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

Global Supplier Manual

Last updated Oct. 31, 2015

Regional users, also consult:
"Region Specific Information and Requirements"

Click on sections above to follow link.

Section 1.0	Introduction	Revision Date	Revision Letter
Section 1.1 Supplier Letter		10-31-15	G

Dear Supplier,

This document 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 price, quality, and service. 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, efficient, and profitable manner.

This updated manual supersedes all supplier information manuals previously provided to you by Tenneco.

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

Thank you for your continued interest and support.

Jose Butaye - Executive Director of Purchasing Ride Performance

Raf Jaspers - Executive Director of Purchasing Clean Air

Section 2.0	Organization	Revision Date	Revision Letter
2.1 History	Tenneco (NYSE: TEN) is one of the world's largest automotive suppliers. With revenues of $8.4 billion, the company designs and manufactures ride control and emission control products and systems for original equipment manufacturers and aftermarket distributors and retailers. **Global Footprint** Approximately 29,000 employees, serving customers in more than 100 countries Roughly 90 manufacturing plants and 15 engineering and technical centers worldwide **Brands** Tenneco markets products under some of the most well-known automotive brands in the world including Monroe®, Walker®, Gillet™ and Clevite® Elastomers. **Customers** A global manufacturing and distribution network serves original equipment manufacturers worldwide including Toyota, Honda, Nissan, Mazda, Suzuki, General Motors, Ford Motor Co., Volkswagen, Daimler, Chrysler, SAIC, Renault, and PSA Peugeot Citroen, Tata Motors, International Truck, Caterpillar, and Harley-Davidson. In the aftermarket, we serve more than 500 distributors and retailers including such familiar names as: NAPA,TEMOT Autoteile, ADI, O'Reilly Automotive, Advance Auto Parts, Kwik-Fit Europe, Uni-Select, and Pep Boys. **Additional information can be found at www.tenneco.com**.	10-31-15	E
2.2 Quality Policy	Delivering customer satisfaction with empowered employees using continuous improvement to get it right the first time, every time.	06-30-14	C
2.3 Vision Statement	Pioneering global ideas for cleaner air, and smoother, quieter and safer transportation.	06-30-14	C
2.4 Headquarter Locations	**Worldwide Headquarters** Tenneco 500 North Field Drive Lake Forest, IL 60045, USA Phone: 847-482-5000 **North American Original Equipment Headquarters** Tenneco One International Drive Monroe, MI 48161, USA Phone: 734-243-8000	12-22-05	B

	North American Aftermarket Equipment Headquarters Tenneco 500 North Field Drive Lake Forest, IL 60045, USA Phone: 847-482-5000		
2.5 Worldwide Locations	**European Headquarters** Tenneco Europe Av. du Bourgetlaan, 50 B 1130 Brussels Brussels, Belgium Phone: 32-2-706-9000 Contact Tenneco Europe. **Asian / Pacific Rim Headquarters** Tenneco 1326-1378 South Road Clovelly Park 5042, Adelaide, South Australia Phone: 61-8-8374-5222 Contact Tenneco Asia. **South America Headquarters** Tenneco South America Bartolomé Cruz 1528 1°P (B1638BHL) Vicente López Buenos Aires República Argentina Phone: 54-11-5550 1700 Contact Tenneco South America. **Additional location information can be found at www.tenneco.com.**	12-22-05	B

Section 3.0	Purchasing	Revision Date	Revision Letter
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 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 must be technologically competent and financially capable of supporting our development needs for current and future products. Tenneco will encourage its suppliers to become involved in new product development, to ensure we have robust designs and processes capable of meeting our goals. In order to be considered as a Tenneco supplier, companies must be willing to share information on their financial condition with our Purchasing Department. Sourcing decisions will be based on competitive pricing, quality assurance, supply, 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.	12-22-05	B
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 critical values. Suppliers are expected to have operating philosophies which are compatible with these values. Supply 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. Many such contracts are presently in effect. Suppliers are expected to maintain a quality system providing 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 that suppliers practice 5S, “Lean” methods.	03-31-11	C
3.3 Ethics	In order to support sound procurement practices and maintain a reputation for honesty and fairness, Tenneco will select suppliers who can provide products and services of the highest value. Employees are 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.	06-30-14	C

	It is Tenneco's policy that personnel and suppliers must not engage in any activities nor have any personal or financial interests outside Tenneco, which constitute a conflict of interest with Tenneco policies or which conflicts in any way with their assigned responsibilities. It is Tenneco's policy that personnel or suppliers must never place themselves or Tenneco under obligation at any time by the acceptance/offer 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. As Tenneco's worldwide operations must comply with all applicable laws, rules and regulations, as well as Tenneco's Code of Conduct and the policies and procedures that support them, suppliers are required to comply with the same including Tenneco's Code of Conduct. Reference the Tenneco Code of Conduct. 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	A primary objective of Tenneco is to achieve the "Best in Class" status in supply base management and supplier performance. As Tenneco focuses on core manufacturing processes, our suppliers must also be developing and perfecting their core competencies. To maintain a long term relationship with Tenneco, suppliers must: 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 of the regionally recognized standard. Meet/exceed "best in class" standards through product and process innovations that support performance improvements, lower warranty rates and provide best value. Meet/exceed "best in class" standards through product and process innovations that support performance improvements, lower warranty rates and provide best value. Provide the lowest total cost products driving year-over-year reductions through continuous improvement and Value Analysis/Value Engineering (VA/VE) initiatives. Please use the attached Supplier Suggestion form for 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.	03-31-11	C
3.5 Initial Assessment	The first step in approving a supplier to join our supply base team is for the supplier to complete an Initial Registration through our supplier website or whatever the local process is in the region. For further details in regions outside of North America and Europe, please refer to your regional appendix. The supplier inputs pertinent information directly into the website which is routed to a Tenneco commodity buyer for review. The commodity	05-31-10	C

	buyer uses this registration to make a preliminary assessment of the supplier. If the assessment is favorable then the supplier will be contacted by the commodity buyer. The second step in the approval process is an onsite assessment by Tenneco at the supplier's location. The supplier must demonstrate compliance to this manual. To proceed directly to the supplier website to enter your Initial Registration, click on the following link: www.tsp.tenneco.com. Upon entering the website, select "New Supplier Registration", and follow Tenneco's Interactive Tender Alliance Network (TITAN) system prompts.		
3.6 Request For Quote (RFQ)	As a component of continuous improvement, the RFQ process is intended to establish specific costs for each element of a component part. Therefore it is extremely important that suppliers provide a cost breakdown as requested by RFQ, so that through early supplier involvement and value engineering we can identify and implement cost reduction opportunities. Please refer to Section 4.2.1.	12-22-05	B
3.7 Scheduling Agreements	Scheduling Agreements (sometimes called "blanket purchase orders") are typically issued to a supplier by Supply Chain Management (SCM). Each Tenneco plant will issue forecasts and releases for each part number(s) used at that plant. Scheduling Agreements are updated as parts are added to, or removed from, the supplier's offerings due to new programs, resourcing, programs ending, etc.	05-31-10	C
3.8 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.	12-22-05	B
3.9 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 4.6.3 for additional information on Service Parts Requirements.	12-22-05	B
3.10 Fabrication / Raw Material Authorizations	Unless otherwise agreed by Buyer in writing, the firm period of Buyer's production release is defined as two (2) weeks' finished goods, two (2) weeks' work-in-progress and two (2) weeks' raw material. Buyer shall not be liable for any inventory in excess of the quantities specified in the firm period of Buyer's production releases, as specified above. Buyer may return over shipments to supplier at supplier's expense for all packing, handling, sorting, and transportation. Buyer 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. Seller will 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 Buyer's requested quantities. One week of safety stock will be calculated as the next 12 weeks' forecast divided by 12. Note: Materials that are directed-buy by Tenneco that deviate from the process established herein must receive Tenneco's approval through the PCN process (see section 4.5.2 of this manual.)	10-31-15	E

