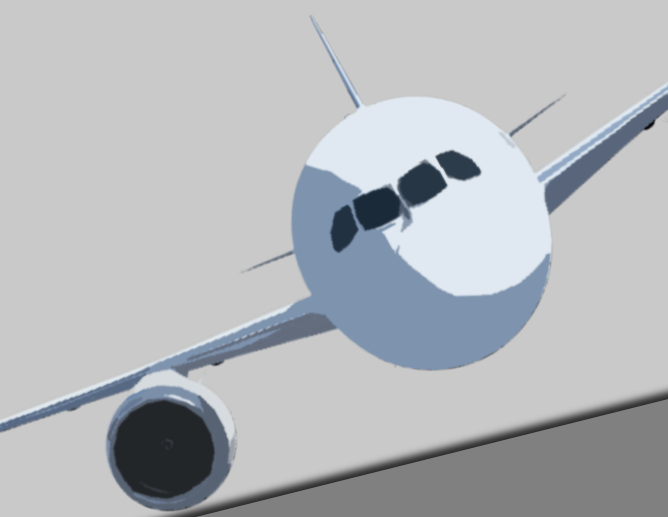




aero composites

# SQR

supplier **quality**  
requirement



# 006

APQP & PPAP

Effective Date

29-Jul-2024



## WARNING

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The document is also available on our website at the following link:

<https://www.ctrm.com.my/ctrm-vendor.php>

## REVISION HISTORY

Revision	Date	Description of Changes
NC	01-Sep-2021	Initial Release
A	01-Sep-2022	Clause 2.0 Add in Supplier Support's common email
B	29-July-2024	Update SQR template 2.0 - Removed supplier support common email

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## **1.0 Purpose**

This document defines Advanced Product Quality Planning (APQP) and Production Part Approval Process (PPAP) requirements for CTRM AC suppliers. It has been developed based upon the requirements of the International Aerospace Quality Group (IAQG) AS/EN/JISQ 9145 Aerospace Series – Requirements for Advanced Product Quality Planning and Production Part Approval Process.

## **2.0 Scope**

SQR 006 shall be read in conjunction with Appendix E Customer's Applicable Requirements Matrix (available at <https://www.ctrm.com.my/>)

APQP and PPAP is required when invoked pursuant to a Purchase Order (PO) or any other contractual document issued by CTRM AC. APQP and PPAP may also be required as part of a quality initiative such as Supplier Improvement Program.

This requirement is applicable to all members of the supply chain.

APQP & PPAP basically applied to below conditions:

- New or derivative Program - New Product Introduction
- Major Modifications (Product or Process)
- Transfer of Work

*For further clarification of CTRM AC APQP & PPAP requirements, the Supplier should contact CTRM AC's buyer (Procurement)*

## **3.0 Abbreviation**

### **3.1 APQP**

Advanced Product Quality Planning

### **3.2 CI**

Critical Item

### **3.3 FAIR**

First Article Inspection Report

### **3.4 KC**

Key Characteristics

### **3.5 IAQG**

International Aerospace Quality Group

### **3.6 MSA**

Measurement Systems Analysis

### **3.7 PFD**

Process Flow Diagram

### 3.8 PFMEA

Process Failure Mode and Effects Analysis

### 3.9 PPAP

Production Part Approval Process

## 4.0 Purpose

4.1 The purpose of the phased APQP approach is to:

- Provides a structured method with defined outputs to assure new products satisfy customer needs and want.
- Uses project management to drive on-time and on-quality delivery of the product by monitoring key project deliverables.
- Employs a cross-functional approach to support commitment and effective communication.
- Establishes proactive and preventative mindset.

4.2 To accomplish this, necessary steps need to take place at the appropriate times within the product realization process.

4.3 APQP has five phases (see Figure 1) starting with conceptual product needs and extending throughout the product life cycle.

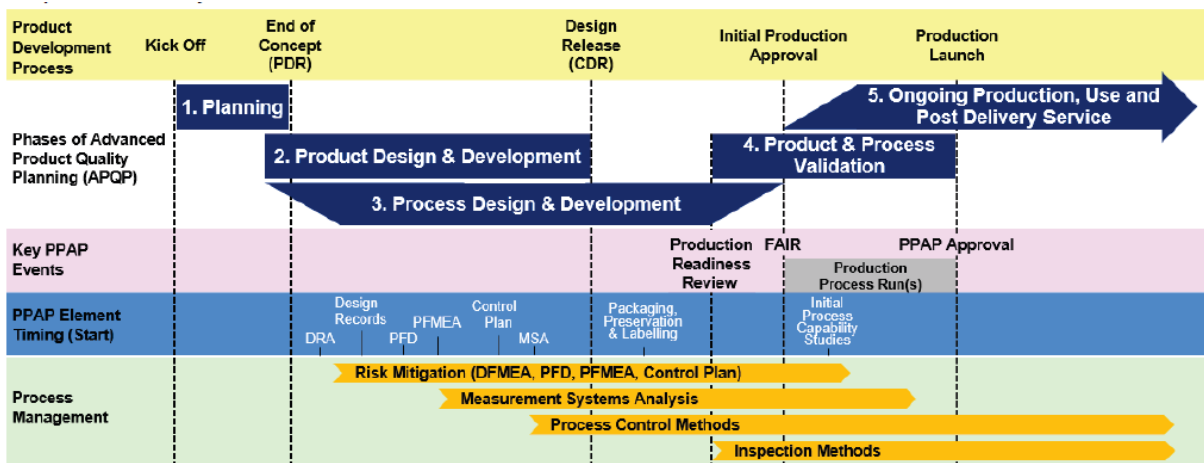


Figure 1: Product Development Process and Advanced Product Quality Planning (conceptual illustration)

4.4 PPAP Approval is Gate 4 of APQP and used to validate the production process has demonstrated the potential to produce products that consistently full all CTRM AC requirements while operating at the customer demand rate.

