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PPG AEROSPACE

SUPPLIER QUALITY CONTROL

REQUIREMENTS

Approved By Claude W. Rigsby
Claude Rigsby
Sourcing Manager

Approved By
Doug Nixon
Manager,Quality Assurance

PPG Industries, Inc. - PPG Aerospace Transparencies
1719 Highway 72 East Huntsville, Alabama 35811
Phone 256-859-2500 FAX 256-859-8155

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REVISIONS AND APPROVALS

REVISION	DATE	DESCRIPTION
G	3/1/2000	Reformat and rewrite document in entirety to align supplier requirement structure to PPG Quality Manual, ISO9001 and Boeing D1-9000 requirements. Included component identification requirements in Sections 3.8, 3.10 and 3.12. Revised text of Section 4.1, Special Requirements.
H	3/15/2001	Added paragraph 3.5.2, Digital Data to Section 3.5, Drawings, Documents and Data Control.
I Not Used		
J	2/15/2006	Changed PPG Aircraft Products to PPG Industries, Inc. Aerospace Transparencies throughout. Added comments to paragraph 3.5.2, Digital Data. Revised paragraph 3.9.1, Special Processes to include requirement of NADCAP accredited special processors. Revised paragraph 3.10.1, First Article Inspection requirements per Aerospace Quality Standard AS9102.
K	8/6/2007	Added comments to paragraph 3.5.2, Digital Data to include Boeing D6-51991 requirements.
L	7/25/2011	Revised Section 3.4, Supplier Qualification – Section 3.7, Purchasing- 3.14, Control of Nonconforming Materials and Product Section 3.15, Corrective and Preventive Action- Section 3.21, Statistical Techniques- Section 3.22, Preventive Action and Continuous Improvement
M	8/17/2011	Revised Section 3.8, Control of Customer Supplied Product and Tooling. Added Section 3.7.1, Counterfeit Part Prevention
N	10/25/11	Revised Section 3.10.2, Tooling, to better clarify supplier requirements for tooling
O	5/24/2012	Revised various Section and Page Numbers
P	9/12/2012	Revised Section 3.7.1, Counterfeit Parts/Material Prevention
Q	1/29/13	Added Section 3.7.2 for Right of Access/Entry Delegated Inspection Authority
R	3/28/13	Added FOD 3.11.5, Moved existing 3.11.5 to 3.11.6

1.0 SCOPE

This specification establishes the minimum PPG Aerospace Transparencies requirements for a supplier's Quality Control System. These requirements pertain to the documentation and inspection/testing necessary to assure product conformance to all drawings, specifications, purchase orders, and contractual requirements.

2.0 INTRODUCTION

This specification forms a part of the purchase order when referenced thereon. It requires that the supplier establish a documented quality program to ensure compliance of the supplies or services with the requirements of the purchase order. This specification requires that the quality program be effective, yet economical, and be adjusted to suit the type and phase of procurement. Principal considerations shall be given to complexity of product design, quantity under procurement, and special manufacturing processes and techniques required.

This quality program is subject to surveillance by PPG Aerospace Transparencies Quality Assurance and Purchasing departments, customers, regulatory government agencies (FAA, DCAS), and may be disapproved if found to be ineffective for the control of quality of supplies to be provided to PPG Aerospace Transparencies. The supplier shall provide necessary information, facilities, and equipment to perform the required surveys, tests, and inspections. Product acceptance by the PPG Aerospace Transparencies representative at the vendor's plant does not relieve the supplier of the basic responsibility of providing parts in accordance with the full specification requirements.

PPG Aerospace Transparencies employs an evaluation system based on the quality of supplied items to identify those suppliers whose material consistently meets all purchase requirements or fails to conform to required acceptance quality levels. Suppliers in the latter category are considered as unsatisfactory suppliers. Suppliers who continue to perform unsatisfactorily risk curtailment or loss of future PPG Aerospace Transparencies business.

3.0 REQUIREMENTS

3.1 MANAGEMENT RESPONSIBILITY

The supplier's management with executive responsibility shall define and document the organizational responsibility, authority, and interrelation of personnel who manage, perform and verify work that affects the quality of product or services, particularly for personnel who need the organizational freedom and authority to:

- Initiate action to prevent the occurrence of nonconformities
- Identify and record problems relating to product, process and quality system
- Initiate, recommend or provide solutions through designated channels
- Verify the implementation of solutions
- Control further processing or delivery of nonconforming product until the deficiency has been corrected.

