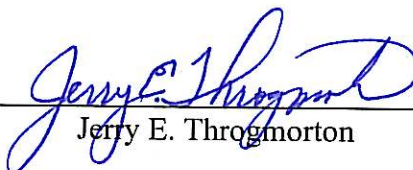


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QUALITY ASSURANCE REQUIREMENTS
FOR SUPPLIERS OF COMPOUNDS

(ATTACHMENT "A" DATED 2/12/86
FORMS A PART OF QUALITY
ASSURANCE REQUIREMENTS)

V. P. OF QUALITY ASSURANCE



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RESEARCH AND DEVELOPMENT



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QUALITY ASSURANCE SPECIFICATION REQUIREMENTS FOR SUPPLIERS OF COMPOUNDING INGREDIENTS

PURPOSE

To establish Quality Assurance requirements of compound mixing.

CONTRACTUAL INTENT

To establish a quality system to assure compliance with this specification. This quality system is to be developed and maintained by the supplier. The Quality Program, including procedures, processes, and product shall be documented and shall be subject to review by Amfuel and/or their customer. Evidence of non-compliance could result in cancellation of contractual agreements. All records not required with shipment, are to be maintained for a period of seven years at supplier's facility.

1.0 AMFUEL QUALITY ASSURANCE REQUIREMENTS

- 1.1 A Quality Assurance manual must be prepared to reflect all phases of operations. This manual must be prepared to cover the following topics. A quality system must be established to comply with the manual.

2.0 ORGANIZATION

- 2.1 The Quality Assurance organization's authorities and responsibilities must clearly be defined in writing.
- 2.2 The Quality Assurance organization clearly must have the authority to withhold items that have not met acceptable quality standards.
- 2.3 The Quality Assurance organization must have direct access to appropriate levels of company management so that quality problems and conflicts can be effectively resolved and corrected.
- 2.4 The Quality Assurance organization is to prepare and issue periodic reports and maintain records relative to item acceptance/rejection, and disposition of rejected items.
- 2.5 The Quality Assurance organization must maintain a system for the use and control of inspection stamps. Each inspector is to be issued a stamp with a number assigned. A record must be maintained to reflect assignment.
- 2.6 The Quality Assurance organization is to indoctrinate and train employees in the application of quality assurance methods.

3.0 CONTROL OF PROCURED SUPPLIES

- 3.1 The Quality Assurance organization must have a system for quality evaluations of potential suppliers.
- 3.2. The Quality Assurance organization has a program for quality assurance approval of suppliers.
- 3.3 The purchase order must clearly describe the work to be performed.
- 3.4 The purchase order must clearly specify acceptance criteria directly or by reference to specification.

- 3.5 The Quality Assurance organization reviews all purchase orders for quality requirements.
- 3.6 The purchase order must include provisions for customer source inspection and audit, if required.
- 3.7 The purchase order must specify documentation requirements when applicable.

4.0 RECEIVING INSPECTION

- 4.1 The Quality Assurance organization must have a receiving inspection system.
- 4.2 Inspectors are to be provided with adequate inspection instructions in writing. All work is to be documented and maintained on file for review.
- 4.3 Receiving inspectors must have ready access to the appropriate specifications, vendor catalogs, purchase orders and other such materials.
- 4.4 The measuring devices, inspection gauges, and test equipment available to receiving inspectors must be adequate for the inspections and test purposes required.
- 4.5 Sampling inspection, when applicable, is to be performed in compliance with established, recognized standards. 100% inspection required on small lots.
- 4.6 A positive means of identification of all raw stock must be maintained.

5.0 IN-PROCESS INSPECTION

- 5.1 An in-process inspection activity must be performed by Quality Assurance.
- 5.2 Adequate inspection instructions are to be made available to all in-process inspection personnel.
- 5.3 In-process inspection tasks are to be performed through the use of written instructions. Example - specifications.
- 5.4 The measuring devices, gauges, and test equipment required for in-process inspection are available and are adequate.

- 5.5 A system must be maintained that prevents the unauthorized use of materials that have not yet been inspected.
- 5.6 A system must be maintained for the proper identification of the inspection status of in-process materials.
 - 5.6.1 All materials and compounding ingredients used are to be individually written.
 - 5.6.2 Compound mixes to be as follows:
 - Batch number assigned.
 - Traceability of vendor-designated polymer lot no. in batch.

6.0 SHIPPING INSPECTION

- 6.1 The Quality Assurance organization is to establish a shipping inspection function.
- 6.2 All shipping inspection operations are to be performed in accordance with written instructions. Each batch of compound showing compound number, Amfuel purchase order, test documents, and certification must be shown on face of shipper.
- 6.3 Shipping inspectors must have ready access to customer-specified packaging instructions.

