

TITLE: **SUPPLIER QUALITY STANDARD**

DESIGNATION: **CTQS 9002**

REVISION: **D**

EFFECTIVE DATE: **03/23/11**

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REQUIRED APPROVALS*

- GKN Aerospace Chem-tronics Inc. – Supplier Quality Manager
- GKN Aerospace Chem-tronics Inc. – Product Quality Manager
- GKN Aerospace Astech Engineering Products – Quality Manager

* Record of approval is maintained electronically

1. OVERVIEW

GKN operates in a highly competitive environment. It is essential that we continue to enhance our high standards of excellence by providing products and services, which meet or exceed the expectations and requirements of our customers.

To enable us to achieve our expectations, it is fundamental for GKN to develop a common set of values and objectives with our suppliers.

This document (CTQS 9002) establishes the baseline for systems and requirements that must be met in order to supply goods and services to GKN.

1.1. Purpose

- 1.1.1. This document provides the foundation of minimum quality systems requirements for suppliers to GKN Aerospace and sub-tiers to suppliers of the same.

1.2. Scope

- 1.2.1. This document is applicable to all suppliers (current or potential) of services and materials used in the delivery of product on behalf of GKN Aerospace.; this includes both direct and indirect materials and services as delineated herein. This document applies to following GKN Aerospace sites:

GKN Aerospace – San Diego (Chem-tronics Inc.)

1150 West Bradley, El Cajon, California 92020, United States of America
Tel.: +1 619 448 2320 | Fax: +1 619 258 5270 | Website: www.chem-tronics.com

GKN Aerospace – Mexicali

Circuito Siglo XX1 no. 1974, Parque Industrial EX-XX1, Colonia Rivera, Mexicali BC, Mexico 21290
Tel.: +52 686 905 5700 | Website: www.chem-tronics.com

GKN Aerospace – ASTECH Engineered Products

3030 Red Hill Avenue, Santa Ana, California 92705-5866, United States of America
Tel.: +1 949 250 1000 | Fax: +1 949 250 4982 | Website: www.astechmfg.com

- 1.2.2. If a purchase order defines requirements that are different from those in CTQS 9002, the purchase order requirements shall prevail.
- 1.2.3. Supplier shall possess written approval of its quality systems from GKN Aerospace Quality Assurance prior to performing any work for GKN. The supplier shall conduct work only within the scope of the written approval.
- 1.2.4. Where the words “approval”, “agreement” or “delegated” appear in CTQS 9002, such approval, agreement or delegation shall be in writing.
- 1.2.5. Any approval by GKN of drawings, systems, methods or documentation produced by the supplier shall not relieve the supplier of any obligations under the particular purchase order.

2. REFERENCE DOCUMENTS

- 2.1. Aerospace Standard AS9003 Inspection and Test Quality System
- 2.2. Aerospace Standard AS9100 "Quality Management Systems – Aerospace – Requirements"
- 2.3. Aerospace Standard AS9102 "Aerospace First Article Inspection Requirement"
- 2.4. Aerospace Standard AS9103 "Variation Management of Key Characteristics"
- 2.5. Aerospace Standard AS9120 "Quality Management Systems - Aerospace - Requirements for Stocklist Distributors"
- 2.6. Aerospace Recommended Practice ARP 9062 "Aerospace Operator Self-Verification Programs"
- 2.7. International Standard ISO 9001 "Quality management systems – Requirements"
- 2.8. International Standard ISO 10012 "Measurement management systems - Requirements for measurement processes and measuring equipment"

3. DEFINITIONS

- 3.1 ASL – GKN Aerospace Approved Suppliers List
- 3.2 Certified Supplier Program (CSP) - A program to improve the quality of those goods and services used in the manufacture of our product. It provides selected suppliers with the privilege to self-release materials, services or products to GKN Aerospace.
- 3.3 Q-notes – Purchasing Quality Notes
- 3.4 TIPQA – GKN Aerospace online quality database program
- 3.5 NMR – Nonconformance Material Reports used when suppliers do not have access to GKN Aerospace Supplier TIPQA web page.
- 3.6 NCR – TIPQA Non-Conformance Report
- 3.7 SG - Supplier Generated Nonconformance. Either converted from an NMR and created in TIPQA at GKN Aerospace, or entered directly into Supplier Portal of TIPQA by the vendor.

