GLOBAL SUPPLIER QUALITY

GOODYEAR

DUNLOP KELLY TIRES

GSQM-05
02/01/05

Serving Customers Worldwide

Goodyear strategic units are organized to meet customer requirements and Global competition. Regional tire operations serve auto, aircraft, commercial, farm, specialty and construction markets. The non-tire business units provide rubber and other products for automotive and industrial markets.

The Goodyear Tire & Rubber Company
Global Supplier Quality Manual

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INTRODUCTION

The concepts included in this Manual are designed to assist suppliers of all types of products in promoting never-ending improvement in quality, reliability and productivity, which will mutually benefit both the suppliers and Goodyear and its domestic and foreign subsidiaries, affiliates and joint ventures.

- Suppliers are fully responsible for the quality and reliability of their products. They must ensure that all products supplied to Goodyear meet all applicable purchase and supply agreements. Each supplier must set up quality and reliability systems that will comply with the requirements of this Manual. These requirements should be viewed as fundamental in any supplier's quality and reliability systems.

- The design and operation of the supplier's system to control and improve product quality and reliability are essential elements of continuing status as an acceptable Goodyear supplier. Goodyear will review the supplier's quality and reliability systems and their implementation and operation as appropriate.

- Goodyear intends to secure materials and parts that are trouble free (Appendix B) while placing responsibility for quality and reliability, including both control and improvement, directly on our suppliers. In addition, suppliers are required to deliver products 100% on time.

- Wherever the name Goodyear appears in this Manual, it is to be interpreted as encompassing Goodyear and its subsidiaries, affiliates, and joint ventures worldwide.

- This manual applies to approved suppliers of Chemical and Reinforcement Raw Materials, Equipment and Parts, Services and Components.

- Questions concerning the content of this Manual shall be directed to the local Goodyear Manufacturing Facility and/or Corporate Supplier Quality Assurance, Department 789, Akron, OH 44316. Local Goodyear manufacturing facilities may issue additional and/or supplementary requirements to suppliers.

1.0 Goodyear Supplier Quality Assurance Program

This document, the Global Supplier Quality Manual (GSQM), sets forth the quality standards and guidelines to be used by all suppliers, The Goodyear Tire & Rubber Company, and its, subsidiaries, affiliates and joint ventures on a worldwide basis. The GSQM defines the quality assurance elements and related activities necessary to satisfy Goodyear's quality requirements for incoming raw materials, purchased materials, machinery, machined/replacement parts, components and product parts. Requirements that may be determined after this Manual is issued may be communicated through local Goodyear manufacturing facilities and/or Purchase Orders.

The purpose of the Goodyear SQA Program is to encourage suppliers to become "Trouble Free". When this is attained, both Goodyear and the supplier can benefit. Through this philosophy, Goodyear's supplier relationships will be strengthened, assuring quality and ultimately improving opportunities for both Goodyear and our suppliers.

The key elements that are critical to the Goodyear SQA Program are as follows:

1.1 Supplier Responsibility

It is the responsibility of our suppliers to establish procedures and programs that document their quality practices. These practices must meet the requirements outlined in this manual and in Goodyear's Supplier Quality Audit forms. Suppliers that out-source products including without limitation, raw materials and components made for Goodyear are also responsible to verify that the out-source plant(s) meet the same requirements.

1.2 Quality Capability Statement

Upon approval, when this manual is used for supplier development, suppliers must acknowledge that they have reviewed and understand the requirements outlined in this Manual. Suppliers must also state that they have the capability and intent to meet these requirements. This may be accomplished by the signing of a Quality Capability Statement, by an authorized representative of the supplier. (See Appendix D for form).

1.3 Complaints

Suppliers that either receives a high number of complaints, or a severe complaint in each case as determined by Goodyear, may be removed from the "Source of Supply" (see Appendix E). Suppliers will be notified of complaints through Corrective Action Requests (CARs). (See Section 2.4)

1.4 Quality Systems Audits

Audits of suppliers' quality systems to Goodyear standards are a requirement for doing business. Goodyear will determine if requirements are met through the use of first, second or third party audits. First party audits are the same as self-audits; second party audits are those performed by Goodyear or other recognized second parties; and third party audits are those performed by qualified Registrars.

The audit program is detailed in Section 5.0 of this manual.

1.5 Supplier Information System

The Supplier Information System (SIS) is an Internet based system which enables electronic transfer of "Certificates of Analysis" (COA) and Advance Shipment Notification (ASN). All Suppliers of Chemical and Reinforcement Raw Materials are required to use SIS.. Section 8.0 provides a description of those requirements.

1.6 Supplier Evaluations

Suppliers may be evaluated at any time using parameters specified by Goodyear. The evaluation may include a comparison with other suppliers of similar materials. If the evaluation is to be used to compare the relative performance of suppliers, Goodyear will provide details of the measurements to be used to the supplier(s) as required. Supplier evaluation procedures are covered in Section 7.0 of this manual.

2.0 Quality Systems Requirements/Compliance

Suppliers shall establish written procedures defining their Quality Assurance or inspection systems. When applicable, suppliers shall also follow the requirements of the current revision of the QS-9000 and/or ISO/TS-16949, ISO-9000 and/or the TE Supplement Standard (see Appendix C) to appropriately meet Goodyear requirements. Goodyear reserves the right to change or alter quality system requirements if business needs change.

