



**PURCHASING**  
**QUALITY CLAUSE CODES**

**REVISION STATUS**

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**APPROVALS**

REVISION	ECO NUMBER	DATE	DOCUMENT CONTROL APPROVAL
A	1322	6/08/05	ID
B	1893	7/28/06	ID



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## 1.0 PURPOSE

CMT shall establish the necessary Purchased Material Quality Requirements for each part ordered for production of Hi-Rel product, and shall convey those requirements to the supplier through the use of Quality Clause Codes (from this document) which are listed on, and become a condition of the Purchase Order.

## 2.0 SCOPE

This procedure is intended to establish a standard and efficient method for ensuring the incorporation of all applicable quality requirements on Purchase Requisitions and Purchase Orders.

## 3.0 APPLICABLE DOCUMENTS

MIL-STD 1535 Supplier Quality Assurance Program Requirements

MOP221 Purchasing Policy and Procedure

MYOB [form] [PURCHASES-NEW ITEM]

## 4.0 DEFINITIONS

MYOB CMT MRP system

RoHS Reduction on Hazardous Substances

MOP Manufacturing Operating Procedure

## 5.0 RESPONSIBILITIES

### 5.1 QUALITY ENGINEERING

Quality Engineering shall be responsible for ensuring the applicable Quality requirements are contained on CMT purchasing documents prior to their issuance. Quality Engineering shall base the specified Quality Clauses upon a thorough review of the part-specific requirements, as well as contractually imposed customer requirements. Designations are assigned to all drawing/specifications for all HI-REL purchased and fabricated parts, subassemblies and assemblies (QAF-024). The Quality Clause Code (A through M) and any additional Q Clause as applicable are permanently attached to the part number on CMT's HI-REL Source Suppliers List (QAF-024), a controlled document, and shall be printed on the Purchase Order each time that part is ordered. Although Purchase Orders are subject to periodic audits, the above-described system is intended to satisfy the requirement for reviewing all Purchase Orders.

### 5.2 THE PROCUREMENT MANAGER

The Procurement Manager shall be responsible for ensuring that all Purchase Orders provided to suppliers for HI-REL products contain the assigned purchase Quality Clause Codes. Furthermore, the Procurement Manager shall be responsible for ensuring CMT suppliers have access to and understand the definitions of the current and applicable Quality Clause Codes.

### 5.3 SUPPLIERS

Suppliers are responsible for compliance to all Quality Clauses contained on the CMT purchasing document. It shall be the supplier's responsibility to request clarification of codes, clauses or any requirement that is not fully understood. A failure to comply with all Quality Clauses, even when the material conforms to the latest Engineering drawing requirements, shall be sufficient cause for rejection. Unless specifically stated in the Purchase Order, the Supplier is not granted MRB authority; all use-as-is and repair dispositions shall be submitted to CMT for review and approval prior to implementation.

6.0 QUALITY CLAUSE CODES

Quality Clauses shall be specified on procurement documents using either a single alpha character Quality Clause Code or a listing of the actual Quality Clauses defined herein. Table 1 below provides a cross reference between the Quality Clause Codes, the Quality Clauses that apply to each code, and a general category or description of the types of parts, materials or services procured.

Quality Clause Codes	Quality Clauses	Types or Categories of Procured Parts, Materials, or Services
A	Q5,Q12,Q14,Q35,Q40,Q50,Q65,Q80	Machined Parts (un-plated), Connectors, and Discrete components
B	Q5,Q12,Q14,Q15,Q20,Q35,Q40,Q41, Q50, Q65, Q80, Q90	Machined Parts (plated), Circuit Boards
C	Q5,Q11,Q14,Q40,Q50,Q65,Q80	Plating Only, and other Special processes
D	Q5,Q12,Q14,Q40,Q50,Q65,Q80	Hardware, wire
E	Q5,Q12,Q14,Q15,Q24,Q35,Q40,Q41, Q50,Q58,Q65,Q80	Space Qualified Discrete Components
F	Q5,Q12,Q14,Q30,Q43,Q50,Q65,Q80	Paints, Epoxies, Adhesives, etc.
G	Q5,Q14,Q42,Q50,Q65,Q80	Raw Materials
H	Q5,Q14,Q20,Q24,Q35,Q40,Q55,Q56, Q58,Q65,Q80	Test Laboratories
J	Q14,Q23,Q35,Q40,Q50,Q58,Q65,Q70, Q71	Calibration Services
K	Not Pre-determined	All Group 1 (except those coded 'L') and those Group 2 Orders designated by Quality Engineering at time of order
GRP1-L	Q5,Q10,Q14,Q20,Q35,Q40,Q41,Q42, Q50, Q52, Q65, Q80,Q90 Add Clauses Q15, Q24, and Q58 for discrete (EEE) components	Parts or materials requiring actual physical/chemical analysis reports and/or approved special process sources
M	Q5, Q16, Q35, Q43, Q50, Q65	RoHS and Prohibited Materials

