and applicable requirements, including regulation of product materials and proper labeling;*
- Continuously improve the quality management system to ensure product safety, prevent quality incidents and eliminate defects through the review of quality objectives and results;*
- Ensure accurate reporting of data;*
- Encourage teamwork, engagement and ownership of quality responsibilities among all employees through standards, education, training, and effective communication; and*
- Facilitate continuous feedback from our customers regarding the performance of our products and utilize their input to improve product and service quality.*

Tenneco expects full support from our suppliers in reaching the objectives laid out in the above Quality Statement and Policy.

3. Purchasing

3.1 Organizational Philosophy

Tenneco endeavors to supply its customers with the highest quality, most cost-competitive products available in the industry. In support of this objective, our organizational philosophy is to develop and maintain relationships with suppliers who best demonstrate their commitment to these goals through consistent scheduled delivery of defect-free products, at competitive prices.

Tenneco is committed to developing, manufacturing, and marketing innovative, reliable and cost effective systems and modules. To support this objective, Tenneco suppliers shall be technologically competent and financially capable of supporting our development needs for current and future products.

Tenneco suppliers shall become involved in new product development, to ensure we have robust designs and processes capable of meeting our goals. To be considered as a Tenneco supplier, companies shall be willing to share information on their financial situation with our purchasing department.

Sourcing decisions are based on competitive pricing, quality assurance, supply and delivery performance, service, and life cycle costing. This sourcing philosophy will include development of long-term relationships with suppliers to achieve productivity improvements, in order to reduce costs on a continuous basis.

3.2 Operational Philosophy

Tenneco operates in an environment focused on continuous improvement, variability reduction and zero defect philosophy. Customer satisfaction, employee satisfaction and economic value added (EVA) are some of the critical values. Suppliers are expected to have operating philosophies that are compatible with these values.

Suppliers are expected to maintain quality systems and processes to provide 0 PPM / defect-free components eliminating the need for receiving inspection. Cost reduction through elimination of waste, inspection, inventory and reduced warranty claims, are primary objectives. Tenneco recommends suppliers practice "Lean" methods.

3.3 Ethics

In order to support sound procurement practices and maintain a reputation for honesty and fairness, Tenneco will go through the supplier selection process to select suppliers who can provide products and services of the highest value. Tenneco team members are also expected to observe the highest ethical standards when handling Tenneco business, making contacts with the business community, and other matters, which would indirectly affect Tenneco's reputation for integrity.

It is Tenneco's policy that personnel and suppliers shall not engage in any activities nor have any personal or financial interests outside Tenneco, that constitute a conflict of interest with Tenneco policies or that conflict in any way with their assigned responsibilities.

It is Tenneco's policy that personnel or suppliers shall never place themselves or Tenneco under obligation at any time by the acceptance/offering of gifts and gratuities of value. When it is necessary to decline such favors, it should be done courteously with a brief explanation of the standard Tenneco policy regarding this matter.

Since Tenneco's worldwide operations must comply with all applicable laws, rules and regulations, and the policies and procedures that support them, suppliers are required to comply with the same including Tenneco's Code of Conduct.

Refer to Tenneco's Code of Conduct in the Tenneco Supplier Portal under the Supplier Information Center.

Suppliers shall document their process to ensure that purchased products, processes, and services conform to the current applicable statutory and regulatory requirements in the country of receipt, in the country of shipment, and the customer identified country of destination.

If a supplier feels that their position has been compromised by any individual within Tenneco, they are required to inform Tenneco leadership of their concern as soon as possible.

3.4 Supplier Criteria/Initial Assessment

The primary objective of Tenneco is to achieve "Best in Class" status in supply chain management and supplier performance. As Tenneco focuses on core manufacturing processes, our suppliers shall also be developing and perfecting their core competencies.

To develop & maintain a long-term relationship with Tenneco, suppliers shall:

- meet the guidelines indicated in this Tenneco Global Supplier Manual, as well as each regional supplement for the respective region for which business transpires.
- be globally competitive in quality, technology, service and cost.
- provide defect free products for all direct and indirect materials / resources.

- maintain a quality system, which meets the requirements as defined below in the supplier certification and qualification requirements matrix.
- provide the lowest total cost products driving year-over-year reductions through continuous improvement and Value Analysis/Value Engineering (VA/VE) initiatives.
- be capable of validating products for Tenneco specific applications.
- consistently deliver parts on time.
- be prepared to follow Tenneco into emerging market regions.
- be proactive and flexible in responding to changing customer demands.

The first step in on boarding a supplier to join our supply base is for the supplier to complete an initial registration through the TITAN supplier portal.

The supplier inputs pertinent information directly into the system, which is routed to a Tenneco commodity buyer for review. The Commodity Buyer uses this registration to make a preliminary review of the supplier. The second step in the approval process is an onsite assessment by Tenneco at the supplier's location. The supplier shall demonstrate compliance to this manual.

Table 1. Supplier certification and qualification requirements

Supplier Type	Supplier Service	Certification & Qualification Requirements
External Labs / Calibration Services / Gage Suppliers	Supplier who provides calibration services/equipment for test and inspection	<p>Accredited to ISO/IEC 17025 or national equivalent by an accreditation body of the international laboratory accreditation cooperation mutual recognition arrangement or written end customer approval of the external laboratory.</p> <p>When a qualified laboratory is not available for a given piece of equipment, the equipment manufacturer may perform calibration services.</p> <p>Gages shall be certified by an accredited calibration supplier before use. The plant shall be responsible for the control of the type of supplier.</p>
Chemical Suppliers – direct material	Supplier of chemicals that are direct inputs into the final product. Examples – anodizing chemicals, plating chemicals, paint, etc.	<p>Supplier shall be certified to current ISO 9001 and/or IATF 16949 certification. Material Safety Data Sheets (MSDS) shall be provided.</p> <p>Initial assessment audit at supplier's manufacturing location is mandatory.</p>

		<p>Product qualification/approval at Tenneco site is required prior to mass procurement.</p> <p>Supplier shipping to EU shall comply with REACH and RoHS requirements.</p>
Chemical Suppliers – others	<p>Supplier of chemicals that are not used in the final product. Examples: Cleaning supplies, hydraulic oil, other chemicals used in the maintenance of equipment.</p>	<p>Supplier shall be certified to current ISO 9001 and/or IATF 16949 Material Safety Data Sheets (MSDS) shall be provided. Supplier shipping chemicals to EU shall comply with REACH and RoHS requirements.</p>
OE Special Process Suppliers	<p>Heat treat: CQI-9 Plating: CQI-11 Coating: CQI-12 Welding: CQI-15 Soldering: CQI-18 Molding: CQI-23 Casting: CQI-27</p> <p>Ford: Ford Specific Machining Assessment</p>	<p>Supplier shall be certified ISO 9001 and/or IATF 16949. Initial self-assessment audit is mandatory at supplier's manufacturing location.</p> <p>Annual assessment shall be uploaded to TITAN.</p> <p>Special Process Suppliers shall complete CQI self-assessment reviewed by Tenneco auditor during initial assessment and uploaded to TITAN annually.</p>
Prototype & Pre-production Suppliers	<p>Suppliers who provide samples for prototype and pre-production testing. No production saleable parts are allowed from this supplier.</p>	<p>Supplier shall be certified to current ISO 9001 and/or IATF 16949.</p> <p>Prototype supplier that may become a regular supplier for serial production shall be audited and approved for ISO 9001 and/or IATF 16949 certifications. Supplier shipping parts & finished goods supplier to EU shall comply with REACH requirements.</p>
Direct Material Supplier & Service Supplier	<p>Supplier of materials that are direct inputs into the final Product.</p> <p>Examples include:</p> <p>Suppliers of raw material Purchased components Suppliers of heat-treating Painting supplier Coating supplier Plating supplier Other finishing services Sub assembly</p>	<p>Supplier shall be certified to ISO 9001 and/or IATF 16949 certification. Supplier shipping chemicals, parts & finished goods to EU shall comply with REACH and RoHS requirements.</p> <p>Initial assessment audit is mandatory at supplier's manufacturing location.</p>

	<p>Special process identified by AIAG or Customer Specific: for example: Welding: CQI-15 Coating: CQI-12 Heat Treat: CQI-9 Casting: CQI-27</p>	<p>Special Process Suppliers shall complete CQI self-assessment and upload to TITAN annually.</p>
Distributors	<p>Supplier who distributes and/or purchases product that has been manufactured by another organization.</p> <p>The purchased product is a direct input into the final product.</p>	<p>Supplier shall be certified to ISO 9001.</p> <p>Certification required either from distributor or from manufacturer.</p> <p>Supplier initial assessment is required.</p>
Warehouses	<p>Supplier warehouse locations, distributes, and/or purchases product that has been manufactured by another organization. The purchased product is a direct input into the final product.</p>	<p>Supplier shall be certified to ISO 9001.</p> <p>Certification required either from distributor or manufacturer.</p> <p>Supplier initial assessment is required.</p>
Direct Packaging printed corrugated cardboard boxes dunnage returnable*	<p>Supplier who provides e.g. blister cards, or other non-returnable packaging included in sale of the final product.</p> <p>Examples include product boxes and folding cartons.</p> <p>A supplier who provides items for packaging for transporting the final cardboard separators, labels, internal dunnage, ink, inserts/dividers, wooden pallets, shrink wrap, etc.</p> <p>A supplier who provides returnable packaging for the final product.</p>	<p>Supplier should be certified to ISO 9001 and/or IATF 16949 certification.</p> <p>Self-assessment from supplier is recommended.</p> <p>Heat Treated Wooden Pallets: Supplier must comply to the International Standard for Phytosanitary Measures, publication #15 – Regulation of Wood Packaging Material (WPM) in International Trade. ISPM 15 requires treatment of all wooden packaging and the application of a special mark for the type of treatment utilized.</p> <p>*Initial assessment audit is not mandatory for packaging suppliers with ISO certificate.</p>
Indirect Packaging	<p>A supplier who provides items for packaging for transporting the final product such as plastic bags, cardboard separators, labels, internal dunnage, ink, inserts/dividers/wooden pallets, shrink wrap, WIP racks, etc.</p>	<p>Supplier should be certified to current ISO 9001 and/or IATF 16949.</p> <p>Heat-treated wooden pallets: Supplier must comply to the International Standard for Phytosanitary Measures, publication #15 – Regulation of Wood Packaging Material (WPM) in International Trade. ISPM 15 requires treatment of</p>

		all wooden packaging and the application of a special mark for the type of treatment utilized.
Tooling Suppliers	A supplier providing tooling for the manufacture of direct materials into the final product, and which has an immediate impact upon final product characteristics; including specialty tool and die shops.	Suppliers shall be ISO 9001 certified. Tooling purchases shall comply with local site tooling approval process.
Freight/Transportation Companies	A supplier who provides transportation of product.	Supplier should be certified to current ISO 9001. Supplier shall be qualified in line with global transportation procedures.
Automotive product related software or automotive products embedded with software.	A supplier who manufactures or sells Automotive product related software or embedded software.	Supplier shall be certified to ISO 9001. Initial Self-Assessment Audit may be required at supplier's manufacturing location along with software capability.

3.5 Request for Quote (RFQ)

The RFQ process must establish the timing, feasibility and costs for each element of a component/service. Therefore, it is extremely important that suppliers provide a full cost breakdown along with the additional information required within the specified timeframe.

3.6 Scheduling Agreements

Scheduling Agreements / Purchase Orders (SA's/PO's) (sometimes called "blanket purchase orders") are typically issued to a supplier by global purchasing (GP). Each Tenneco plant will issue forecasts and releases for each part number(s) used at that plant. SA's are updated as parts are added, or removed from, the supplier's offerings due to new programs, resourcing, programs ending, etc.

3.7 Shipping Releases

Shipping releases are issued to cover specific quantities of parts due on specific dates at a given Tenneco plant, Suppliers are required to use either Tenneco's web-based supplier collaboration tool or traditional EDI.

3.8 Service Orders

Orders issued to cover special processing of materials by the supplier are referred to as SERVICE ORDERS. Service Orders may be one-time buys or blanket contracts. Reference 4.20.2 for additional information on service parts Requirements.

3.9 Fabrication / Raw Material Authorizations

Unless otherwise agreed by Tenneco in writing, the firm period of Tenneco's production release is defined as two (2) weeks' finished goods, two (2) weeks' work-in-progress and two (2) weeks' raw material. Any forecasts provided by Tenneco of estimated quantities are not binding on Tenneco and are for informational purposes only.

Tenneco shall not be liable for any inventory in excess of the quantities specified in the firm period of Tenneco's production releases, as specified above, or expressly provided for in the purchasing documents. Tenneco may return over shipments to supplier at supplier's expense for all packing, handling, sorting, and transportation. Tenneco from time to time and with reasonable notice may change or temporarily suspend shipping schedules specified in such shipping releases. Additional requirements established on the service agreements or material release orders may apply.