For supplier development, Goodyear will, at a minimum, accept a self-audit showing minimum compliance to applicable QS-9000 and/or ISO/TS-16949 requirements using the current revision of the Goodyear SQA-510 audit form which is based on the applicable parts of QS-9000 and/or ISO/TS-16949 and QSA. When applicable, Goodyear second party audits may be used in lieu of a supplier self audit. Goodyear will also accept third party certifications to the current revision of ISO-9001, QS-9000 and/orISO/TS-16949 in lieu of self-audits as an added benefit to suppliers who become certified to these standards.

If a supplier is using a third party registrar to show compliance to Goodyear's Supplier requirements, the following conditions must be in place:

1) Surveillance audits must be conducted on-site at least annually or more frequently if more frequent audits are deemed commensurate by Goodyear with the complexity of the applicable product. Suppliers must permit the Registrar, in any surveillance audit or assessment, to be accompanied by representatives of the Federal Aviation Administration (the "FAA").
2) Registrar must have on-going accreditation by a group such as the Registrar Accreditation Board (RAB).
3) Registrar must have access to applicable supplier data (including, proprietary data) to properly review supplier functions.
4) Surveillance audits must be available to Goodyear and the FAA and/or other governmental authorities upon request.
5) Suppliers must notify Goodyear of a non-conformance that would lead to a loss of registration.
6) Suppliers must comply with the standard to which they are certified along with the Goodyear requirements.

2.1 Supplier Control Plans

Each Goodyear supplier must establish in their plants, and require that their sub-supplier's and out-source plants establish, plans that control their process. This will be from the receipt of raw materials, including pieces and parts, through in-process, finished product, packaging, shipping and preservation. The Control Plans must provide a concise description of the supplier's quality program relative to the entire process. Sufficient detail must be included to permit an accurate evaluation of the plan (if audited), which covers all aspects and critical parameters of the product. All rework, sort and scrap instructions, including disposition directions, must also be documented and available for review.

2.2 Government Specifications

Goodyear suppliers must conform, and they must require their sub-suppliers and out-source plants to conform, to Government documents if referenced in Goodyear specifications and drawings and/or Purchase specifications.

Suppliers may also use APQP (see appendix E) as a guide for the development of a control plan.

2.3 First Article Inspection

Goodyear may require, for particular items, that an inspection of the first item(s) produced be used in determining the capability of a supplier of meeting Goodyear's requirements.

Suppliers that are required to submit PPAPs (see Appendix E) as part of the approval process will be notified by Goodyear.

2.4 Nonconformities, Corrective Action Requests and Cost Recovery

Material that fails to comply with Goodyear's quality and other requirements is defined as nonconforming material. If nonconforming material should reach a Goodyear production facility, the supplier may be required to provide **corrective action** and may also be subject to **cost recovery**.

Goodyear will incur costs and losses if suppliers fail to meet Goodyear's quality, delivery or other requirements, including, but not limited to, rework, the loss of materials, downtime, increased production costs, and other

costs and losses. **Cost Recovery** has been initiated to recover costs and losses resulting from a supplier's failure to meet Goodyear's quality, delivery or other requirements. Without limiting its rights and remedies, Goodyear intends to deduct these damages from the purchase price still due under contract, and if necessary, from claims for money due or to become due from Goodyear under any other transaction between Goodyear and a supplier, or in connection with any other obligation of Goodyear to a supplier.

The Goodyear manufacturing facility will issue a **Corrective Action Request (CAR)** to the supplier that may contain Cost Recovery information. The supplier must immediately acknowledge the complaint and then follow-up with corrective and preventative action(s**) (Corrective Action Plan – CAP**). Any supplier comments on the Cost Recovery information that is noted in the CAR must be provided immediately. Any comments received from a supplier shall not limit the right of Goodyear to deduct or set-off costs and losses incurred by Goodyear. Our Purchasing and Manufacturing organizations will work closely with suppliers to resolve any corrective action issues. The objective of these actions is to encourage suppliers to work on continuous improvement and to eliminate CARs.

2.5 Finished Product Verification

Suppliers are required to maintain systems to assure that finished products meet requirements described in Goodyear purchasing documents including packaging and labeling requirements.

If a supplier suspects defective material has been shipped, they must immediately notify the receiving Goodyear location. Goodyear will determine if follow-up, corrective actions are necessary.

3.0 Purchasing

3.1 Philosophy

Goodyear is a global supplier of rubber products, therefore the strategy of material specifications is global to meet the product needs. To meet the global requirement, purchasing specifications, which are available from the Purchasing Department, are designed to obtain one single specification for each unique material.

3.2 Purchasing Specifications

3.2.1 Chemical and Reinforcement Raw Materials

Final specifications are developed utilizing approval procedures maintained by Tire Material and Fiber & Fabric Wire Reinforcement Research located in Akron. Suppliers seeking approval should contact a Goodyear Purchasing Representative and/ or Akron/Luxembourg technical departments.

When the specification is finalized and the supplier has agreed to meet specification requirements, there shall be no change made by the supplier in the types of raw materials used or in the method of production of the material code. If the supplier wants to make a change or change the location of production to another supplier owned or out-source location, they must first contact the appropriate Akron/Luxembourg technical department.

When these global approval requirements are met, consideration for usage at Goodyear worldwide facilities will be given.

3.2.2 Establishment of Engineering Specifications (Equipment & Machined/Replacement Parts)

Engineering specifications are documents developed to insure that material or equipment which is purchased meets our exact needs in the most cost effective way. These specifications may be based on past experience but they must meet current requirements. Reviews of available supplier technology, and the actual needs of the installation site are also criteria for specification development.

Suppliers should use the current issue of Tooling and Equipment Supplement to QS-9000 as a minimum guide for setting up their quality systems. (See Appendix C for ordering information).

