

AIPS
Airbus Process Specification
Application of decorative interior paint

Published and distributed by
AIRBUS S.A.S.
ENGINEERING DIRECTORATE
31707 BLAGNAC Cedex
FRANCE

Contents

- 1 Scope
- 2 Normative References
- 3 Definition, Applicability and Limitations
- 4 Engineering Requirements
- 5 Technical Qualification
- 6 First Part Qualification
- 7 Series Production Inspection
- 8 Rework
- 9 Environment, Health and Safety

1 Scope

This Airbus Process Specification defines the Engineering requirements for application of decorative interior paint.

This specification does not give detailed instructions; these are given in the Process Instructions (PI) / Airbus Process Instruction (API) and the Work Instructions.

This specification shall not be used as an inspection document.

It shall be applied when mentioned in the relevant standard, material specification or Definition Dossier.

2 Normative References

Only normative references cited in the text are listed hereafter.

The latest issue of the publication referenced shall be used.

ISO1518	Paints and varnishes – Scratch test
ISO24099	Paints and varnishes – Cross cut test
ISO2808	Paints and varnishes – Determination of film thickness
EN9103	Aerospace series - Quality management systems - Variation management of key characteristics

3 Definition, Applicability and Limitations

3.1 Definition

Compatibility:	Compatibility implies that in co-curing or co-bonding processes, the performance of the materials are not adversely affected by the other material present, and vice versa.
Manufacturer:	The company or organization responsible for producing the part against an Airbus drawing.
Manufacturing shop:	The specific workshop intended for manufacture to this process specification.
Manufacturing shop group:	A group of experts responsible for a manufacturing process. This group is in charge of validation of the technical requirements and technical qualifications. For each manufacturing process to be qualified, a manufacturing shop group is nominated.
Process Instructions:	A document, which specifies all of the essential process and quality requirements for a specific manufacturing process. It is a complete detailed in house process instruction and shall be used in conjunction with the drawing and relevant Airbus Process Specification.
Rework:	Rework means the removal of production and assembly related non-conformances with the aim of reaching the required component condition defined in the engineering documents.
Shop life (Mechanical Life):	The maximum period of time under the shop conditions specified in the relevant Material Specification that the material remains in a usable condition and continues to comply with the requirements of the said Material Specification up to curing of the material.
Storage life:	The maximum period of time that the material may be used when stored by the purchaser under the conditions specified in the Material Specification.
Work Life:	The maximum period of time under the shop conditions specified in the relevant Material Specification that the material could be used for manufacturing.

3.2 Applicability and Limitations

This Airbus specification is applicable when invoked by the drawing directly or through another document for the purpose given in the scope. When processing to AIPS05-02-006 is required, it shall be invoked on the drawing by the words "Application of decorative interior Paint of AIPS05-02-006". Process instructions shall not be called on drawing.

The process is applicable to the production of interior parts.
This specific process is not applicable to structural parts outside the pressurized fuselage.
This document is not applicable to spatula fillers.

4 Engineering Requirements

Engineering requirements are minimum requirements specified by Responsible Engineering to ensure optimal performance of the manufacturing process.

All Engineering requirements have to be met and controlled in production.

4.1 Performance Requirements

4.1.1 Materials

Only Airbus standardized and qualified materials acc. to ABS5650, which are intended for interior use, shall be used.

The specific materials shall be identified in the relevant drawing or associated documents.

The storage conditions for each specific material shall be those indicated in the corresponding material specification, individual product specification or process instruction. All limited life materials used shall be within their useful lifetime (storage life and work life).

All materials used shall be compatible during the manufacturing process.

4.1.2 Ancillary Materials

Only ancillary materials and cleaning agents that do not adversely affect the material / part properties shall be used.

4.1.3 Facilities

Storage rooms

The storage rooms shall meet the storage conditions of the material.

Processing rooms

The paint shop has to be dust-free. The paint shop has to meet the local health and safety regulations. The temperature and humidity distribution has to be homogenous and shall allow the coating application as defined in the relevant IPS.