Supplier shall maintain, at its expense and risk, at least two weeks of safety stock (or such additional safety stock as specified elsewhere) of materials, components and finished products at the most current design level to ensure timely delivery in Tenneco's requested quantities. (One (1) week of safety stock will be calculated as the next 12 weeks forecast divided by 12.) If the parties' purchasing documents do not specify a quantity, or they provide for a quantity of zero, "blanket," "per release" or the like, supplier will maintain capacity to supply Tenneco's peak daily, weekly and annual needs for products.

Export suppliers must have two weeks finished goods available within the country of use where the Tenneco receiving plant is located.

Without limiting the foregoing, Supplier's finished goods inventory shall be maintained at a level to ensure Tenneco plants production lines are not affected.

An escalation process must be established to notify the Tenneco plants if inventory levels go below a critical level.

3.10 Contingency Planning

Tenneco requires suppliers to establish a defined documented contingency plan to identify and evaluate internal and external risk that may impact Tenneco production. The contingency plans shall include:

1. Assessing risk to the continuation of business caused by key machine breakdown, external influences or natural disasters.
2. Development and implementation of mitigation plans to avoid foreseeable risk factors. [These risk factors should include cyber-attacks, pandemics, manpower shortages, energy supply issues, raw material supply shortages, serious damage to equipment or tooling, and disaster recovery such as for floods, tornados or fires.](#)
3. Robust & validated plans for addressing risks that cannot be mitigated to acceptable levels.
4. A notification process to ensure Tenneco and/or any other interested party that could potentially be impacted are notified of situations impacting production.
5. [An annual review process to ensure the plan is kept up to date including testing of the plan](#)
6. [Steps on who to contact for each potential risk along with the contact information. \(Escalation matrix\).](#)
7. [Steps to include validation of process and product at restart](#)

3.11 Business Review Meetings

In order to ensure that the collective resources of Tenneco and its suppliers are effectively and strategically planned and utilized, Tenneco will invite suppliers to participate in business review meetings. Tenneco will share information on the current state and direction of our business, discuss specific supplier performance and communicate all other known plans and/or factors. This will allow our suppliers to best plan and utilize resources to supply Tenneco with the highest quality, least cost products and services.

3.12 Supplier Agreements

Supplier agreements for high-volume, repetitive requirements are typically negotiated for a minimum period of one year and on a single-source basis. Established suppliers are encouraged to discuss the mutual benefits of longer-term supply agreements centered on continuous improvement and productivity sharing with Tenneco.

Long-term agreements (LTA) (2 - 5 years) are frequently negotiated with established suppliers to support enhanced value-added opportunities for both Tenneco and its suppliers.

3.13 Prices

In order to effectively administer cost control programs and our pricing policy, it is necessary for Tenneco to clearly understand the inflationary pressures faced by suppliers.

Unless otherwise provided in the purchasing documents, prices are not subject to increase. Suppliers are expected to participate in Tenneco's cost savings and other initiatives, as well as offer their own suggestions for ways to reduce costs and avoid price increases. These might include substituted products, alternative materials and process improvements. The policy of Tenneco is to favor cost effective suppliers by rewarding them with increased levels of business participation whenever possible. Any process or material changes shall comply with the Tenneco process change notification (PCN), refer to the PCN approval process in Section 4.11.

If price is omitted on an order, supplier's price will be the lowest prevailing market price.

3.14 Payments, Terms & Conditions

Payment terms are as indicated in the applicable purchasing documents. Payable date will be based on the date of receipt of the goods, not on invoice date.

All purchasing documents (including supply agreements, scheduling agreements, and purchase orders) issued by Tenneco incorporate the general terms and conditions and other documents, policies and terms accessible at <https://tsp.tenneco.com> as amended from time to time, including (i) this Manual, and (ii) Tenneco's General Terms and Conditions of Purchase.

4 Supplier Performance and Engineering Requirements

4.1 Quality System Requirements

Tenneco requires that all of our Original Equipment (OE) direct suppliers develop, implement, improve and maintain a quality management system certified to at least ISO 9001 and strongly recommend IATF 16949 registration. [The type of quality certification may affect Tenneco's supplier classification/ranking.](#)

Suppliers are required to upload their current quality certificate into their respective c-folder in the Tenneco TITAN system – (see Section 0.0 Link Sheet for c-folder upload instruction).

If a Quality Certificate has yet to be attained, Tenneco requires suppliers to upload their certification plan in this same c-folder. Periodic updates to the plan are expected. Upon certification, the plan must be replaced with the certificate.

Suppliers are required to check the validity of their quality certificate before upload.

If any supplier has its quality certification withdrawn/suspended by the issuing certification body, or the supplier by its own action, cancels their quality certification, such supplier must notify its Tenneco buyer and the Tenneco manufacturing locations within five (5) working days.

NOTE: When an Tenneco supplier either: (a) provides less than \$150,000 annual sales and may not have adequate resources to develop a system according to IATF 16949 or ISO 9001 or (b) has automotive sales that are less than 5% of its total business revenue, Tenneco may waive the IATF 16949 or ISO 9001 requirements. In considering such request, Tenneco may also consider the type of product supplied, quality system, manufacturing and delivery systems capability, actual performance and any risk to Tenneco prior to granting any waiver. If such request is granted, the supplier will still go through an onsite Tenneco assessment to ensure its quality management system conforms to Tenneco's requirements. To ensure ongoing conformance, Tenneco will complete a yearly assessment.

4.2 Engineering Design Rules and CAD Requirements

At start of each project, the supplier must comply with Tenneco design rules and CAD standards. If a question arises regarding these rules, suppliers are required to contact the Tenneco Design Engineers. Tenneco Norms and Standards mentioned on the relevant product drawing(s) are available on supplier request.

Tenneco requires that all business relationships with its suppliers are conducted in a professional and confidential manner. All information given to our suppliers, including concerning product specification and design, must be kept confidential by the supplier. Any issues on "design and patent" ownership must be fully disclosed to and discussed with Tenneco Global Purchasing in advance of any actions.

It is a mandatory requirement of Tenneco that its suppliers must have written authorization from Tenneco's purchasing department before they are allowed to pass any confidential Tenneco information to any third party.

4.3 Advanced Product Quality Planning (APQP)

Upon notification of supplier selection, it is the responsibility of the supplier's organization to provide support / resources for advanced product quality planning (APQP) activity in accordance with the AIAG Guidelines.

The supplier shall use the Tenneco APQP tracking template (see Section 0.0 Link Sheet) to communicate the status of the APQP Process.

Reporting frequency / Status update

The supplier will upload the APQP Tracker Template into the c-folder of TITAN and send a copy to the dedicated Tenneco Program Buyer, assigned SDS and to the Plant SQE. The reporting frequency should be as follows:

- **Immediately, if project timing and/or deliverables are in danger (APQP risk is red)**
- **Monthly** for all tooling with lead time ≥ 4 weeks
- **Weekly** for all tooling with lead time < 4 weeks (or if **APQP risk is yellow**)
- **Weekly** if program timing is ≤ 4 weeks prior PPAP

Frequency can be adjusted depending on direction from Program Buyer and/or SDS/SQE request.

As part of the APQP kickoff, a review shall include the discussion of pass through parts/characteristics to ensure this is identified and understood by the supplier.

Pass through characteristics (PTC's) (as identified by Tenneco) shall be reflected in the supplier Control Plan and/or /FMEA and identified as "Pass Through" with additional controls in place (i.e. poka-yokes, gages, etc.) to ensure final customer is protected.

4.4 Feasibility Requirements

When a new product is required, the supplier must evaluate the possibility of introducing it according to the specifications, and engineering requirements on the drawings, including environmental customer and any other applicable regulatory requirements.

The team feasibility review is the supplier's acknowledgement that the print, including specifications/standards, and/or part provided has been thoroughly reviewed for manufacturability of design, quantity, and tolerance. Parts reviewed and determined "not feasible" should come with recommendations as to how the supplier would change the part to make it "feasible". The feasibility questions must be answered and any feasibility concerns must be identified, documented, and uploaded with the quote package.

These questions are the supplier's opportunity to confirm that Tenneco has provided a manufacturable print for quote and/or production. A technical review may be required to ensure alignment.

4.5 Packaging Planning

Appropriate packaging to protect and preserve the quality of the product is to be considered during feasibility evaluation and the RFQ process. Suppliers shall use appropriate packaging to ensure that all products will arrive at Tenneco plants free of any damage or contamination and can be transported, stored and used efficiently. The packaging system must be included in PPAP documentation and uploaded to TITAN c-folder of TITAN and needs to be approved by Tenneco. (Please see Regional Appendix for region specific information and requirements for additional packaging requirements).

4.6 Launch Containment Requirements

Launch Containment is a mandatory process that begins when the supplier has been awarded the part and ships to the Tenneco facility – including sample parts shipped during pre-launch. This process is to be documented in pre-production control plan submitted during PPAP submission.

4.6.1 Launch Containment Process

Suppliers are required to develop an internal containment plan to ensure that Tenneco facilities receive 100% defect free product. The internal containment plan shall ensure that all products are 100% compliant all applicable Tenneco requirements, including, without limitation, specifications, prints, and fit, form, and function, and are properly identified prior to shipping to the Tenneco facility.

Containment shall also confirm capability to significant and/or critical characteristics (SC's/CC's) and PTC's as identified in the supplier's Control Plan. Other unique characteristics required may be added at the discretion of Tenneco facilities.

The supplier shall submit the containment plan with inspection criteria in the designated c-folder in TITAN prior to PPAP submission.

Suppliers shall use the launch containment form to document and maintain containment results. I-charts must be readily available to send per Tenneco's request.

Containment will continue a minimum of SOP plus 90 days and no less than 10 shipments (low volume). However, if end user customer specific requirements exceed Tenneco minimum requirements, then CSRs must be followed.

For launch containment labels see Section 0.0 Link Sheet for requirements. (Use CS1/Launch containment labels on yellow paper)

NOTE: Tenneco customer/OE may increase the timeframe for containment based on severity of issue and/or other valid reasons.

4.6.2 Launch Containment Exit Criteria

The supplier may exit the containment process when the supplier has satisfied the containment period with no issues identified by the containment process or by the Tenneco receiving plant. The supplier shall contact the Tenneco receiving plant to request to exit containment. The supplier can only exit with written approval from the Tenneco receiving plant.

If a problem is identified during the containment process by the Tenneco receiving plant, the containment process shall remain in effect for an additional 30 days (at a minimum) without a defect after implementation of the corrective action or through the original containment period, whichever is longer. Problems identified must go through a corrective action process.

NOTE: Tenneco facilities quality manager/designee may also require individual part certification, reference 4.17.

Shipment of nonconforming material can result in controlled shipping level II (see section 4.17.2) per Tenneco facility request.

4.7 Capacity Verification Process (Run@Rate)

Capacity Verification (Run@Rate) is required to verify that the supplier's manufacturing process is capable of producing products that meet Tenneco's on-going quality requirements, at quoted equipment (machines & tooling) capacity for a specified period of time. The Run@Rate will be used to ensure the supplier has appropriate capacity and can meet Tenneco expectations.

The Run@Rate should be done after the supplier has established the serial process and prior PPAP but no later than start of production acceleration. Supplier shall use the Tenneco Capacity Verification Form found in Section 0.0 Link Sheet in this Manual.

Although it is beneficial to do the Run@Rate as early as possible. A key consideration in establishing the Run@Rate date is the stability of the design (design freeze).

The Run@Rate needs to consider the available production time of the needed equipment and the daily maximum capacity rate (MCR), unless otherwise agreed with Tenneco.

If not otherwise specified, Tenneco defines:

LCR = Least Capacity Rate (per day) = Annual **Average** Volume in a standard work week.

MCR = Maximum Capacity Rate (per day) = Peak Annual Volume with 20% flexibility in an extended work week.

The Run@Rate is considered as "Approved" if the manufacturing process is able to meet the required daily MCR volume using not more than 90% of the available production time (line utilization).

The result is considered as "Approved with Caution", if the manufacturing process is able to meet the required daily MCR volume with a line utilization above 90%.

If the daily MCR demand cannot be achieved within the available production time, the Run@Rate status will be "Red" and the current capacity will be "Unacceptable". Corrective actions need to be defined and a new Run@Rate needs to be done.

During the Run@Rate, production tools must be in place and process shall run at full production speed, utilizing regular production conditions, direct and indirect personnel and support systems, excluding over time as a factor.

The predetermined quantity of parts must be sufficient to demonstrate manufacturing process capability. Considered factors in determining the duration, are product complexity, shelf life, storage, cost and single shift vs. multiple shift operations. The duration should be at minimum 1 hour and at the maximum 2 days. The number of produced parts should be at minimum 300 parts under serial production conditions. For low volume production, suppliers are required to contact the Tenneco buyer to agree to a reduce production run, to accept a like or similar process to validate Run@Rate or agree to bypass a Run@Rate.