4. RESPONSIBILITY

- 4.1 Supplier Management Responsibility
 - 4.1.1 Define and document its quality systems procedures.
 - 4.1.2 Insure that these procedures are understood and implemented throughout the supplier's organization.
 - 4.1.3 At scheduled intervals, senior management must evaluate and approve its quality systems procedures for effectiveness and conformance to requirements.
 - 4.1.4 Maintain records of management quality systems procedures reviews.
 - 4.1.5 Appoint a management representative who has defined authority and responsibility to insure that the requirements of this standard, CTQS 9002, are implemented and maintained. The appointed representative shall have the authority and responsibility to:
 - 4.1.5.1 Maintain the latest revision of GKN Aerospace Purchasing Quality Notes. Copy of the latest Q-notes are on the Web at: www.chem-tronics.com/procurement.htm
 - 4.1.5.2 Identify and record product quality trends and problems.
 - 4.1.5.3 Initiate and verify implementation of solutions to correct quality problems.
 - 4.1.5.4 Control further processing of non-conforming product until the deficiency has been corrected.

4.1.5.5 Notify GKN Aerospace of changes within supplier's systems that affect quality.

4.1.5.6 Have direct access to supplier's senior management to correct quality problems.

4.1.6 Notify, in writing to the signatory of the latest GKN Aerospace approval letter, of any change to the nominated management representative responsible for quality, significant change in suppliers organization or change in site or ownership.

4.1.7 Demonstrate, to the satisfaction of GKN Aerospace, that supplier staff are sufficiently experienced, suitable trained, have the appropriate authority and possess the appropriate attributes and qualifications to properly service the GKN Aerospace purchase order.

4.1.8 Insure that only products and services conforming to GKN Aerospace purchase order requirements are provided to GKN Aerospace.

5 CAPABILITY ASSESSMENT

5.1 GKN Purchasing evaluates the need for supplier services. This evaluation includes consideration of existing supplier capability, capacity, and cost or schedule issues.

5.2 Purchasing requests information from the supplier as required to adequately evaluate the supplier's potential. At a minimum the following;

5.2.1 Supplier Profile Form

5.2.2 Vendor Master Input Form

5.2.3 CTQS 9002 Assessment

5.2.4 Financial statements, Annual Reports, Dunn and Bradstreet ratings, capability (facility/equipment) list, capacity, lead time, pricing, and other pertinent information are included in the initial evaluation as deemed appropriate.

5.2.5 Once potential has been established, Purchasing sends a Supplier Evaluation Checklist (Form FP822-0X) to the supplier. The supplier conducts a self-evaluation, records results, and returns the completed form to GKN.

5.2.6 Purchasing and Quality Assurance representatives review all pertinent information regarding the supplier, solicit input from GKN supporting disciplines as required, and determine the appropriate action as follows:

- Add supplier to the Approved Supplier List.
- Schedule an on-site survey (if required).
- Request additional information from the supplier.
- Eliminate the supplier from further consideration.

5.2.7 On-site supplier evaluations are performed to established checklists and/or specific agendas developed by the auditor or evaluation team IAW SP 4.6-1.2. The results (completed checklists, trip reports) are documented and maintained in the TIP-QA Audit Module.

5.2.8 Following a supplier survey or request for additional information, the supplier is either added to the Approved Supplier List or eliminated from consideration as detailed above.

6 APPROVAL ACKNOWLEDGEMENTS

6.1 Successful qualification to the Approved Supplier List (ASL) completes the initial phase for new suppliers. GKN Quality Assurance maintains the ASL for use by Purchasing, Engineering, and Manufacturing personnel. The list contains pertinent information on suppliers of material, parts and service used in the manufacturing of a GKN deliverable product. Data maintained on the ASL includes; general supplier information, scope of approval, and

approval status including limitations or restrictions.

- 6.2 Limitations may be restrictions relative to processes and/or part numbers based on capability. Supplier status is identified; A, U, D as described below:
- 6.2.1 Approved – Qualified for orders within the suppliers or subcontractors capabilities.
 - 6.2.2 Unapproved- Not qualified for orders. Supplier approval pending based on evaluation of supplier qualifications.
 - 6.2.3 Disapproved – Not qualified for orders. Supplier approval has been removed due to a negative quality trend or due to inactivity.
- 6.3 GKN's Standard Terms and Conditions are incorporated as part of every Supplier PO except where specifically delineated otherwise.
- 6.4 Supplier's quality systems shall be evaluated on the requirements of TABLE 1 & 2 for the following;
- 6.4.1 Supplier Categorization definition:
 - 6.4.1.1 TABLE 1 under the Supplier Categorization Definition column defines the type of supplier. Select the Supplier Categorization Definition that best describes the supplier.
 - 6.4.1.2 After determining the Supplier Categorization Definition the shaded areas under the Acceptable Quality Systems Approvals column will determine the acceptable quality systems.
 - 6.4.1.3 Using TABLE 2 as the Key to the shaded areas which are the acceptable quality systems.
 - 6.4.2 Supplier Approval Levels
 - 6.4.2.1 The Supplier Categorization Definitions corresponding Supplier Approval levels will be assigned to the Supplier.
 - 6.4.2.2 Upon approval, the GKN Aerospace Supplier Quality Manager will issue a letter to the Supplier stating ASL status.