3.10.1 **Contingency Plan Requirements**	Tenneco requires suppliers to establish a standard method of assessing and mitigating risk in functions and plants to ensure that validated contingency plans are developed. The contingency plans shall ensure: Assessing risk to the continuation of business caused by key machine breakdown, external influences or natural disaster. Development and implementation of mitigation plans to avoid foreseeable risk factors. Design of robust & validated contingency plans in the event that risk cannot be mitigated to acceptable levels. Any additional end-user specific Customer requirements.	04-30-13	A
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 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.	12-22-05	B
3.12 **Supply Agreements**	Supply agreements for repetitive, higher volume requirements are normally awarded for a minimum period of one year. Long Term Agreements (2 - 5 years) are frequently negotiated with established suppliers to support enhanced value-added opportunities for both Tenneco and its suppliers.	12-22-05	B
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. Suppliers are expected to offer suggestions for ways that price increases may be avoided; 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 must comply with the Tenneco process change notification, reference PPAP approval process 4.3. If price is omitted on an order Supplier's price will be the lowest prevailing market price.	05-31-10	C

3.14 Finance	Tenneco will pay for goods and/or services provided by suppliers according to the terms and conditions of the Tenneco purchasing documents (which may include long-term Supply Agreements, Scheduling Agreements or Purchase Orders) governing such obligations.	12-22-05	B
3.15 Payment/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 http://tsp.tenneco.com as amended from time to time, including (i) this manual, and (ii) Buyer's General Terms and Conditions of Purchase.	06-30-14	D

Section 4.0	Supplier Performance and Engineering Requirements	Revision Date	Revision Letter
4.1. Quality Systems	Tenneco **requires** all its Original Equipment (OE) suppliers (manufacturing and ship from location) of purchased product to achieve registration, by an accredited certification body, to the latest version of the ISO 9001 Quality Management Standard. All Tenneco OE suppliers who are not registered will need at minimum, a plan, to certify to this standard. Tenneco requires that OE suppliers take the initiative to register to the latest version of ISO/TS16949. Exceptions require GP and Quality Director approvals. Tenneco recognizes that suppliers who produce exclusively for the Automotive Aftermarket (AM) are not eligible to register to the latest version of ISO/TS 16949. However, Tenneco **recommends** that all exclusively aftermarket suppliers take the initiative to register to the latest version ISO 9001. Suppliers can obtain copies of these standards from the Automotive Industry Action Group, AIAG. Suppliers are required to upload their current Quality Certificate into their respective Collaboration Folder "C-folder" in the Tenneco TITAN database and/or send a copy to their Tenneco Commodity buyer to assist with the upload. If Quality Certificate has yet to be attained, Tenneco requires suppliers to upload their certification plan in this same folder. Periodic updates to the plan are expected. Upon certification the plan needs to be replaced with the certificate. Any supplier that has its quality standard withdrawn by the issuing certification body or, the supplier by its own action, cancels their quality standard certification, must notify their Tenneco buyer and the Tenneco manufacturing locations within five (5) working days. At Tenneco's request, the supplier will furnish test samples of products as may be reasonably required by Tenneco to determine if their manufacture is in accordance with the specifications furnished by Buyer and these quality standards. These samples will be provided at no cost to Tenneco. **NOTE:** When a supplier either: (a) provides less than $150,000 annual sales, and may not have adequate resources to develop a system according to ISO/IATF16949 or ISO 9001; or (b) has automotive sales that are less than 5% of its total business revenue, **Tenneco** may waive the ISO/IATF16949 or ISO9001 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 their Quality Management System can conform to Tenneco's requirements.	10-31-15	G

4.1.1 Engineering Design Rules and CAD Requirements	At the start of each project, the supplier must comply with Tenneco design rules and CAD standards. Region specific rules are located in the appropriate appendix of this document, (NA Appendix, EU Appendix). If questions arise regarding these rules, suppliers are required to contact the Tenneco Project Design Engineers.	05-31-10	A
4.2 Advanced Product Quality Process (APQP)	Upon notification of supplier selection, it is the responsibility of the supplier's organization to provide support / resources for Advanced Quality Planning activity. The supplier shall use the Tenneco APQP Tracking Template to communicate the status of the APQP Process. Manufacturability Form may be required as part of the APQP Kickoff in Tenneco's discretion. A review of the Manufacturability Form will include the discussion of pass thru parts/characteristics to ensure this is identified and understood by the supplier. Pass Thru parts/characteristics should be reflected in the supplier control plan and identified as "Pass Thru" with additional controls in place (i.e poka-yokes, gages, etc…) to ensure final customer is protected.	10-31-15	D
4.2.1 Feasibility	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 and any other applicable regulatory requirements. The Team Feasibility Form (PDF file attached) is the supplier's acknowledgement that the print or part provided has been thoroughly reviewed for manufacturability of design, quantity, and tolerance. Parts reviewed and determined to be "not feasible" should come with recommendations as to how the supplier would change the part to make it "feasible". The Team Feasibility Form must be added to the quote package. This form is the supplier's opportunity to confirm that Tenneco has provided a manufacturable print for quote or production. A Manufacturability Review may be completed to assure supplier is prepared for on-going production.	10-31-15	D
4.2.2 Packaging Planning	Appropriate packaging to protect and preserve the quality of the product is to be considered during feasibility evaluation. Suppliers must use appropriate packaging, to assure that all products will arrive at Tenneco plants free of any damage and it can be transported, stored and used efficiently. The packaging system needs to be approved by the Materials Group of the Tenneco receiving facility, as specified in the packaging plan.	05-31-10	B
4.2.3 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.	04-30-13	C

4.2.3.1 Launch Containment Process	All suppliers are required to develop an internal containment plan to ensure that Tenneco facilities receive 100% defect free product. The internal containment plan must ensure that all products are 100% compliant to fit, form, and function and are properly identified prior to shipping to the Tenneco facility. Any exception must be defined in writing by Tenneco facility Quality Manager or designate. Containment must also confirm capability to Significant and/or Critical Characteristics as identified by the supplier's control plan. Other unique characteristics required may be added at the discretion of Tenneco. The Supplier must submit the containment plan with inspection criteria in the designated c-folder in TITAN prior to PPAP submission. The Control Plan format will be used to document the containment plan. Supplier will document and maintain containment results in alignment with the approved Control Plan in the form of an I-Chart. Upon request from Tenneco, the Supplier will need to provide the I-charts. Launch Containment Form. The containment time period will begin with the first part shipped. End-user customer specific requirements regarding containment must be followed. Containment will continue a minimum of at least 30 days after initial shipment and no less than 10 shipments (low volume) after SOP (at discretion of Tenneco facility). (Launch Containment Label)	10-31-15	E

4.2.3.2 Launch Containment Process 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 may self exit the containment process after fulfilling the requirements unless Tenneco instructs otherwise. If a problem is identified, in the containment process or by the Tenneco receiving plant, the containment process must remain in effect for a minimum of 30 consecutive days without a defect after implementation of the corrective action or through the original containment period, whichever is longer. All corrective actions must follow the Tenneco 8D process as defined in this manual section 4.9.1. Tenneco facilities Quality Manager/designate may also require individual part certification, reference 4.4. Shipment of non-conforming material can result in Controlled Shipping (see Section 4.11) per Tenneco facility request.	05-31-10	B
4.2.4 Capacity Verification	This process applies for existing tooled parts and new non-tooled parts. The Capacity Verification will verify that the results of the supplier's actual manufacturing process meet the requirements for on-going quality and quoted tooling capacity. The Capacity Verification Process includes the following phases: 1.- Capacity Planning.- To be submitted by the supplier at the time the Tenneco's Application/Commodity Buyer will request it. The expectation is to have at Planning phase OEE(surrogated)> OEE (Required) based on Annual/Weekly demand 2.- Capacity Evaluation.- This is being done by the supplier and needs to be submitted to the Tenneco's Application/Commodity Buyer. This evaluation is being performed during the first trial runs at supplier's process Tenneco reserves the right to be present during these trial runs to witness and evaluate results. Expectation is the supplier to have demonstrated OEE ≥ OEE Required based on Annual/Weekly demand.	04-30-13	D

	3.- Capacity Verification.- This is done by the supplier after the PPAP approval and needs to be sent to the Tenneco's Application/Commodity Buyer. Tenneco reserves the right to be present during this run as well as to require this 3rd phase (Capacity Verification) before PPAP approval, previously agreed on between Tenneco's Application/Commodity Buyer and the Supplier. During Capacity Evaluation and/or Capacity Verification phases, the following items will be reviewed (in addition to other items as may be designated by Tenneco): documentation manufacturing process and results part quality requirements and results sub-supplier development activities packaging A Tenneco Launch Team will evaluate all new part numbers. Risk level of the supplier, the process, and/or part (Low, Medium, or High risk) will determine monitoring level required. If any of the Capacity Verification phases is to be Tenneco monitored, it shall be conducted on-site by Tenneco SQE/SDE. The supplier will be notified of the need to perform a Tenneco monitored, (or supplier monitored), at any of the phases as early in the APQP process as possible. Additionally, Tenneco customer requirements may mandate that the supplier perform an audited Capacity Verification (using Customer form if available or Tenneco form if not available). During Capacity Verification phase, 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. The Capacity Verification Form, with all the information has to be available to Tenneco's SQE/SDE one week before the Run (event) is carried out. Tenneco requires a standard operation patterns as follow: 8 hours/shift 3 shifts/day 5 days/week 48 weeks/year If agreed in writing by Supplier and Tenneco's Application/Commodity buyer and SQE/SDE, Supplier may use a different standard operation pattern.		

