

AEROJET PURCHASE ORDER QUALITY CLAUSES (FULL TEXT)

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AEROJET PURCHASE ORDER QUALITY CLAUSES

ATTENTION: This document provides the full text wording of quality assurance clauses selectively incorporated by reference in Purchase Orders issued by Aerojet. The only clauses below which apply to a specific Purchase Order are those identified in the Aerojet Purchase Order Quality Clauses attached to this order or specifically cited in the body of the Order itself.

NEED ASSISTANCE? If you have any questions about the quality assurance requirements applicable to a Purchase Order, please contact the Aerojet buyer.

1. **GENERAL REQUIREMENTS** (applies to *all* Purchase Orders)

The seller shall maintain a quality system which assures that only items meeting all requirements of the Purchase Order and its referenced drawings and specifications are submitted to Aerojet. By virtue of submittal, the seller certifies that all such requirements have been met or that Aerojet has accepted all nonconformances in writing.

- A. Nonconforming items which the seller wishes to submit to Aerojet for consideration shall be documented and submitted to the cognizant Aerojet buyer. If Source Surveillance is required by the Purchase Order, nonconforming items will be coordinated with the Aerojet QA Representative. **NONCONFORMING ITEMS SHALL NOT BE SHIPPED UNLESS SPECIFICALLY AUTHORIZED BY THE AEROJET BUYER.** Any acceptance of a nonconforming item shall not be considered a precedent for future actions. Copies of all Aerojet nonconformance forms shall accompany the shipment of nonconforming items.
- B. Seller shall respond to Aerojet Requests for corrective action. Seller's response to any such request shall be timely and must include the root cause of the problem, statement of the action taken to preclude a recurrence, and the effectivity of the action. When Aerojet Source Surveillance is a Purchase Order requirement, the seller shall obtain the signature of the cognizant Aerojet representative.
- C. During performance of this order, seller's quality system and manufacturing processes are subject to review, verification, and analysis by authorized government/customer and Aerojet representatives.
- D. Unless otherwise specified, drawings, specifications, standards, and document listings shall be the issue currently in effect on the date of the Purchase Order.
- E. The seller shall note the Aerojet purchase order, part number and serial number(s), where applicable, on all submitted documentation. Revision letters shall be included.
- F. All submitted documentation, including signatures and stamps, must be legible. Documents requiring corrections shall comply with the following requirements:
 1. Each error must be lined through once.
 2. The correct information must be entered near the error.
 3. Each entry must be initialed/stamped and dated.
 4. Use of correction tape / fluid is prohibited.
- G. Cleaning and Packaging: Unless otherwise stated in the Purchase Order / Specification / Drawing, cleaning and packaging shall be in accordance with "best commercial practices".
- H. Records Retention: Unless otherwise specified, all records related to the manufacture of delivered products shall be maintained for a minimum of five years after purchase order completion. Copies of these records shall be submitted to Aerojet upon request. The seller shall notify Aerojet prior to records disposal. Aerojet retains the right to have records delivered in lieu of disposal.
- I. Test and measurement equipment used to determine the acceptability of delivered items shall be maintained in accordance with MIL-STD-45662A or ANSI/NCSS Z540-1-1994, "Calibration system Requirements.
- J. The seller shall flow down to sub-tier suppliers the applicable requirements in the purchasing documents, including key characteristics where required.

2. QUALITY SYSTEM

The items furnished under this Purchase Order shall be controlled in accordance with a documented quality system, subject to audit by Aerojet. The seller's system shall meet the requirements of:

- 2.1 MIL-STD-45208A
- 2.2 MIL-Q-9858A
- 2.3 ISO 9001
- 2.4 ISO 9002
- 2.5 NHB 5300.4 (1B)
- 2.6 NHB 5300.4 (1C)
- 2.7 NHB 5300.4 (1D-2)
- 2.8 MIL-STD-1535B
- 2.9 Distributors: The seller shall maintain a material control and identification system to ensure product traceability to the manufacturer's supporting documentation.
- 2.10 Aerojet Supplier Quality System Requirements (see Exhibit 1)

3. AEROJET SOURCE ACCEPTANCE

All items reflected in this Purchase Order are subject to Aerojet Source Surveillance prior to shipment. Upon receipt of the Purchase Order, promptly notify the cognizant Aerojet QA representative to determine in-process inspection points. If the QA representative is not available, or not known, contact the cognizant Aerojet buyer. The seller shall provide a minimum of three (3) working days notice to Aerojet for any source surveillance activity and shall:

- A. Allow the Aerojet QA representative the review of all documentation related to the fabrication, assembly, processing and testing of all items defined in the Purchase Order.
- B. Insert Aerojet surveillance points in the seller's planning and not proceed beyond those points without Aerojet authorization.
- C. Allow Aerojet QA representative to perform required source activities. When required, the seller shall provide inspection gauges and testing devices for Aerojet QA representative use to determine conformance with Purchase Order requirements.
- D. Coordinate all cause and corrective action statements with the Aerojet QA representative prior to submittal.