TABLE 1

Supplier Approval Levels	Supplier Categorization – Definition	Acceptable Quality Systems Approvals (refer to #'s in TABLE 2)									
		1	2	3	4	5	6	7	8	9	10
1	Tooling – A supplier that manufactures tooling used in the realization of the deliverable product	1	2	3	4	5	6	7	8	9	10
2	Conditional Approval Scope – A supplier that has a quality system unable to meet the full requirements of CTQS 9002. All work done must have approved planning and a lock process.	1	2	3	4	5	6	7	8	9	10
3	Outside Processor – A supplier that performs operations or processes on hardware owned by another company but does not procure material for, or incorporate components into, the basic product structure	1	2	3	4	5	6	7	8	9	10
4	Calibration Supplier – A supplier of calibration services Not applicable if the manufacturer of the IM&TE, or their acknowledged agent, is used for calibration.	1	2	3	4	5	6	7	8	9	10
5	Destructive Testing Lab – A supplier that performs destructive testing on materials supplied by GKN	1	2	3	4	5	6	7	8	9	10
6	Manufacturer – A build-to-print supplier or a supplier that creates an assembly by combining two or more components	1	2	3	4	5	6	7	8	9	10
7	Fastener Manufacturer – A manufacturer of fastening hardware (e.g. rivets, studs, nuts, bolts, etc.)	1	2	3	4	5	6	7	8	9	10
8	Distributor – A full or pass-thru distribution source that procures material on behalf of GKN	1	2	3	4	5	6	7	8	9	10
9	Material Supplier – A supplier of materials used in the manufacture of deliverable components or assemblies (e.g. plate, bar, extrusions, sheet, forgings, castings, etc.)	1	2	3	4	5	6	7	8	9	10
0	Customer Direct Source – A supplier that is directed from a Customer (e.g. special process, plate, bar, extrusions, sheet, forgings, castings, etc.)	1	2	3	4	5	6	7	8	9	10

(P)

TABLE 2

#'s	Category	Description
1	Quality Systems Approval (generic)	Approval issued by GKN Quality Systems representative – P/N specific planning must be approved by GKN Engineering and Quality.
2	CTQS 9002	Approval issued by GKN Quality Systems representative (approval must acknowledge CTQS 9002)
3	AC7004	Certification by the Performance Review Institute (Nadcap)
4	AS7103	Certification by the Performance Review Institute (Nadcap)
5	AS7104	Certification by the Performance Review Institute (Nadcap)
6	AS7120	Certification by an accredited CRB for 9100 by one of the three IAQG Sector Schemes
7	ISO/IEC 17025	Certification by the Performance Review Institute (Nadcap)
8	ISO 9001	Certification via an accredited CRB
9	AS/EN 9100	Certification by a CRB accredited for 9100 by one of the three IAQG Sector Schemes
10	Proprietary Approval	Quality System and/or special process approval issued by an OEM or their agent (applicability is limited to procurement on behalf of the specific OEM issuing the approval)

6.5 Supplier Quality Rating System

6.5.1 Supplier ratings are established by GKN as follows. Rating levels listed below are based on a three month average;

- 6.8.1.1 Gold 95-100%
- 6.8.1.2 Silver 90-94.9%
- 6.8.1.3 Bronze 85-89.9%
- 6.8.1.4 Red 0-84.9%

6.5.2 Suppliers are encouraged to maintain a Gold rating at all times. It is expected that all suppliers will take actions to improve performance as necessary to achieve Gold status.

6.5.3 Suppliers at the Silver and Bronze level may be issued a supplier corrective action request at the discretion of the Supplier Quality Manager.

6.5.4 Suppliers who earn a Red rating must take action to improve their performance. A Supplier Corrective Action Request (SCAR) will be issued by GKN for any repetitive nonconformances as required. Red suppliers who do not improve their ratings to Bronze or better within a 3 month period may be removed from the ASL at the discretion of the GKN Supply Chain Manager and Supplier Quality Manager.

7 BASIC QUALITY REQUIREMENTS

7.1 Request for Quote (RFQ)

7.1.1 GKN Purchasing will initiate Request for Quotation from qualified sources. The RFQ will include: part number and/or description, revision, quantity, terms, associated drawings and/or specifications as applicable.

7.1.2 The Supplier is expected to respond to the RFQ within 48 hours with price, lead time and any exceptions to the RFQ package.

7.2 Purchase Order Review

7.2.1 GKN Purchasing will notify Suppliers of contract award with a Purchase Order specifying: part number

and/or description, revision, quantity, delivery date – due on dock, price and associated terms, drawings and/or specifications as applicable.