**THE FOLLOWING CLAUSES ARE APPLICABLE ONLY AS NOTED ON THE PURCHASE ORDER, EITHER BY QUALITY CLAUSE CODE OR ITEMIZED QUALITY CLAUSES:**

**6.1 SOURCE INSPECTION REQUIREMENTS**

Q-1 NASA - All work on this order is subject to inspection and test by the Government at any time and place. The Government Quality Representative who has been delegated NASA Quality Assurance functions on this procurement shall be notified immediately upon receipt of this order. The Government Representative shall also be notified forty-eight (48) hours in advance of the articles or materials being ready for inspection or test.

Q-2 CMT Source Inspection - All Work under this purchase order shall be subject to CMT inspection and test at all times (during the period of performance) and places; and, at any event up to and including final acceptance. The CMT Quality Department shall be notified forty-eight(48) hours in advance of the articles or processes being ready for inspection or test.

Q-3 Government Source Inspection (GSI) is required prior to shipment from the Supplier's facility. Upon receipt of this order, promptly notify the Government Representative who normally services your company and provide a copy of this Purchase Order so that appropriate planning for Government inspection can be accomplished.

Q-4 CMT's Customer Source Inspection (CSI) acceptance is required prior to shipment of articles on this Purchase Order from the Supplier's facility.

Q-5 During the performance of this order, the Supplier's Quality control or inspection system and manufacturing processes are subject to review, verification and analysis by authorized Government and or CMT's customer representatives. Government/customer inspection of product prior to shipment *is not* required unless the Supplier is otherwise notified.

**6.2 SUBCONTRACTOR CERTIFICATION REQUIREMENTS**

Q-10 Chemical/Physical Test Reports - CRITICAL REQUIREMENT: Fabricated articles supplied on this order must be accompanied by actual chemical/physical test reports pertaining and identified to any materials used which are controlled by a reference specification. Material received at CMT without the required test reports will not be accepted.

Q-11 CMT Furnished Material - CRITICAL REQUIREMENT: The Supplier shall furnish with each shipment a signed statement identifying the material and Purchase Order, certifying that CMT furnished material was used without substitution (or listing all authorized substitutions) in the production of the articles specified in the contract or Purchase Order. Material received at CMT without the required certification will not be accepted. The Supplier shall produce the articles specified in the contract or Purchase Order using the material supplied by CMT for the purpose of producing said articles. Any required substitution of material must be authorized formally by CMT. Articles produced from substitute materials shall be so identified, and handled as a separate manufacturing lot with associated certifications.

Q-12 Standard Certification - The following statement, or substantial equivalent, shall appear on the packing slip or an accompanying certificate of conformance specifically identified to the articles, and must be received at our plant with receipt of each shipment *"The articles supplied in this shipment were produced from materials for which the supplier has available for examination Chemical and/or Physical Test Reports indicating conformance to applicable specifications."* Such statements must be dated and signed by an authorized representative of the Supplier, showing title. Articles received at CMT without the required certification will not be accepted.

Q-13 Supplier shall furnish certification stating that the requirements of the Purchase Order were met. It is not necessary for the Supplier to maintain supportive data on this Purchase Order, unless otherwise stated.

Q-14 At the time of acceptance of a new order or prior to the delivery of existing orders, the Supplier is required to notify CMT of any design, material or process changes including the location of manufacture. CMT shall evaluate the change to determine if the form, fit, function, reliability or qualification status of the product or service being supplied has been affected.

Q-15 Homogeneous Lot Certification. The supplier shall certify that the entire order quantity is the product of a single homogeneous manufacturing lot. A homogeneous manufacturing lot is defined as the number of parts of the same part number, produced from the same traceable raw material lots, under essentially identical conditions, during one manufacturing time span not to exceed six weeks and offered for inspection at one time.

Q-16 RoHS and Prohibited Materials - CRITICAL REQUIREMENT: Material received at CMT without the required certification will not be accepted. Articles supplied on this order must be certified not to contain any raw materials or plating/processing which uses any prohibited materials as listed herein.

- Pure Cadmium
- Pure Tin
- Pure Zinc
- Hexavalent Chromium chemical conversion coating:  
    NOTE: Trivalent Chromium chemical conversion is acceptable.
- Mercury: Greater than 0.1wt% (1000ppm)
- PBDE (polybrominated diphenylethers): Greater than 0.1wt% (1000ppm)
- PBB (polybrominated biphenyls) Greater than 0.1wt% (1000ppm)
- Leaded solder joints or leaded solder coated components or assemblies.