4. GOVERNMENT SOURCE INSPECTION

- 4.1 Government inspection is required prior to shipment from your plant. Upon receipt of order, promptly notify the Government representative who normally services your plant so that appropriate planning for Government inspection can be accomplished.
- 4.2 Upon receipt of this order, promptly furnish a copy to the Government representative who normally services your plant, or, if none, to the nearest Army, Navy, Air Force, or defense supply agency inspection office. In the event the representative or office cannot be located, immediately contact the Aerojet buyer.
- 4.3 The Government and/or Aerojet's customer reserves the right to inspect any or all of the work included in this order at the supplier's facility.
- 4.4 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 time articles or materials are ready for inspection or test.
- 4.5 During performance on this order, your quality control or inspection system and manufacturing processes are subject to review, verification and analysis by authorized Government representatives. Government inspection or release of product prior to shipment is not required unless you are otherwise notified.

5. DIRECTED SOURCE CONTROL

Parts and/or material furnished must be manufactured only by those suppliers specified in the Purchase Order, drawings, specifications or applicable Qualified Products List (QPL). Certifications which accompany the shipment must provide traceability to the approved directed sources.

6. PROPRIETARY PRODUCTS CONTROL

Seller shall provide, with each shipment, a certification that the "as-built" configuration of each end item conforms to the Aerojet approved "baseline". Seller shall not implement design or process changes to the "baseline" without written approval by the Aerojet buyer. Change notices shall include "is" and "was" conditions as well as change effectivity related to the end items delivered to Aerojet.

7. SPECIAL PROCESSES

- A. Special processes such as, but not limited to, heat treating, welding, soldering, plating and non-destructive testing shall be performed only by Aerojet/NADCAP approved sources. Other approved sources may be obtained from the Aerojet buyer. Use of an Aerojet approved supplier does not relieve the supplier of the responsibility to meet all purchase order requirements.
- B. Seller shall include, with each shipment, certification(s) identifying the process, part number, purchase order number, process specification number, identification of process method used acceptance criteria document, and evidence of acceptance. All certifications must reflect applicable document revisions.
- C. Seller shall include radiographic reports with each hardware shipment.
- D. When required by the applicable drawing/specification, the seller's process control procedures, technique sheets, and/or physical samples shall be submitted to Aerojet for approval prior to use on production hardware. Changes also require Aerojet approval.
- E. Seller shall provide radiographic films and reports with each hardware shipment.
- F. NADCAP (National Aerospace and Defense Contractors Accreditation Program) approval of special processes required.

8. COMPUTER SOFTWARE QUALITY ASSURANCE PLAN

Seller shall develop, implement, and maintain a Software Quality Assurance program plan which involves reviews, audits, inspections and evaluations of the software products and processes to determine the quality and conformance to contractual requirements. The program plan shall address operating procedures and records of reviews, audits, inspections, and evaluations performed. The program plan shall address and include all software quality contractual requirements. The program plan shall apply but is not limited to non-deliverable software used in the seller's manufacturing, inspection, and/or test operations.

9. STATISTICAL PROCESS CONTROL (SPC)

SPC techniques, including control limits and control charts shall be used, when appropriate. Control limits must be established statistically or by other methods which are based upon the documented history of the process capability.

10. CERTIFIED SUPPLIER

Aerojet Source Surveillance is required on the first shipment of a certified item. Seller inspection shall be accomplished per the Aerojet approved quality plan. Acceptance of a "Certified Supplier's" product and product documentation shall be verified by the Seller's Certified Representative who is authorized use of the Aerojet "certified supplier" stamp.

11. WORK INSTRUCTIONS

All work affecting the quality of seller's product(s) shall be prescribed in clear and complete documented instructions. The seller's manufacturing, inspection and test planning shall include the sequence of operations to be performed, including all inspection, test and process control points. Upon request, the seller shall submit a copy of seller's planning and/or associated work instructions to Aerojet two weeks prior to starting fabrication. All such planning shall be made available to Aerojet representatives for review at the seller's facility.