- 7.2.2 The Supplier is responsible for assuring work is performed in accordance with the configuration (revision) specified. Where referenced specifications are called out without reference to a revision, the latest configuration in place at time of contract award shall be used.
- 7.2.3 GKN's Standard Terms and Conditions are incorporated as part of every Supplier PO except where specifically delineated otherwise.
- 7.2.4 The GKN purchase order takes precedence in the event of a conflict in requirements.
- 7.3 Purchasing Quality Notes
- 7.3.1 Q-notes are available on the Web at: www.chem-tronics.com/procurement.htm
- 7.3.2 Q-notes define quality requirements in addition to the drawing. For example;
- 7.3.3 Q-note 5 states: Supplier must hold written approval from either Rolls-Royce per RR9000 SABRe or GKN's approval per CTQS 9002
- 7.3.4 Q-note 11 states: Supplier must be approved by the National Aerospace and Defense Contractors Accreditation Program (NADCAP)
- 7.3.5 GKN's PO or a PO attachment shall have the required Q-notes by part number. The Q-notes shall be included in the Supplier PO Review and documented.
- 7.4 Changes / Amendments
- 7.4.1 GKN Purchasing will communicate all changes to the Purchase Order with a PO Change Notice. The Change Notice will reflect the same PO number and be identified with a sequential change identifier (01, 02, etc.). The Supplier is responsible for reviewing proposed and incorporated changes for impact to open PO's and the stated negotiated terms. Any resultant impact shall be communicated to the GKN Buyer for incorporation into the Change Notice or appropriate GKN action.
- 7.4.2 Taking exception to those requirements where the supplier does not have the capability to meet contractual requirements. Contract exceptions shall be submitted to GKN in writing. It is the supplier's responsibility to obtain from GKN an amendment to the purchase order incorporating the requested exception.
- 7.5 Document Control
- 7.5.1 The supplier shall establish and maintain procedures to control all documents that relate to the GKN Purchase Order.
- 7.5.2 The supplier shall insure that the latest applicable issues of appropriate documents are available at locations where operations essential to the manufacture of the product are performed.
- 7.5.3 The supplier's system shall insure that obsolete documents are promptly removed from all points of issue or use.
- 7.5.4 The supplier is responsible for obtaining copies and revisions of referenced and required Government and Industry Standards through a source other than GKN.
- 7.5.5 The supplier shall assure that applicable documents are provided to the supplier's sub-contractors.
- 7.5.6 The supplier shall maintain a document change control system, which includes provisions for initiation, review and approval of changes to work instructions.
- 7.5.7 Where practical, the nature of the change shall be identified in the document of the appropriate

attachments.

7.6 Procurement

- 7.6.1 When contractually required, materials furnished or processing performed shall be from GKN approved sources only. The supplier must procure materials and/or services from those sources specified by the GKN purchase order.
- 7.6.2 The supplier must have a documented system to ensure that all subcontractors are evaluated periodically, in addition to the receiving inspection function, for compliance with drawing, specification, and quality requirements. Requirements for these evaluations may be based on quality history records, complexity, and quantity of the items purchased.
- 7.6.3 The supplier is responsible to pass the applicable purchase order requirements and amendments to their sub-contractors. The purchasing document to the supplier's sub-contractors shall contain a clear and complete description of the material and/or services ordered with adequate instructions for insuring the flow-down of the applicable requirements.
- 7.6.4 The purchasing document to the supplier's sub-contractors shall be reviewed and approved by the supplier's appointed quality representative or designate prior to release.
- 7.6.5 No substitution of material specification, size or any other attribute will be allowed except by the amendment of the GKN purchase order. All materials shall be those furnished or specified by GKN.
- 7.6.6 When material is furnished by GKN, the supplier shall maintain a documented system for inspection, protection and control of this material. Furnished material found damaged, malfunctioning or otherwise unsuitable for use shall be reported to GKN.

7.7 Material Control/Storage/Traceability

- 7.7.1 The supplier shall document and maintain a system of material control, storage and identification.
- 7.7.2 This system shall ensure that only conforming material is released for fabrication and that identification and traceability requirements are maintained.
- 7.7.3 Material controls shall be adequate to prevent material damage, loss of identity, intermingling and quality degradation throughout all phases of storage, manufacturing, inspection and transportation.
- 7.7.4 In the event, the hardware produced is an assembly/sub-assembly, part/serial numbers and heat numbers of each component shall be documented. In the case of multiple part travelers (i.e., one traveler for 20 parts), each part must be serialized where applicable. All hardware must be traceable back to its material heat lot. Records of traceability shall be maintained by the supplier as part of the objective evidence of quality control and acceptability.

7.8 Manufacturing/Inspection Controls

- 7.8.1 The supplier shall document and maintain procedures for the control of its manufacturing processes and shall provide:
- 7.8.2 Documented instructions, duly authorized by approved personnel, for performing each manufacturing, assembly, processing or inspection operation. The instructions shall be adequate with respect to the complexity of the operation, and may be defined on the supplier's traveler, job routing card, work instructions or blueprint.
- 7.8.3 The supplier shall review manufacturing instructions prior to implementation to establish appropriate inspection points. Evidence of review shall be documented.