Q-16 (continued)

NOTE: Allowable exemptions for leaded alloys (not including solder):

The European Directive 2002/96/EC, Annex, Exemption #6) clearly states that the exemption is for "Lead as an alloying element in steel containing up to 0.35% lead by weight, [as in LEDLOY] aluminum containing up to 0.4% lead by weight [slight amount in Aluminum Bronze], and as a copper alloy [as in Brass] containing up to 4% lead by weight." Due to specific drawing requirements, some common leaded alloys like Brass or 12L14 alloy are allowable. All leaded alloys used in CMT products must conform to the limits set forth in this exemption.

Q-20 Supplier shall furnish a certified report of chemical and/or physical analysis of the materials to be supplied to CMT. Reports shall include the actual measured values and indicate compliance or noncompliance with applicable specifications.

Q-21 Supplier shall furnish functional test data with each unit or item shipped. Data sheets shall reference or include applicable Purchase Order and packing slip numbers, part or model numbers, configuration or revision status, drawing, specification and/or catalog numbers and min/max limits to which tested for respective items, as applicable.

Q-22 Supplier shall furnish, with the first shipment of each item, sufficient drawing and specification data to facilitate inspection of the items, including as a minimum, all applicable mounting, interface, performance and environmental data with S/N or other identification as applicable.

Q-23 Supplier certification shall include nomenclature, identification number, calibration interval and source, and environmental conditions under which the measurement standards were applied. Certification shall include all necessary correction data, and indicate that all calibration standards used are traceable to the National Institute of Standards and Technology (NIST).

Q-24 Certified test data, attested to by the supplier and properly recorded on appropriate letterhead by the organization performing the tests, shall be supplied with each shipment related to this Purchase Order. The test report must contain all of the factual information necessary to demonstrate conformance to the specification made a part of the Purchase Order, and shall include S/N or other identification as applicable.

### 6.3 SPECIAL SUB-TIER SUPPLIER REQUIREMENTS

Q-25 Statistical Process Control (SPC) data is required. The selection of key characteristics or critical parameters shall be proposed by the Supplier and shall be subject to CMT's approval.

Q-30 The shelf life, expiration date, and recommended storage conditions when applicable, must accompany each lot, batch and/or shipment of limited life material. Limited shelf life materials utilized by CMT include such commodities as paints, epoxies, various other chemicals and adhesives, and rubber material.

Q-35 Supplier shall control and maintain all test and measurement equipment used for inspection and acceptance in accordance with MIL-STD-45662, Calibration System Requirements.

Q-36 NASA - supplier shall establish and maintain an inspection system applicable to this order that meets the requirements of NHB-5300.4(1.c).

Q37 Supplier shall establish and maintain an inspection system applicable to this order that meets the requirements of MIL-I-45208A.

Q-40 CRITICAL REQUIREMENTS: Supplier shall establish and maintain a system of traceability applicable to this order, which will allow the back-tracking of records to the specific Chemical/Physical/Electrical Test Report pertaining and identified to any material used which are controlled by a referenced specification. Records shall be retained by the supplier for a minimum of five(5) years, and shall be available for CMT review upon request. Supplier's system shall assure that each manufactured lot remains separated and identified as such at all times, including shipment to CMT.

Q-41 CRITICAL REQUIREMENTS: Supplier shall impose the necessary traceability requirements on his subcontractors to assure the availability of records referencing and traceable to the reports pertaining to any materials used which are controlled by a referenced specification.

Q-42 Chemical/Physical test reports - CRITICAL REQUIREMENT: Materials supplied on this order must be accompanied by actual chemical/physical test reports of the material. Such reports shall contain measured values and indicate compliance to requirements. Melt, heat or batch number, or other identifying numbers necessary to relate the test reports to the material shall be included. Material received at CMT without the required test reports will not be accepted.

Q-43 Standard Certification - Raw materials supplied on this order must be accompanied by a signed certification reading substantially as follows: *"The materials supplied on this order were manufactured in accordance with all contractually applicable specifications. Seller has available for examination chemical and/or physical test reports indicating conformance of the material to applicable specifications"*.

The certificate shall also clearly show the following:

CMT P.O. Number

Material Specification

Revision Letter or issue date

Material type or description

If the supplier produces multiple lots, these lots must be identified and separated.

Q45 CMT owned tooling, procured and/or used in the performance of this order, shall be marked with the proper tool number and shall be delivered to CMT upon completion of this purchase order. Invoices for tooling are payable upon delivery of parts, made to applicable blueprint specification, which have been accepted by CMT or upon CMT's acceptance of the tooling.