3.2 QUALITY SYSTEM

The supplier shall establish, document and maintain effective quality system procedures or instructions to ensure conformance to PPG Aerospace Transparencies and regulatory agency requirements. The detail and extent of the documentation that defines the quality system will be

dependent upon the complexity of the work, methods used, and the skills and training needed by personnel involved in performing the activity. Documents that define the quality activities, responsibilities, and how they are to be performed, shall be available and easily accessible to personnel performing these activities.

Any changes to the Quality System that affect the quality of delivered product or services must be approved by PPG Aerospace Transparencies before implementation.

3.3 CONTRACT REVIEW

The supplier shall define a process to assure that PPG Aerospace Transparencies requirements are reviewed, clearly defined, coordinated, and the capability exists to meet contract or purchase order requirements. Any conflicts between the contract or purchase order and the supplier must be resolved before commencement of the order.

3.4 SUPPLIER QUALIFICATION

New PPG Aerospace suppliers are required to satisfactorily complete an initial Supplier Audit evaluation process. The audit will determine if the supplier has an adequate Quality System to manufacture applicable product and/or has all the capabilities to perform special processes in accordance with applicable specifications. Reference SLP 06.02.

3.5 DESIGN CONTROL

PPG Aerospace Transparencies, or its customers, retain all authority for design, or changes to existing design, for components fabricated by a supplier to be installed into a final assembly. No authority for design responsibilities is to be assumed by the supplier unless explicitly granted by PPG Aerospace Transparencies, its customers, or both.

The supplier shall not incorporate any changes to any drawing, specification, or digital data provided by PPG, unless instructed to do so by the PPG Aerospace Transparencies Buyer in writing. Such instructions will be in the form of an amendment to the purchase order. The supplier will assure that copies of such authorizations become a part of the shipping documentation package.

Material submitted to PPG Aerospace Transparencies must conform, in all respects, to the exact specification or drawing revision level specified in the purchase order. If no revision is specified, the applicable revision level will be the latest in effect on the date of the order.

3.6 DRAWINGS, DOCUMENTS AND DATA CONTROL

The supplier shall establish and maintain documented procedures that define the control of all drawings, documents and digital data that relate to the contract or purchase order requirements. Control mechanisms shall include:

3.6.1 Drawings and Documents

Supplier personnel responsible for control of documents shall acknowledge receipt of all drawings and documents from PPG Aerospace Transparencies by signing and returning the Change Effectivity Response Form (form #10808), which will accompany drawings and documents submitted to the supplier from PPG Aerospace Transparencies.

Drawings and documents initiated by the supplier shall be reviewed and approved by authorized personnel prior to issue. Current issues of drawing and documents shall be available at locations

where processes that affect product functions are being performed. Invalid and/or obsolete drawings and documents shall be promptly removed from all points of issue or use.

The supplier shall not incorporate any changes to PPG-provided drawings and documents unless formal notification of change is received through amendment to the purchase order. Any changes to the supplier's internal drawings and documents shall be approved by PPG Aerospace Transparencies if the change affects the contract or purchase order requirements.

3.6.2 Digital Data

The supplier shall establish and maintain a documented plan that governs receipt, usage, and distribution of product definition datasets (digital data) from PPG Aerospace Transparencies, or its customers. This plan shall ensure that the configuration of the following digital product systems are identified, controlled and recorded:

a. Product Acceptance Software (PAS)
b. Computerized Measurement Systems (CMS)
c. CAD/CAM Software and Datasets
d. Data Analysis Software
e. Supplier Generated Datasets (Derivative Datasets)
f. Datasets flowed to supplier subtier suppliers

The supplier shall develop and maintain a comprehensive audit plan for all operations affecting digital data and related documentation to assure compliance with contractual requirements, whether imposed by PPG Aerospace Transparencies purchase order or contract, or by direct reference to PPG customer documents.

All digitally defined tools, physical inspection media (check fixtures, templates, etc.) and product acceptance software will be traceable to the authority dataset and to any tool inspection datasets.