Also, when suppliers are seeking equipment/part/assembly approval they must contact the Goodyear Purchasing Representative and/or Goodyear Engineering contact. The Goodyear representative will establish the specific requirement for equipment/part/assembly submission level. These submission levels will follow the guidelines as outlined in the AIAG Production Part Approval Process (PPAP) Manual. (See Appendix C).

3.2.3 Components & Product Parts

Refer to local Goodyear manufacturing plants purchasing documents for requirements.

3.3 Quality Certification, Delivery, item(s)Identification

3.3.1 Raw materials - Acceptable test data includes process and/or finished product data.

3.3.2 Machined parts, machined assemblies and commercial assemblies

Acceptable test data consists of a signed inspection report which documents critical dimensions designated on the drawings. This applies to both individual parts and assemblies.

3.3.3 Components

Refer to local Goodyear manufacturing plants purchasing documents for requirements.

3.3.4 General

Suppliers must identify purchase order item numbers on shipping and/or packing slips. Additional identifying information that is requested on the purchase order (i.e., key list and item number) should be noted on the receiving and packing slips, and may be defined as part of the inspection test data. Suppliers that use a third party (warehouse distributor) when shipping material to Goodyear, must ensure that the third party shows the original purchase order from Goodyear on the shipping documentation.

Goodyear expects every order to conform to specifications and to be delivered on time so that our production is never delayed. Suppliers must meet a shipping or delivery date as specified in the purchasing contract or documents issued under the purchasing contract. If any change notice to a purchase order affects the delivery date, the supplier will immediately advise Purchasing.

Any proposed change in delivery or commitment will be negotiated with the supplier before the revised dates are accepted and incorporated in the purchase order or documents issued under the purchase order.

3.4 Product Labeling & Quality Certification (Chemical & Reinforcement Raw Materials)

All product will be packaged and labeled according to the Goodyear Tire & Rubber Company Materials Acceptance Specification or as stated on the Purchasing Specification.

3.4.1 Product Labels - Bulk Packaging

The bulk packaging unit product labels shall contain the date of manufacture, lot number, the material tradename, either the Goodyear Code Name or the Goodyear Experimental Number and the applicable Hazardous Material (see Section 3.5) information (e.g. hazardous chemical), controlled product, dangerous substance. etc.).

Note 1: If a hazardous material, the identifying name or number must be the same as identified by the supplier Material Safety Data Sheet (See Section 3.5.2).

Note 2: The material tradename and code name letters and numerals shall be readily legible. Letter and numeral sizes should be 12.7 mm (1/2 inch) for computer generated, or 25.4 mm (1 inch) for stenciled.

Product Labels are to be placed in the following locations:

Product Type	Minimum Product Label Locations
Semi Bulk Bags:	One location
Drums:	One location on the sidewall
Bulk Boxes:	Two locations, end and side or two ends
Returnable Containers:	Two locations, end and side or two ends
Palletized Units:	Two (2) locations ends and side or two ends
Truck/Rail:	Attached card readily Visible, accessible and readable
Beams:	Two locations, each flange
Spools:	One location out of flange
Natural Rubber:	One location on each pallet

3.4.2 Product Labels - Individual Packaging Units (Such as Bale, Bag, Small Box, Pail, etc.)

Each individual packaging unit shall be marked with date of manufacture the material tradename and the applicable Hazardous Material information (e.g. hazardous chemical, controlled product, dangerous substance, etc.). The date of manufacture is optional, but must be entered into SIS. Either the Goodyear Code Name or the Goodyear Experimental Number should also be included.

Note 1: If a hazardous material, the identifying name or number must be the same as identified by the supplier Material Safety Data Sheet (See Section 3.5.2).

Note 2: The material tradename and code name letters and numerals shall be readily legible. Letter and numeral sizes should be 12.7 mm (1/2 inch) for computer generated, or 25.4 mm (1 inch) for stenciled.

3.4.3 Labeling (Size and Type)

A. The receiving plant may request a supplier to provide bar code product identification labels. These labels will conform to current standards.

B. Labels shall have a minimum size of 101.6 mm x 152.4 mm (4 inch x 6 inch) height and width.

C. Product labels include the following in both human readable and/or bar code. Code 39 symbology is required.

Product Code Name
Lot Number - day, month, year
Example: 01 03 01 is (01, Mar 2001)
Quantity (weight) Kg and/or pounds
Sequential Serial Number: 9 digits maximum
Purchase Order Number

3.4.4 Certification Data/Advance Shipment Notification

A. All suppliers are required to send an advance shipment notification (ASN) through the SIS system.. See Section 1.0 and Section 8.0 of this Manual.

B. Suppliers are also required to send test data (certificate of analysis – COA as defined by Purchase Specification) along with the advance shipment notification. See Section 1.0 and Section 8.0 of this Manual.

C. Certificate of analysis (COA) which is transmitted electronically will become an official record of the represented shipment. These data will reside with Goodyear for historical and trend analysis.

3.5 Hazardous Materials Approval

Hazardous Materials (Products) - Labels & Material Safety Data Sheets (MSDS)

Products that are considered hazardous by any applicable regulation or statute and/or have the inherent ability to cause harm must first be reviewed by the Development, Safety, and the Medical Departments and/or receive approval for use from the Associate responsible for the facility/plant Hazardous Materials Review Process. Labels and Material Safety Data Sheets shall indicate such hazards by wording such as; "Poison, Toxic, Harmful to Health, Corrosive, Irritating, Potential Carcinogen, Reproductive Hazard, Flammable, Reactive and Explosive, etc."
These materials with their accompanying labels and MSDSs may be acceptable for use at Goodyear facilities plants, but the review and approval processes will ensure that appropriate engineering measures, protective equipment and/or precautionary measures are in place before these hazardous materials are accepted for use.