Q-46 This is a CPFF Contract with the U.S., and tooling must be handled in accordance with applicable regulations. Tooling must be marked "property of the U.S." and also part number, tooling number, Government Contract Number. Parts of tools should be marked with "1 of 4", "2 of 4", etc., where applicable. Supplier's invoice for tooling shall be payable upon delivery of parts made to applicable blueprint specifications, which have been accepted by CMT or by acceptance of tooling by CMT, whichever occurs first. Upon completion of this purchase order, all tooling must be returned and marked "Attention CPFF Stores" .

Q-47 CMT owned tooling shall be retained by the supplier, pending further instructions as to proper disposition, upon completion of this order. The supplier shall be responsible for the control and storage of the tooling, necessary to avoid loss or damage. Supplier's invoice for tooling shall be payable upon delivery of parts made to applicable blueprint specifications, which have been accepted by CMT or by acceptance of tooling by CMT, whichever occurs first.

Q-50 The supplier shall maintain an Inspection System relative to its Product/Service that assures CMT of Product/Service Inspection prior to shipment from the seller's facility.

Q-51 Supplier shall furnish a First Article Inspection (FAI) Report with this order. The FAI Report must contain documented evidence of electrical compliance, dimensional conformance, and/or the adequacy of the processes as determined by appropriate destructive tests. First Article Inspection samples shall be labeled and packaged separately to permit the correlation of test results by CMT Quality Assurance.

Q-52 Supplier shall furnish a 100% (all parts delivered, every parameter on drawing) Read and Record Data Report with this order. The R&RD Report must contain documented evidence of electrical compliance, dimensional conformance, and/or the adequacy of the processes as determined by appropriate destructive tests. R&RD samples shall be labeled and packaged separately to permit the correlation of test results by CMT Quality Assurance. The R&RD may be in the Supplier's format, and must identify each parameter requirement and the actual findings for each parameter.

Q-55 The supplier shall provide the appropriate facilities, calibrated test apparatus and trained personnel necessary to accomplish tests as outlined in CMT's purchase order.

Q-56 The supplier shall accommodate and assist CMT's test personnel during pretest and post-test operations.

Q-57 The supplier shall notify Government/Customer representatives for test witness as applicable.

Q-58 The supplier shall provide Certified Test Reports and associated documentation, containing reference to the CMT purchase order number, part numbers and serial numbers of units tested, the controlling test specifications, and the conditions - such as environmental - under which the testing was performed. The Certified Test Report shall be dated and signed by an authorized representative of the test facility.

Q-60 X-Ray requirements shall be as indicated on the applicable CMT drawing or purchase order and shall meet the intent of MIL-STD-453, unless otherwise specified.

Q-65 The supplier shall assure that the supplies on this order are packaged with Best Commercial practice. Packaging shall provide adequate protection against damage and contamination.

Q-66 Suppliers of military or special packaging shall perform all functions necessary to comply with all purchase order and referenced specification requirements.

Q-67 Logmar Bar Codes shall be in accordance with all contractually applicable specifications.

Q-70 The supplier shall verify the performance or accuracy of the equipment at the time of receipt, and notify CMT of any out-of-tolerance conditions observed. Upon completion of calibration, the equipment shall have a new calibration label applied, containing the date of the next scheduled calibration.

Q-71 The supplier shall describe the equipment malfunction, the parameters and degree of out-of-tolerance, the suspected cause of the failure, necessary repairs, cost, and corrective actions, as applicable. Test and verification data, as required, shall accompany each unit upon return to CMT.

Q-75 Supplier of purchased, rented or leased test equipment shall provide evidence of calibration, (See Q-35- if applicable), data sheets, operator's manual and catalogs, as necessary.

Q-80 Acceptance of verbal change to this purchase order from anyone except the CMT Purchasing Department shall be at the supplier's own risk. Verbal instructions from the CMT Purchasing Department shall be followed by a Purchase Order Change Notice within 24 hours. Furthermore, if a verbal change or agreement has been made, the supplier may not ship the product until the P.O. has been updated to reflect such changes or agreement.

Q-90 When a supplier uses a facility other than his own to perform a special process, the performing facility shall be specified on CMT's purchase order Special Processes include, but are not limited to, the following: Plating, heat treating, chemical films, X-rays, magnetic particle and die penetrant inspection, soldering, encapsulation, welding; printed circuit boards, foundries, brazing, etc. The special processes shall meet the applicable specifications indicated on the drawing, purchase order and/or statement of work. Material received that has been processed by a process source other than that specified by CMT purchase order shall be subject to rejection.