4.3 Production Part Approval Process (PPAP)	PPAP acceptance is a mandatory requirement for production goods and service suppliers to Tenneco. PPAP needs to be submitted in accordance to the PPAP manual requirements from the Automotive Industry Action Group (AIAG) to the latest revision (Refer to link referenced in Section 4.1 above). Each supplying location must submit and obtain PPAP approval for each part number prior to shipment to Tenneco. Note: End user customer specific requirements for PPAP submissions take precedence to these stated requirements, as directed by the GP Buyer.	05-31-10	E

4.3.1
PPAP Submission
	The supplier must complete and submit appropriate PPAP documentation in the Tenneco Interactive Tender Alliance Network (TITAN). Documents are to be placed in the individual assigned C-folders (Collaboration folders). Composite or ".zip" are not accepted. All PPAPs must 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.
	Guidelines on what is required in each c-folder is found in the "Tenneco Standard PPAP & APQP Process Supplier Guidelines & Requirements" found in the TITAN System. https://tsp.tenneco.com/irj/portal
	Note: Training documents explaining the path to the C-folders, and how to upload documents, are available on the Tenneco supplier portal: https;//tsp.tenneco.com. Suppliers must save their documents with the appropriate file name and date, (example: control-plan-2010-07-22.xls)
	A Level 3 PPAP is required for products purchased by Tenneco. Any Level PPAP other than Level 3 requires written concurrence by the Tenneco plant Quality Manager/designate (at the receiving facility). 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. Where the supply chain includes a warehouse distributor, the part manufacturer is required to submit a PPAP package to Tenneco for approval. Warehouse distributors are not to initiate shipments to any Tenneco location without approval notification from Tenneco.
	All changes to required documents (Control Plan, FMEA, etc.) must be resubmitted to the Tenneco Plant PPAP coordinator.
	Bulk material suppliers should contact Tenneco Buyer for specific requirement.
	Note: The steel mill raw material source approved during PPAP must remain the same unless approved through the PCN process, see section 4.5.2 of this manual.
	All suppliers supplying parts for the OEM's who support the IMDS database must register at the website: http://www.mdsystem.com . If required to register with the IMDS database a letter stating that data has been entered into the IMDS website must be included with PPAP submissions. This letter must clearly state the part numbers for which the data was entered, date of entry, and the ID Node number.
	Note 1: Suppliers may be required to provide IMDS information for items with previously approved PPAP's. This is in support of OEM's IMDS requirements for existing products.
	In Tenneco's discretion, special controls are required for Pass Thru Characteristics and/or Pass Thru Parts such as error proofing, mistake proofing, 100% inspection in station or subsequent operations to ensure compliance.
	PPAP element(s) may be waived by Tenneco only in writing.
	All elements required to be submitted should be routed to the attention of the resident PPAP coordinator at the appropriate Tenneco facility.
		12-31-15	D

4.3.1.1 PPAP Submission – Sample Part	The supplier shall provide, either, a minimum of 6 samples or 1 sample per cavity for multi-cavity processes unless otherwise directed by Tenneco. These parts are to be randomly selected from a serial 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, and with the specific production quantity to total a minimum of 300 consecutive parts, unless otherwise specified by the authorized Tenneco representative. These six parts are to 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)	05-31-10	B
4.3.2.1 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. Note: Revisions made to Tenneco drawings will initiate a new PPAP request for current revision. (TITAN users only) Tenneco will identify and document special characteristics as 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 Tenneco symbol or the supplier's equivalent on these documents. Suppliers are required to perform on-going capability analysis on designated special characteristics. Reference Section 4.3.2.9 for guidelines on required capability levels. A training program about measurement, evaluation, and failure effects of these characteristics must be developed for all employees involved.	05-31-10	B
4.3.2.2 Engineering Change Documents	Written approval from Tenneco Engineering is required for changes not yet incorporated into the design records.	05-31-10	B
4.3.2.3 Engineering Approval	Any deviations from original planned arrangements require Tenneco Engineering approval in writing. Capability studies are required for deviations requested (30-piece minimum). Suppliers should follow Deviation Process described in Section 4.5.	05-31-10	B

4.3.2.4 DFMEA (Design Failure Mode Effects Analysis)	If the supplier is design responsible, a DFMEA is to be developed and reviewed annually (minimum). If the supplier is design responsible, a DFMEA is to be developed and reviewed periodically. When there is a design step where the Severity = 5 - 8 AND an Occurrence = 4 - 10, this step must be highlighted in the pFMEA for team focus. Also if Severity = 9 or 10 this design step must be highlighted in the pFMEA for team focus. If Tenneco is design responsible a review of the PFMEA severity levels by Tenneco Product Engineering is to be completed in lieu of a DFMEA.	10-31-15	C
4.3.2.5 Process Flow Diagram	Tenneco requires suppliers to have a process flow diagram that clearly defines the manufacturing process steps / sequences. If Critical, Key, Special and or Significant Characteristics are noted in the process step, the supplier must note these characteristics in the applicable process steps within the Process Flow. If Pass Through Characteristics (PTC) are identified on the print it must be identified in the process as PTC.	10-31-15	C
4.3.2.6 PFMEA (Process Failure Mode Effects Analysis)	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 greater than 8, error proofing techniques (Poka-Yoke) are required unless expressly signed off by Tenneco Engineering in writing. Special controls are required when Severity = 5 - 8 AND Occurrence = 4 - 10. Tenneco prefers Poka Yoke over detection methods. At a minimum, the PFMEA is required to be reviewed annually. Product characteristics and process parameters identified by the FMEA as "special" will be the key for the development of the control plan. The supplier must indicate review of high RPNs and note in the corrective action, if no improvement, note "none" on the pFMEA. Pass Thru Characteristics (PTC) must be identified with PTC on PFMEA to ensure applicable risks are identified. PTC would not be less than a Severity of a 5. A clear link between the PFMEA, Process Flow and Control Plan must be shown by the supplier.	10-31-15	D
4.3.2.7 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 is required, with one sample identified as "master sample". Reference 4.3.2.16 Supplier must provide the balloon drawing of each dimension and all notes and correlations to the dimensional report. All notes need to be addressed in the dimensional report. Each part must be numbered with the number associated with the applicable dimensional report.	10-31-15	C

4.3.2.8 Material / Performance Test Results	Evidence of compliance must be submitted per AIAG guidelines. 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. 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.	10-31-15	C