In the event a PPG Aerospace Transparencies customer specifies supplier compliance to specific document standards in addition to this document, these requirements will be communicated to the supplier through purchase order or contract. Current revisions of the

3.6.2 Digital Data (Cont.)

customer-imposed documents will be provided as described in Section 3.6.1 Drawings and Documents.

For any contract or order for which PPG has provided Boeing authority datasets or dataset derivatives for manufacturing or product acceptance, the supplier must comply with Boeing document D6-51991, "Quality Assurance Standard for Digital Product Definition at Boeing Suppliers." This document is available at:
http://www.boeing.com/companyoffices/doingbiz/dpd.html.
If assistance is needed in obtaining this document, contact the PPG Buyer or QA Manager.

3.7 SOURCING

The supplier shall provide an effective system to ensure that purchased product conforms to specified purchase requirements for any materials, components, supplies or services procured from its subcontractors, and shall maintain a register of approved subcontractors and the scope of those approvals. Any subcontractor, processor, or subtier supplier contracted by the supplier shall be listed by the supplier and this list shall be made available to PPG Aerospace.

Material procured by the supplier for use on the contract must be inspected and tested, and must conform to all requirements of the applicable material specifications as shown on drawings and/or the purchase order.

The supplier shall ensure that flow-down of quality system requirements to sub-tier suppliers to the extent that characteristics not verifiable upon receipt are adequately controlled by the subcontractor.

3.7.1 COUNTERFEIT PARTS/MATERIAL PREVENTION

- Supplier shall establish and maintain a "Counterfeit Parts/Material Prevention and Control Plan" utilizing AS6174 as the standard to ensure that any Counterfeit Work is not delivered to PPG. Counterfeit Parts/Material Prevention includes work that is or contains items misrepresented as having been designed and/or produced under an approved system or other acceptable method. A significant proportion of counterfeit parts (per today's definition) reported by industry consist of parts that are "used parts represented as new". Recent US Government anti-counterfeiting initiatives provide a compelling rationale for including "used parts represented as new" in the definition of "counterfeit".
- Seller agrees and shall ensure that counterfeit parts are not delivered to PPG.
- Seller shall only purchase products to be delivered or incorporated as parts or material to PPG directly from the Original Manufacturer. Parts or material shall not be acquired from independent distributors unless approved in advance in writing by PPG.
- Seller shall immediately notify PPG with the pertinent facts if Seller becomes aware or suspects that it has furnished counterfeit parts or material. When requested by PPG, Seller shall provide documentation that authenticates traceability of the affected items.

3.7.2 Right of Access/Entry

- Right of Access/Entry to supplier facilities by PPG, their customers, and regulatory authorities to applicable areas of all supplier facilities, at any level of the supply chain, involved in the order and to all applicable records.

3.8 CONTROL OF CUSTOMER SUPPLIED PRODUCT AND TOOLING

The supplier shall inspect PPG Aerospace Transparencies -furnished material and/or tooling on receipt to the extent practical to detect damage in transit, and to determine that the material and/or tooling is complete, qualified for the intended end-use, and of the proper type, size or grade. The supplier shall notify PPG Aerospace Transparencies Sourcing Department of any damage before the tooling is used for any manufacturing or inspection activity.

The supplier shall identify and segregate as nonconforming any PPG-provided material and/or tooling found damaged or unsuited for its intended use and request disposition from the PPG Aerospace Sourcing Department. Steps shall be taken to assure that such material and/or tooling is handled in a manner that will prevent further damage or additional repair costs.

Periodic inspection of the PPG-furnished tooling shall be conducted to ensure that quality is maintained, that storage conditions are suitable, and that damage or deterioration has not occurred in handling or storage.

3.9 PRODUCT IDENTIFICATION AND TRACEABILITY

The supplier shall establish and maintain a system of identifying product provided to PPG Aerospace Transparencies. Any component manufactured to a PPG Aerospace Transparencies drawing, or PPG-customer drawing, shall be identified as shown in the following sample unless other wise specified on contract , purchase order, or referenced drawings and specifications:

090-XXX-XXXX DMC 00065 1234 Insp xxx

Where:

090-XXX-XXXX = PPG Identification Number (provided by Purchase Order or Drawing)

DMC = Supplier Abbreviation to be provided by PPG Aerospace Transparencies Buyer.