7.9 Receiving Inspection

- 7.9.1 The supplier shall insure that incoming product is not used until it has been inspected or otherwise

verified as conforming to purchase order requirements. Verification shall be in accordance with documented procedures.

7.10 In Process Inspection

7.10.1 The supplier shall inspect and identify the product as required by the quality plan or documented procedures.

7.11 Final Inspection

7.11.1 The supplier shall carry out all final inspection per the quality plan or documented procedures to complete the evidence of conformance of the finished product to specified requirements.

7.11.2 The quality plan or documented procedures for final inspection shall require that all specified inspections, including those either on receipt of product or in-process has been carried out and that the inspection data meets specified requirements.

7.11.3 No product shall be shipped to GKN until all the activities specified in the documented procedures and the associated data have been satisfactorily completed.

7.11.4 Records of inspection shall indicate the number of observations made, the number and type of observations made, the number and type of deficiencies found, and the quantities approved or rejected. First Articles shall be reported on an AS9102 form.

7.11.5 Supplier shall include a Certificate of Conformance (C of C) with each delivery of any item(s), material(s) and/or service(s). This can be a separate document or integrated into the packing sheet/list.

7.11.6 Note: It is understood (by the supplier and GKN) that with the submittal of the Certificate of Conformance the supplier is providing legal confirmation that all delivered item(s) comply with the purchase order requirements and to the following:

7.11.6.1 The product has not been subjected to any processes which may have chemically or metallurgically altered the material, except as allowed by the purchase order and its subordinate requirements.

7.11.6.2 When the subcontract activity involves GKN furnished material (i.e. subcontract services), the supplier is certifying that the specific GKN furnished material (furnished for the specific contract) was used in the fabrication of the product and that no substitutions were made.

7.11.7 All Certificates of Conformance shall include as a minimum:

- Supplier's company name and address
- Name of manufacturer, if different from supplier
- GKN Purchase order number and (when applicable) P.O. line item(s).
- Certification date
- Supplier's Pack Slip Number
- Quantity
- Part number and revision when assigned by the purchase order.
- Any additional information as specified by the purchase order and its subordinate requirements.
- All NCR (Nonconformance Report) number(s) applicable to the delivered item(s). ie: "SG0001234 Applies"
- A statement that materials and/or services provided is in conformance with the purchase order requirements. Listing any special process by specification and revision level (ie: NDT, Heat Treat, etc.)
- Signature and/or stamp of Supplier's authorized Quality representative (secured computer-generated signatures are acceptable).
- The information from "A" and "B" below as applicable.

A. Procured materials (raw, component or assembly) shall include:

- The drawing designation, drawing revision and engineering change order(s) as applicable.
- Material specification and revision for each unique material included in the delivered product.
- Specific material lot or material batch numbers for each unique material included in the delivered product.
- Serialization if specified by the governing requirements.

B. Processing or service shall include:

- GKN assigned "R" numbers, serial numbers and/or work order numbers as applicable to the order and delivery.
- A list of any GKN work instruction(s) invoked by the purchase order (e.g. operation sheet, etc.) including their revision levels as applicable.
- Specifications and revision levels for all special processes invoked by the purchase order.
- A statement that: "The product has not been subjected to any processes which may have chemically or metallurgically altered the material, except as allowed by the purchase order and its subordinate requirements."

7.12 Inspection, Measuring and Test Equipment (IM & TE)

- 7.12.1 The supplier shall control, calibrate and maintain IM & TE, whether owned by the supplier or its employees, on loan or provided by the purchaser, to demonstrate the conformance of product to the specified requirements.
- 7.12.2 IM & TE and measurement standards shall be calibrated in an environment controlled to the extent necessary to assure continued measurements of required accuracy giving due consideration to temperature, humidity, vibration, cleanliness or other factories affecting precision equipment. IM & TE shall be properly handled, stored and transported to assure that accuracy and fitness for use is maintained.
- 7.12.3 The supplier shall identify, calibrate and adjust all IM & TE that can affect product quality at prescribed intervals, or prior to use, against certified equipment traceable to the National Institute of Standards and Technology (NIST).
- 7.12.4 IM & TE shall be calibrated at periodic intervals established on the basis of stability, purpose, degree of usage and previous calibration results.
- 7.12.5 Supplier shall establish a recall system for the mandatory recall of measurement standards and IM & TE within established time limits or interval frequencies.
- 7.12.6 The calibration due date, date of last calibration and identity of the person who performed the calibration shall be displayed on each item of IM& TE together with sufficient identification to provide traceability to calibration records. When size of equipment or other characteristics limit display of calibration information, suitable procedures shall be employed to assure adherence to calibration schedules (i.e., stickers, color-coded dots, etc.).
- 7.12.7 Written procedures shall be used for the calibration of all IM & TE. As a minimum, calibration procedures shall specify the measurement standards to be used, the required parameter, range and accuracy of the measurement standard and the acceptable tolerance of each characteristic being calibrated. Accuracy levels of standards must be higher than the accuracy level of the equipment being calibrated.
- 7.12.8 Tamper-resistant seals shall be affixed to operator accessible controls or adjustments on IM & TE, which, if moved, will affect the calibration.
- 7.12.9 Supplier's calibration system shall provide for notification to the respective used of any IM & TE found to be significantly out-of-tolerance during calibration. IM & TE shall be considered significantly out-of-tolerance when the condition could adversely affect product quality or measurement integrity.
- 7.12.10 In the event of out-of-tolerance equipment being detected, components previously inspected with this equipment will be reassessed to establish true inspection status, up to a point where confidence is regained whether by previous calibration or 100% conforming components.