12. ELECTRONIC REQUIREMENTS

- 12.1 Electronic Discharge (ESD) Control: All items on this Purchase Order, unless otherwise noted, require ESD handling per DOD-STD-1686. Electrostatic Discharge Control Program for Protection of Electrical and Electronic Parts, Assemblies and Equipment (excluding Electrically Initiated Explosive Devices). Packaging shall be clearly identified in accordance with MIL-STD-129 as containing ESD sensitive materials. All items shall be packaged in ESD protective bags, tubes, or film.
- 12.2 Printed Wiring Board: Seller shall comply with the requirements of MIL-STD-275 and MIL-P-55110 (MIL-PRF-31032 / IPC-6013). Compliance shall be subject to audit by Aerojet and/or Government representatives. Group A results shall be delivered with the product. Group B data, when required, shall be delivered to Aerojet; otherwise the supplier's monthly Group B Certification shall be submitted to the Aerojet Buyer upon completion of test and acceptance.
- 12.3 Flex and Rigid Flex Printed Wiring Boards: Seller shall comply with the requirements of MIL-STD-2118 (IPC-2223 / IPC-2221) and MIL-P-50884 (IPC-6013). Compliance shall be subject to audit by Aerojet and/or Government representatives. Group A results shall be delivered with the product. . Group B data, when required, shall be delivered to Aerojet; otherwise the supplier's monthly Group B Certification shall be submitted to the Aerojet Buyer upon completion of test and acceptance.
- 12.4 Microcircuits: Seller shall comply with the requirements of MIL-STD-883 and MIL-STD-38510 or Mil-I-38535. Compliance shall be subject to audit by Aerojet and/or Government representatives. Group test results shall be delivered with the product.
- 12.5 Semiconductors: Seller shall comply with the requirements of MIL-STD-750 and MIL-S-19500 or Mil-I-38535. Group test results shall be delivered with the product.
- 12.6 Solderability Testing: The seller shall test and certify wire, electrical or electronic parts for solderability in accordance with the requirements of applicable Aerojet Specification or MIL/Industry standard. Test results shall be furnished to the buyer upon request.
- 12.7 Panel Verification – Aerojet must review and approve in writing all panel artwork prior to processing, including review and written approval of master and production patterns. This review will consist of verifying compliance to the drawing and coupon location and quantity required by Aerojet design documentation as identified in the purchase order including Mil-Spec requirements referenced therein. Seller shall not proceed with processing without written approval from Aerojet. Contact the Aerojet buyer no less than 48 hours in advance of this inspection point to arrange for an on-site review.
- 12.8 Electrical Testing – Seller shall provide electrical test maps showing the tested circuit points to Aerojet for its written approval prior to testing of production boards. Seller shall not proceed with testing without written approval from Aerojet. Automated test equipment software shall be under configuration control in accordance with seller's internal documentation.
- 12.9 Date / Lot Code traceability to the Manufacturer's Certificate of Conformance is required with each shipment.
- 12.10 Supplier shall provide evidence prior to manufacturing/assembly that procedures exist for the handling of plastic encapsulated devices (PED). As a minimum, the procedure shall describe precautions taken to ensure the integrity of the PED will not be degraded because of moisture, contamination, or ESD.

13. NITROGEN PURGE STORAGE REQUIRED:

Seller shall label or clearly mark one end and one side of each shipping container or package with the notation, "NITROGEN STORAGE REQUIRED FOR INSIDE CONTAINERS". Packing slips, shipping documents, etc., shall be enclosed in envelope attached to the outside of the container. Parts do not require shipment in nitrogen purge.

14. IDENTIFICATION OF SHELF LIFE/TEMPERATURE SENSITIVE MATERIALS

Each item, package, or container shall reflect the specification, drawing, nomenclature, or other design description required by Purchase Order. Cure or manufacturing dates, assembly dates, expiration dates, temperature limits, compound number, and manufacturing identification will be recorded on the certifications and shipping documents, as appropriate. Items received with less than 2/3 shelf life remaining shall be cause of rejection unless otherwise specified by the Purchase Order. Temperature-sensitive materials shall be maintained within the limits prescribed in the applicable document during storage and shipment. Material 40°F or less requires special temperature labels to be attached to exterior of each package. Label shall reflect the words "temperature sensitive material" and the maximum material storage temperature allowed.

15. FIRST ARTICLE INSPECTION

The first "production" item (or more if required by the purchase order) shall be 100% inspected/tested to verify compliance with all drawing/specification requirements. A report listing all "specified" and "actual" characteristics shall be submitted to Aerojet with the first delivery.