00065 = Julian Date (year/day) for the date the component was manufactured.

1234 = Sequential Serial Number (Required only when multiple lots of raw materials or processes are used to produce components for a specified day.)

Insp xxx = Supplier's Final Inspection Stamp
NOTE: If the supplier has been previously supplied an inspection stamp from PPG Aerospace Transparencies, then the PPG-supplied stamp shall be used.

If a component is too small for the above identification format, the same information may be recorded on a metal-ring tag, adhesive labels, or other by other suitable means, and attached to the component. Because the components will be assembled in a clean room, any material that may produce loose fibers or lint shall not be used to attach the tag to the component. For small parts such as screws, spacers, etc., the identification may be recorded on the container, provided the container is representative of a continuous, uninterrupted manufacturing lot. All items shall be identified on the Certificate of Conformance by identification number and serial number. (Reference paragraph 3.15.6, Delivery.)

All products, components and materials provided to PPG Aerospace Transparencies shall be traceable to supplier, subtier supplier and subcontractor processes, test results, inspections, and raw material batch numbers. Records of such traceability shall be accessible and available to PPG Aerospace Transparencies upon request.

3.10 PROCESS CONTROL

The supplier shall plan the production and inspection processes that directly affect quality, and shall ensure these processes are carried out under controlled conditions. At a minimum, controlled conditions shall include the following:

- Documented procedures defining the production, inspection and delivery, where the absence of such procedures could adversely affect quality.
- Compliance with documented procedures.
- Compliance with specified drawings, specifications and other requirements' documents.
- Standards for required workmanship stipulated in the clearest practical manner.
- Accountability for all product and evidence that all manufacturing and inspections have been completed in sequence as planned, or as otherwise documented and authorized.

3.10.1 Special Processes

The supplier shall have an adequate system for the control of special processes used in the manufacturing cycle, whether the special process is performed at the supplier's facility or is subcontracted. (Examples of special processes are (x-ray, magnetic particle, heat treating, plating, anodizing, soldering, spot welding, fusion welding, fluorescent-penetrant inspection, etc.). These control measures shall include the following provisions:

- These special processes shall be performed by **Nadcap* accredited** processors, whether performed by the supplier, or subcontracted to another facility.

- Any subcontractor, processor, or subtier supplier used by the supplier shall be included on the PPG Aerospace Transparencies Approved Suppliers List.
- Certificates of Conformance from special processors shall be retained by the supplier in accordance with Section 3.17, Control of Quality Records, and be available to PPG Aerospace Transparencies or its customers upon request.

***Nadcap** is the acronym name for the world-wide industry-managed program for special processes in the aerospace industry. Nadcap is the cooperative program of major companies designed to manage a consensus approach to special processes and products and provide continual improvement within the aerospace industry. The organization was originally known as National Aerospace and Defence Contractors Accreditation Program (NADCAP), but was changed to Nadcap in recognition of the internationalization of the program.

3.10.2 Tooling

The supplier shall maintain records that verify the proper control, care, storage and usage of all tooling regardless of ownership (Supplier-owned, PPG Aerospace Transparencies owned, PPG's customer-owned, and government-owned).

-When tool is fabricated at the supplier, for the Supplier's use, the Supplier's quality personnel will verify that the tool is built to specification. The following must be included:

a. Verification of key elements for vendor tooling,(CMM report and/or physical dimension report)
b. Supplier/PPG tool drawing including revision if applicable.
c. Certificate of verification document/file that reference the file that the tool was built from.
d. Tags for Customer/PPG/Government owned tools must be affixed to the tool by any permanent means determined by tool size or use.

e. Pictures of the tools with tags attached or tooling identification etched on tool must be supplied to PPG Tool Check Department in order for tools to be registered.

3.11 INSPECTION AND TESTING

The supplier shall establish and maintain documented procedures for inspection and testing activities in order to verify that the specified requirements for the product are met. The required inspection and testing, and the records to be established, shall be detailed in the supplier's documented procedures or within a detailed quality plan. Any sampling inspection methods employed by the supplier must be approved by PPG Aerospace Transparencies before implementing.