Tenneco reserves the right to be present on-site during the Run@Rate run. Additionally, Tenneco customer requirements may mandate that the supplier perform an audited Run@Rate (using customer's form or Tenneco's form based on the customer's specific requirement).

4.8 Production Part Approval Process (PPAP)

PPAP acceptance is a mandatory requirement for production parts and service suppliers to Tenneco. PPAP shall be submitted in accordance to the Tenneco PPAP Guidelines (Refer to section 0.0 Link Sheet) and requirements from the current AIAG Core Tools manual. Each supplying location shall submit and obtain PPAP approval for each part number prior to shipment to Tenneco.

In general, suppliers are required to submit all the documentation to a PPAP level 3, unless otherwise specified in the PPAP request.

Parts cannot be shipped or received without an approved PPAP and/or signed Tenneco waiver.

Any change to the process / part after Tenneco PPAP approval must follow the Tenneco Process Change Notification (PCN).

NOTE: End user customer specific requirements for PPAP submissions take precedence.

4.8.1 PPAP Submission

The supplier must complete and submit appropriate PPAP documentation in TITAN. Documents are to be uploaded in the individual assigned c-folders. Composite or ".zip" files are not accepted.

If TITAN is not available in a Tenneco region, elements required to be submitted should be routed to the attention of the resident PPAP coordinator at the appropriate Tenneco facility.

All PPAP documentation shall be submitted in English. Supplier may request use of a local language in a PPAP if the business does not involve the export of products.

Further information on Tenneco PPAP expectations can be found in the Tenneco PPAP guidelines in this Manual Section 0.0 Link Sheet.

NOTE: Training documents explaining the path to the c-folders, and how to upload documents, are available on Tenneco's supplier portal: <https://tsp.tenneco.com>. Suppliers must save their documents with the appropriate file name and date (example: control-plan-2010-07-22)

The PPAP request defines the PPAP submission level. Blanket statements of conformance are unacceptable for any test results and will be cause for PPAP rejection. Applicable documents must be maintained by the supplier regardless of submission requirements. These documents are to be made available to Tenneco upon request.

NOTE: The steel mill raw material source approved during PPAP must remain the same unless approved through the PCN process.

All Suppliers of Direct Material must register in the IMDS database at the website: <https://www.mdssystem.com> and submit MDS to related Tenneco Company ID.

- **All NA and SA suppliers** – must use Company ID: **222669**
- **All EMEA & India suppliers** - must use Company ID: **222668**
- **All APAC suppliers** - must use Company ID: **222667**

MDS must be submitted as soon as off tool parts are available. The MDS approval is required to be completed prior to PPAP and confirmation is to be uploaded into the PPAP C-folder. The confirmation document shall clearly state the Tenneco part numbers for which the data was entered, date of entry, and the ID node number and should state that MDS has been accepted by Tenneco Clean Air.

NOTE: Suppliers shall provide MDS information for items with previously approved PPAP's. Tenneco Clean Air acts in full compliance with the IMDS Terms of Use. Should you have concern in providing such MDS data please do not hesitate to contact Tenneco.

At Tenneco's discretion, special controls are required for pass through characteristics (PTCs) and/or pass through parts such as error proofing, mistake proofing, 100% inspection in station or subsequent operations to ensure compliance.

Measurement equipment and methods shall be aligned between shipping and receiving plants where applicable prior to PPAP.

4.8.2 PPAP Submission – Sample Part

The supplier shall provide, either, a minimum of 6 samples and/or 1 sample per cavity for multi-cavity / fixture processes unless otherwise directed by Tenneco. These parts are to be randomly selected from a significant production run and used in the dimensional results documentation of the PPAP submission.

This significant production run shall be from one hour to eight hours of production, with the specific production quantity to total a minimum of 300 consecutive parts, unless otherwise specified by the authorized Tenneco representative. Tenneco may require the supplier to run samples from all shifts scheduled to run production.

These sample parts shall be shipped to the Tenneco PPAP approving plant and must be clearly identified with a Tenneco PPAP sample label. This label must be printed in color (Pink).

Note: All PPAP samples and the creation/submission of the PPAP documentation are at the supplier's expense, unless otherwise defined in the nomination.

4.8.3 Design Records

Suppliers shall obtain Tenneco design records (prints, specifications, technical documents) through the Tenneco supplier portal: <https://tsp.tenneco.com>. These documents are to be reviewed for the supplier's ability to meet contractual requirements and are used for PPAP submission.

It is the responsibility of the supplier to verify, access and understand of all technical documents and specifications called out on the print. If specifications and/or documents are not available, the supplier must request them in writing from the TENNECO buyer.

NOTE: Revisions made to Tenneco drawings will initiate a new PPAP request for current revision.

4.8.4 Significant and/or Critical Characteristics

Identification of significant characteristics (SC) and/or critical characteristics (CC) are an output of the design process. The supplier is required to comply with these characteristics by noting them on process control documents; including drawings, FMEA, Control Plans, and operator instructions. These characteristics shall be identified with the appropriate symbols.

A training program about measurement, evaluation, and failure effects of these characteristics must be developed/maintained for all employees involved.

NOTE: Suppliers are required to perform on-going capability analysis on designated significant characteristics.

4.8.5 Engineering Change Documents

Written approval from Tenneco Engineering & Quality is required for changes that are not incorporated into the design records.

i.e. Engineering approved marked up print required for interim PPAP submission for new programs parts pending final approved drawing.

4.8.5.1 Engineering Approval

Any deviations from original planned arrangements require Tenneco Engineering approval in writing; Capability studies are required for deviations requested (30 piece minimum).

4.8.6 Design Failure Mode Effects Analysis (DFMEA)

If the supplier is design responsible, a DFMEA is to be developed and reviewed annually (at a minimum) in accordance with the latest version of the AIAG/VDA FMEA Manual.

The design step must be highlighted in the PFMEA for team focus when:

Severity = 5-8 and Occurrence = 4-10, and/or

Severity = 9 or 10.

4.8.7 Process Flow Diagram

Tenneco requires suppliers to have a process flow diagram that clearly defines the manufacturing process steps / sequences.

If critical and/or significant characteristics are noted in the process step, the supplier shall note these characteristics.

If pass through characteristics (PTCs) are identified on the print, they shall be identified in the process as PTC.

4.8.8 Process Failure Mode Effects Analysis (PFMEA)

Where Tenneco or its customers are design responsible, the assignment of severity values on the supplier's PFMEA may require an approval by a Tenneco product engineering representative

If severity level is 9 or 10, error-proofing techniques, (Poka-Yoke)/or **100% product verification** are required unless expressly signed off by Tenneco engineering and plant quality in writing.

Special controls are required when Severity = 5 - 8 and Occurrence = 4 -10.

Tenneco recommends Poka-Yoke over detection methods.

At a minimum, the PFMEA is required to be reviewed annually, in accordance with the AIAG/VDA FMEA manual. PFMEA / Control Plan review should be part of the Annual Parts Validation. (see Section 4.9).

Product characteristics and process parameters identified by the PFMEA as “special” must be considered in the development of the Control Plan.

The supplier shall indicate review of high RPNs, and document recommended actions. If no improvement required, note “none” on the PFMEA.

Pass through characteristics (PTCs) shall be identified with “PTC” on PFMEA to ensure applicable risks are identified. PTCs must be ranked with a severity of a 5 at a minimum.

A clear link between the PFMEA, process flow, and Control Plan must be shown by the supplier. Numeric process references shall be consistent throughout all documents.

4.8.9 Dimensional Results

The supplier shall provide evidence that dimensional verification required by the design record and the Control Plan have been completed and results indicate compliance with requirements.

The supplier shall indicate the date of the design record, change level; any authorized engineering change documents included. It is mandatory that suppliers shall inspect and supply initial samples provided from production tooling and set up.

In the case of multi cavity tools, a dimensional layout of two parts from each cavity / fixture is required.

Supplier shall provide a ballooned drawing of each dimension, and all notes and correlations should be addressed in the dimensional report. Each part must be marked with the number associated with the applicable dimensional report.

4.8.10 Materials/Performance Test Results

Evidence of compliance shall be submitted per AIAG guidelines or international standards, unless otherwise specified.

Material Results: The supplier shall perform tests for all parts and product materials when chemical, physical, or metallurgical requirements are specified by the design record or Control Plan. [These material test results \(certificates\) should not be older than 12 months from the final submission date, unless otherwise agreed by Tenneco.](#)

Performance Test Results: The supplier shall perform tests for all parts or product materials when performance or functional requirements are specified by the design record. For supplier performance testing, an accredited ISO/IEC17025 lab shall be used. [Accredited lab certification to be included in PPAP submission c-folder Qualified Laboratory Documentation.](#)

4.8.11 Capability Studies

Tenneco requires suppliers to perform process studies on product characteristics or process parameters to verify process capability and to provide additional input for process control to ensure compliance to all print specifications. The measurement system must be verified to be acceptable.

If the print does not call out CC, SC, and/or PTC, the supplier must determine characteristic(s) to be used for process capability based on the PFMEA risk. The selected characteristic(s) should be identified in the Control Plan.

For process capability, the following elements need to be followed:

1. Sampling: for variable data a minimum 125 (or as agreed with Tenneco) readings from consecutive parts of the serial production run is required for the study.
2. Sampling: for attribute data a minimum 300 (or as agreed with Tenneco) readings from consecutive parts of the significant production is required for the study.

NOTE: Details of Capability Study requirements – reference the PPAP Guidelines.

NOTE: If process capability is not acceptable, suppliers must put 100% inspection in place. Supplier should use the gage error (independent of whether the Gage R&R met the acceptance criteria) to determine tolerances used for 100% inspection.

4.8.12 Measurement System Analysis (MSA)

Measurement system analysis (MSA) studies are required for gages, measuring and test equipment identified in the Control Plan. Gage studies shall comply with AIAG guidelines and/or end-user customer specific requirements (CSRs).

4.8.12.1 Variable Gage R&R

Supplier shall report Gage R&R as both a percent of study variation and a percent of tolerance.

Variable gage studies should utilize 30 parts (at a minimum), 3 operators and 3 trials. The Gage R&R should use the full range of part-to-part variation from the process representing all expected sources of manufacturing variation, while providing enough resolution around the upper and lower specification limit with parts validated on CMM or equivalent variable gaging.

Acceptance criteria based on R & R studies are:

- < 10 % of tolerance -----accepted
- 10 - 30 % of tolerance ----- may be acceptable, contact Tenneco representative
- > 30 % of tolerance -----unacceptable
- > NDC (number of distinct categories) ----- 5 minimum

(It is the supplier’s responsibility to provide necessary equipment to carry out engineering tests specified on drawings, unless agreed otherwise in writing by Tenneco).

4.8.12.2 Attribute Gage R&R

Attribute Gage R&R shall consist of 30 pieces (min) unless it is a significant characteristic (SC) or a critical characteristic (CC) on the print or the process capability is below the acceptance criteria. In these cases, or in the case that customer specific requirements (CSRs) dictate otherwise, 50 pieces or CSR requirement is required.

Gage shall reject all parts that are outside the specification limits. Rejecting good parts may be acceptable if any throughput or efficiency losses are acceptable to the team. All Kappa values shall be greater than 0.75. Please note that if the gage limits are less than the specification limits (guard Banding) it may be acceptable for the Kappa value to be less than 0.75, if the reduced Kappa values are due to operators rejecting good parts.

If the gage limits are the same as the specification limits than all Kappa values (Between appraisers, with in appraiser, appraiser to standard) should be greater than 0.75.

Parts for attribute Gage R&Rs Study

25% of the parts should be near the lower specification limit (on both sides of the specification).

25% of the parts should be near the upper specification limit (on both sides of the specification).

30% of the parts should represent the expected process variation.

10% of the parts should be outside the upper gage specification limit and beyond the 25% of the parts near the specification as described above.

10% of the parts should be outside the lower gage specification limit and beyond the 25% of the parts near the specification as described above.

Depending on the characteristic, the above parts should be independently measured with a CMM or equivalent variable gauging so that the physical measurement of each part is known.

NOTE: When measuring a true attribute that cannot be measured with a variable gage, use other means such as experts to pre-determine which samples are good or non-conforming.

4.8.12.3 Measurement System Gage Correlation (MSC)

If required to compare 2 or more measuring equipment, the following elements need to be followed:

1. 10 parts minimum to be numbered and measured on all instruments to be correlated
2. Selected parts should have values that are evenly distributed and span the full tolerance range
3. The measurement systems being assessed, shall be properly calibrated and pass Gage R&R
4. Randomizing the order of measurement of the parts during the MSC is a best practice.

Utilize type 1 study to verify the correlation level between the instruments. Tenneco recommends the use of Minitab to perform calculations and analysis.

For measurement system correlation acceptance criteria, refer to the AIAG SPC manual.

4.8.13 Qualified Laboratory Documentation

External laboratories used for testing/calibration shall be qualified to ISO/TS-17025 or equivalent.