16. TEST SPECIMENS

The seller shall furnish test specimens to Aerojet as required by the drawings/specifications applicable to the purchase order. Specimens shall be identified with the Purchase Order number, melt number, heat treat number, batch number and alloy identification, as applicable. Unless otherwise specified, the following criteria shall apply:

- A. Castings: Three (3) test bars produced from the same heat lot and made from the same melt of supplied castings.
- B. Forgings: Three (3) test bars product from the same heat of material as forgings supplied. Test bars must have the same percentage of reduction as the forged items supplied.
- C. Nonmetallic Materials: As required by applicable drawings/specifications.

17. MATERIAL TEST REPORTS

Seller shall submit chemical/physical test reports with each shipment. The reports must show evidence that the materials used in the fabrication of the delivered items conform to the material requirements specified in the applicable drawings and specifications. When required by the applicable specifications, reports/certifications are to reflect actual test values. Test reports shall include document revision levels and lot identification, when applicable.

18. HEAT/LOT/BATCH/IDENTIFICATION

All parts and/or material shall be identified by and traceable to a heat number, heat code, heat lot number, melt number, or batch control number. Where stamping of individual parts is not practical due to size or shape, the identification shall be stamped on the smallest unit packaged by the seller. This identification shall also be recorded on certifications and shipping documents for the material.

19. VARIABLES/ATTIBUTES DATA INSPECTION REPORT

Seller shall submit Variables/Attributes Data Inspection Reports for all items inspected, including "actual" conditions, as related to drawing or specification requirements.

20. MATERIAL REQUIRING SPECIAL HANDLING

Seller shall label or clearly mark one end and one side of each shipping container or package with the notation "Caution" and the special handling or environmental requirements for the item, such as "STORES, DO NOT OPEN, OPEN IN CLEAN ROOM ONLY".

21. DRAWINGS AND SPECIFICATIONS/CATALOG SHEETS

Seller shall provide a copy of the applicable specification, drawing and catalog sheets describing the items ordered with each shipment.

22. AEROJET ASSIGNED SERIAL NUMBERS

Seller end items shall be identified with Aerojet provided serial numbers, as defined in applicable drawings/specifications. Serial numbers shall provide full traceability to all material, fabrication, assembly, inspection and test documentation.

23. SUPPLIER ASSIGNED SERIAL NUMBERS

The seller shall assign serial numbers to all delivered items. Serial numbers shall not be duplicated and shall provide full traceability to all material, fabrication, assembly, inspection and test documentation.

24. LOT TRACEABILITY

Materials used must be traceable to records of acceptance and identified by applicable lot number, date code, material type, specification and applicable change letter or number, heat number, etc. Parts fabricated by seller shall be identifiable to the "lot" of material used. Traceability records shall be available for review upon request.

25. SAMPLING

Unless otherwise specified in applicable drawings/specifications, all sampling shall be in accordance with ANSI/ASQC Z1.4, Level II, single or double sampling, with AQL's, as follows:

<u>Characteristics Classification</u>	<u>(Maximum) AQL</u>
Critical	100% (no sampling)
Major	1.5
Minor	4.0

26. TEST/INSPECTION REPORTS

Seller shall submit with each shipment the report(s) listed in the "Special Instructions". Each report shall include the purchase order number, part number and revision, and shall be approved by the seller's authorized quality representative.

27. TEST FAILURES REPORTING REQUIREMENTS

Seller shall report to Aerojet buyer, the failure of any Aerojet required test (e.g., functional, leak, hydro, etc.) to the following schedule:

- A. Within 24 hours - report by telephone
- B. Within 5 days - A preliminary written report
- C. Within 30 days - a final written failure analysis report, identifying failure cause and actual(s) taken to prevent recurrence.

28. AMMUNITION CARDS

MIL-STD-1167 and MIL-STD-1168 are requirements of this order. Seller shall submit three copies of ammunition data cards for each loaded unit (or lot). Each loaded component is to be identified with the lot number as specified in MIL-STD-1168.

29. DROP SHIP ITEMS

Seller shall not drop ship (shipment to other than Aerojet's facility) items until authorized by the cognizant Aerojet quality representative. A copy of all required documentation shall be shipped with the item and another copy shipped to Aerojet.

30. SELLER'S DESIGNED AND FABRICATED INSPECTION/ACCEPTANCE TOOLS OR GAGES

Seller shall obtain Aerojet approval for all tools or gages which seller designs and/or fabricates for the purpose of inspection/acceptance of the items specified in the Purchase Order.