4.3.2.9 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. Select part characteristics for which process capability is to be demonstrated include the selected characteristics in the Control Plan and characteristics which may prevent the shipment of non-conforming product regardless of the location in the supply chain. For the testing of all CCs/SCs (defined below) and PTC, select pieces from a significant run by taking 5 pieces skip X pieces, take 5 , etc, until 125 parts are sampled. Before any capability studies a normality test must be performed. P-value must be greater than 0.05. Before starting the manufacturing process, suppliers will conduct the preliminary capability studies. The data must be from a stable and controlled process and include the full range of expected variation of the manufacturing process (e.g., the actual manufacturing environment, including all tools, cavities, all shifts, expected operating patterns and variation in the environmental conditions). Post launch containment on-going production process capabilities must meet a minimum 1.33 when required. Reduced sampling (less than 100%) requires justification by means of a capability study. Ppk value(s) must be submitted with the PPAP. Evidence of compliance with AIAG guidelines is required. Tenneco may require at any time to retrieve a copy of any analysis performed. Acceptance Criteria for Initial Study The supplier shall use the following acceptance criteria for evaluating initial process study results for processes that appear stable. Results — Interpretation Index >1.67 — The process currently meets the acceptance criteria. 1.33 ≤ Index ≤ 1.67 — The process may be acceptable. Contact the authorized customer representative for a review of study results. Index < 1.33 — The process does not currently meet the acceptance Criteria. Contact the authorize customer representative for a review of the study results. Note: Meeting the initial process study capability acceptance criteria is one of a number of customer requirements that lead to an approved PPAP submission.	10-31-15	E

4.3.2.10 Measurement System Analysis	**Variable Gage R&R** Supplier shall report gauge R&R as both a percent of study variation **and** a percent of tolerance. Variable gauge studies should utilize (at a minimum) 10 parts, 2 operators and 3 trials. The gauge 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. Measurement system analysis (MSA) studies are required for gauges, measuring and test equipment identified on the control plan. Gauge studies shall comply with AIAG guidelines and end-user customer specific requirements. Acceptance criteria based on R & R studies are: < 10 % of tolerance ---> accepted 10 - 30 % of tolerance ---> may be acceptable, contact Tenneco > 30 % of tolerance ---> unacceptable NDC (Number of Distinct Characteristics) ---> 5 (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.) **Attribute Gaga R&R** Attribute Measurement System Analysis will consist of 30 pieces unless it is a Significant Characteristic (SC) or a Critical Characteristic (CC) on the print, or the process capability is below 1.33. In these cases, or in the case that customer specific requirements dictate otherwise, 50 pieces may be required. Gauge must 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 should be greater than 0.75. Please note that if the gauge limits are less than the specification limits (Guard Banding) it may be acceptable for the Kappa values to be less than 0.75 if the reduced Kappa values are due to operators rejecting good parts. If the gauge limits are the same as the specification limits then all Kappa values (between appraiser, within appraiser, appraiser to standard) should be greater than 0.75. **Parts for Attribute Gauge R&R 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 gauge specification limit and beyond the 25% of the parts near the specification as described above. · 10% of the parts should be outside the lower gauge 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 variable gauge(such as a CMM or other known standard) so that the physical measurement of each part is known. Note: When measuring a true attribute that cannot be measured with a variable gauge, use other means such as experts to pre-determine which samples are good or non-conforming.	10-31-15	D

Measurement System Gage Correlation (MSC)

Establishing a relationship between Tenneco and the supplier by comparing 2 or more measuring instruments required by guidelines below.

The MSC **requires 10 parts minimum** to be numbered and measured on all instruments to be correlated

- Strategically select the parts used for the MSC study: **parts should have values that are evenly distributed and span the full tolerance range**
- The **measurement systems being assessed must be properly calibrated** using standard operating practice prior to the MSC
- The measurement systems being assessed must also pass gauge R&Rs
- Each participating measurement system must have adequate resolution
- 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.

Measurement System Correlation Acceptance Criteria	
Coefficient of Determination; R	If [r] > 0.80, then the association is practically significant.
	If [r] < 0.20, then the association is not practically significant.
	R - Squared , the association is practically significant. is >.64
Offset	<3% at USL and LSL Accept
	3% <Offset <5% Marginal Accept
Linearity to Master	Pass the hypothesis test that slope between
	the Master and reference value is equal to one
% SV & % Tol: <10%	Acceptable Gauge
% SV & % Tol: 10% to 30%	may be acceptable based upon the importance of the application i.e. non-critical product Characteristics, cost of gauge, cost of repair, etc. The Tenneco approval team shall determine
% SV & % Tol: Over 30% error	the measurement system needs improvement. Identify the problems and have them corrected

4.3.2.11 Qualified Laboratory Documentation	External laboratories used for testing/calibration must be qualified to ISO/TS-17025 or equivalent.	05-31-10	B

4.3.2.12 Control Plan	The control plan will be developed by suppliers, from the FMEA showing all special characteristics, ES tests and process parameters connected to the product. All control plans must be completed in compliance to the AIAG guidelines (latest revision). Tenneco reserves the right to review the control plan prior to PPAP submission. It is mandatory that a copy of the control plan is sent with the final PPAP submission documentation and is reviewed by the Tenneco receiving facility. The Tenneco annual part revalidation requirement in Section 4.4.1 must be documented in the supplier's control plan. Tenneco annual process/ product audits (Section 4.3.2.19 -if applicable), must be documented in the supplier's control plan. Control plans for "part families" are acceptable when part families are used; specific part numbers associated with a part family must be identified. Note: 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.	05-31-10	B
4.3.2.13 Part Submission Warrant	There are to be no blank spaces on the part submission warrant. Submission of a warrant without approval signature, phone number, and date of approval will be cause for rejection. Suppliers must submit photographic evidence (digital photo) of compliance to Tenneco tooling identification in the TITAN C-folder under the Part Submission Warrant folder (Section 5.1 of this manual).	05-31-10	B
4.3.2.14 Appearance Approval	Tenneco will notify suppliers of any appearance approval items.	05-31-10	B
4.3.2.15 Sample Production Parts	The supplier shall provide, either, a minimum of 6 samples or 1 sample per cavity for multi-cavity processes unless otherwise directed by Tenneco in writing. These samples must be defined as PPAP samples on all shipping documents. The PPAP sample label must be placed on the carton near the part number label. PPAP samples must arrive at the Tenneco facility on or before PPAP due date.	10-31-15	C
4.3.2.16 Master Sample	The master sample must be retained per AIAG guidelines defined in the latest revision of the PPAP manual. Any exceptions must be documented and must accompany the PPAP package.	05-31-10	B
4.3.2.17 Checking Aids	Where checking aids (mylars, product specific gauges, etc.) are used, the supplier shall certify that all aspects of these aids comply with product requirements. The supplier shall provide appropriate preventive maintenance for these checking aids for the life of the part.	05-31-10	B

4.3.2.18 Customer Specific Requirements (Tenneco and End-User)	Tenneco defines its specific requirement through this global document, in addition; Tenneco requires compliance to end-user customer specific requirements. For End-User Customer - Specific requirements, see link: AIAG Global Oversight for OEM Customer Specific Requirements. Note: For those customers not listed on the AIAG Global Oversight please go directly to the specific customer's website. Suppliers are responsible to complete all "Special Process" CQI Audits that pertain to their process on an annual basis. These audits are to be attached into the supplier's TITAN Assessment C-Folder.	10-31-15	D
4.3.2.19 Process Audit Requirements	Tenneco requires an annual special process/ product audit where Tenneco products are manufactured/treated with a method requiring a Special Audit. Note: AIAG list of Special Process audits. The Special Process assessment templates can be retrieved from the AIAG website. Special process audits are due to Tenneco on the anniversary of the last audit. Suppliers are required to upload their current special process assessment into their respective folder in the Tenneco TITAN database and/or send a copy to their Tenneco Commodity buyer to assist with the upload. An additional process audit required by Tenneco is an audit concerning contamination. This contamination audit is to be completed. The audit should be updated if significant changes occur that may impact contamination. This audit may be uploaded into the TITAN C-folder or held for review by Tenneco upon request.	04-30-13	D