4.8.14 Control Plan (CP)

The supplier shall develop the Control Plan using the input from the PFMEA showing all critical/special characteristics (CCs/SCs), engineering specification tests and process parameters connected to the product. All Control Plans must be completed in compliance to the AIAG guidelines (latest revision), unless otherwise specified by Tenneco representative. It is mandatory that a copy of the Control Plan is included with the PPAP submission documentation.

The part revalidation requirement shall be documented in the supplier's Control Plan according to the final customer specific requirement.

NOTE: Control Plans for "part families" are acceptable. If a part family Control Plan is used, all parts associated with the family Control Plan should have documentation referencing the part number that contained the original Control Plan.

4.8.15 Part Submission Warrant (PSW)

Part submission warrant (PSW) shall be complete (without leaving any blank spaces) All spaces must be addressed – IF N/A it must be noted. A PSW submitted without appropriate approval signature, phone number, and date of submission will be cause for rejection, (electronic signature is acceptable). If the product deviates from the print it shall be noted in the comment section of the PSW.

4.8.16 Appearance Approval

Tenneco shall notify suppliers of any appearance approval items.

4.8.17 Master Samples

One (1) master sample per cavity for multi-cavity processes should be retained, unless otherwise directed by Tenneco.

Any exceptions must be documented and must accompany PPAP package.

4.8.18 Checking Aids

Where checking aids (mylars, product specific gages, etc.) are used, the supplier shall certify that all aspects of these aids comply with product and print requirements. The supplier shall establish appropriate preventive maintenance for these checking aids for the life of the part. [Checking aids to be included in the gage calibration program.](#)

4.8.19 Customer Specific Requirements (Tenneco & End-User)

Tenneco defines its specific requirements through the purchasing documents (as further described in Section 3.12), this Manual and each Regional Appendix, as applicable. In addition, Tenneco requires compliance to end-user customer specific requirements. End-user customer specific requirements are generally available through IATF's global oversight for OEM customer specific requirements at <https://www.iatfglobaloversight.org/> (or any successor thereto).

NOTE: For those customers not listed on the IATF global oversight please go directly to the specific customer's website. If supplier encounters any difficulties with this, supplier should contact the Tenneco buyer for assistance.

4.8.20 Special Process/CQI Audit Requirements

Tenneco requires annual Special Process/CQI audits.

The suppliers are responsible for the CQI self-assessment where Tenneco products are manufactured or treated with a method requiring a special audit.

The supplier should upload the current CQI assessment/audit report into the suppliers TITAN assessment c-folder. Please ensure the file's naming convention includes the name of the CQI audit and date completed.

For directed-buy suppliers, compliance with OEM CSR's and special process audits should be self-monitored and available for Tenneco review.

NOTE: Supplier should review the AIAG list of special process audits. The special process assessment templates are available from the AIAG website.

NOTE: In addition, at PPAP, Tenneco is requesting the supplier to upload current special process assessments, when applicable, to the PPAP c-folder. Please reference the PPAP guideline.

Suppliers shall cascade down these requirements to their suppliers to ensure completion and provide evidence upon request.

4.8.21 PPAP Response

Tenneco receiving plant or other designated location will review PPAP samples and documentation and will approve if acceptable where applicable.

NOTE: In order to get PPAP approval, reference the PPAP Guidelines in the Link Section 0.0 of this Manual, to ensure all elements are covered and evidence provided.

Notification of PPAP Status to Suppliers

If the PPAP submission is approved electronic acceptance in the TITAN will be sent to the supplier. If TITAN is not available, a signed hardcopy will be sent to the supplier.

The supplier is not authorized to ship production parts until Tenneco issues a written PPAP approval or other authorization to proceed (deviation).

Any change to the PPAP approved process shall require the supplier to complete a Process Change Notification (PCN), reference the Process Change Notification section 4.11 of this manual.

Full Approval

PPAP is approved after Tenneco validation is completed and accepted.
Supplier tooling invoices can only be paid after full PPAP approval.

Interim Approvals

Interim approval permits shipment of material for production requirements on a limited time or piece quantity basis.

Supplier must take actions on noncompliance to obtain a status of "approved", PPAP re-submission is required

As long as the part is interim approved, no supplier tooling shall be paid.

Returned (not accepted)

Production part delivery is NOT allowed.

Resubmission date must be agreed upon with the purchasing organization and/or the PPAP Coordinator.

The supplier shall take actions to correct issues identified and re-submit the corrected document(s) and/or sample parts within the shortest specified time.

Tenneco cost fees may be applied.

4.9 Annual Parts Validation Requirements

Tenneco requires that suppliers' complete annual validation to print/specification requirements of all Tenneco purchased parts on the anniversary of the PPAP approval date, and each subsequent year thereafter. [The purpose of the Annual Part Validation is to ensure that the part is still within specification and processes are still within control.](#) The Annual Part Validation shall continue as long as the supplier is providing Tenneco parts for on-going production.

[Minimum requirements of an Annual Part Validation is a full dimensional layout, an actual material certificate, and a PSW.](#)

NOTE: Tenneco reserves the right to evaluate need for validation of products required for service production.

When a characteristic is designated as "critical" and/or "significant" on the design record the supplier is required to conduct capability studies and include it along with the annual layout.

Annual parts validation results are maintained at the supplier location unless requested by Tenneco. If requested, they shall be uploaded into TITAN via PPAP request (Level 4).

Suppliers shall document the Annual Part Validation in the supplier's Control Plan.

4.10 Deviation Process

A deviation request is required to be submitted by the supplier when any of the following situations occur:

1. Tenneco production schedules require shipment of new/revised materials prior to Production Part Approval Process (PPAP).
2. Supplier discovers any type of non-conformance in a lot/batch of product, which is urgently needed to meet the Tenneco production schedule.
3. [Due to production requirements the supplier has to deviate from specifications and/or PPAP approved process.](#)

When a deviation request is required, the supplier shall submit the Deviation Form ([Refer to Section 0.0 Link Sheet in this Manual](#)) to the [Quality Manager and the Commodity Buyer](#) of the affected Tenneco plant.

If Tenneco approves the Deviation, the supplier will receive a Deviation Number.

The supplier is only allowed to ship after approval and receiving Tenneco Deviation Number within the allotted timeframe and/or quantity of parts.

The deviation number shall be clearly marked (can be handwritten) on all shipping papers and containers.

NOTE: The deviation number shall be placed so there is no disruption to the barcode. Failure to follow this procedure will result in a material rejection report (MRR) and reflect on the supplier's quality performance score.

If the deviation request is denied the Tenneco plant will notify the supplier.

4.11 Process Change Notification (PCN)

Tenneco reserves the right to approve or deny a request made by the supplier to change a process or product.

Due to Tenneco's customer specific requirements (CSRs), the timing for the PCN process is a minimum of 90 days to receive customer's approval for the changes. This timing can be much longer depending on the customer's requirements and/or if there is a "blackout period" for any changes. Most changes cannot be made until customer approval is received.

A change requiring this approval includes but not limited to:

A change to the supplier's process after approved PPAP significant enough to require a change to the process flow, material, sub supplier (including sub supplier's material) or a change in the method of processing, i.e., manual to automated processes, addition of an alternate processing method, change of material supplier, equipment move, line change, etc.

Tenneco Commodity Buyer (not the receiving plant) shall be notified of and approve in writing any design and/or process changes prior to implementation. To inform Tenneco, the supplier shall use the Tenneco process change notification (PCN) worksheet. This worksheet shall include details of the change, sufficient detail for analysis by Tenneco.

Changes made to the process or product without this prior authorization shall result in the supplier's financial responsibility for time spent for analysis, replacement or destruction of product built with parts with unauthorized changes, this includes any customer charges. In addition, this can result in the supplier being placed on controlled shipping (level I or II), and may result in the supplier being unable to participate in new business bids.

Tenneco commodity buyer shall advise the supplier if the process change notification (PCN) worksheet has been approved. If approved, the PCN will document the supplier actions required to proceed with the change. If PPAP is required, parts with changes are **NOT** to be shipped prior to PPAP approval.

4.12 Supplier Performance Requirements

Supplier performance is monitored and analyzed monthly at a minimum for both quality and delivery.

On an annual basis, the Tenneco buyer will analyze the suppliers on several other areas, such as cultural, commercial, quality & manufacturing, engineering & development, degree of globalization, and financial & legal.

Suppliers who do not fulfill the Tenneco requirements are required to take immediate actions to drive performance back to Tenneco expectations. Continuous failure to meet Tenneco expectations may lead to new business hold.

4.12.1 Quality & Delivery Performance

Tenneco monitors the supplier's quality performance based on Material Rejection Reports (reference Section 4.14 of this Manual). The PPM (Parts Per Million) values are reported monthly and can be viewed on the TITAN System under "Tenneco Webi Reports" or by contacting the responsible Tenneco Global Buyer.

The philosophy of Tenneco is to achieve ZERO DEFECTS and we expect the same approach from our suppliers.

Tenneco monitors suppliers' Delivery Performance and requires 100% on-time delivery. Changes to the delivery schedule by supplier are not valid. Tenneco may at any time change the rate of scheduled shipments, the quantity of shipments or direct temporary suspension of scheduled shipments.

Nonconformance(s) of delivery requirement may cause the creation of an eMRR/MRR. If this occurs, the supplier may be required to submit a corrective action report (8D).

Delivery discrepancies include (but are not limited to):

Labeling: Any part container not labeled properly per Tenneco specifications

Supplier packaging: Any part container that is not correct per Tenneco Packaging Guidelines or does not match the planned case PPAP approved pack quantity.

Shipping documentation: Any shipment that does not have correct documentation per Tenneco requirements. (i.e. Country of origin)

Early / late delivery

Over delivery / short ship

Damaged packaging that affects product integrity.

It is the responsibility of the supplier to make sure that all delivery non-conformances are reported accurately and closed. These nonconformances affect the individual supplier performance. If the supplier disagrees, it shall contact the issuing Tenneco Plant to resolve.

The supplier has financial responsibility for any quality and/or delivery nonconformance and its effects, which may include warranty issues and/or cost recoveries for sorting, re-work, scrap, premium transportation, any customer financial impact, etc.

If supplier exceeds the Tenneco level of escalation, Tenneco reserves the right to take actions with the aim of improving the quality/delivery performance of the supplier. Tenneco expects the supplier to work on a year-over-year quality improvement based on supplier scorecard performance data.

Refer to the Regional Appendix for Score Card details.

4.12.2 Service Parts Delivery Performance

Supplier shall support a minimum of 15 years of service part requirements after serial production is completed. This period shall be extended for specific products or programs depending on customer specific requirements (CSRs).

Supplier shall ship to plant release requirements during the service part lifetime utilizing appropriate containers per Tenneco Packaging Guidelines.

Supplier shall maintain equivalent serial production pricing for a period of 5 years minimum, after serial production is completed.

4.13 Continuous Improvements (CI) (Lean, Six Sigma, VA/VE, TQM etc.)

Continuous improvement is essential to successfully compete in today's business environment. All suppliers shall continuously improve in quality, service, timing, delivery and cost to benefit Tenneco and the supplier's own organization. Tenneco requires that suppliers support VA/VE opportunities, by communicating ideas and actively participating in workshops.

Improvement in quality shall extend to all product characteristics with the highest priority on special characteristics. (Those characteristics that will have the most significant effect on the finished product produced). Characteristics identified as “pass through” characteristics are required to have error proofing (poka-yoke) applied to process steps where possible. Where a poka-yoke is not feasible, capability data must be available upon request.

Suppliers are required to have a defined “Business Operating System”, or BOS process, this is a formalized process of reviewing the key metrics that provide indicators of the performance of the facility. Metrics could include safety, quality, delivery, engineering document linkage compliance, gage repeatability and reproducibility performance, process capability, process change management, effectiveness of problem solving, site productivity, defective parts per million, overall equipment efficiency and delivery. Reference the Business Operating System in Section 0.0 Link Sheet.

Improvements made where the original targets have not been met are by definition corrective actions, not continuous improvement.

4.14 Material Rejection

If nonconforming material is identified at a Tenneco site, the supplier will be notified of the non-conformance in a timely manner. Suppliers have the opportunity to discuss with Tenneco the validity of the non-conformance. All validated non-conformances will affect the supplier's overall performance rating.

When a non-conforming part is identified, the Tenneco plant will issue an electronic Material Rejection Report (eMRR) in the eMRR database (located in the Tenneco Supplier Portal) to the supplier and other Tenneco locations that receive this same part must be notified by the supplier. The supplier must follow the eMRR process steps to ensure correct responses to the non-conformance. Regions that do not have the eMRR database system in place will follow a manual process. The eMRR system is located in the Tenneco Supplier Portal, and supplier should notify the respective Tenneco Global Purchasing buyer if access is required. See Section 4.15 for Corrective Action steps.