3.5.1 Information to Provide to Goodyear

For Hazardous Materials, suppliers must send Material Safety Data Sheets, Labels and any Special Handling Precautions to the Goodyear facility/plant considering the use of the materials. The Supplier must obtain an approval for use of the Hazardous Material before it is shipped to the Goodyear facility/plant. When new information relevant to the safe use of the material becomes known to the supplier, appropriate notifications (updated MSDS for example) must be made to each Goodyear facility/plant receiving the material.

3.5.2 Special Handling Precautions and Labels

In addition to supplying labels and handling precautions for review to Goodyear, the supplier must attach special handling precautions and labels, as required by applicable government regulations, to product package, packaging and/or containers. The supplier shall assure that all materials are packaged, labeled and shipped in accordance with all applicable federal, state, national, provincial and local laws, rules and regulations.

3.6 Government Contracts

All documents and reference data for purchases applying to a Government contract shall be available for review by the Government Representative to determine compliance with requirements for the control of such purchases. The Government Representative will also state the number or purchasing documents that will be required for Government Source Inspection of such purchases.

When Government inspection is required the contractor shall add to his purchasing document the following statement:

"Government inspection is required prior to shipment from your plant. Upon receipt of this order, promptly notify the Government Representative who normally services your plant so that appropriate planning for Government inspection can be accomplished."

3.7 Source Approval

3.7.1 Chemical & Reinforcement Raw Materials

New sources achieve approval status when necessary assurances are obtained that the material is in conformance with the Goodyear Global Supplier Source Approval procedures and Sub Contractor Development requirements.

Goodyear's GlobalPurchasing Department has primary responsibility for initiating approval of suppliers. Supplier Quality Assurance, Technical (Regional or local Plant), Research (Tire Materials or Fabric Wire Reinforcement Research and Chemical Material Safety) and Engineering will be involved in source approval activities as appropriate. Assurances are obtained regarding the supplier's potential ability to meet all required parameters of the purchase specifications and/or purchase agreements.

There shall be no shipments made to The Goodyear Tire & Rubber Company from supplier plants or out-source plants not previously approved by The Goodyear Tire & Rubber Company.

Suppliers that are required to submit PPAPs as part of the approval process will be notified by Goodyear.

3.7.2 Engineering Equipment, Services and Machined/Replacement Parts – Contact your Goodyear Purchasing Representative

3.7.3 Components

Local Goodyear manufacturing facilities will determine the method used for production part approval. The method of approval may vary depending on the product-specific requirements of customers and/or the applicable quality system standard. Second and/or third

party audits may be used for approval, or registration to the applicable quality system standard as conferred by an accredited third party may also be accepted.

3.7.4 Product Parts

Local Goodyear manufacturing facilities will determine the method used for production part approval. The AIAG Production Part Approval Process (PPAP) may be used.

4.0 Statistical Control and Continuous Improvement

The purpose of Statistical Techniques and Control is to be both proactive (anticipate and address issues before they become problems), and to achieve continual improvement. Statistical techniques apply to both continuous and batch (or piece) processes.

4.1 Statistical Control

The important process control variables must be identified on the process control plan. Their importance or impact on the process should be measurable and statistically controlled. When all of these variables are identified, correlated to final product, and kept in control, variation is reduced and uniformity improves. Goodyear expects that final product testing frequency be based on sound statistical analysis. All materials must be supplied in spec; over testing adds cost, but not value. Along this same line, statistical techniques should be used to control the process or product. First and foremost, suppliers are responsible for the quality of their product and control of their process. Suppliers that do not identify or control important process variables and thus have low Ppk values may be selected for limited testing (See Section 9.0). CARs will be assigned for any out-of-spec raw materials. Goodyear testing does not relieve the supplier of their responsibility to control their product quality and the quality of their process and meet all of Goodyear's quality and other requirements. . Selection of appropriate control tools shall be determined during advanced quality planning and should be included in the control plan (See Appendix A for Statistical Process Control Techniques).

4.2 Sampling and Testing

Goodyear requires random sampling within a lot rather than a composite of several samples taken from the lot. Test capabilities (repeatability and reproducibility) must be known and should be less than 30% of the Goodyear Product Tolerance Range. Lab testing is expected to be verified by maintaining appropriate standards testing and standards control charts. Understanding variation and statistical control techniques by all personnel is essential.

4.3 Uniformity

Goodyear material purchase specifications are designed so that Goodyear's use of a supplier's material within Goodyear's specifications will meet the requirements of Goodyear's customers. Again,it is the supplier's responsibility to provide Goodyear with products that meet Goodyear purchasing specifications.

Suppliers who sell Goodyear only a portion of their product spec range, thus sorting their production to meet Goodyear specifications should inform Goodyear of this fact. Goodyear can then review their product's statistical data based on that knowledge. In such cases, Goodyear may request to review entire process data to determine if the supplier's process is in control.

As Goodyear works on our process improvements, we expect our suppliers to continue to work on their process improvements. Future Ppk requirements may be raised and may vary based on business/customer requirements.

5.0 Quality Systems Audits

5.1 New Suppliers

Audits of all new suppliers are required. The audit may be a self-audit, on-site audit or both. Suppliers are also required to perform and provide audits for any out-source facilities. Goodyear will determine the necessary standards that must be met and audit accordingly.

For new suppliers, the self-audit will be wavered for those suppliers that are third party certified to the current version of ISO9001, QS9001, or TS16949.