31. CONTROL OF AEROJET-FURNISHED MATERIAL/GAGING

31.1 Material supplied by Aerojet to be used in seller's delivered product shall be to the following:

- A. Inspect upon receipt for evidence of Aerojet acceptance, shipping damage and lot identification.
- B. Material traceability shall be maintained throughout the manufacturing process, assuring that items manufactured by the seller are identifiable to the material lot number provided by Aerojet.

31.2 Seller shall perform the following when Aerojet furnishes tools/gages:

- A. Inspect, upon receipt, to detect damage in transit and assure completeness, presence of operating instructions and a valid calibration status, as applicable.
- B. Provide adequate protection to preclude damage or deterioration during use, handling and storage.
- C. Provide periodic calibration of gaging in accordance with Aerojet instructions, or request Aerojet to perform calibration at least 30 days prior to the expiration date shown by the calibration status. When deficiencies occur, notify the Aerojet buyer immediately.
- D. Support Aerojet periodic audits of Aerojet-furnished tools/gages.

32. AS-BUILT CONFIGURATION PARTS LIST

Seller shall furnish, with each unit, a legible and reproducible copy of the "as built" parts list, identifying all part numbers, configuration, serial numbers (when required), lot control numbers, and quantities.

33. STATEMENT OF CONFORMITY

Seller shall submit a "Statement of Conformity" reflecting compliance to all Purchase Order requirements. The "Statement of Conformity" must be signed and dated by the seller's authorized Quality Assurance Representative.

34. NO CHANGE POLICY

Supplier shall make no changes in design, processing methods, or other factors of this part without prior notification and authorization by Aerojet Procurement.

35. IDENTIFICATION OF ORIGINAL MANUFACTURER

Certifications for component parts shall provide traceability to original manufacturer.

1. GENERAL

The supplier shall provide and maintain a system which will assure that all supplies and services submitted to Aerojet for acceptance conform to purchase order requirements, whether manufactured or processed by the supplier, or procured from subcontractors. This system shall be documented and be available for review by an Aerojet representative prior to the initiation of production and throughout the life of the purchase order.

2. INSTRUCTIONS

Inspection and testing shall be documented in clear, complete and current instructions, including accept/reject criteria. The instructions shall assure inspection and test of subcontracted supplies, materials, work in process and completed articles, as necessary, to assure compliance with the purchase order.

3. RECORDS

The supplier shall maintain records of all inspections and tests. The records shall indicate the nature and number of observations made, the number and type of deficiencies found, the quantities approved and rejected and the nature of corrective action taken.

4. CHANGE CONTROL

The supplier's inspection system shall assure that the applicable drawings and specifications required by purchase order are used for fabrication, inspection and testing. Obsolete drawings, specifications and procedures shall be removed from the work area.

5. INSPECTION STATUS

The supplier shall maintain a system for identifying the inspection status of supplies. Identification may be accomplished by means of stamps, tags, routing cards, move tickets or other methods.

6. NONCONFORMING MATERIAL CONTROL

The supplier shall establish and maintain a system for controlling nonconforming material including procedures for identification, segregation and control of reworked and repaired items. All nonconforming items shall be positively identified to prevent unauthorized use, shipment and intermingling with conforming items.

7. CORRECTIVE ACTION

The supplier shall take prompt action to correct conditions which have resulted or could result in the submission to Aerojet of items and services which do not conform to purchase order requirements.

8. CONTROL OF MEASURING AND TEST EQUIPMENT

The supplier shall maintain a documented system for the control of equipment used in the inspection and acceptance of delivered items, including tooling, etc., used as inspection media. The system shall address both test/measurement equipment and calibration standards. Information shall include traceability to NIST and/or other recognized standards, method for approval of calibration subcontractors, identification of in-house authorized calibration personnel, calibration interval adjustment criteria, equipment labeling, calibration records and operational procedures.

8.1 RECORDS

An individual record shall be maintained for each piece of test/measuring equipment and calibration standard. Records shall include, as applicable, item identification, calibration interval, date calibrated, calibration due date, calibration source or procedure used, calibration technician identification, calibration results and any actions taken.

8.2 LABELING

All test/measuring equipment and calibration standards shall be labeled to indicate calibration status, including the calibration due date and identification of the authorized calibration source/technician. Items with limited use shall be readily recognizable. The system shall describe how calibration status is identified when physical labeling is not practical. Tamper resistant seals shall be used to protect electronic equipment calibration adjustment controls which are accessible to the operator.