4.14.1 Disposition of Suspect or Nonconforming Material

The supplier shall enter the disposition of the suspect material in the eMRR system database. Regions that do not have the eMRR database system in place will follow a manual process.

Suppliers are expected to implement all containment actions to minimize and eliminate impact of non-conforming product at Tenneco Plant and/or Tenneco Customer plants.

If containment proves to be ineffective (i.e., Tenneco continues to receive defective material from sorted shipments), the supplier may be placed on Controlled Shipping Status (Reference Section 4.15).

It is the responsibilities of the supplier to make sure that eMRR's accurately reflect the non-conformance and amount of defectives reported. These numbers impact the individual supplier performance. If the supplier disagrees, they must contact the issuing Tenneco facility to resolve.

The supplier will be responsible for all costs (including "extraordinary" costs) incurred because of any non-conformance. (Reference Section 4.19)

4.14.2 Material at Supplier's Location

Current material held by supplier shall be 100% evaluated for reported nonconformance (records of sort results must be maintained and available upon request).

Sorted material must be identified stating “100% SORTED – For (identify sorted characteristics) and Material Rejection (###)”. Supplier shall use the [\(CSI –yellow\)](#) label. This label must be visible on the outside of the

shipping container and placed near the part number label on both sides of each individual container.

Containment activity shall continue until corrective action has been implemented and verified.

4.14.3 Material in Transit or Tenneco Location

For suspect material in-transit or at Tenneco location(s), suppliers shall contact each receiving Tenneco facility for determination of appropriate disposition per the following:

- Return to supplier for sorting. Supplier is responsible for shipping cost and to notify plant of sort results of returned material.
- Accept at Tenneco site under deviation (Reference Section 4.10 of this Manual)
- Sort at Tenneco site by supplier personnel
- Sort at Tenneco site by third party personnel (supplier responsible for all charges)
- Sort at Tenneco site by Tenneco personnel (Reference Section 4.19 for charges)

NOTE: If a third party source is not available for sorting / development / process improvement activities; contact the receiving Tenneco facility for assistance.

4.15 Corrective Action

Tenneco expects suppliers to implement successful, interim and permanent corrective actions for non-conformances identified.

[\(Reference the Section 0.0 Link Sheet for Corrective Action Guidelines and Corrective Action Checklist\)](#)

4.15.1 Corrective Action Reporting

The supplier's corrective action form must reference the MRR # (supplier may also use Tenneco's Corrective Action Report) and cover the following areas in the Corrective Action Guidelines. Both forms are attached in the Section 0.0 Link Sheet.

4.15.2 Corrective Action Timing

Timeline requirement (upon notification of the MRR):

Containment action must be developed, implemented, and reported to the Tenneco facility within 24 hours.

Possible root cause(s) with timely planned corrective action(s) and responsibilities must be completed and submitted to Tenneco within two (2) weeks, unless otherwise agreed upon, with concurrence by the Tenneco facility representative.

Robust corrective actions should be targeted for verification/closure within 60 working days, (unless otherwise specified by Tenneco), and affected process documentation (process flow, PFMEA, Control Plan, and operating instructions) needs to be reviewed/updated.

NOTE: Corrective actions submitted by supplier are approved by the supplier's facility quality manager or designate.

A corrective action that cannot be verified and closed within the sixty (60) day window requires concurrence from the issuing plant(s) Quality Manager. Periodic updates will be defined by the Tenneco Quality Manager.

4.16 Supplier Improvement

Tenneco suppliers who fail to meet the quality and/or delivery requirements may be brought in for a main offender meeting or placed into supplier improvement program (SIP).

4.16.1 Main Offender Meeting

Suppliers may be invited into corporate offices by the Global Purchasing team to present their improvement plan at the Main Offender Meeting when they meet any of the criteria listed below. The plan shall present actions to improve performance within 3 months.

Based on rolling three months performance.

MRR's response not meeting timing requirements.

Tenneco SD, Plant or Buyer Recommendation based on Production disruption, on-going quality issues, or any other performance issue.

Supplier receives a developmental rating on the Supplier Score Card.

If performance does not improve in the required three-month period and/or a reject is found at a Tenneco facility the supplier could be placed into SIP.

Once the supplier has closed out all action items and has met the exit criteria for three month rolling an on-site evaluation may be scheduled. Supplier development will notify the Tenneco team of completion of the MOM.

Suppliers may move directly to SIP based on impact to the Tenneco sites.

4.16.2 Supplier Improvement Process (SIP)

Tenneco suppliers who fail to meet the quality and/or delivery requirements during MOM monitoring are subject to a Supplier Improvement Program (SIP).

Suppliers on SIP may be placed on New Business Hold. The following process will be followed:

4.16.2.1 Initial Visit

SIP nominees will receive a letter notifying them of the decision to place them on the SIP. Suppliers will then be contacted by supplier development (SD) team and an on-site visit will be scheduled.

Preliminary visits at the supplier will include an overview of the SIP, a review of issues, an on-site audit of the supplier's processes, and a discussion of containment activities as appropriate.

Suppliers are required to report out on-site to Tenneco management, as required per supplier development (SD) team direction. These meetings are scheduled monthly but may change depending on the supplier's performance. Individuals required to attend from the supplier, depending on company size, include senior management representatives from operations, sales, quality, and engineering.

A preliminary schedule for subsequent visits to Tenneco will be developed by the supplier development (SD) team.

4.16.2.2 Follow-up Visit to Review Improvement

A review of the system 8D is required at each follow up visit. Improvements made (with validation), should be presented, including action registers (with timing).

4.16.2.3 Exit Criteria

Once the supplier has closed out all action items and has met the exit criteria, an on-site assessment will be scheduled. Upon verification of the results and a passing assessment score, supplier development (SD) team member will notify the supplier that the exit criteria has been met, and the supplier will be released from SIP. Supplier development will notify the Tenneco team of completion of the SIP.

4.17 Controlled Shipping (CS)

Controlled Shipping is a requirement of Tenneco **for each issue identified by Tenneco or its customers**. This process requires a supplier to put in place a 100% inspection process to sort for nonconforming material until root cause and corrective actions are in place and proven effective. This redundant inspection is required to take place concurrent with any existing in-process monitoring / inspection.

Two levels of controlled shipping exist, Level I and Level II.

Based on criticality of the issue, a supplier may be placed directly on Level II. Examples are:

- Launch Containment Failure
- Defect found at Tenneco Customer
- Defective pass through parts and/or pass through characteristics (PTCs)
- Major Tenneco line disruptions

4.17.1 Controlled Shipping Level 1 (CSI)

The inspection process is required to be performed by the supplier's employees at the supplier's location. The supplier is notified via Tenneco plant team by phone/ email of their controlled shipping status. This conversation will be followed by a written notification that includes the requirements for controlled shipping. Suppliers are required to provide written confirmation of receipt of this notification, including containment activities, within 24 hours (response form will be provided).

Suppliers placed on CSI containment must:

- Immediately establish a separate containment activity area at their location.
- Start the 100% sort activities and record results. At minimum, suppliers must record the number of pieces sorted and the number of nonconforming parts identified.
- Establish a Clean Point by Containing all suspect material in the supply chain (at supplier's location, in-transit, at Tenneco, or Tenneco customer).
- Identify parts, material and/or containers with the Tenneco provided CSI. These labels must be printed in color – (CSI – yellow,). These labels must be attached near the shipping labels, and MRR number identifications must be added as required.
- Conduct a daily review of the results of the sort activities and verify the corrective actions are effective or plan required changes. Communicate results of the sort to Tenneco on the agreed upon frequency (once a week minimum) using the link to the I-Chart.
- Provide key quality documents such as DFMEA's, PFMEA's, Control Plans, and statistical controls upon request for Tenneco review.
- Meet the exit criteria as defined in the notification letter. This includes providing supporting documentation on performance improvements and corrective actions taken. Formally requesting exit from Controlled Shipping.

If the exit criteria is not met in agreed upon timing, supplier may be placed on controlled shipping Level II.

4.17.2 Controlled Shipping Level 2 (CSII)

Includes the same process as controlled shipping - Level I (CSI) including an added inspection process by a third party representing Tenneco interests. The third party shall be approved by Tenneco and will be paid for by the supplier.

The supplier is notified via phone/ email by Tenneco of their controlled shipping status. This conversation will be followed by a written notification that includes the requirements for controlled shipping.

CSII requires:

200% inspection (CSI internal and CSII third party)

A containment plan/ flow

Effective corrective action

Plans for an initial meeting

On site or virtual follow ups

Suppliers are required to provide written confirmation of receipt of this notification, including containment activities, within 24 hours (response form will be provided).

Suppliers are required to contact their Registrar of CSII implementation.

Suppliers placed on CSII containment shall comply with all requirements of CSI.

Identify parts, material and/or containers with the Tenneco provided CSII identification. These labels must be printed in orange color, attached near the shipping labels.

Provide appropriate personnel to participate in the initial meeting. At a minimum, the supplier's plant manager/director and the quality manager/director are required to attend.

Contact and issue a purchase order to an approved independent (third party) sorting firm. The affected Tenneco facility must approve the sorting source. The supplier is responsible for providing all necessary sort instructions, tooling/gages and locations for re-inspection activities. Supplier is responsible for all costs associated with this re-inspection.

Provide parts found to be acceptable from CSI to third party for agreed upon re-inspection (parts subjected to CSI sort must be re-inspected by third party).

Submit data to Tenneco as agreed upon at initial meeting using the I-Chart. Tenneco provides an I-chart format in Section 0.0 Link Sheet.

Meet the defined exit criteria determined in the initial CSII meeting with the SD team.

Request exit from CS II and coordinate on- site audit (if required) by Tenneco personnel.

Suppliers that fail to meet CS II requirements / timelines may be subject to the Tenneco revocation process or put on new business hold (NBH).

Suppliers that do not adequately respond to controlled shipping requirements of Tenneco or fail to meet the exit criteria defined, may cause suppliers to be removed from the Tenneco approved supplier list and product may be resourced.

4.18 Customer Directed Supplier

“Customer directed suppliers” are required to follow the criteria established in this Manual.

4.19 Cost Recovery

In the event of a disruption caused by the supplier to a Tenneco plant and/or Tenneco customer, caused by the supplier’s product and/or delivery, the supplier will be debited for all of Tenneco’s costs (including associated customer charges).

Charges associated with nonconforming products and/or delivery issues may include but are not limited to the following:

Material rejection form charges – costs associated with the creation of the eMRR when non-conforming material or a delivery issue with charge back is identified.

Incidental charges associated with the non-conformance, such as sorting, rework, WIP, finished goods, customer returns and investigation resources.

Delivery issues that causes a supplier to go into the Tenneco delivery alert process

Additional costs for assembly line downtime to cover unabsorbed overhead or capacity loss.

NOTE: Rejections of product from Customer directed suppliers may require charges in alignment with Customer policies which may be different from those of Tenneco extraordinary costs such as Tenneco incurred premium freight to expedite shipments, the economic impact to Tenneco customer or costs associated with rebuilds, special runs, etc.

Settlement of extraordinary costs shall be addressed on a case-by-case basis.

For costs details, see the Supplier Charge Back Cost Table in the Regional Appendix for ship into location.

4.20 Supplier Quality Assessment/Audits

Tenneco retains the right to perform supplier audits regardless of quality certification status.

Control Plan/process audits/CQI Audits may be conducted by Tenneco depending on supplier performance and risk.

OE CSRs assessment may also be completed by Tenneco (i.e. GM-BIQ, VW-VDA 6.3, etc.) as relevant to a specific part/program.

4.21 Record Retention

Unless otherwise specified suppliers are required to retain documentation, relating to the purchased item as follows.

Document Retention Period:

Purchase Orders: 15 Years
Tenneco Site Drawings: 15 Years
PPAP level 3 Documents: 15 years
Production Data / Quality Records: 15 years

NOTE: This period can be extended for specific programs depending on customer specific requirements (e.g.PSW, Control Plan, SPC, PFMEA etc.) as requested by Tenneco or as specified on purchasing documents (e.g. RFQ, PPAP waiver).

4.22 Training

The supplier must demonstrate a comprehensive training program for all levels of staff. Training must be applicable to each job function, supported by documented evidence of the standards achieved by each individual.

The training program should be based upon the principles of total quality management and should include, but not be limited to, Quality Planning Tools, Lean Manufacturing, Six Sigma Tools, Team Problem Solving Tools, Corporate Social Responsibility, Intellectual Property understanding and Tenneco's Global Working Conditions Guidance requirements (stated in Section 9.2 of this Manual).

Supplier should ensure training includes organizational knowledge, competency, awareness and communication. Reference current ISO 9001 and/or IATF 16949 Standards.

4.23 Field Issues

In cases of field issues, warranty, recall complaints or similar programs, see [Tenneco Global Terms and Conditions](#) (link within Section 0.0 Link Sheet of this Manual).