Reference: AS9145 & IAQG Supply Chain Management Handbook (SCMH) – Section 7.2 APQP.

## 5.0 Requirements

### 5.1 Readiness

Upon notification from CTRM AC, supplier shall submit Self-Assessment Readiness (using IAQG format Maturity Matrix-Attachment 1) within 7 working days.

This evaluation assesses the maturity of and organization's Advanced Product Quality Planning philosophy (management awareness/commitment and organizational alignment & effective communication), project /risk management, use of tools, and readiness of external suppliers.

### 5.2 APQP & PPAP General Requirements

5.2.1 Upon notification of APQP & PPAP requirements, the supplier shall comply with this SQR 006. Supplier shall meet all the APQP elements unless an element is not applicable to the part or to the activities performed by the supplier (eg Element Design Risk Analysis would be only applicable to a Design Responsible Supplier). Elements that the Supplier proposed as not applicable require approval during APQP Kick off Meeting with CTRM AC team. The approval must be formally agreed using APQP Kick off -Elements Applicability (Form A1).

5.2.2 Supplier shall submit a plan with the commitment dates to complete each APQP & PPAP elements Initial Timing Plan (Form A2) within 14 business days.

5.2.3 The Supplier shall flow down the requirements of APQP & PPAP to all levels of its supply chain (internal & external) and maintain records of their compliance.

5.2.4 The supplier shall submit all PPAP planning and objective evidence as per agreed milestone.

### 5.3 APQP Phase

#### 5.3.1 Phase 1 – Planning

- Collect the technical and non-technical requirements applicable to the product and associated project
- Develop a Statement of Work (SOW) for the project
- Define the product and associated project targets
- Develop the product breakdown structure [i.e., high-level Bill of Material (BOM)] to support source selection
- Coordinate and communicate timing with all applicable stakeholders
- Schedule all key dates and deliverables in the project plan

#### 5.3.2 Phase 2 – Product Design and Development

- Turning product specifications into robust product definition
  - Design risk analysis
  - Design for Manufacture and Assembly (DFMA)
  - Identification of product KCs
  - Product error proofing
- Create BOM
- Conduct design reviews
- Validate and verify product design

- Conduct design record review at production sources to evaluate manufacturing feasibility

#### 5.3.3 Phase 3 – Process Design and Development

- Complete source selection and establish a supply chain risk management plan
- Create a process flow diagram
- Conduct Process Failure Mode and Effects Analysis (PFMEA) on the proposed process(es) and identify process KCs
- Update the process based on the PFMEA risk mitigation plans, focusing on process KCs
- Create the control plan including results of the PFMEA and KCs identification
- Create process manufacturing instructions and documentation
- Evaluate production readiness

#### 5.3.4 Phase 4 – Product and Process Validation

- Conduct a First Article Inspection (FAI) and assemble Production Part Approval Process (PPAP) file
- Completion of a production product run(s)
- Conduct a capacity analysis
- Collect data to demonstrate the manufacturing and assembly processes can produce conforming product at the customer demand rate
- Conduct the MSA per the MSA Plan
- Review the results of production process runs and determine corrective actions, as needed
- Subsequent to corrective actions being implemented, determine process readiness for entry into serial production

#### 5.3.5 Phase 5 – Serial Production

- Monitor product and process performance and compare to the defined Phase 1 targets, including:
  - Reliability, quality, and customer satisfaction
  - Product post-delivery performance (including warranty)
- Implement actions to reduce product and process variation in associated production
- Document sources of variation in support of continual improvement efforts
- Capture lessons learned and integrate into other design activities, as appropriate
- Update FMEAs based on lessons learned

### 5.4 PPAP Submission Levels

- 5.4.1 The default submission is Level 3 unless otherwise specified by approved Form A1 APQP Kick off – Elements Applicability. Regardless of the submission level, the Supplier shall complete and maintain documentation for all applicable Elements in its PPAP file.

*Note: PPAP Submission Level can be refer at AS9145*



**6.0 Reference**

Document	Title
AS9102	Aerospace First Article Inspection Requirement
AS9145	Aerospace Series – Requirements for Advanced Product Quality Planning and Production Part Approval Process
AS13000	Problem Solving Requirements for Suppliers
AS13003	Measurement Systems Analysis Requirements for the Aero Engine Supply Chain
AS13004	Process Failure Mode & Effects Analysis (PFMEA) & Control Plans
AS13006	Process Control Methods
ASTM E2782	Standard Guide for Measurement Systems Analysis (MSA)
AIAG Manuals	Advanced Product Quality Planning (APQP) & Control Plan, Production Part Approval Process (PPAP), Failure Mode Effects & Analysis (FMEA), Measurement System Analysis (MSA), and Statistical Process Control (SPC)
IAQG SCM H	IAQG Supply Chain Management Handbook

**7.0 Appendix**

Attachment 1

Self Assessment Readiness (using IAQG format Maturity Matrix)

**CTRM AERO COMPOSITES SDN. BHD. 199401026022 (311703-P)**

Composites Technology City,  
Batu Berendam,  
75350 Melaka,  
Malaysia.