PPG Aerospace Transparencies has the right to inspect any article manufactured by the supplier or his subtier suppliers at source and/or upon receipt. Inspection, test and manufacturing operations performed by the supplier may be witnessed, on a non-interference basis, in whole or in part, by PPG Aerospace Transparencies, and shall not relieve the supplier of the responsibility of assuring the furnished article conforms in all particulars to purchase order requirements.

PPG Aerospace Transparencies will continue to verify that satisfactory quality levels are maintained during the active stages of contract performance by various means, including periodic surveillance inspection at the supplier's facility.

3.11.1 First Article Inspection

The supplier shall provide production and inspection records to verify acceptance of the configuration and performance of the first item submitted for the following categories:

- The supplier has never produced the item PPG Aerospace Transparencies.
- A significant time period, as determined by PPG, has elapsed since last production.
- Significant revisions to the configuration of the product.
- As specified on PPG Aerospace Transparencies purchase order.

First Article Inspection activities shall be performed in accordance with Aerospace Standard AS 9102, Aerospace First Article Inspection Requirement, and documented on the appropriate forms included in Aerospace Standard AS 9102.

3.11.2 Incoming Inspection

Incoming product shall not be used or processed until it has been inspected or otherwise verified as conforming to specified requirements. Exception: An incoming product needed for urgent production may be released prior to verification, provided it is identified and recorded in order to permit immediate recall and replacement in the event of nonconformity to specified requirements.

The supplier shall check material test reports against specification requirements. If incoming product is accepted on the basis of certifications or test reports, periodic scheduled checks shall be made of samples of product.

3.11.3 In-Process Inspection

In accordance with the documented procedures, the supplier shall inspect the product at appropriate phases in the manufacturing flow to verify characteristics that may be difficult or impossible to inspect after subsequent processing.

3.11.4 Final Inspection and Testing

To complete the evidence of conformance of the finished product to specified requirements, the supplier shall perform a final inspection in accordance with the supplier's documented procedures. The final inspection function shall verify that all required inspection and tests, including those specified for incoming product and in-process operations have been satisfactorily completed and recorded.

The final inspection shall also verify that all activities specified in the documented procedures or quality plan have been completed and all associated documentation is available and authorized. The supplier shall establish and maintain records that provide evidence that the product has been inspected and/or tested. These records shall identify the inspection authority responsible for the release of product.

3.11.5 F.O.D.

A. Supplier shall maintain a FOD prevention program in accordance with National Aerospace Standard NAS-412, Foreign Object Damage/Foreign Object Debris (FOD) Prevention.

B. Whenever and/or wherever FOD entrapment or foreign objects can migrate, Supplier shall ensure that applicable FOD requirements are flowed down to Supplier's subcontractors at every tier.

C. Prior to closing inaccessible or obscured areas and compartments during assembly, Seller shall inspect for foreign objects/materials and ensure no FOD barriers remain embedded, e.g. embedded protective plugs. Supplier shall ensure tooling, jigs, fixtures, and test or handling equipment are maintained in a state of cleanliness and repair sufficient to prevent FOD.
By delivering Items to Buyer, Supplier shall be deemed to have certified to Buyer that such Items are free from any foreign materials that could result in FOD.

3.11.6 Delegated Inspection Authority

Delegated inspection authority may be granted to a supplier who has demonstrated the ability to consistently produce quality products in compliance with purchase order requirements and stated drawings and specifications, and the supplier has been proven to comply with the quality requirements imposed.

Delegated inspection may commence only after written approval of the supplier's inspection system has been granted to the supplier by PPG Aerospace Transparencies Purchasing and Quality Assurance departments. Upon approval, the supplier is responsible for performing all inspections associated with the specific parts/materials for which delegation has been granted.

Because PPG Aerospace Transparencies may reduce or eliminate its receiving inspection for delegated inspection components or materials, it is imperative that all required Certificates of Conformance and/or Test Reports accompany each shipment. These documents will be reviewed by PPG Aerospace Transparencies Incoming Inspection to verify that the materials were inspected and found to be acceptable by the supplier. Delegation will be retracted if there is evidence that the required inspection(s) are not being performed, or if significant quality issues are encountered.