5 Tooling & Equipment

5.1 Tooling & Equipment Policy

Tooling purchased by Tenneco or by a Tenneco customer for use at a supplier facility shall be used exclusively for production of Tenneco requirements as authorized by Tenneco's purchasing documents. Products produced from such tooling may not be sold or furnished to other parties without the express, written authorization of Tenneco, which may be withheld in Tenneco's sole discretion.

Each article of part tooling shall be clearly marked (stamped, stenciled, or permanently tagged) identifying the item as "Property of Tenneco" or if applicable "Property of (Tenneco customer)" and the part number, which it produces. Alternate identification (i.e., color coding, etc.) must be approved in writing by an authorized Tenneco representative.

The supplier shall provide Tenneco with complete detail of any Tenneco tooling and its costs, to be attached to Seller's invoice, before payment.

Tenneco will reimburse suppliers for only unique, dedicated production tools that are pre-approved for reimbursement by Tenneco in writing, and may request additional evidence of supplier's actual cost for such tooling prior to final payment. Specific photographic evidence must be supplied. Tenneco will pay the supplier only the actual cost of such tools, not to exceed the amount specified in Tenneco's purchasing documents.

Tenneco will not pay for any tooling necessary for the production of sample products unless otherwise stated on the face of the applicable purchasing documents.

NOTE: Suppliers with questions regarding End User Customer Specific (Ford, GM, Chrysler, etc.) tooling identification requirements should contact the Tenneco buyer.

Unless specifically negotiated, Tenneco will not reimburse suppliers for Capital Equipment or tooling that is shared (used in production of products for other customers), or not returned to Tenneco upon demand. Likewise, unless specifically agreed, Tenneco will not reimburse suppliers for nonrecurring engineering (NRE) costs.

Tooling directly or indirectly furnished by Tenneco, or for which Tenneco has paid or agreed to pay, is the property of Tenneco and held by suppliers pursuant to Tenneco's General Terms and Conditions of Purchase, for such period as required to satisfy the supplier's obligations (including service parts requirements).

The supplier may not move Tenneco tooling to alternate locations without Tenneco's advance written approval. Tenneco reserves the right to demand surrender or destruction of any Tenneco owned tooling at any time, and the supplier will immediately comply with Tenneco's instructions (i.e. provide possession of the tooling to Tenneco or its designee or cause the tooling to be destroyed).

Tenneco reserves the right to conduct audits of Tenneco owned tooling at the suppliers' premises.

5.2 Changes / Maintenance to Tenneco Owned Tooling

Tooling must be maintained in satisfactory working condition, capable of production that meets all governing drawings and specifications, and at the capitalized planning volumes/rates. Suppliers may not change/modify tooling owned by Tenneco without advance notification and approval in writing of such changes. Tooling must be fully covered by insurance against damage, loss, or theft and free from all liens and encumbrances at all times without expense to Tenneco.

5.3 Payment / Terms / Conditions to Tenneco Owned Tooling

All tooling furnished directly or indirectly by Tenneco, or for which Tenneco has paid or agreed to pay (directly or through amortization in product price), will be and remain Tenneco's property. Payment for tooling will not be authorized unless a Vendor Tooling Registration Form is completed. If TITAN is available in supplier's region, this form shall be attached to the A6 folder in TITAN (<http://tsp.Tenneco.com>). If TITAN is not available, contact the Tenneco plant for instructions.

The Vendor Tooling Registration Form contains various information such as product, tooling parts identification, location, and % ownership. Suppliers, when requested, shall furnish complete photographs, tooling drawings, including all details, inserts, consumables, etc. to Tenneco as part of the PPAP approval. Payment terms are as indicated on the order.

Payable date will be based on the date of receipt of the goods, not on invoice date. Please see Section 4 for PPAP required Tooling Purchase Order signed by the supplier.

NOTE: Written notification to the respective Tenneco plant is required to trigger receipt date.

Invoices for tooling must show exact physical location by City, State or Province, and Country where tools will be used in production. Payment terms are as indicated in the applicable purchasing documents.

6 Logistics – Additionally, see Regional Appendix

6.1 Tenneco Logistics & Export Policy

All suppliers are required to fully comply with Tenneco's policies as defined in this Manual and associated purchasing documents. Each region has specific requirements. It is the suppliers' responsibility to obtain and follow these requirements. Regional requirements can be obtained from the respective local Tenneco Logistics Manager.

Tenneco has enacted policies and procedures and require suppliers to fully comply with national and international export requirements, including the requirements set forth by International Traffic in Arms Regulations (ITAR) and Export Administration Regulations (EAR).

The selected transportation modes shall be appropriate for the movement of the product, as well as compliant with national and international transportation and safety regulations. Tenneco has preferred carriers for land, air and ocean transport; reference freight routings in the Regional Appendix.

Tenneco utilizes transportation management software (TMS) to manage freight paid for by Tenneco. Suppliers making shipments where any part of the transportation costs are paid by Tenneco are required to use FOM (Freight Order Management), the TMS supplier interface, to plan, schedule and execute Tenneco shipments. Tenneco will decide when to onboard suppliers and will train and assist suppliers through the process of getting set up and using on FOM. Once a supplier is on-boarded, all shipments to Tenneco must be made through FOM. Failure to follow the process of shipping through FOM may result in a fine of USD \$250 per shipment. Verified by Logistics and Move to Regional.

During transport, product must be secured in such a manner that shipments arrive intact and in good condition. Tenneco reserves the right to refuse loads if the shipment is deemed unsafe to offload or store. Examples of unsafe conditions may include, but are not limited to, rotted trailer floorboards, water damage, unstable stacks of pallets and general poor trailer, container or load conditions.

Documentation for each shipment is the responsibility of the supplier and must be complete, timely and legible. The supplier is responsible to provide all necessary customs and legal documents as required by each country.

Requirements for documents such as bill of lading, packing list, and manifests can be obtained from the local Tenneco logistics manager.

6.2 Logistics & Materials Protocol

Tenneco Inbound Material and Logistics Protocol is a standard template on Section 0.0 Link Sheet. It is a generic operational agreement on detailed logistics & material arrangement between supplier and Tenneco at the local facility level. It covers areas like scheduling, transport, loading, packaging, communication, goods-in-transit, cross stocking, inventory commitment, documentation & labels, customs, etc.

NOTE: For additional clarity, also see Tenneco Global Inbound Material Logistics Process Flow in Section 0.0 Link Sheet.

- For new suppliers, this document is initiated during project nomination process and it needs to be completed and signed off between supplier and Tenneco plants before PPAP approval.
- For existing suppliers, the protocol is required before any new business is launched or must be updated before any additional parts are launched.

If supplier delivers to multiple Tenneco locations or if goods are shipped from various supplier facilities, then each origin-destination relation requires a separate protocol. Multiple purchased items within an origin-destination relation (or new business adding into existing one) can be incorporated into one single protocol if they are subjected to similar logistics & materials arrangement.

The Tenneco Inbound Material and Logistics Protocol needs to be updated whenever there are significant changes in supply-chain and delivery arrangements. Complete Protocols are located in supplier Business Partner c-folders in TITAN (<https://tsp.Tenneco.com>) under "Logistics Information/Plant".

6.3 Basic Packing List Requirements

Each shipment shall be accompanied by a packing slip that clearly and legibly displays:

Sold to address, ship to address, ship from address & ship date.

Tenneco purchase order number, or release number, Tenneco purchase order line item number.

Tenneco part number and revision level letter, Tenneco part description (per Tenneco drawing), quantity (units as specified by the purchase order), number of containers, skids, etc.

Weight of the shipment (gross and net).

Manufacturer's lot number or heat number (when applicable), chemical/physical analysis (when applicable).

Carrier used.

Electronic packing slips, provided by an electronic document number, may be acceptable in some locations. Contact your local Tenneco logistics manager to determine if this service is available. Shipping documents must be provided in a separate envelope.

6.4 Basic Bill of Lading Requirements

The bill of lading must be included with each shipment and reference:

Ship date

Unique BOL # Freight terms Incoterms

Consignee reference

NMFC # class if applicable (ex. US OTR trucking)

Special Instructions (call for appointment, do not stack, lift gate required, etc.)

Carrier tracking # / Pro #

Container / trailer # Seal #

HAZMAT (Y/N)

Bill to address (freight billing)

Ship to address

Ship from address

Weight

Freight pieces

Description of product Carrier

Any other regional requirements, such as country of origin.

If the supplier is based in a Third Country, they must comply to all customs and trade compliance requirements for shipping to Tenneco facilities.

6.4.1 Seal Requirements

Shipping containers (FCL) and full truck loads (FTL)

Seal must meet the ISO/PAS 17712 certification requirements Seal must be affixed prior to shipment leaving facility

Seal number must be documented on the Bill of Lading

Requirements for ISPM-15 shall be laid out for any shipment on a wood pallet, not just the two specific approved methods identified in Section 6.4.2 below.

6.4.2 *Guidelines for global importation of solid wood packaging ISPM 15 - guidelines for regulating wood packaging material in international trade.*

The Animal and Plant Inspection Service (APHIS) oversees the implementation of requirements when importing wood packaging material. ISPM-15 guidelines require the use of either heat treatment or fumigation and the marking of materials. Wood Packaging Material (WPM) includes pallets, dunnage, crating, packing blocks, drums, cases, load boards, pallet collars and skids. Certified WPM must be marked, and date stamped (valid for one year).

Approved methods of treatment:

Heat Treatment: Material is heated to a minimum core temperature of 56 °C for 30 min.

Fumigation: Material may be fumigated using Methyl Bromide at the rates listed below.

NOTE: The requirement to comply with SOLAS VMG regulations for all ocean shipments needs to be included.

6.4.3 *Implementation of new SOLAS Regulations*

The increasing number of maritime incidents that were the result of incorrect cargo weights led to new SOLAS (Safety of Life at Sea) regulations. The regulation, called Verified Gross Mass, became legally binding on July 1, 2016, and applies to all containers loaded for export on or after that date, from any port in the world. The International Maritime Organization (IMO), a United Nations agency, governs SOLAS regulations and compliance is obligatory.

The SOLAS regulations are intended to reduce the loss of containers from vessels and to improve the safety of workers and equipment in the supply chain.

The key requirements of the SOLAS Regulations are:

Prior to a laden container being stowed on to a vessel the VGM (Verified Gross Mass) of the container and all contents must have been verified and sent to the carrier (VOCC).

The VGM is defined as: Tare weight of the container + product weight + weight of all dunnage. The shipper is responsible for providing the VGM.

The shipper is defined as the party named on the underlying (VOCC) carriers' OBL or SWB/ECB.

The underlying carrier (VOCC) is not permitted to load a container without a confirmed declaration from the shipper of the VGM of that container.

6.4.4 *Methods for Obtaining VGM*

The regulations provide for two methods that the shipper may obtain the VGM:

Method 1. Weigh the whole container and its contents.

Method 2. Weigh all product + weight of all dunnage + tare weight of the container.

All weighing equipment shall be certified to meet the accuracy standards and requirements of the state/province/country in which it is used.

The shipper is required to communicate the VGM to the carrier. This may be a shipping instruction to the carrier on the standard shipping documents or a separate communication such as a weight certificate or EDI message.

The VGM verification must include the method used to determine the VGM (method 1 or method 2), and the signature of the duly authorized and named representative of the shipper. Typed, all capital letters on a hard copy document, or an electronic signature on EDI may replace the signature.

NOTE: The following websites may also be of assistance:

Guidelines regarding the verified gross mass of a container carrying cargo:

www.worldshipping.org/industry-issues/safety/cargo-weight

Guidelines for improving safety and implementing the SOLAS container weight verification requirements:

www.worldshipping.org/industry-issues/safety/cargo-weight

The IMO/ILO/UNECE Code of Practice for Packing of Cargo Transport Units (CTU) and CTU Code informative materials can be found at:

www.worldshipping.org/industry-issues/safety/containers

SMDG, including the EDI implementation guidelines:

www.smdg.org

Local guidelines & authorities:

<https://www.worldshipping.org/industry-issues/safety/global-container-weight-verification-rule-effective-july-1-2016>

NOTE: Tenneco uses third party freight payment in some regions. Please ensure that the freight invoices are sent to the appropriate address.

6.5 Advanced Shipping Notices (ASNs)

Tenneco offers EDI and Tenneco's web-based supplier collaboration tool as options for the communication of requirements, forecasts and releases, as well as ASN submittal.

As a Supplier, you are responsible for submitting your Advanced Shipping Notice (ASN) back to the Tenneco facility.

Tenneco requires your ASN submittal at the time of shipment.

An ASN is required for EVERY shipment to Tenneco

Only include items from one purchasing document per ASN (scheduling agreement and purchase order parts cannot be supplied on the same ASN)

PPAP sample parts must be submitted on their own ASN

Failure to submit a valid ASN will result in a past due shipment.

ASN numbers must be the same as the Bill of Lading and limited to 10 alpha-numeric characters.