5.2 Continuing Suppliers

All continuing suppliers to Goodyear will be required to perform a periodic self-audit to the current Goodyear standard, unless they are third party certified to the current ISO9001, QS9001, or TS16949Goodyear must be provided with a current copy of your latest certification.
If any supplier or out-source facility has a quality deficiency, they may be subject to an on-site audit by Goodyear.

Compliance to this Manual and other referenced standards must be demonstrated in first, second, and third party audits. Suppliers not in compliance must initiate corrective actions.

6.0 Lot - Definition/Identification/Traceability

Goodyear defines a "lot" as a certain amount of material; either a batch, a day's production, or a specified run. It is also material, or a segregated quantity of material, that is evaluated for compliance to Goodyear requirements.

Lot size definition must be established by the supplier in accordance with the above criteria. For a continuous process, for Chemical and Reinforcement Raw Materials, lot size must be defined by the supplier to establish complete traceability in the supplier's process. For equipment and manufactured parts, lot size will be based on purchasing agreement.

The lot control system must provide unique identification of the supplier's material up to the point of usage at Goodyear, and back to the point of manufacture at the supplier's location.

The traceability system for lots must include:

1. Records indicating inspection/test results which relate to the material shipped. (Electronic/paper)

2. Shipping documents that reference the destination of the lot coming to Goodyear.

3. Material that is uniquely identified to the process for a defined time interval. This process must be traceable to the lab(s) and/or on line instrumentation that performs the required testing to maintain process control. All testing instrumentation must be calibrated and have traceability to either local, state, or country standards as appropriate.

Lot Uniformity / Shipping

Suppliers shall use a FIFO (First In First Out) system when shipping to Goodyear. To maximize the uniformity of the material coming to Goodyear, the supplier should minimize the number of different lots of the same material and should, whenever possible, send just one production lot. The supplier must never send overage materials to Goodyear without prior permission from the responsible technical groups.

7.0 Supplier Evaluations

7.1 Approval Process

7.1.1 Chemical & Reinforcement Raw Materials

The first evaluation of a supplier is during the approval process. Prospective suppliers are required to submit material for a technical evaluation and for trials at Goodyear manufacturing facility(ies) or plant(s) before they can be approved. (See Note 3.0). The supplier's quality systems must meet Goodyear's requirements (see Section 2.0). Goodyear may also request the supplier to use a third party lab that has been certified to ISO/IEC Guide 17025 or national equivalent

7.1.2 – Components

Suppliers are required to submit initial samples for approval using the Production Part Approval Process (PPAP) reference manual published by the AIAG. Refer to section 3.7.3 Components for source approval requirements

Note 3.0

For hazardous materials, a Material Safety Data Sheet, label and any special handling precaution must be submitted to the Goodyear Associate in charge of the technical evaluation, for a review before the material is received for testing. Refer back to Section 3.5.

7.2 Performance Monitoring

7.2.1 Chemical & Reinforcement Raw Materials

Once the supplier is approved, the performance of the material is constantly monitored by the using plant(s). Any complaint with the material is documented and requires corrective and preventative action. The number of complaints issued to each supplier location is monitored by local plants and/or the Goodyear responsible business unit. If a supplier's performance is considered unsatisfactory, the supplier may be removed from the "Source of Supply" (see Appendix E). .

All suppliers are responsible for all related costs of any problem resulting in related process/product non-conformities.

7.2.2 Equipment

Each equipment shipment from the supplier is monitored by local Plant Receiving based on meeting the specifications and delivery requirements. Failure to comply may result in reevaluation of future use of the supplier.

7.2.3 Services

Engineering consultant suppliers are evaluated based on the Engineering Consultant Performance Management System. Their performance is reviewed annually by Purchasing with a person-to-person meeting.

7.2.4 Machined Parts

Suppliers of machined parts are monitored by local Plant Receiving based on meeting specification and delivery requirements. Any defective parts are handled via the CAR System.

7.2.5 Replacement Parts

Suppliers of replacement parts or other off-the-shelf parts are evaluated on delivery, specification, packaging and comments from the plants.

7.2.6 Components

Suppliers must maintain satisfactory performance, as determined by local Goodyear manufacturing facilities, with the expectation of zero defects and 100% on-time delivery. Suppliers will be monitored in the areas of Parts per Million (PPM) rejects, Corrective Action Request (CAR), value of material unavailable for use, and Total Impact Cost (TIC). Suppliers who fail to perform satisfactorily may face removal from the "Source of Supply" (see Appendix E).

8.0 Supplier Information System

8.1 Electronic Data Transmittal (Chemical & Reinforcement Raw Materials)

All suppliers on SIS must send Advance Shipment Notification and Certificate of Analysis data prior to shipment. Suppliers are provided access to Goodyear's data system, and certificate of analysis must be transmitted electronically. The procedures and mechanisms for this transmittal have been established by The Goodyear Tire & Rubber Company. In all cases, suppliers will use the format established and assume responsibility for the accuracy of the data submitted. When a supplier performs the final command to send the data to Goodyear, this action simulates signing the certification.

All data, once received by Goodyear, becomes the property of The Goodyear Tire & Rubber Company and can not be altered, or retrieved by any supplier.
Details of the electronic data system will be provided, as needed, in the form of a User's Manual.

8.2 Additional Features

The SIS not only provides for electronic processing of

1. Advance Shipment Notification (ASN) and
2. Certificate of Analysis (COA), it also enables the processing of
3. Corrective Action Requests (CAR)
4. Corrective Action Plans (CAP)
5. Car Cost Recovery
6. Processing of the Audit questionnaire, scoring and corrective action, if necessary.
7. Supplier Database is also included which is accessed by both the supplier and Goodyear to provide information of benefit to both parties.