The climatic conditions inside the application and drying area have continuously to be controlled by means of hygrometers and thermometers.

The air in the paint shop has to be clean and free from aggressive components as for example pickling vapour or any other components, which may have negative influence on the paint result.

4.1.4 Equipment and Tools

Equipment used to mix, transport or apply the coating has to be clean, in technical good condition and of such type that it does not contain any material, additives or equivalent which may have an influence on the coated surface in a way those deviations from the relevant AIMS requirements will occur.

Curing facilities shall reach the curing temperatures specified in the relevant process instructions and warrant the specified tolerances.

The air supply of the spray equipment has to be sufficient, allowing continuous spraying without any pressure variation.

The air has to be clean, oil and dust free.

4.1.5 Process

The process must be able to reproduce parts in a defined quality using qualified materials, manufacturing aids and production equipment.

Application of Fillers

Pore Fillers are used on rough surfaces of parts (e.g. composites, FLM) as a primer and are not suitable to fill bigger holes and pores. Application shall be done by brushing or spraying, thickness of pore filler shall not exceed 100 µm.

To fill larger pores or other irregularities *Spatula filler* shall be used. Application of Spatula filler shall be done in accordance with AIPS05-04-006.

Application of Coatings

The paint systems shall be applied by spraying with a gun to obtain a complete coating with a uniform structure in accordance with the master sample. Overall coating thickness shall not exceed 90 µm.

Application of powder varnish

Refer to AIPS05-04-007.

The powder is applied using electrostatic field in one work step to the tool surface facing the component. The powder adhering to the surface of the tool is heated until it is slightly gelled.

Before the component is built up, the fine powder layer must be sufficiently gelled to prevent damage or penetration. On the other hand gelling should only have processed as far as to ensure a correct combination of the matrix resin and the fine powder layer.

This point of time depends on the equipment and shall be established once by the Production Department in the component-specific manufacturing instruction. The fine powder layer must not be smooth, but shall have a surface similar to sand-paper.

In the curing equipment, the gelled fine layer is cured together with the matrix resin under the combined effect of pressure and heat.

4.1.6 Touch up

It might be necessary to touch up fastener e.g. screw head in visible cabin or cockpit areas due to aesthetic reasons. If necessary it shall be in invoked on the relevant drawing.

Surfaces must be cleaned before applying paint for touch-up by brush.

4.1.7 Health, Safety & Environment

The manufacturing shop shall apply the local safety regulations.

4.2 Other Requirements

4.2.1 Quality Requirements

The Quality Assurance Authority shall ensure compliance with the performance requirements defined in chapter 4.1 as well with those included in the relevant drawing and applicable technical documents.

4.2.2 Personnel

All the work steps of the manufacturing procedure shall be carried out by authorized, trained and competent personnel recognized by an approved training programme.

4.2.3 Supporting work instructions

The manufacturing shops shall establish part related work instructions that shall be approved by Quality Assurance. Quality Assurance shall check all the parts manufactured according to this specification.

4.3 Key Characteristic

Key Characteristics acc. to EN9103 are defined by responsible engineering based on a risk analysis for parts manufactured by this process. Key characteristics shall be defined on product level and if necessary also on process level.

They shall be subject to variation control by production organization according to EN9103.

Key Characteristics do not relieve the production organization from meeting all engineering requirements defined in this document.

Table 1: Key Characteristic

Product Key Characteristic			Process Key Characteristic		
No.	Designation	Requirement/ Limit	Sub.- No.	Designation	Requirement/ Limit
1	Adhesion	As defined in the relevant AIPI / Individual Product Specification (IPS)	1.1	Substrate: surface cleaning and activation of substrate (grinding, filling,...)	As defined in relevant AIPI
			1.2	Drying times, overcoating time, maskin time	Acc. to relevant IPS and / or relevant AIPI
2	Coating properties	As defined in the relevant AIPI / Individual Product Specification (IPS)	2.1	Storage conditions	Acc. to relevant IPS and / or relevant AIPI
			2.2	Mixing	Acc. to relevant IPS and / or relevant AIPI
			2.3	Workshop conditions during application and drying (temperature and relative humidity)	As defined in relevant AIPI
			2.4	Coating thickness	Acc. to drawing and / or relevant AIPI
3	Appearance	As defined in the relevant AIPI / Individual Product Specification (IPS)	3.1	Spraying parameters (product flow, pressure, type of gun etc.)	As defined in relevant AIPI
			3.2	Workshop conditions during application and drying (temperature, relative humidity air ventilation etc.)	As defined in relevant AIPI