- 7.12.11 Where hardware (i.e., jigs, fixtures, templates, patterns) are issued as suitable forms of inspection, they shall be checked to prove that they are capable of verifying the acceptability of the product prior to release and shall be rechecked at prescribed intervals. The supplier shall establish the extent and frequency of such checks and shall maintain records as evidence of control. Measurement design data shall be made available, when required by GKN for verification that it is functionally adequate.
- 7.12.12 Where the supplier sub-contracts part or all of their calibration services, the supplier shall ensure that the calibration sub-contractor complies to ISO 17025, or internationally recognized equivalent. (Sub-contracting calibration services does not negate the requirement for supplier to document and maintain a calibration system).
- 7.12.13 The requirements of this standard shall be supported by records documenting that established schedules and procedures are followed to maintain the accuracy of all IM & TE and measurement standards.
- 7.13 Inspection Status
- 7.13.1 The supplier shall document and maintain a system for identifying the inspection status of all products throughout the procurement, storage, processing, fabrication, inspection, packaging and shipping operations.
- 7.13.2 Inspections status shall be signified formally by traceable stamp, signature or initials.
- 7.13.3 If the inspection status is unknown, the product shall be stopped until status is determined.
- 7.13.4 Inspection stamps used by the supplier shall identify the individual inspector.
- 7.13.5 Supplier's stamp design shall be such that identification of accept and reject is readily ascertainable.
- 7.13.6 An internal register of inspection stamps issued shall be maintained by the supplier.
- 7.13.7 A stamp bond period shall be specified for terminated personnel, lost or damaged stamps.
- 7.14 Control of Non-Conforming Material
- 7.14.1 GKN suppliers are required to have a system in place to prevent the unauthorized shipment of nonconforming material to GKN. When nonconforming material is detected, it shall be identified, segregated, documented and dispositioned.
- 7.14.2 GKN suppliers are NOT AUTHORIZED to disposition nonconforming material as "Accept, Use as Is, Repair, etc." that can not be reworked within limits of drawing or applicable specifications as called out on the GKN PO.
- 7.14.3 Suppliers may submit nonconforming material for disposition to GKN engineering for acceptance or submittal to the GKN end item customer if required. The supplier shall contact the GKN Buyer to gain access to TIPQA Supplier Portal and training documents. The Supplier will complete a Supplier Generated (SG) Non-Conforming Report (NCR) with all non-conforming information including, sketches, drawing or pictures to illustrate. Cause and Corrective Actions may be required for submittals of non-conforming product at the discretion of GKN engineering or the GKN Supplier Quality Manager. GKN will process the NCR as follows;
- 7.14.3.1 Purchasing assigns SG to the cognizant ME/QE/MQE for disposition (which must be done before supplier ships product)
- 7.14.3.2 ME/QE/MQE assigns SG back to the Buyer
- 7.14.3.3 Buyer notifies the Supplier with disposition and **SG# to be placed on the pack slip**. (ie: Accept, Reject or ship at risk awaiting our customer approval.