Components manufactured to PPG Aerospace Transparencies drawings, or PPG-customer drawings, for which inspection authority has been delegated to the supplier, shall include the supplier's inspection stamp as defined in section 3.8, PRODUCT IDENTIFICATION AND TRACEABILITY. If a component is too small for the identification format and inspection stamp, the same information may be recorded and stamped on a metal-ring tag and attached to the component. NOTE: If the supplier has been previously supplied an inspection stamp from PPG Aerospace Transparencies, then the PPG-supplied stamp shall be used.

3.12 CONTROL OF INSPECTION, MEASURING AND TEST EQUIPMENT

The supplier shall establish and maintain documented procedures to control, calibrate and maintain inspection, measuring and test equipment used by the supplier to demonstrate the conformance of product, processes or other inspection and measuring equipment to the specified requirements. The procedures shall define the system for recall of measuring devices that require calibration, and the maintenance of calibration history records.

To assure continued accuracy, such devices shall be calibrated against certified standards which have known valid relationships to the National Institute of Standards and Technology (NIST). Devices used as acceptance media shall be clearly identified as to their calibration status. Compliance to ANSI-Z540-1, "Laboratories, Calibration, and Measuring and Test Equipment" is required.

The supplier's procedures shall define the system to assess and record the validity of previous measuring results when the measuring equipment is found not to conform to requirements.

3.13 INSPECTION AND TEST STATUS

The inspection and test status of product shall be identified throughout all stages of manufacture by authorized stamps on the product itself or on tags, labels, packaging, inspection records, or other suitable means. Stamps used for indicating acceptance of special processes must be specially designed to distinguish them from standard inspection stamps. Stamp design shall not resemble Government Inspection stamps.

Components manufactured to PPG Aerospace Transparencies drawings, or PPG-customer drawings, for which inspection authority has been delegated to the supplier, shall include the inspection stamp on the component as defined in section 3.8, PRODUCT IDENTIFICATION AND TRACEABILITY. If a component is too small for the identification format and inspection stamp, the same information may be recorded and stamped on a metal-ring tag and attached to the component.

The supplier's quality documentation shall include facsimiles of stamp impressions and describe the configuration, usage limitations and control of each stamp.

3.14 CONTROL OF NONCONFORMING MATERIALS AND PRODUCT

The supplier shall provide a system for control of nonconforming material and product to include product provided by any sub-tier suppliers. This system must provide for identification, segregation, and disposition of such articles, and preclude their use or intermingling with conforming articles.

Nonconforming material that cannot be reworked to print or specification may be submitted to PPG Aerospace Transparencies for consideration. Requests for review of discrepant material must be forwarded to the PPG Aerospace Sourcing Department and Engineering Department.

The request for review of discrepant material must contain sufficient detail for a technical evaluation, including engineering sketches, marked prints, and/or detailed rework instructions, and must also include a positive corrective action statement outlining the action taken by the supplier to reduce to a minimum, or eliminate the condition. The supplier will be informed of the final decision by the PPG Aerospace Sourcing Department. The acceptance of nonconforming product is a prerogative of and shall be as prescribed by PPG Aerospace Transparencies.

The supplier shall promptly notify the PPG Aerospace Sourcing Department when a nonconformance is discovered in the supplier's and/or the sub-tier supplier's processes or products which may affect product already delivered to PPG and may be in stock or WIP. Notification to PPG shall include:

- Clear description of the discrepancy
- Parts affected (part numbers, serial numbers, lot numbers, manufacturing dates, etc.)
- Quantity delivered
- Delivery dates
- Corrective action for the nonconformance must be effective, timely and appropriate to the nature of the nonconformance, and must implement processes to ensure that the cause of the nonconformance is eliminated to prevent possible recurrence.

3.15 CORRECTIVE AND PREVENTIVE ACTION

The supplier shall provide an effective system for prompt and positive action to correct conditions that have resulted or could result in defective parts. Procedures shall provide for corrective and preventive action for both supplier and sub-tier supplier's contracted discrepant material, and for similar materials and processes and product which may be affected.