Access to SIS is provided by Goodyear upon request through Goodyear Purchasing and/or Supplier Quality Assurance by completing form SQA-100.

The SIS is protected from unauthorized access by data encryption, User ID/Password and router/firewall protection.

8.3 Data Supply and Retention (Equipment, Services and Parts)

Reliability data (see Appendix E) on equipment required by Goodyear from suppliers will be defined by the individual requirement.

This information will be transmitted to Goodyear based on purchase order requirements. Machined parts suppliers are required to complete data sheets on shipments as they occur.

Such information will be retained by the Equipment, Services or Parts suppliers per Goodyear requirements.

9.0 Goodyear Audit Testing of Supplier Raw Materials

9.1 Goodyear Audit Testing

The supplier is responsible for the quality of the material they supply to Goodyear and must meet all of Goodyear's quality and other requirements. Goodyear has implemented a raw material audit-testing program. Periodically, raw materials from specific suppliers are selected for audit testing by Goodyear's Regional Labs. Samples of those selected raw materials are periodically sent by Goodyear plants to the Regional Labs for testing. The samples will be analyzed for compliance to purchasing specification. This data may be used for supplier evaluation. The Goodyear plant, which sent the sample, will issue a Corrective Action Request (CAR) for any material found to be out of specification. The supplier shall implement corrective action immediately. In some cases, laboratory crosschecks may be requested.

Appendix A
Statistical Process Control "SPC"

Mean: The average of a group of values or measurements

Symbol: $\bar{x}$

Formula: $\bar{x} = \sum x_i$ /N

Range: The difference between the highest and lowest values in a set of numbers

Symbol: R

Formula: $R_i = x_i$ (max) - x_i (min)

Avg. Range: The average of a group of range values

Symbol: $\bar{R}$

Formula: $\sum R_i / k$

Standard Deviation: The measure of variation or spread of a distribution, or process

Symbol: σ = (sigma), the "true" standard deviation of the entire group or population being studied

Symbol: s = an estimate of the standard deviation as calculated from sample data

Formula: $s = \sqrt{\dfrac{\sum x_i^2 - \dfrac{\left(\sum x_i\right)^2}{N}}{N-1}}$

Symbol: $\hat{\sigma}$ = an estimate of the standard deviation calculated from the d_2 factors

Formula: $\hat{\sigma} = \bar{R} / d_2$

$\sum$ = Summation R_i = Individual Range values

X_i = individual values k = number of sub-groups

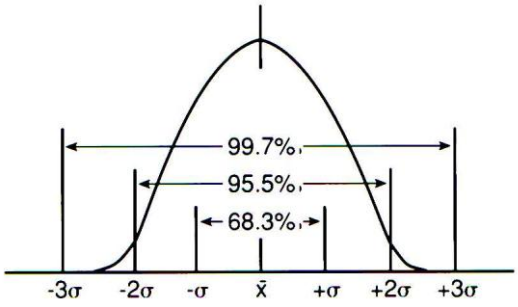
N = number of samples

Normal Distribution: (bell-shaped curve) The mean of the distribution is at the highest point of the frequency distribution with equal portions on each side of the mean

$\pm$ 1 standard deviation around the mean = 68.3% of the data

$\pm$ 2 standard deviations around the mean = 95.5% of the data

$\pm$ 3 standard deviations around the mean = 99.7% of the data



UCL = Upper Statistical Control Limit
LCL = Lower Statistical Control Limit
UWL = Upper Warning Limit
LWL = Lower Warning Limit
USL = Upper Specification Limit
LSL = Lower Specification Limit

Statistical Control Limits – Variable Data

1. $\bar{X}$ & R Chart:

$UCL_{\bar{x}} = \bar{\bar{x}} + A_2\bar{R}$ $\quad LCL_R = D_3\bar{R}$

$LCL_{\bar{x}} = \bar{\bar{x}} - A_2\bar{R}$ $\quad \hat{\sigma} = \bar{R} / d_2$

$UCL_R = D_4\bar{R}$

2. Chart for Individuals:

$UCL_x = \bar{x} + 2.66\bar{R}$ $\quad LWL_x = \bar{x} - 1.77\bar{R}$

$LCL_x = \bar{x} - 2.66\bar{R}$ $\quad UCL_R = 3.27\bar{R}$

$UWL_x = \bar{x} + 1.77\bar{R}$ $\quad LCL_R = 0$

(Use the "Moving Range" – the range between consecutive points)