4.3.3 **PPAP Approval**	Approval will be granted based on a review of samples and documentation submitted by the supplier to the Tenneco receiving facility. Requirements of International Material Data System (IMDS) must be included with PPAP submission. Reference Section 4.3.1 of this manual. If Tenneco/Tenneco's customer owned tooling is involved, Tenneco requires a Tooling Purchase Order signed by the supplier. This purchase order and Vendor Tooling Registration Form must be submitted prior to PPAP approval (see Section 5.3). Suppliers must submit photographic evidence (digital photo) of compliance to Tenneco tooling identification in the TITAN C-folder under the Part Submission Warrant folder (Section 5.1 of this manual). Notification of PPAP status to supplier: A copy of the Part Submission Warrant or electronic acceptance in the TITAN system will be sent to the supplier indicating status. If the PPAP submission is rejected, the supplier must re-submit the element(s) that are non-conforming in the original PPAP package. Supplier shall not proceed with bulk production until Tenneco issues a written PPAP approval or other authorization to proceed without such approval. A change to the supplier's process presented at time of PPAP (Production Part Approval Process) shall require the supplier to complete a Process Change Notification (PCN) worksheet – see section 4.5.2 of this manual. Approval PPAP can be fully approved only if : 1.The parts comply with the fit, form function according to Tenneco latest communicated Design and Specification 2.Tooling Vendor Registration form completed and submitted along with PPAP package 3. Capacity self-assessment completed 4. Supplier Tooling Invoice will be paid after full approval Interim Approval : 1. Permits shipment of material for production requirements on a limited time or piece quantity basis. - Fit, form and function impact must be evaluated. 2. Be granted when the organization has: - Clearly defined the noncompliance preventing approval - Prepared an action plan agreed upon by Tenneco. PPAP re-submission is required to obtain a status of "approved." **<u>As long as the part is Interim Approved no Supplier Tooling will be paid</u>** Rejection: 1. No serial delivery allowed 2. Re-submission date must be agreed with the Application Buyer and/or PPAP Coordinator. 3. Tenneco cost fee may be applied	10-31-15	C

4.4 Certified Parts Process (Optional)	The Certified Parts Process is an optional procedure to be determined by each respective Tenneco receiving plant. To support continuous improvement initiatives, Tenneco has established a certified parts process whereby supplier material is processed through a progression of receiving inspection phases. Assuming zero defects, certified status is achieved by part number. Essentially, Tenneco will bear the expense of certifying supplier parts providing the parts meet all requirements. However, receipt of defective product will result in the supplier bearing the cost of the certification and re-certification. The certified parts process consists of two phases. Phase 1 - Each part number per supplier, upon PPAP approval, will be placed in Phase 1 and remain until the Tenneco site has received 5 consecutive defect free shipments of the part number per supplier. Once this has been accomplished, the Tenneco site shall advance the part number to Phase 2, and is deemed certified. Phase 2- Each part number per supplier in Phase 2 is considered to be "certified" and is exempt from receiving inspection provided they meet one of the following: Receipt and evaluation of statistical data from the supplier. Receiving inspection and/or testing (e.g., sampling based on performance). Second or third party assessments or audits of subcontractor sites, coupled with records of acceptable quality performance. Part evaluation by accredited laboratories. Certified parts will remain in Phase 2 as long as shipments are defect free. If during the Tenneco manufacturing process the certified part is identified as defective, the part number is then returned to Phase 1 losing its certified status. Once returned to Phase 1, the supplier will be charged for inspection fees, even though parts are acceptable, until completion of Phase 1. Note: Supplier Performance may be subject to additional containment requirements at the mutual discretion of the Tenneco manufacturing site and purchasing functions.	05-31-10	D

4.4.1 Ongoing Quality/Annual Parts Validation Requirements	Tenneco requires that suppliers complete annual revalidation to print/specification requirements of all Tenneco purchased parts on the anniversary of the PPAP approval date, and each subsequent year thereafter. The annual part revalidation shall continue as long as the supplier is providing Tenneco parts for on-going production. Note: Tenneco reserves the right to evaluate need for validation of products required for service production. Characteristics that are included on a control plan and are measured more frequently than one time per year will not require annual validation. See Section 4.3.2.12 Control Plan for additional requirements. When a characteristic is designated as “significant” on the design record the supplier is required to conduct capability studies at least once each quarter. The results of these studies are required to be completed by the supplier and to be made available to Tenneco upon request. Annual validation results are maintained at the Supplier’s location unless otherwise requested by the Tenneco facility. The supplier must have a robust extended downtime planning process that includes a shutdown/ startup checklist.	10-31-15	D

4.5 Change Requests		03-31-12	A
4.5.1 Deviation Process	Tenneco requires adherence to a formal deviation procedure when the following situations arise: a. Tenneco production schedules require shipment of new/revised materials prior to Production Part Approval Process; or b. Supplier discovers any type of non-conformance in a lot/batch of product which is urgently needed to meet the Tenneco production schedule. In either situation, the supplier must obtain prior written approval from Tenneco before making shipments. The acceptance of a deviation request will be dependent on the nature and extent of the non-conformance and will not be effective unless authorized in writing to the supplier by Tenneco Engineering. When a deviation request is required, the supplier will notify the GP Buyer of the situation with detail as follows: What is the stated requirement? What is the current situation? How many parts are affected? What is the length of time the deviation is required? The GP Buyer will enter the Deviation Request into the Tenneco system and request approval from Tenneco Engineering and the affected manufacturing site. The GP Buyer will write the Deviation Request, and will forward to Engineering and the affected Tenneco Facility(ies) for approval. When approval is received the GP Buyer will notify the supplier that the deviation has been approved– a copy of the approved Deviation notice is to be provided to the supplier. The supplier must include a copy of the approved Deviation Notice with the shipment of parts to the Tenneco Facility(ies). The Deviation Number must be clearly marked (can be hand written) on all shipping papers, containers Note: The deviation number must be placed so there is no disruption to the barcode. Failure to follow this procedure will result in a Material Rejection Report and reflect on the supplier's Quality Performance Rating. If the Deviation Request is denied the GP Buyer will notify the supplier and coordinate resolution activities.	03-31-11	C

4.5.2 Process Change Authorization	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, the PCN process is a minimum of 90 days to just 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: A change to the supplier's process that was presented at time of PPAP (Production Part Approval Process) 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, etc. Tenneco Commodity Buyer (not the receiving plant) must 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 must include details of the change, in sufficient detail for analysis by Tenneco. Changes made to the process or product without this prior authorization will result in the supplier's financial responsibility for time spent for analysis, replacement or destruction of product built with parts with unauthorized changes via the MRR process, and any costs incurred by Tenneco due to customer charge back proceedings. In addition, this can result in the supplier being placed on Controlled Shipping level I or II, or placed upon a Supplier Improvement Plan (SIP), which may result in the supplier being unable to participate in new business bids.	10-31-15	F
4.6 Supplier Performance Requirements	Supplier performance is monitored and reported monthly (both quality and delivery. Suppliers may review their performance reports on the TITAN System under "Tenneco Cognos Reports" or by contacting the responsible GP buyer.	06-30-14	E
4.6.1 Quality Performance	Tenneco monitors the supplier's quality performance based on Material Rejection Reports (reference Section 4.8 of this manual). The PPM (Parts Per Million) values are reported monthly and **c**an be viewed on the TITAN System under "Tenneco Cognos Reports" or by contacting the responsible Tenneco GP Buyer.	06-30-14	E
4.6.2 Delivery Performance	Tenneco requires 100% on-time delivery performance from suppliers. Changes to the delivery schedule, unless presented in writing from a Tenneco Representative are not valid. 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.	03-31-12	E

	Tenneco's web-based supplier collaboration tool is an on-line web-based communication tool which Tenneco facilities use to communicate forecast and shipping requirements, and receive ASNs from suppliers. As a Supplier, you are responsible for submitting your Advanced Shipping Notice (ASN) back to the Tenneco facility. Tenneco requires your ASN submittal (via EDI or Tenneco's web-based supplier collaboration tool) **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 shipments being considered past due. • ASN numbers must be the same as the Bill of Lading and limited to 10 alpha-numeric characters Nonconformance of delivery requirement will cause the creation of the DPR (Delivery Performance Report). If this occurs, the supplier will be required to submit corrective action per 4.9 It is the responsibility of the supplier to make sure that all Delivery nonconformances are accurately reported and closed. These documents impact the individual supplier performance record. If the supplier disagrees, they must contact the issuing Tenneco facility to resolve.		
4.6.3 Service Parts Delivery Performance	Supplier must support up to 15 years of service part requirements after serial production is completed. Supplier must ship to plant release requirements during the service part lifetime utilizing appropriate containers. Supplier must maintain equivalent serial production pricing for a period of 5 years, minimum, after serial production is completed.	05-31-10	D
4.6.4 Quarterly Supplier Scorecards	Tenneco may generate a Quarterly Scorecard that measures suppliers' performance in quality, delivery, service, and cost. Scorecards may be emailed to suppliers that receive demerits for the quarter. If a supplier would like to request a copy of their scorecard, even in the case where no demerits are received, contact the respective Tenneco GP Buyer. Note: 4.6.4 of this Manual may not apply to all regions, please refer to suppliers' appropriate Regional Specific Appendix.	05-31-10	A