Corrective action taken to prevent recurrence is required of suppliers (and sub-tier suppliers) who allow nonconforming product to be shipped to PPG Aerospace. When this occurs, a Supplier Notice of Nonconformance (SNN) form will be issued by PPG Aerospace Transparencies. This form must be completed and returned to PPG Aerospace Transparencies Incoming Inspection department within the time limit shown on the form. The corrective action must be acceptable to PPG Quality Assurance and subsequent production must prove the effectiveness of the action.

NOTE: For minor non-repetitive defects, an SNN form will still be issued to inform the supplier of discrepancies to prevent possible recurrence. No written response is required when N/A appears in the corrective action sections; however, failure to implement positive corrective action will result in rejection of subsequent shipments.

3.16 HANDLING, STORAGE, PACKAGING, PRESERVATION AND DELIVERY

3.16.1 Handling

The supplier shall provide documented procedures to define the handling of product and materials, in all areas of the supplier's facility, to prevent damage or deterioration.

3.16.2 Storage

The supplier shall use designated storage areas or stock rooms to prevent damage, deterioration and unauthorized additions or removals of product awaiting delivery.

3.16.3 Packaging

The supplier shall control packing, packaging and marking processes (including materials used) to the extent necessary to ensure conformance to requirements specified on drawings, specifications and purchase orders

3.16.4. Preservation

The supplier's procedures shall define the identification and control of any age-sensitive materials, and include measures to recall and remove any materials from use that have exceeded their recommended shelf life. Materials that require environmental controls shall be defined within the procedures.

3.16.5 Delivery

The supplier shall provide a system for control of preservation, packaging, and shipping processes to preclude damage or deterioration during transit. The supplier shall assure that shipments to PPG Aerospace Transparencies contain the necessary packing list and certifications as prescribed by the purchase order. The supplier shall furnish a Certificate of Conformance signed by the Quality Manager, or designate, with each shipment. Items contained in the shipment shall be identified on the Certificate of Conformance by identification number and serial number.

3.17 CONTROL OF QUALITY RECORDS

The supplier shall maintain adequate records of inspection, test, calibration and other quality assurance activities. The records shall provide objective evidence of the operations performed. The records shall be suitable in format, accuracy, and detail to permit analysis by management and for the initiation of specific corrective actions. Record retention shall be a minimum of 10 years, unless otherwise specified on purchase order, and shall be made available to PPG Aerospace Transparencies upon request. Records may be in the form of hard copy or electronic media.

3.18 INTERNAL AUDITS

At least annually, the supplier shall conduct an internal audit of their quality system to ensure compliance.

- Method of documentation of audit check sheets and recording of audit results are at the discretion of the supplier.
- Any deficiencies identified shall have a corrective action plan documented.
- Audit personnel shall be independent of supervision of the area(s) audited.
- Management with executive responsibility shall review the internal audit results.
- All internal audit records shall be retained in accordance with section 3.16, Control of Quality Records, and shall be available for review by PPG Aerospace Transparencies.

3.19 TRAINING

The supplier shall maintain procedures that provide for the training needs and a method for assessing and documenting the proficiency of all personnel performing activities that affect quality. Training records shall be maintained and retained in accordance with section 3.16 of this document.

3.20 SERVICING

Not applicable, unless specified on purchase order.

3.21 STATISTICAL TECHNIQUES

When specified by purchase order, the supplier shall identify the statistical techniques required for establishing, controlling and verifying process capability and product characteristics. Any sampling inspection methods employed by the supplier must be approved by PPG Aerospace Transparencies before implementing. PPG recognizes ANSI Standard Z1.4 as the approved standard for Sampling Inspection Attributes.

3.22 PREVENTIVE ACTION AND CONTINUOUS IMPROVEMENT

Preventive action for suppliers and sub-tier suppliers is a process requirement intended to prevent potential problems before they occur or become more severe, and it focuses on identifying negative trends and addressing them before they become significant. Events which trigger a preventive action and continuous improvement efforts include monitoring and measurement, trends analysis, tracking of progress on achieving objectives and targets, responses to emergencies and customer complaints. Suppliers and sub-tier suppliers are audited to their preventive action processes and continuous improvement standards. In addition, the Supplier Notice of Nonconformance (SNN) process is utilized to ensure that supplier and sub-tiers initiate effective corrective/preventive action. (ref. 3.14)

4.0 SPECIAL REQUIREMENTS

Distribution of this section only to affected suppliers.