3. Median Chart:
Median – The middle value in a set of numbers

Symbol Medians: $\tilde{X}$

Average of Medians: $\bar{\tilde{X}}$

$UCL_{\tilde{x}} = \bar{\tilde{x}} + \tilde{A}_2\bar{R}$

$LCL_{\tilde{x}} = \bar{\tilde{x}} - \tilde{A}_2\bar{R}$

$UCL_R = D_4\bar{R}$

$LCL_R = D_3\bar{R}$

4. $\bar{x}$ & s Chart

$UCL_{\bar{x}} = \bar{\bar{x}} + A_3\bar{s}$

$LCL_{\bar{x}} = \bar{\bar{x}} - A_3\bar{s}$

$UCL_s = B_4\bar{s}$

$LCL_s = B_3\bar{s}$

$\hat{\sigma} = \bar{s} / c_4$

Appendix A

Subgroup Size N	Factors for Control Limits				Chart for Ranges			Chart for Standard Deviations		
					Divisors for Estimate of Standard Deviation	Factors for Control Limits		Divisors for Estimate of Standard Deviation	Factors for Control Limits	
	A_2	E_2	A_3	$\overline{\overline{A_2}}$	d_2	D_3	D_4	C_4	B_3	B_4
2	1.880	2.660	2.659	1.880	1.128	-----	3.267	0.7979	-----	3.267
3	1.023	1.772	1.954	1.187	1.693	-----	2.574	0.8862	-----	2.568
4	0.729	1.457	1.628	0.796	2.059	-----	2.282	0.9213	-----	2.266
5	0.577	1.290	1.427	0.691	2.326	-----	2.114	0.9400	-----	2.089
6	0.483	1.184	1.287	0.548	2.534	-----	2.004	0.9515	0.030	1.970
7	0.419	1.109	1.182	0.508	2.704	0.076	1.924	0.9594	0.118	1.882
8	0.373	1.054	1.099	0.433	2.847	0.136	1.864	0.9650	0.185	1.815
9	0.337	1.010	1.032	0.412	2.970	0.184	1.816	0.9693	0.239	1.761
10	0.308	0.975	0.975	0.362	3.078	0.223	1.777	0.9727	0.284	1.716

Process Capability - The six standard deviation spread of a process in statistical control. If the process is in statistical control, the process capability = $6(\overline{R}/d_2) = 6\hat{\sigma}$

Capability Index - Means of relating the process capability to the specification tolerances

Cp = capability index = $\dfrac{USL - LSL}{6\hat{\sigma}}$

CPC = capability index adjusted for process centering = minimum of: $\dfrac{USL - \bar{x}}{3\hat{\sigma}}$ or $\dfrac{\bar{x} - LSL}{3\hat{\sigma}}$

Potential Capability = $6(\overline{R}/d_2)$ if the R chart is in statistical control but the $\bar{x}$ chart is out of statistical control

Process Performance = $6s$ = actual performance of the process

Performance index = means of relating the performance to the specification tolerances

Pp = process performance index = $\dfrac{USL - LSL}{6s}$

PPK = performance index adjusted for process centering = minimum of: $\dfrac{USL - \bar{x}}{3s}$ or $\dfrac{\bar{x} - LSL}{3s}$

STATISTICAL CONTROL LIMITS – ATTRIBUTABLE DATA

WHAT IS MEASURED	Control Chart	SAMPLE SIZE	WHAT IS TO BE CONTROLLED	CENTER LINE	CONTROL LIMITS	COMMENTS
NUMBER OF DEFECTIVES IN SAMPLE	'PN' CHART	CONSTANT	PN: THE NUMBER OF DEFECTIVES IN A CONSTANT SAMPLE SIZE	$\overline{PN}$	$\overline{PN} \pm 3\sqrt{\overline{PN}(1-\overline{P})}$	N = SAMPLE SIZE $P = \dfrac{NUMBER\ DEFECTIVES}{N}$ $\overline{P} = \dfrac{TOTAL\ DEFECTIVES}{TOTAL\ INSPECTED}$
AVERAGE NUMBER OF DEFECTIVES IN SAMPLE	'P' CHART	CHANGEABLE	P: THE RATIO OF DEFECTIVES TO SAMPLE SIZE	$\overline{P}$	$\overline{P} \pm 3\sqrt{\dfrac{\overline{P}(1-\overline{P})}{N}}$	
NUMBER OF FLAWS OR DEFECTS IN SAMPLE	'C' CHART	CONSTANT	C: THE NUMBER OF FLAWS IN A CONSTANT SAMPLE SIZE	$\overline{C}$	$\overline{C} \pm 3\sqrt{\overline{C}}$	$\overline{C} = \dfrac{TOTAL\ \#\ FLAWS}{NUMBER\ OF\ SAMPLES}$ MORE THAN ONE FLAW CAN BE RECORDED ON A PIECE IN THE SAMPLE
AVERAGE NUMBER OF FLAWS OR DEFECTS IN SAMPLE	'U' CHART	CHANGEABLE	U: THE RATIO OF FLAWS TO SAMPLE SIZE U = C/N	$\overline{U}$	$\overline{U} \pm 3\sqrt{\dfrac{\overline{U}}{N}}$	C =# OF FLAWS $U = \dfrac{\#\ FLAWS}{SAMPLE\ SIZE}$ $\overline{U} = \dfrac{TOTAL\ \#\ FLAWS}{TOTAL\ PIECES\ CHECKED}$

CONTROL CHART SIGNALS

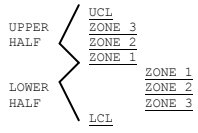
Basic Tests for Assignable Causes

TEST 1: Any point beyond the control limits

TEST 2: 7 points in a row above or below the centerline

TEST 3: A run of 7 points in a row up or down

For tests 4-6, mentally divide the control limits into zones like this:



These tests apply to patterns in either the Upper Half or the Lower Half, *NOT TO BOTH HALVES IN COMBINATION*

TEST 4: 2 out of 3 points in zone 3 or beyond

TEST 5: 4 out of 5 points in zone 2 or beyond

TEST 6: 3 points in a row in zone 2 or beyond

Defect: An imperfection in an item (one item may have several defects)
Defective: An unacceptable item (one or more defects

Appendix B

Trouble Free

On time, every time

Correct labeling & identification

Suitable transportation

Appropriate packaging

No unloading problems

No handling problems

In-spec; on-target

Contamination free

Uniform material
- Within each shipment
- Shipment-to-shipment
- Interchangeable between suppliers