4.7 Continuous Improvement	Continuous improvement is essential to successfully compete in today's business environment. All suppliers shall continuously improve in quality, service (including timing and delivery) and cost to benefit Tenneco and the supplier's own organization. Continuous improvement 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 quality, delivery, safety, engineering document linkage compliance, gauge repeatability and reproducibility performance, process capability, process change management, effectiveness of problem solving, site productivity, defective parts per million, overall equipment efficiency and delivery. If you have questions, reference the "Business Operating System example sheet". Improvements made where the original targets have not been met are by definition corrective actions, not continuous improvement.	10-31-15	D
4.8 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 mitigate and dispute 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, 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 in located in the Tenneco Supplier Portal, please notify the respective Tenneco GP buyer if access is required. See Section 4.9 for Corrective Action steps.	06-30-14	E

4.8.1 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 In the event of shipment of suspect or non-conforming product to a Tenneco customer, caused by the supplier's product, the supplier will be debited for all of Tenneco's costs (including associated customer charges). Suppliers are expected to be involved with customer required sorting / on-site review as appropriate. If supplier sorting 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 4.11). It is the responsibilities of the supplier to make sure that MRR'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 4.12)	06-30-14	C
4.8.2 Material at Supplier's Location	Current material held by supplier is to 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 – (CSI –yellow). This 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.	06-30-14	C
4.8.3 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: Preferred -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 4.4 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 4.12 for charges) NOTE: If a third party source is not available for sorting / development / process improvement activities; contact the receiving Tenneco facility for assistance.	05-31-10	B

4.9 Corrective Action	Tenneco expects suppliers to implement successful, permanent corrective actions for non-conformances identified.	05-31-10	B
4.9.1 Corrective Action Reporting	The supplier's corrective action form must reference the MRR # and cover the following areas: (Reference the Tenneco Expectation Letter located on the eMRR Home Page under "Useful Links"). **1) Team Members**: include name and title along with leader's name / email address / phone number. Team members must be cross functional and include production personnel. **2) Problem Description**: What is the problem- stated in the terms of the requirements i.e. (specifications, prints, etc...?) Why is it a problem? How does it affect the customer? What is the impact? Where and when detected? How many were found? **3) Containment:** How many defective parts were sorted? How many defects were found? What is the containment action? How are parts being sorted? What is the method of identification? Reference Material disposition requirements of Sections 4.8.1, 4.8.2, and 4.8.3. **4) Root Cause:** How was the failure created? How did the nonconformance escape? Note: Tenneco does not accept "Operator Error" as a root cause. **5) Corrective Action(s):** Define and implement the corrective actions. Include date of implementation. **6) Verification:** Validate corrective action: Resolve the issue. How was it validated? Include data. **7) Prevention:** – provide evidence of evaluation of "like and similar" processes / products. **8) Congratulations** – how was team rewarded? Optional - If you do not have a corrective action form that covers these areas, use the Tenneco Global Corrective Action Report .	10-31-15	D

4.9.2 Corrective Action Timing	Timeline requirement (upon notification of the MRR): **1)** Containment action must be developed, implemented, and reported to the Tenneco facility within 24 hours. **2)** Possible root cause(s) with timely planned corrective action(s) and responsibilities must be completed and submitted to Tenneco within two weeks, unless otherwise agreed upon, with concurrence by the Tenneco facility representative. **3)** Robust corrective actions should be targeted for verification/closure within sixty (60) working days and affected process documentation (Process Flow, PFMEA, Process Control Plan, Operating Instructions) needs to be reviewed/updated. Note: Corrective actions submitted by supplier are to be 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 Quality Manager.	03-31-11	C
4.10 Supplier Improvement Process	Tenneco suppliers who fail to meet the quality and/or delivery requirements are subject to being placed on a Supplier Improvement Program (SIP). Criteria for selection can include any of the following: 1) PPM>escalation level, 3 consecutive months 2) 4 MRR's per rolling 3 months 3) Plant and Buyer Recommendation – Production disruption, on-going quality issues, or any other performance issue. These are reviewed on a monthly basis. Note: Suppliers on SIP may be placed on New Business Hold. The following process will be followed: <u>Initial Visit:</u> 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 and an on sight visit will be scheduled. Preliminary visits at the supplier will include an overview of the SIP, a review of issues, an on-site review of the supplier's processes, and a discussion of containment activities as appropriate.	06-30-14	C

	Suppliers are required to report out on-site to Tenneco Top Management, as required per SDE's direction. These meetings are scheduled quarterly, but may change depending on the Supplier's performance. Required to attend from the supplier, (depending on company size), Senior Management Representatives from Operations, Sales, Quality, and Engineering. A preliminary schedule for subsequent visits to Tenneco will be developed. <u>Follow-up Visits to Review Improvements:</u> 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). <u>Exit Criteria:</u> Once the Supplier has closed out all action items and have met the exit criteria for 3 month rolling PPM/MRR's an on-site assessment is scheduled. Upon verification of the results and a passing assessment score, Supplier Development will notify the supplier that the exit criteria has been met, and the supplier will be released from SIP.		
4.11 Controlled Shipping	Controlled Shipping is a requirement of Tenneco. This process requires a supplier to put in place a 100% inspection process to sort for nonconforming material, while implementing a root-cause problem solving process. 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. NOTE: Based on evaluation by senior level Tenneco personnel, a supplier may be placed directly on Level II. Defective Pass Thru Parts and/or Pass Thru Characteristics may be placed on automatic CSI or CSII, depending on criticality.	10-31-15	D

4.11.1 Controlled Shipping Level I	The inspection process is required to be performed by the supplier's employees at the supplier's location. The supplier will be notified via phone that they have been placed on Controlled Shipping Level I (CS I) status. This conversation will be followed by a written notification including the need for: 100% inspection, a containment plan, effective corrective action, and the exit criteria. Suppliers are required to provide written confirmation of receipt of this notification, including containment activities, within 24 hours (response form will be provided). While on CS I, suppliers may be restricted from bidding on or being granted new business. 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. Contain 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. Provide supporting documentation on performance improvements and corrective actions taken. Formally request exit from Controlled Shipping I. If the exit criteria are not met in agreed upon timing, supplier may be placed on Controlled Shipping Level II (Reference 4.11.2).	03-31-11	D

4.11.2 Controlled Shipping Level II	Includes the same process as Controlled Shipping - Level I (CSI) as well as an added inspection process by a third party representing Tenneco interests. The third party must be approved by Tenneco and will be paid for by the supplier. The supplier will be notified via phone that they have been placed on Controlled Shipping Level II (CS II) status. This conversation will be followed by a written notification including the need for: 100% inspection, a containment plan, effective corrective action plans for an initial meeting at the supplier's location. 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 CSII containment must: Comply with all requirements of CS I. Identify parts, material and/or containers with the Tenneco provided CSII. These labels must be printed in color –(CSII –orange). These labels must be attached near the shipping labels, and MRR number identifications must be added as required. Contact their registrar of CSII. 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 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 CS I to third party for agreed upon re-inspection (parts subjected to CS I sort must be re-inspected by third party). Submit data to Tenneco as agreed upon at initial meeting using the attached I-Chart linked in 4.11.1. Meet the defined exit criteria. Request exit from Controlled Shipping II and coordinate required on-site audit by Tenneco personnel. Suppliers that fail to meet CS II requirements / timelines may be subject to the Tenneco Revocation Process as described in Section 4.11.3.	10-31-15	D
4.11.3 Tenneco Revocation Process	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.	05-31-10	C

4.11.4 Customer Directed Supplier Mediation	If a supplier is a "Customer Directed Supplier" and is a chronic poor performer, the Tenneco GP buyer and Tenneco Supplier Development may establish a mediation process with customer involvement through the Tenneco Business Unit manager. The purpose of this process is to attain issue resolution through Tenneco customer involvement with the suppliers performance review. The supplier will be required to participate in any such process.	05-31-10	A

4.12 Cost Recovery

Charges associated with quality or delivery issues may be debited upon input into the Tenneco quality and accounting systems.