7 Packaging

7.1 Supplier Responsibilities

To ensure damage-free shipments, it is the supplier's responsibility to work with Tenneco's receiving plant to design and develop packaging and internal dunnage to withstand the given transportation mode. Tenneco may, but is not required to assist with the design, but accepts no responsibility for nonperformance. Once the packaging method has been accepted, the supplier may not change without prior written approval from Tenneco.

Tenneco's receiving department may reject items that are not properly packaged or not in suitable containers to protect them against stacking, corrosion, breakage, marring, contamination, disbandment, or disarrangement.

7.2 All Other Packaging and Labeling Specifications

Supplier must review packaging and labeling requirements for the region that the product is being shipped into. The region specific information can be found in the Logistics Section on the Section 0.0 Link Sheet.

8 Environmental Health & Safety

8.1 EH&S Commitment

As people are our most important asset, Tenneco is committed to health and safety as a primary focus. Tenneco expects all suppliers to Tenneco's worldwide locations conduct business in the same manner and that goods and services provided to these locations be delivered in a safe, ergonomic and environmentally friendly condition. [Please refer to Section 9.1 for Code of Conduct link.](#)

Tenneco encourages its supply base to align with the Environmental and Sustainability codes located within the AIAG Standards and demonstrate progress towards fulfilling the requirements of current ISO 14001.

8.2 Supplier Visits

Suppliers are encouraged to visit Tenneco Manufacturing and test areas. This requires approval in advance of the visit to facilitate the participation of the appropriate level of Tenneco personnel. Visitors entering any test or manufacturing areas (beyond front offices) may be required to wear eye, foot, and hearing protection and may be required to sign further documentation such as a visitor forms to follow location specific rules.

Tenneco sites usually maintain a supply of protection devices for visitors. Levels of protection should be discussed with the appropriate Tenneco personnel in advance of the visit.

Suppliers going into the plant must be on the alert at all times and obey all warning signs and plant visitor rules.

Tenneco facilities and offices are smoke free environments. Smoking is prohibited except in designated areas.

8.3 Tenneco Facility Security

Tenneco maintains security systems to protect assets and limit the entry of unauthorized personnel. Once at the facility, all visitors will be required to sign in, be assigned appropriate visitor identification, and sign out at the end of the visit.

Visitors will conform to the applicable Tenneco Health and Safety rules and be accompanied by a responsible Tenneco representative.

Taking pictures or video recording of Tenneco operations or facilities without authorization is strictly forbidden.

8.4 Supplier Data Security

Suppliers shall comply with all information security and/or intellectual property requirements addressed in Tenneco's General Terms and Conditions of Purchase. All suppliers must complete a data security risk evaluation within their supply base.

Tenneco printed information or electronic files cannot be removed from the premises or copied without permission.

9 Corporate Responsibility for the Automotive Supply Chain

NOTE: Government regulations or Customer Specific Requirements must be followed in addition to Tenneco requirements.

9.1 Corporate Social Responsibility

Tenneco's compliance and ethics expectations are set forth in Tenneco's Code of Conduct (available online, here: https://www.tenneco.com/governance/code_of_conduct/), training materials, and other communications that Tenneco provides to its employees and suppliers. We expect our suppliers to share in our commitment to Corporate Social Responsibility.

9.2 Global Working Conditions Guidance

Tenneco has embraced the following working condition guidelines into our facilities on a global basis. These conditions are evidenced by our Human Resources policies and procedures. Tenneco expects that members of our supply chain will join us in sharing these values among your own resources.

Tenneco opposes the use of child labor and expects our suppliers to support this value. The age of employment should be in accordance with local labor law.

Tenneco expects our suppliers to oppose any form of forced or compulsory labor and ensure that their workers can communicate openly with management regarding working conditions without fear of reprisal, intimidation, or harassment, and Tenneco requires suppliers to implement zero tolerance policy of harassment or discrimination, in any form, against employees.

Tenneco supports a safe and healthy working environment for all workers that meets or exceeds applicable standards for occupational safety and health and expects the same from our suppliers.

Tenneco suppliers shall comply with local laws and regulations regarding compensation, benefits, and the number of hours worked. All local and governmental / regional regulations shall be adhered to.

Tenneco suppliers must protect their workers against any corporal punishments.

Tenneco suppliers should explore the AIAG website, complete the Global Working Conditions (GWC) self-assessment, and keep it for review if requested. Each direct material supplier should maintain a training program concerning Tenneco's commitment to forced labor and working conditions. Tenneco expects its suppliers to conduct internal audits and self-assessments as a condition of contracting with Tenneco and take appropriate and necessary action to address and resolve any issues. Our statement on Preventing Human Slavery and Trafficking is available at https://www.tenneco.com/governance/code_of_conduct/.

9.3 Conflict Minerals

Tenneco is committed to sourcing components and materials from companies that share our values around human rights, ethics, and environmental responsibility. Tenneco is required to perform annual due diligence on the sourcing and file annual reports on the use of tantalum, tin, tungsten, and gold originating in Conflict Affected and High-Risk Areas (CAHRAs), including the Democratic Republic of the Congo (DRC) and its nine adjoining countries. This is necessary if the conflict minerals are necessary to the functionality or production of a product. Suppliers must conduct similar due diligence within their supply chains in order to document the origins of conflict minerals or derivatives and make their findings available to Tenneco.

All suppliers to Tenneco, for all raw materials, component parts and finished goods, are strongly encouraged to establish a due diligence process to comply with the legislation and related rule and to manage customer requests regarding conflict minerals.

As Tenneco focus on sourcing responsibly, suppliers will be asked to provide additional information on minerals outside of legislation and related rulings. Suppliers will cooperate with Tenneco and submit information as requested. Suppliers will provide its information as instructed within the request using Responsible Minerals Initiative ("RMI") Reporting Templates. RMI latest version of the Reporting Template (CMRT) can be found at <http://www.responsiblemineralsinitiative.org/>. To facilitate timely reporting by Tenneco, supplier data will be required annually prior to May based on the timeline set by Tenneco. Questions regarding conflict minerals should be directed to ConflictMinerals@tenneco.com.

9.4 REACH Regulation

If the product is manufactured in or imported into the European Union, the product must follow applicable requirements under regulation (EC) 1907/2006 concerning the registration, evaluation, authorization and restriction of chemicals ("REACH Regulation"). The definitions of the REACH Regulation are applicable.

The Supplier shall:

Show proof of compliance with REACH regulations, including registration, authorization and other applicable supplier requirements. Supplier registration must provide Tenneco's use for the products purchased.

Provide for all substances and preparations, as far as legally required, safety reports and safety data sheets. For all substances or preparations that meet the criteria of Art. 31 para. 1, 3 REACH regulation, the safety data sheets must be made available in a format that is in accordance with Annex II of the REACH regulation.

Provide for Substances and Preparations, for which no safety data sheet is required, the information referred to in Art. 32 REACH regulation.

Complete form "B-QEHS-GT-003 Rev 1.0"

Provide for substances in Articles, the information referred to in Art. 33 REACH regulation.

Absorb all costs of registration, testing, and maintenance of registration in connection with REACH regulation.

Inform Tenneco immediately if:

- a. There are changes to the registration or authorizations of substances for substances, preparations, or articles purchased by Tenneco.
- b. Any of the Substances, Preparations, or Articles purchased by Tenneco meet the criteria referred to in Art. 57 REACH regulation or are on the candidate list for eventual inclusion in Annex XIV of the REACH regulation.
- c. The supplier intends not to pre-register a phase-in substance.
- d. The supplier has failed to pre-register a phase-in substance in time.
- e. A registration has been rejected by the European Chemicals Agency (ECHA).
- f. An authorization has been rejected by the ECHA.

The requirements in this section are dynamic and subject to change with or without notice.

Candidate list of substances of very high concern for authorization: <https://echa.europa.eu/candidate-list-table>

For more information, please visit <https://echa.europa.eu/regulations/reach/legislation>, contact the relevant Tenneco buyer or contact productcompliance@Tenneco.com.

9.5 RoHS

If the product is manufactured in or imported to the European Union, the product shall follow applicable requirements for the RoHS directives. RoHS (**R**estriction **o**f **H**azardous **S**ubstances) originated in the European Union and originally restricted six hazardous substances. The second directive, published in 2011, added two more substances and the third directive from 2015 adds four additional substances. The following directives shall be followed: 2002/95/EC, 2011/65/EU, and 2015/863EU.

The Supplier shall:

Show proof of compliance with current RoHS regulation or exemptions, or declaration of chemical composition of hazardous substances.

Provide for all substances and preparations, as far as legally required, Safety reports and safety data sheets.

Provide for substances and preparations, for which no safety data sheet is required, the required chemical disclosure of hazardous substances.

Absorb all costs of registration, testing, and maintenance of registration in connection with RoHS regulation.

Inform Tenneco immediately if:

- a. There are changes to the compliance status of substances, preparations, or articles purchased by Tenneco.
- b. Any of the substances, preparations, or articles purchased by Tenneco meet the criteria referred to in RoHS2 legislation or are on the candidate list for eventual inclusion in the RoHS3 legislation.

The requirements in this section are dynamic and subject to change with or without notice.

For more information, please visit <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:02011L0065-20190722>, contact the relevant Tenneco buyer or contact productcompliance@Tenneco.com.

9.6 Speaking Up

If you have an honest concern that someone is not following Tenneco policies and/or Code of Conduct, we want to know. By working together, we are stronger. We appreciate it when you contact us regarding these concerns. You can contact your Tenneco buyer, management, or our hotline at: www.tennecohotline.ethicspoint.com.

Important Note: Each supplier wishing to do business with Tenneco is required to meet the guidelines indicated in this Manual, as well as the respective region for which business transpires.

Each supplier is required to review this Manual at least once per year.



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Table of Contents and Revisions

Last updated 9-30-2021

Latest Changes in Blue Font	Content/Section	Creation Date (mm/dd/yyyy)	Revision Letter	Revision Date	Revision
0.0	Link Sheet	5/31/2010	A	5/31/2010	Added
1.0	Introduction	1/1/2004	N/A	N/A	N/A
1.1	Scope	09/30/2021	A	09/30/2021	Added to define general guidelines
1.2	Definitions and Abbreviations	09/30/2021	A	09/30/2021	Added new
2.0	Organization	1/1/2004	A	09/30/2021	Added link to Tenneco.com
2.1	Quality Statement	1/1/2004	C	09/30/2021	Revised by Global Team
2.2	Product Compliance and Quality Policy		A	09/30/2021	New Revised by Global Team
3.0	Purchasing	1/1/2004	A	09/30/2021	Created Heading for Section
3.1	Organizational Philosophy	1/1/2004	B	12/22/2005	NA Manual Integrated into the Global Manual
3.2	Operations Philosophy	1/1/2004	C	3/31/2011	Added recommendation to practice 5S and Lean methods.
3.3	Ethics	1/1/2004	C	09/30/2021	Added statutory and regulatory requirement.
3.4	Supplier Criteria/Initial Assessment	1/1/2004	F	09/30/2021	Table is new
3.5	Request for Quote	1/1/2004	C	09/30/2021	Completely revised – re-read entire section -Was 3.6 in previous manual.
3.6	Scheduling Agreement	1/1/2004	D	8/15/2018	Was 3.7 in previous manual Changed GSCM to Global Purchasing; Changed name of section
3.7	Shipping Releases	1/1/2004	B	12/22/2005	Was 3.8 in previous manual. NA manual integrated into the global manual
3.8	Service Orders	1/1/2004	B	12/22/2005	Was 3.9 in previous manual NA manual integrated into the global manual
3.9	Fab/ Raw Authorizations	1/1/2004	F	09/30/2021	Export suppliers must have two weeks finished goods available within the country of use.
3.10	Contingency Plan Requirements	4/30/2013	B	09/30/2021	Updated the contingency plans required list.
3.11	Business Review Meetings	1/1/2004	B	12/22/2005	Was 3.11 in previous manual NA manual integrated into the global manual
3.12	Supplier Agreements	1/1/2004	B	12/22/2005	NA manual integrated into the global manual
3.13	Prices	1/1/2004	C	5/31/2010	Added reference to PPAP process
3.14	Payments/Terms/Conditions	1/1/2004	D	06/30/2014	Was 3.15 in previous manual Links Directly to tsp.tenneco.com
4.0	Supplier Performance and Engineering	09/30/2021	A	09/30/2021	Created Heading for Section
4.1	Quality Systems	11/27/2007	I	09/30/2021	Type of quality certification may affect supplier classification ranking.
4.2	Engineering Design Rules and CAD Requirements	5/31/2010	A	5/31/2010	Was 4.1.1 in previous manual Added.