- 7.14.3.4 NOTE: No parts from a supplier should be shipped to GKN without Engineering's approval on the NCR. If the NCR was rejected the buyer will close out the NCR and send a copy to the vendor.
- 7.14.3.5 Buyer assigns the SG to Receiving Inspection.
- 7.14.3.6 Receiving Inspection will match up SG to the receiver when it arrives and close out the NCR.
- 7.14.3.7 If the part is acceptable or must be shipped to GKN for evaluation or Customer approval one of the following dispositions will be used:
- ACC – Accept (No Customer/Authority Approval Req'd)
 - CNT - Continue Processing (Deferred Disposition)
 - ENG – Engineering Hold
 - RWK – Rework to Drawing/Specification
 - SUB – Submission to the Customer or Relevant Authority Req'd
- 7.14.3.8 Supplier's C of C must state GKN's NCR number.
- 7.14.4 If Supplier does not have access to TIPQA Supplier Portal a Nonconforming Material Report (NMR) shall be requested from the GKN Buyer. Upon receipt of the form, the Buyer will transfer the NMR to the TIPQA NCR system and proceed as stated in 7.13.3
- 7.14.5 The supplier shall establish and maintain procedures to ensure that products not conforming to specified requirements are prevented from inadvertent use. Control shall provide for identification, documentation, evaluation, segregation (when practical), disposition of non-conforming product and notification to the functions concerned.
- 7.14.6 The supplier shall maintain a system to document non-conformance, investigate and determine root cause, initiate corrective action and follow-up in order to prevent recurring non-conformances.
- 7.14.7 If rework or repair is authorized per TIPQA NCR, the work done must be adequately inspected to ensure the rework/repair was successful and that no other characteristics were adversely affected.
- 7.14.8 The supplier shall inform GKN immediately where there is reason to suspect that product previously supplied to GKN may not be in accordance with the purchase orders requirements.
- 7.14.9 When the supplier has been informed by GKN of non-conforming product found after delivery, not previously covered by paragraph 10.2, the supplier shall take remedial action to prevent delivery of further non-conforming product and inform GKN of corrective action in writing.
- 7.15 Corrective Action
- 7.15.1 The supplier shall establish, document and maintain procedures for the following:
- 7.15.1.1 Investigating the cause of nonconforming product(s) and the corrective action needed to prevent recurrence, as well as correct possible nonconforming products already assembled or fabricated.
- 7.15.1.2 Initiating preventative actions to deal with problems to a level corresponding to the risks encountered.
- 7.15.1.3 Applying controls to ensure that corrective actions are implemented with the effectivity date clearly noted.
- 7.15.1.4 Ensuring that subcontractor generated nonconformances and associated corrective actions are adequately addressed.
- 7.15.2 Supplier will be notified of request for Corrective Action via e-mail from the GKN Supplier Quality

Manager or from the GKN Purchasing department. GKN will supply electronic Cause and Corrective Action forms to use as required.

7.16 Handling, Storage, Packaging and Delivery

- 7.16.1 The supplier shall establish, document and maintain procedures for handling, storing, packaging and transportation of the product. Special packaging and marking provisions shall be complied with as required by GKN.
- 7.16.2 **Handling** – The supplier shall provide methods and means of handling to prevent damage or deterioration.
- 7.16.3 **Storage** - The supplier shall provide secure storage areas or stock rooms to prevent damage or deterioration of the product, pending use or delivery. Appropriate methods for authorizing receipt and the shipment to and from such areas shall be stipulated.
- 7.16.4 **Packaging** - Unless otherwise specified packaging shall be in accordance with ASTM D 3951, Standard Practice for Commercial Packaging, and shall ensure the integrity of product delivered against damage or degradation. Packaging shall be suitably labeled to identify the purchase order, part number and quantity at a minimum.
- 7.16.5 **Delivery** - The supplier shall arrange for the protection of the quality of the product after final inspection. This protection shall be extended to include delivery to destination. All product delivered in connection with GKN shall be correctly identified and addressed by the supplier as directed by the purchase order and/or applicable drawing.

7.16.5.1 Ship to Address shall be as specified on the purchase order.

7.17 Internal Quality Assessments

- 7.17.1 The supplier shall carry out a system of planned and documented internal quality assessments to determine the effectiveness of the quality system.
- 7.17.2 Assessments shall be scheduled on the basis of the status and importance of the activity. Assessments shall be conducted in accordance with documented procedures.
- 7.17.3 The results of the assessments shall be documented and brought to the attention of the personnel having responsibility in the area assessed. The management personnel responsible for the area shall take timely corrective action on the deficiencies found by the assessment.

7.18 Statistical Techniques

- 7.18.1 Where appropriate, the supplier shall establish procedures for identifying adequate statistical techniques required for verifying the acceptability of process capability and product characteristics.
- 7.18.2 100% inspection shall be performed unless reduced inspection through statistical techniques has been approved in writing by GKN.
- 7.18.3 When less than 100% inspection is used, written inspection instructions shall include adequate description of the sampling plans, frequencies, acceptance levels, etc. Written instructions must also contain provisions for tightened and reduced sampling plans based on inspection results.

7.19 Software Quality Assurance

- 7.19.1 If software is involved in the performance of work for GKN, supplier shall document procedures for the development, verification and control of computer software used in conjunction with measuring and test equipment for product acceptance or controlling manufacturing processes.
- 7.19.2 Supplier's procedures shall provide for the following:

- 7.19.2.1 Programs and related documents are under revision control.
- 7.19.2.2 Revisions are approved prior to incorporation.
- 7.19.2.3 Master media are archived and controlled.
- 7.19.2.4 Controls are in place to prevent inadvertent/unauthorized changes.