7.0 MEASURING DEVICES AND TEST EQUIPMENT

- 7.1 The Quality Assurance organization is to maintain procedures that call for the periodic inspection and re-calibration of all measuring devices, gauges, and items of test equipment. Reference Mil-Std-45662.
- 7.2 The Quality Assurance organization is to maintain procedures that call for the periodic inspection of all production tools which are used as a medium of inspection in the production processes.
- 7.3 Working standards of required accuracy that are periodically calibrated to primary standards traceable to the National Bureau of Standards or calibration is to be performed by independent qualified laboratory.

- 7.4 Whenever measuring devices, gauges, and test equipment items are reworked, they are to be inspected and calibrated prior to use.
- 7.5 When new measuring devices, gauges, and test equipment are acquired, they are to be inspected and calibrated prior to use.
- 7.6 The processes for calibrating measuring devices, gauges, and test equipment are to be covered by written procedures.
- 7.7 All measuring devices, gauges, and test equipment must carry stamps which indicate the most recent calibration date and the date when the next calibration is to be performed.
- 7.8 The Quality Assurance organization must maintain a system for the automatic recall and periodic re-calibration of all measuring devices, gauges, and test equipment.

8.0 MATERIAL REVIEW

- 8.1 A documented system is to be maintained for the handling of nonconforming materials.
- 8.2 A system is to be maintained for removing nonconforming supplies from the production flow.
- 8.3 A system is to be maintained for taking corrective action in order to prevent repetitive discrepancies.
- 8.4 Reports on nonconforming materials are to be regularly prepared and reviewed by management for action.

QUALITY ASSURANCE REQUIREMENTS

ATTACHMENT "A"

PURPOSE

The purpose of this attachment is to provide specific requirements for quality control of compounds supplied to the American Fuel Cell and Coated Fabrics Company (AMFUEL). It will encompass the control of compounding ingredients as well as the compounds themselves.

ATTACHMENT "A"

PROCEDURES

1.0 COMPOUNDING INGREDIENTS

- 1.1 Ingredients used in Amfuel compounds will be as specified in the supplied formulas unless written authorization is granted for substitutions.
- 1.2 Substitute materials must appear on the Amfuel Approved Materials List.
- 1.3 If the compounding source wishes to use an ingredient not on the Approved Materials List, a properly-identified sample accompanied by a copy of the vendor's certification will be submitted to Amfuel for approval testing and its inclusion on the List prior to use.

2.0 CERTIFICATION AND VERIFICATION TESTING OF COMPOUNDING INGREDIENTS

- 2.1 Each shipment of an ingredient used in an Amfuel formulation will be accompanied by a vendor certified test report or certificate of compliance.
- 2.2 A minimum of one sample per polymer supplier lot number shall be checked for viscosity, contamination, color, and cure rate.
- 2.3 Certifications and test reports will be kept on file and will be available for inspection by Amfuel or their customers for a period of seven (7) years.

3.0 HANDLING OF INGREDIENTS

- 3.1 Ingredients received, but not yet released to production, shall be kept segregated with a hold tag until properly released.
- 3.2 Ingredients rejected upon receipt or from Production area shall be kept in a separate area inaccessible to Production personnel until dispositioned. A reject tag must be attached.

ATTACHMENT "A"

4.0 FORMULAS AND COMPOUND SPECIFICATIONS

- 4.1 All formulas, approved material lists, and specifications supplied remain the property of Amfuel, and the contents are not to be divulged, in whole or in part, to persons not directly involved in the productions of compounds for Amfuel.
- 4.2 Changes or substitutions to Amfuel formulas shall not be made without written authorization.

5.0 TESTING AND CERTIFICATION OF PRODUCTION BATCHES

- 5.1 Amfuel will furnish the formula and compound specification listing the tests, frequency, and requirements. The compound supplier will perform those tests indicated and furnish a certified test report with each shipment.
- 5.2 Amfuel will sample the shipment and perform testing as it considers necessary to verify the vendor's results.
- 5.3 All pigments incorporated into each batch of compound shipped to Amfuel will, as a minimum, be uniformly dispersed throughout the batch. Compound with undispersed pigments, foreign materials, scorched stock, lumps, etc. will be immediately rejected and returned to the supplier for credit or immediate replacement.

6.0 HANDLING OF BATCHES

- 6.1 Each batch shall be marked with the Amfuel compound number, mix date, and batch number.
- 6.2 Unless otherwise specified, vendor shall complete all required testing prior to packaging for shipment.
- 6.3 Batches determined to be out of specification are to be segregated pending disposition. Amfuel will be advised of the test result out of specification limits, cause, if possible, and proposed corrective action prior to any attempt to correct the batch.

7.0 PACKAGING

- 7.1 Unless otherwise specified, each batch will be separated by colored polyethylene film and the pallet will be overwrapped with polyethylene film and banded.
- 7.2 A copy of the certified test results and vendor's release documentation shall be suitable attached to the top of the pallet contents inside the polyethylene overwrap.