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 MRR when non-conforming material or a delivery issue with charge back is identified.
Incidental charges associated with the non-conformance, such as sorting, rework, investigated resources. 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.
Additional cost for Tenneco assembly line downtime to cover unabsorbed overhead or capacity loss. Note: process providers (platers, heat treater etc) will be charged cost associated with non-conforming material.

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

Such charges may include, but are not limited to, the following:

Supplier Charge Back Cost Table

Cost Type	Fee (USD)	Description / Notes
Administrative Fee	$300.00	Per incident
Receiving Inspection Fee	$50.00	Per shipment for the inspection of supplier product for re-certification or if certified process is interrupted due to non-conforming material (minimum 1 hour charge)
Line Down Fee	$50.00	Per employee directly affected.
Change Over Fee	$75.00	Per hour per employee directly affected.
Sorting Fee (including material handling)	$50.00	Per hour per employee directly affected. If supplier or supplier paid contractor does the sorting, (subject to Buyer prior approval) fee may be waived.
Investigation Fee	$75.00	Per hour per employee directly affected.
RE-PPAP Fee	$1,000.00	Per part number and submission
Onsite visit	$1,500.00	Per employee; not valid for international trips, actual cost will be calculated

The charges set forth in the preceding table apply only if a regional supplement does not specify different charges for the applicable region.

06-30-14

D

4.13 Supplier Quality System Assessment	Tenneco retains the right to perform supplier quality audits of suppliers regardless of certification status. Tenneco will use the Tenneco Supplier Assessment when performing a quality system assessment on suppliers of production materials. The Tenneco Supplier Assessment will be used with other tools to support sourcing decisions for new or existing suppliers.	05-31-10	C
4.14 Record Retention	Unless otherwise specified suppliers are required to retain documentation relating to the purchased item as follows. <u>Document Retention Period</u>: Purchase Orders: Minimum 10 Years Tenneco Site Drawings: Minimum 10 Years PPAP level 3 Documents* Minimum 10 years *(e.g.PSW, Control Plan, SPC, PFMEA etc) as requested by the Tenneco site Quality Manager or as specified on Purchasing documents (e.g. RFQ, PPAP waiver).	05-31-10	C
4.15 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 program should be based upon the principles of total quality management and include, Quality Planning Tools, Lean Manufacturing, Six Sigma Tools, Team Problem Solving Tools, and Tenneco's Global Working Conditions Guidance requirements stated in 9.1 of this manual.	05-31-10	C
4.16 Field Issues	If Buyer, Buyer's customer or any governmental or other regulatory authority determines that potential design or other defects in the Products may cause a failure of the Products (or systems into which the Products are incorporated) in the field, Seller will immediately cooperate with Buyer, it's customer and any such authority, as applicable, to (i) contain the defect, (ii) determine root cause, (iii) develop and validate a corrective action plan, and (iv) implement the corrective action plan (if applicable). Costs associated with such actions will be allocated based on relative fault.	06-30-14	A

Section 5.0	Tooling and Equipment	Revision Date	Revision Letter
5.1 Tooling and 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 tooling must 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 (ie, color coding, etc.) must be approved in writing by an authorized Tenneco representative. The supplier will provide Buyer 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, and may request additional evidence of supplier's actual cost for such tooling prior to final payment. Specific photographic evidence must be supplied (Reference 4.3.2.13). 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 GP 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 purchased by Tenneco is the property of Tenneco and held by suppliers pursuant to the 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 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 carry out an audit of Tenneco owned tooling at the suppliers' premises.	03-31-11	C

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.	12-22-05	B
5.3 Payment/ Terms/ Conditions to Tenneco Owned Tooling	Ownership of Tenneco tooling is granted to Tenneco. **Payment for tooling will not be authorized unless a** Vendor Tooling Registration Form **is completed.** If TITAN is available in your region, this form shall be attached to the A6 folder in TITAN, if TITAN is not available, contact the Tenneco plant for instructions. This form contains various information such as product, tooling parts identification, location, and % ownership. Suppliers, when requested, must 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 4.3.3 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.	02-28-17	I

Section 6.0	Logistics	Revision Date	Revision Letter
6.1 Tenneco Logistics and 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. For assistance obtaining a local directory, reference Section 2.4. Tenneco has enacted policies and procedures 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). Tenneco requires its suppliers to fully comply with all export controls. Please see the *Global Supplier Manual Link Sheet* for applicable website information. 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 sections. 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, 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 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. For assistance obtaining a local directory, reference Section 2.5.	05-31-10	C
6.2 Logistics & Materials Protocol	Tenneco Inbound Material and Logistics Protocol is a standard template of generic operational agreement on detailed logistics & material arrangement between supplier and Tenneco at local facility level. It covers areas like scheduling, transport, loading, packaging, communication, goods-in-transit, cross-stocking, inventory commitment, documentation & labels, customs, etc., for additional clarity see Inbound Material Logistics Process Flow. 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	06-22-06	B

	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 protocol needs to be updated whenever there are significant changes in supply-chain and delivery arrangements. Complete protocols are located in supplier C-folders in TITAN.		
6.3 Basic Packing List Requirements	Each shipment must 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.	12-22-05	B
6.4 Basic Bill of Lading Requirements	The bill of lading must be included with each shipment and reference: 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. Please note that Tenneco uses 3rd party freight payment in some regions. Please ensure that the freight invoices are sent to the appropriate address.	12-22-05	B

6.5 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. To assist Seller with its REACH compliance obligations, Buyer has provided Seller with access to its REACH@TEN Supplier WebPages. In addition to following the procedures specified therein, the Seller must: 1. Show proof of compliance with REACH Regulation, including Registration, Authorization and other applicable supplier requirements. Supplier Registration must provide Buyer's use for the products purchased. 2. 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. 3. Provide for Substances and Preparations, for which no Safety Data Sheet is required, the information referred to in Art. 32 REACH Regulation, 4. Provide for substances in Articles, the information referred to in Art. 33 REACH Regulation. 5. Absorb all costs of Registration, testing, and maintenance of Registration in connection with REACH Regulation. 6. Inform Buyer immediately if: a. there are changes to the Registration or Authorizations of Substances for Substances, Preparations, or Articles purchased by Buyer. b. any of the Substances, Preparations, or Articles purchased by Buyer 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 Seller intends not to pre-register a phase-in substance. d. the Seller 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 European Chemicals Agency. If Seller fails to comply with applicable REACH Regulations or follow Buyer's requirements in this regard, the Seller shall indemnify and hold Buyer harmless from and against any and all claims, demands, losses, damages, liabilities, causes of action, and expenses (including, but not limited to, costs of defense, administrative fines and/or penal consequences, mediation, settlement, and reasonable attorneys' fees) arising from, or relating to, such non- compliance. Seller's noncompliance shall be deemed to be a material breach of this Agreement and grounds for Buyer's immediate termination of the same.	06-30-14	A

Section 7.0	Packaging	Revision Date	Revision Letter
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. Buyer's receiving department may reject any items that are not properly packaged or not in suitable containers to protect them against slacking, corrosion, breakage, marring and disarrangement.	12-22-05	B
7.2 Ergonomics	To ensure worker safety and loss prevention, package design shall consider all human interaction. For parts considered for a small container manageable by one person, refer to local EH&S standards for recommended limits. For parts packaged in larger containers that require material handling equipment, drop doors may be required. Drop door height shall be approximately 50% wall height.	05-31-10	C
7.3 Expendable Packaging Considerations	Though returnable packaging is preferred, some instances may require expendable packaging. In these cases all expendable packaging must be readily recyclable or economically and legally disposed of in accordance with local legislation. Tenneco also encourages the use of post-consumer, recycled content in its packing materials.	12-22-05	B
7.4 Pack Quantity	Standard pack quantities shall be based on aforementioned ergonomic standards. It is the supplier's responsibility to determine the packaged quantities and to communicate this standard pack quantity to the respective plant personnel for verification. Mixing of part lots or part numbers within containers is prohibited.	12-22-05	B
7.5 Additional Protection Within Containers	For some parts, interior dunnage or bagging may be required to prevent part damage resulting from contact or contamination. Tenneco will identify parts, which require additional protection not provided with the standard packs. For parts potentially damaged by contaminants, the totes must be lined with a plastic bag. It is the supplier's responsibility to design necessary dunnage. Returnable dunnage is preferred however expendable packaging is acceptable. Dunnage design must allow easy access to the parts. For this reason it is recommended that Tenneco Plant personnel pre-approve dunnage prior to shipment of product.	12-22-05	B
7.6 Labeling and Identification	All incoming material shall be identified by the supplier with a non-handwritten bar coded identification label. Regional shipping part identification requirements shall apply for all geographic areas. See Regions Appendix for specifics. Provision shall be made on the package system for the container identification and its contents. Regional requirements for hazardous material shipments must also be adhered to. Specific identification requirements and label locations shall be agreed upon with the receiving location.	2-14-08	C