4.3	Advanced Product Quality Planning (APQP)	1/1/2004	E	08/15/2018	Was 4.2 in previous manual APQP Kickoff review information added.
4.4	Feasibility	1/1/2004	E	08/15/2018	Was 4.2.1 in previous manual Added feasibility questions requirement
4.5	Packaging Planning	1/1/2004	B	5/31/2010	Was 4.2.2 in previous manual Added approval by materials group
4.6	Launch Containment Requirements	1/1/2004	B	4/30/2013	Was 4.2.3 in previous manual Added clarification of "mandatory process"
4.6.1	Launch Containment Process	1/1/2004	F	08/15/2018	Was 4.2.3.1 in previous manual Added 90 Day containment requirement.
4.6.2	Launch Containment Exit Criteria	1/1/2004	C	08/15/2018	Was 4.2.3.2 in previous manual Added Corrective Action requirement.
4.7	Capacity Verification Process (Run@Rate)	1/1/2004	E	09/30/2021	Completely new- please re-read.
4.8	PPAP	1/1/2004	F	08/15/2018	Was 4.3 in previous manual General text updates throughout - Please read.
4.8.1	PPAP Submission	1/1/2004	F	09/30/2021	Update on IMDS submission requirements.
4.8.2	PPAP Submission Sample Part	1/1/2004	C	09/30/2021	All samples and significant production run parts are provided at the supplier's expense.
4.8.3	Design Records	1/1/2004	C	08/15/2018	Was 4.3.2.1 in previous manual Added Special Characteristics information
4.8.4	Significant/Critical Characteristics	1/1/2004	C	8/15/2018	Added special characteristics information
4.8.5	Engineering Change Documents	1/1/2004	B	5/31/2010	Was 4.3.2.2 in previous manual Removed generic requirement, added Tenneco requirement to obtain Engineering approval
4.8.5.1	Engineering Approval	1/1/2004	B	5/31/2010	Was 4.3.2.3 in previous manual Added a requirement for capability studies for Engineering approval of deviations.
4.8.6	DFMEA (Design Failure Mode Effects Analysis)	1/1/2004	C	10/31/2015	Was 4.3.2.4 in previous manual Total re-write – please read thoroughly.
4.8.7	Process Flow Diagram	1/1/2004	C	10/31/2015	Was 4.3.2.5 in previous manual Total re-write – please read thoroughly.
4.8.8	PFMEA (Process Failure Mode Effects Analysis)	1/1/2004	F	09/30/2021	Severity level updated
4.8.9	Dimensional Results	1/1/2004	C	10/31/2015	Was 4.3.2.7 in previous manual Added balloon drawing requirements section.
4.8.10	Material/Performance Test Results	1/1/2004	E	09/30/2021	These material test results (certificates) should not be older than 12 months from the final submission date. Accredited lab certification to be included in PPAP submission c-folder Qualified laboratory documentation.
4.8.11	Capability Studies	1/1/2004	G	09/30/2021	Completely new- please re-read

4.8.12	Measurement Systems Analysis	1/1/2004	E	08/15/2018	Was 4.3.2.10 in previous manual Acceptance criteria added.
4.8.12.1	Variable Gage R&R	1/1/2004	E	8/15/2018	Was 4.3.2.10 in previous manual Acceptance criteria added.
4.8.12.2	Attribute Gage R&R	1/1/2004	E	8/15/2018	Was 4.3.2.10 in previous manual Acceptance criteria added.
4.8.12.3	Measurement System Gage Correlation	1/1/2004	F	09/30/2021	Completely new – please re-read
4.8.13	Qualified Laboratory Documentation	1/1/2004	B	5/31/2010	Was 4.3.2.11 in previous manual Reworded.
4.8.14	Control Plans	1/1/2004	D	09/30/2021	Note regarding CP for part families revised.
4.8.15	Part Submission Warrant (PSW)	1/1/2004	B	5/31/2010	Was 4.3.2.13 in previous manual Reworded
4.8.16	Appearance Approval Report	1/1/2004	B	05/31/2010	Was 4.3.2.14 in previous manual Reworded
4.8.17	Master Sample	1/1/2004	B	5/31/2010	Was 4.3.2.16 in previous manual Reworded, added that exceptions to Master Sample retention must be included in PPAP package.
4.8.18	Checking Aids	1/1/2004	D	09/30/2021	Was 4.3.2.17 in previous manual Small text change – please read
4.8.19	Customer Specific Requirements (Tenneco and End User)	1/1/2004	E	08/15/2018	Was 4.3.2.18 in previous manual “Reference Region Appendix” added.
4.8.20	Special Process /CQI Audit Requirements	1/1/2004	E	08/15/2018	Was 4.3.2.19 in previous manual Special Process information added.
4.8.21	PPAP Response	1/1/2004	D	08/15/2018	Was 4.3.3 in previous manual Small text changes – please read
4.9	Annual Parts Validation Requirements	1/1/2004	E	09/30/2021	The purpose of the Annual Part Validation is to ensure that the part is still within specification and processes are still within control. Minimum requirements of an Annual Part Validation is a full dimensional layout, an actual material certificate, and PSW.
4.10	Deviation Process	1/1/2004	D	09/30/2021	Deviations sent to Commodity Buyer and Quality Manager of the affected Tenneco plant.
4.11	Process Change Notification	5/31/2010	F	10/31/2015	Was 4.5.2 in previous manual Added second paragraph clarifying PCN process is at a minimum 90 days.
4.12	Supplier Performance Requirements	1/1/2004	F	09/30/2021	On an annual basis, the Tenneco Buyer will analyze the suppliers on several other areas, such as cultural, commercial, quality & manufacturing, engineering & development, degree of globalization, and financial & legal.
4.12.1	Quality and Delivery Performance	1/1/2004	E	08/15/2018	Was 4.6.1 in previous manual Total rewrite – please read

4.12.2	Service Parts Delivery Performance	1/1/2004	D	5/31/2010	Moved from 4.7
4.13	Continuous Improvement	1/1/2004	D	10/31/2015	Was 4.7 in previous manual Clarification on expected metrics.
4.14	Material Rejection	1/1/2004	E	6/30/2014	Was 4.8 in previous manual eMRR dB revision
4.14.1	Disposition of Suspect/Non-Conforming Material	1/1/2004	C	6/30/2014	Was 4.8.1 in previous manual eMRR dB revision
4.14.2	Material at Supplier Location	1/1/2004	D	09/30/2021	Supplier shall use the CSI Yellow label
4.14.3	Material In- Transit or at Tenneco Location	1/1/2004	B	5/31/2010	Was 4.8.3 in previous manual Moved from 4.5.2.2
4.15	Corrective Action	1/1/2004	C	09/30/2021	Reference Corrective Action Guidelines and Corrective Action Checklist
4.15.1	Corrective Action Reporting	1/1/2004	D	10/31/2015	Was 4.9.1 in previous manual Added (Reference Tenneco Expectation Letter located on the eMRR Home page under "Useful links")
4.15.2	Corrective Action Timing	1/1/2004	C	3/31/2011	Was 4.9.2 in previous manual Supplier's Quality Manager (or designate) must approve
4.16	Supplier Improvement	5/31/2010	D	08/15/2018	Was 4.10 in previous manual Total rewrite – please read
4.16.1	Main Offender Meeting (MOM)	08/15/2018	A	08/15/2018	Was 4.10.1 in previous manual Section added
4.16.2	Supplier Improvement Process (SIP)	05/31/2010	D	08/15/2018	Was 4.10.2 in previous manual Moved from 4.10 to this section
4.16.2.1	Initial Visit	05/31/2010	D	08/15/2018	Was 4.10.2 in previous manual Moved from 4.10 to this section
4.16.2.2	Follow-up Visit to Review Improvement	05/31/2010	D	08/15/2018	Was 4.10.2 in previous manual Moved from 4.10 to this section
4.16.2.3	Exit Criteria	05/31/2010	D	08/15/2018	Was 4.10.2 in previous manual Moved from 4.10 to this section
4.17	Controlled Shipping	1/1/2004	F	09/30/2021	Controlled Shipping is a requirement of Tenneco for each issue identified by Tenneco or its customers.
4.17.1	Controlled Shipping – Level I	1/1/2004	D	3/31/2011	Was 4.11.1 in previous manual CSI identification labels must contain MRR number and be located near shipping labels
4.17.2	Controlled Shipping- Level II	1/1/2004	E	09/30/2021	CSII requirements clarified.
4.18	Customer Directed Supplier	5/31/2010	A	5/31/2010	Was 4.11.4 in previous manual Added Mediations
4.19	Cost Recovery	1/1/2004	D	09/30/2021	Global Supplier Charge Back Cost Table located in Regional Appendix
4.20	Supplier Quality System Assessment	1/1/2004	C	5/31/2010	Was 4.13 in previous manual Moved from 4.17
4.21	Record Retention	1/1/2004	D	09/30/2021	15 years for all records.
4.22	Training	1/1/2004	C	5/31/2010	Was 4.15 in previous manual Moved from 4.19 and added



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					Global Working Conditions Guidance requirements
4.23	Field Issues	6/30/2014	B	09/30/2021	Complete Revision – please re-read. See Tenneco Global Terms and Conditions.
5.0	Tooling and Equipment	1/1/2004	B	12/22/2005	Was 5.0 in previous manual NA Manual Integrated into the Global Manual
5.1	Tooling and Equipment Policy	1/1/2004	C	3/31/2011	Was 5.1 in previous manual Alternate identification must be approved in writing by authorized Tenneco representative.
5.2	Changes/Maintenance of Tenneco Owned Tooling	1/1/2004	B	12/22/2005	Was 5.2 in previous manual NA Manual Integrated into the Global Manual
5.3	Payment Terms and Conditions for Tenneco Owned Tooling	1/1/2004	I	02/28/17	Was 5.3 in previous manual Removed Payment for Tooling Schedule table.
6.0	Logistics	1/1/2004	N/A	N/A	Was 6.0 in previous manual Created Heading for Section
6.1	Tenneco Logistics & Export Policy	1/1/2004	C	5/31/2010	Was 6.1 in previous manual Full compliance with national and international export requirements
6.2	Logistics and Material Protocol	1/1/2004	A	6/22/2006	Was 6.2 in previous manual Tenneco Inbound Material and Logistics Protocol changed
6.3	Basic Packing List Requirements	1/1/2004	B	12/22/2005	Was 6.3 in previous manual NA Manual Integrated into the Global Manual
6.4	Basic Bill of Lading Requirements	1/1/2004	B	12/22/2005	Was 6.4 in previous manual NA Manual Integrated into the Global Manual
6.4.1	Seal Requirements	07/31/2021	A	09/30/2021	Added section
6.4.2	Guidelines for Global Importation of Solid Wood Packaging	07/31/2021	A	09/30/2021	Added section
6.4.3	Implementations of new SOLAS regulations	07/31/2021	A	09/30/2021	Added section
6.4.4	Methods of Obtaining VGM	07/31/2021	A	09/30/2021	Added section
6.5	ASNs	08/15/2018	A	08/15/2018	Was 6.5 in previous manual New section
7.0	Packaging	1/1/2004	N/A	N/A	Was 7.0 in previous manual Created Heading for Section
7.1	Supplier Responsibility	1/1/2004	B	12/22/2005	Was 7.1 in previous manual NA Manual Integrated into the Global Manual
7.2	All Other Packaging and Labeling Specifications	07/31/2021	A	09/30/2021	Added section
8.0	Environmental Health and Safety (EHS)	1/1/2004	N/A	N/A	Was 8.0 in previous manual Created Heading for Section
8.1	EH&S Commitment	1/1/2004	D	09/30/2021	Please refer to Section 9.1 for Code of Conduct link
8.2	Supplier Visits	1/1/2004	D	5/31/2010	Was 8.2 in previous manual Removed IMDS (now in 4.3.1). Entire section moved from 8.3
8.3	Tenneco Facility Security	1/1/2004		5/31/2010	Was 8.3.1 in previous manual Section moved from 8.4.

8.4	Supplier Data Security	3/31/2011	A	3/31/2011	Was 8.3.2 in previous manual Separated Tenneco facility security from Supplier data security and added Supplier Data Security Self-Assessment form link
9.0	Corporate Responsibility for the Automotive Supply Chain	5/31/2010	B	09/30/2021	NOTE: Government regulations or Customer Specific Requirements must be followed in addition to Tenneco requirements.
9.1	Corporate Social Responsibility	07/31/2021	A	09/30/2021	Added section. Was 9.3 in previous manual
9.2	Global Working Conditions Guidance	5/31/2010	B	3/31/2011	Was 9.1 in previous manual Added suggestion to investigate training opportunities regarding this subject at AIAG website.
9.3	Conflict Minerals	06/30/2014	B	08/15/2018	Was 9.2 in previous manual Detailed information added, links to explanation and template added.
9.4	REACH Regulation	08/15/2018	A	08/15/2018	Was 9.2.1 in previous manual New section added.
9.5	RoHS	08/15/2018	A	08/15/2018	Was 9.2.2 in previous manual New section added.
9.6	Speaking Up	07/31/2021	A	09/30/2021	New Section – Please read.