5 Technical Qualification

The Technical Qualification shall be performed, according to the relevant Airbus procedure.

5.1 Qualification tests and specific requirements

The Qualification Test Program (QTP) describes the tests required to define, whether the manufacturing process instruction complies with the requirements defined in the process specification and/or additional requirements. The Qualification Test Programme is supplied to the workshop to be qualified.

The qualification shall be made on the feasibility part and coupon specimens as defined by the Manufacturing Shop Group. The selection of the materials for process qualification shall be agreed between the Manufacturing Shop Group and the workshop to be qualified.

5.1.1 Coupon specimens

The minimum qualification tests for coupon specimens are displayed on Table 2.

The basic requirements for these tests are specified in chapter 4.1.5. The physical properties shall correspond to the properties given in the relevant material specifications. The specific requirements shall be defined by the Manufacturing Shop Group.

Table 2: Test and requirements for coupon specimens

Property	Test	Requirement
Physical properties in cured condition	<ul style="list-style-type: none">- Visual inspection (surface finish, etc.)- Layer thickness acc. to ISO2808- Cross cut acc. to ISO2409- Scratch resistance acc. to ISO1518	as stated in relevant AIMS

Feasibility part

Test programme and requirements

- Visual inspection (surface finish, etc.)
- Thickness measurements
- Adhesion / cross cut
- Scratch resistance

In addition to the basic process requirements (chapter 4.1.5), specific requirements and verification tests shall be specified, case by case, by the Manufacturing Shop Group according to the part to be assessed.

5.1.2 Qualification Test Report

The Qualification Test Report (QTR) shall summarize and analyse the results of all the tests carried out in the qualification of the manufacturing process of the manufacturing shop. In case of failure or deviation, reasons shall be documented.

6 First Part Qualification

Not applicable.

7 Series Production Inspection

The shop shall perform the following series production inspections under serial conditions.

- visual inspection and comparison to master sample
- measurement of layer thickness, if needed on associated specimen

All facilities, tooling and equipment used in the manufacturing process shall be certified and calibrated. Cleaning and inspection schedule shall be established in Quality Assurance documents or in the Process Instructions.

For all parts to be manufactured process control means and schedules shall be established and defined in the relevant documents such as Process Control Document.

8 Rework

Defects in parts may be reworked provided that the technical properties are not affected thereafter. Rework procedures shall be defined in the relevant process instructions and / or in the relevant drawings.

9 Environment, Health and Safety

The manufacturing process shall be in line with Airbus Health and Safety and ecoefficiency policies.

Compliance with A1091 shall be ensured for all materials, substances and/or articles implemented during process.

In particular, targeted substances according to A1091 shall not be used, if a safer alternative is available.

Uses made of all substances involved in the process shall be documented in Safety Data Sheet as required by REACH regulation (Registration Evaluation and Authorization of Chemicals).

Uncontrolled copy when printed (: PAREDES LORENZO, JOS MARA (EXTERNAL), 10/05/2018)

RECORD OF REVISIONS

Issue	Clause modified	Description of modification
1 03/04	-	New standard
2 08/08	-	Major editorial revision of standard
3 06/10	4.3	Key characteristics have been added
4 07/16	4.1.6	Major editorial revision of standard Chapter "touch up " has been added
5 03/17	3.2 4.1.5	Non-applicability of document to spatula fillers has been added Application of spatula filler referenced to AIMS05-04-006