7.7 Substrate Handling	Pallets must be secured liberally, shrink wrapped and wrap with tamper proof tape. Skids of product must be in compliance with Tenneco's Global Substrate Policy. Specifications are available by contacting your Tenneco GP Buyer or your Tenneco receiving plant Materials group.	05-31-10	A
Section 8.0	**Environmental Health And Safety**	**Revision Date**	**Revision Letter**
8.1 EH&S Policy	People are our most important asset; therefore Tenneco is committed to health and safety as a primary focus. It is expected that all suppliers to Tenneco 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. Tenneco encourages its supply base to align with the Environmental and Sustainability codes located within the AIAG website linked here, AIAG Corporate Responsibility, and to demonstrate progress towards fulfilling the requirements of ISO 14001.	03-31-11	C
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 form. Tenneco sites usually maintain a supply of protection devices for visitors. Levels of protection should be discussed with the appropriate purchasing and health and safety 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. When walking in the aisles, stay to the right and obey all traffic signs. Tenneco facilities and offices maintain a smoke free environment. Smoking is prohibited except in designated areas.	05-31-10	D
8.3 Security			
8.3.1 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 be accompanied by the responsible Tenneco representative. Taking pictures or video taping of Tenneco operations or facilities without authorization is strictly forbidden. No Tenneco printed or electronic files, blueprints, or other documents may be removed from the premises or copied without permission.	03-31-11	D

8.3.2 **Supplier Data Security**	Suppliers must comply with all intellectual property requirements addressed in the Tenneco Terms and Conditions of this manual linked in Section 3.15. Suppliers are required to complete the attached Supplier Data Security Self-Assessment and upload it into the Tenneco TITAN C-folder. A copy of the self-assessment is also sent to the Tenneco GP Buyer, or Tenneco Supplier Development representative.	03-31-11	A
Section 9.0	**Corporate Responsibility for the Automotive Supply Chain**	**Revision Date**	**Revision Letter**
9.1 Global Working Conditions Guidance Statements	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 anticipates 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 are able to communicate openly with management regarding working conditions without fear of reprisal, intimidation, or harassment. Tenneco expects our suppliers to support zero tolerance of harassment or discrimination against their employees in any form. 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 must comply with local laws and regulations regarding compensation, benefits, and the amount of hours worked. For more information on this subject and to investigate training opportunities, Tenneco suggests suppliers explore the AIAG website, complete the Global Working Conditions (GWC) Self- Assessment, and send it to the respective Tenneco GP Buyer.	03-31-11	B

9.2 **Conflict Minerals Compliance**	Tenneco is committed to sourcing components and materials from companies that share our values around human rights, ethics, and environmental responsibility. Section 1502 of the Dodd-Frank Wall Street Reform and Consumer Protection Act requires certain companies to perform due diligence with respect to the sourcing of conflict minerals and to file annual reports relating to the use of conflict minerals (tantalum, tin, gold or tungsten) originating in the Democratic Republic of the Congo and certain adjoining countries ("Covered Countries") in the products they manufacture or contract to manufacture if the conflict minerals are necessary to the functionality or production of a product. Tenneco expects its suppliers to conduct similar due diligence on the sources and chains of custody of these minerals and make their due diligence findings available to Tenneco.. Suppliers determined to be "high risk" by Tenneco will be requested directly to participate in the due diligence process. This will require subscription to the conflict minerals dB developed by iPoint in conjunction with the AIAG (see http://www.conflict-minerals.com) or the completion and submission of an EICC-GeSI Conflict Minerals Reporting Template www.conflictfreesmelter.org/ConflictMineralsReportingTemplate) conflictminerals@tenneco.com All suppliers to Tenneco, for all raw materials, component parts and finished goods, are strongly encourage to establish a process to comply with the legislation and manage customer requests regarding conflict minerals. Annual reporting to the SEC is required each May for the previous calendar year. To facilitate timely reporting by Tenneco, supplier data will be required annually prior to the reporting due date as requested by Tenneco. Questions regarding conflict minerals are to be directed to conflictminerals@tenneco.com	06-30-14	A

9.3 **Tenneco Statement on Efforts to Prevent Slavery and Human Trafficking in its Supply Chains**	This Statement relates to Tenneco's fiscal year ended 31-DEC-2016, and was published on 21-JUN-2017 Tenneco has prepared and made public this Statement in furtherance of the California Transparency in Supply Chains Act and the UK Modern Slavery Act. These laws are designed to increase the amount of information made available by subject companies regarding their efforts to address the issue of slavery and human trafficking. Tenneco is committed to conducting its business in an ethical and responsible manner that supports and respects the protection of human rights. Tenneco's compliance and ethics expectations are set forth in Tenneco's Code of Conduct (available online, here: http://www.tenneco.com/governance/code_of_conduct/), Tenneco's Supplier Manual (available online, here: http://suppliermanual.tenneco.com/), training materials, and other communications that Tenneco provides to its employees and suppliers. Tenneco supports a safe and healthy working environment for all workers, and seeks in all instances to provide working conditions that meet or exceed applicable laws and standards. In addition to Tenneco's own commitment to fair working conditions, a guiding principle of Tenneco's Code of Conduct states, "Tenneco respects the human rights of all people and expects our suppliers and other business partners to follow the same high standards of social responsibility." Tenneco views compliance with this commitment to human rights as an important responsibility of every Tenneco employee and supplier. Employees review and accept compliance with the Code of Conduct annually and suppliers are required to abide by Tenneco's Code of Conduct as a condition of doing business with Tenneco. Employees that violate the Code of Conduct may be disciplined or dismissed, depending upon the nature of the violation. Tenneco further seeks to enforce its commitment to human rights through the publication, distribution, and enforcement of Tenneco's Supplier Manual. Each supplier wishing to do business with Tenneco is required to abide by the principles outlined in Tenneco's Supplier Manual, which states: "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 are able to communicate openly with management regarding working conditions without fear of reprisal, intimidation, or harassment. Tenneco expects our suppliers to support zero tolerance of harassment or discrimination against their employees in any form. 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."	07-10-17	A

	Tenneco assesses and selects its suppliers with care and seeks to engage only those suppliers that comply with all applicable laws, as well as the principles embodied in Tenneco's Code of Conduct and Supplier Manual. Tenneco conducts internal training concerning forced labor and fair working conditions, and relevant training materials are available on Tenneco's employee intranet site. Tenneco also requires that each direct material supplier maintain a training program concerning Tenneco's commitment to forced labor and working conditions. Tenneco endorses and encourages suppliers to complete the training and Global Working Conditions Self-Assessment provided by the Automotive Industry Action Group. As Tenneco expects its suppliers to conduct internal audits and self-assessments as a condition of contracting with Tenneco, Tenneco does not independently audit suppliers, although it reviews some of the self-assessments completed by suppliers. To the extent that ethics or compliance issues are noted in the context of any interaction with a supplier, Tenneco will take appropriate and necessary action to address and resolve such issues. To promote accountability, Tenneco is committed to taking appropriate actions to discontinue relationships with suppliers and other third parties who fail to meet its high standards for lawful and ethical conduct, including prohibitions on the use of forced labor in any of its forms, such as human trafficking and slavery. Tenneco maintains an Ethics and Compliance Hotline and multiple reporting channels through which any concerns or potential deviations from Tenneco's expected values can be reported. Such reports are promptly investigated and appropriate actions taken.		