7.20 GKN / Customer Owned Tooling

- 7.20.1 Tooling includes all manufacturing and inspection jigs, fixtures, gauges and any special cutting tools funded/supplied by GKN or its customers. The supplier shall be responsible for:
- 7.20.2 Marking the GKN or customer tool number on tools funded by GKN or its customer.
- 7.20.3 Storing tools to prevent deterioration.
- 7.20.4 Maintaining all tooling in a serviceable condition.
- 7.20.5 Keeping an up-to-date record of all GKN and customer owned tooling held by the supplier or loaned by the supplier to their sub-contractor(s), and any modifications carried out to same.
- 7.20.6 Returning all GKN and customer owned tooling in the event of purchase order completion or of the supplier losing GKN approval status and retrieving such tooling from sub-contractor(s) in similar circumstances.
- 7.20.7 Calibrating tooling within the prescribed time periods and maintaining the related calibration records.
- 7.20.8 If tooling is not inspected and steel stamped by GKN inspection, functional testing must be conducted by the supplier. Inspection results must be approved by GKN prior to production of components.

7.21 Access

- 7.21.1 The supplier shall permit right of access into the supplier's premises by GKN or its customers. Access is required by these parties to verify compliance with system procedures and conformance of product and services with purchase order requirements. The supplier shall likewise make provision for right of access of these parties with its sub-contractors. A supplier representative familiar with the supplier's operation and systems shall be provided to assist GKN as needed.

7.22 Authority of GKN Representative

- 7.22.1 GKN representatives shall be entitled to:
 - 7.22.1.1 Conduct surveys, periodic over-checks, technical surveillance or assessments on supplier's quality systems, products and services including Engineering, Manufacturing and Inspection systems, material, controls and supporting facilities.
 - 7.22.1.2 Verify all manufacturing inspection jigs, gauges and fixtures manufactured or held by the supplier for suitability of purpose.
 - 7.22.1.3 Require corrective actions if defects are revealed in the supplier's products or systems.
 - 7.22.1.4 Have access to documentation and records.

7.23 Quality Records

- 7.23.1 The supplier shall establish procedures for identifying, collecting, indexing filing, storing, maintaining and dispositioning of quality records.
- 7.23.2 GKN requires Suppliers to maintain records for a period of 7 years minimum or as otherwise defined by

the GKN PO based on end item customer requirements.. Records are to be available for GKN review and shall be retrievable in 48 hours or less from notification request. Records are to be maintained in a method that assures protection from deterioration or loss.

7.23.2.1 GKN purchase orders that indicate "PWA End Use" shall have associated records maintained per retention requirements defined in PWA ASQR-01.

7.23.2.2 GKN purchase orders that indicate "Rolls Royce End Use" shall have associated records maintained per retention periods defined in Rolls Royce SABRe.

7.23.3 All quality records shall be legible and identifiable to the product involved. Upon request, the supplier shall transfer all records of product delivered against a GKN purchase order to GKN in the event that CTQS 9002 approval is withdrawn.

8 Certified Supplier Requirements

- 8.1 Suppliers who maintain a quality rating of 95% or better may be qualified to become a GKN Certified Supplier per SP 4.6-1.3 Certified Suppliers.
- 8.2 The Certified Supplier program provides selected suppliers with the privilege to self-release materials, services or products to GKN Aerospace.

9 Additional Requirements

- 9.1 Suppliers who receive a GKN purchase order that indicates it is for "PWA End Use" must also meet the additional quality system requirements defined in PWA ASQR-01.
- 9.2 Suppliers who receive a GKN purchase order that indicates it is for "Rolls Royce End Use" must also meet the requirements of Rolls Royce SABRe.
- 9.3 Suppliers who receive a GKN purchase order for the ASTECH Engineered Products site in Santa Ana, CA must also meet any additional requirements defined in ASTECH SOP 6-6.

TITLE: **SUPPLIER QUALITY STANDARD**DESIGNATION: **CTQS 9002**REVISION: **D**EFFECTIVE DATE: **03/23/11****REVISION RECORD**

N/C thru C

See archive records for changes made.

D 07 March 2011

Revised Paragraph 1.2.1 to add GKN locations. Revise paragraph 7.11.7 to match Q-note 125. Revised paragraph 7.12.12 to change spec to ISO 17025. Revised paragraph 7.19.1 to remove cancelled DOD STD. Revise 7.23.2 and add paragraph 7.23.2.1 and 7.23.2.2 to add customer specific references. Revise section 8 to match SP 4.6-1.3 requirements. Add section 9 for additional requirements. Entire document revised to remove references to "Chem-tronics" since document is now applicable to multiple locations. Revise multiple paragraphs to fix typos and formatting issues. Add paragraph 6.5 rating info.