No processing problems

No product problems

Appendix C

References

QS-9000 Quality Systems Requirements, Current Revision; Chrysler Corporation, Ford Motor Company, General Motors Corporation

QSA – Quality System Assessment, Current Revision; Chrysler Corporation, Ford Motor Company, General Motors Corporation

PPAP – Production Part Approval Process Manual, Current Revision; Chrysler Corporation, Ford Motor Company, General Motors Corporation

QSA–TE Tooling & Equipment Quality System Assessment, Current Revision; Chrysler Corporation, Ford Motor Company, General Motors Corporation

APQP – Advanced Product Quality Planning and Control Plan, Current Revision; Chrysler Corporation, Ford Motor Company, General Motors Corporation

ISO/TS 16949 – Technical Specification, International Automotive Task Force

Copies of the above manuals are available from:

AIAG 01-248-358-3003

Europe
Carwin Continuous 44-1708-861333

Australia
FAPM FAX: 61-6-257-4651

ISO-9001 Current Revision; International Organization for Standardization

Appendix D

Supplier Quality Capability and Responsibility

We agree that we have the necessary procedures and systems to meet, and will meet, the requirements of Goodyear's Global Supplier Quality Manual, Document Number GSQM-05. We further agree to meet all purchasing specification requirements.

SUPPLIER NAME _____

PRODUCTION LOCATION (ADDRESS) _____

_____

_____

_____

SIGNATURE _____

PRINT NAME _____

TITLE _____

PHONE NUMBER _____

FAX NUMBER _____

DATE _____

PLEASE SEND A COPY OF THIS COMPLETED AND SIGNED FORM TO YOUR PURCHASING CONTACT AT GOODYEAR.
ADDITIONALLY, SEND A COPY TO:

GLOBAL SUPPLIER QUALITY ASSURANCE
THE GOODYEAR TIRE & RUBBER COMPANY
DEPARTMENT 789
1144 E. MARKET STREET
AKRON, OH 44316-001
USA

APPENDIX E

DEFINITIONS

Quality Audit - A systematic and independent examination to determine whether quality activities (all the work you do) and related results comply with your planned arrangements (control plans), and whether these arrangements are implemented effectively and are suitable to achieve the objectives of meeting Goodyear's requirements.

Advance Shipment Notification (ASN) – This is the first panel of data entered by a supplier on a shipment and consists of information such as Goodyear Code, Product Description, Dates, Receiving Plant, Amount, Shipment #, Truck/Car#, etc. This information must be received by the Goodyear plant prior to receiving the actual material shipment.

Advanced Product Quality Planning (APQP) – This manual, developed by Chrysler, Ford and General Motors, provides general guidelines for preparing control plans and checklists for ensuring Advanced Product Quality Planning is carried out by the supplier. Suppliers are responsible for adapting this to their own specific process.

Certificate of Analysis (COA) – This is the second panel of the SIS shipment submission and is the test result showing compliance with the Goodyear specification requirements. This electronic COA supercedes any requirement for paper COAs to the Goodyear receiving plant.

Chemical Raw Materials – All raw materials used at some process prior to or during the manufacture of rubber products and that become a part of the finished product, excluding fabric and wire, but including dip components of fabric and wire coatings.

Components – This includes all purchased parts which when processed at a Goodyear facility, become an integral part of the finished product.

Corrective Action Request (CAR) – A complaint issued by a plant against a supplier for a material problem. A CAR can be used to protest or reject a material. Response to a CAR is required by Goodyear.

A CAR is issued within the SIS and e-mail notification is made to the CAR contact and the SIS contact declared in the vendor database.

Corrective Action Plan (CAP) – Response to a CAR that must be made within 30 days stating the supplier's plan to resolve the CAR issue. This response is made electronically by using SIS.

A CAP may be accepted or rejected by the CAR issuing plant.

Equipment – Off-the-shelf and custom fabricated equipment and tooling used in our manufacturing processes.

ISO/IEC Guide 25 or equivalent – A Laboratory meeting these requirements will list specific tests and types of tests for which they have been found competent. This lab's certification will include test equipment, documented procedures, trained operators, calibration and standards. One of the recognized certification bodies is A2LA (American Association for Laboratory Accreditation).

Machined Parts – Custom fabricated parts for equipment and tooling used in our manufacturing processes.

Production Part Approval Process (PPAP) – This manual was developed by Chrysler, Ford and General Motors and is a guide to follow during sample submission. To determine if PPAP is a requirement, please contact Goodyear Purchasing.

Product Parts - This includes fittings, couplings and parts which are purchased as a finished product from a supplier and which become part of a finished product produced at a Goodyear facility.

Reinforcement Raw Materials – This includes fabric and wire used to provide support and/or strength to manufactured rubber products such as tires, hoses and belts.

Replacement Parts – Off-the-shelf parts for equipment and tooling used in our manufacturing processes.

Services – All services provided to us such as software, financial, custodial, construction, maintenance, etc..

Supplier Information System (SIS) – Internet based electronic database system that is used to collect and disperse information on Goodyear purchased materials. This information consists of Advance Shipment Notification (ASN), Certificate of Analysis (COA), Corrective Action Request (CAR), Corrective Action Plan (CAP), Audit Results, Audit Non-Conformance Report and Response, Quarterly Statistics, Supplier Database, Material Specifications and Message of the Day (Goodyear to Supplier Communication). Use of SIS by chemical and reinforcements raw materials suppliers is required.

Source of Supply – A document that lists all approved suppliers of corporate codes.

THE GOODYEAR TIRE & RUBBER COMPANY
AKRON, OHIO

Prepared by:

CORPORATE SUPPLIER QUALITY ASSURANCE

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