Information Guide

PQSmitra
Simple & Practical

Production Part Approval Process (PPAP) Documentation Services

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What is Production Part Approval Process?

Production Part Approval Process (PPAP) is a process, which is standardized in industries such as automotive and aerospace. PPAP documents helps manufacturers & suppliers to communicate and approve production designs & processes for the entire stages of manufacturing cycle i.e. before, during and after.

The PPAP process consists of 18 elements, that are required for approval of production level parts. But there are five elements, which are generally accepted for PPAP submission levels. Requirements in regard to PPAP does differ from client to client.

PPAP documents are required as a requirement of IATF 16949 certification, AS 9100 certification etc. and also as a specific requirement from the clients from the Automotive and Aerospace Industry

What are the Benefits of PPAP Documentation Service by PQSmitra?

Time saving / Cost Saving / Effectiveness.

Professional way of documentation

Documentation accepted by OEMs and client organizations

Value addition through expertise for more than 20 years

What are the documents required for PPAP documentation ?

Please refer the list of 18 elements in PPAP documents below. PQSmitra offers support for the preparation, compilation, and verification of the documents. The additional documents are prepared as per the specific requirements from the customers.

- **Design Documentation:** Design documentation shall include both a copy of the customer and the supplier's drawings. The documentation should also include a copy of the purchase order. In some cases, the supplier is required to supply documentation of material composition. The purchase order is used to confirm that the correct part is being ordered and that it is at the correct revision level.

  The design engineer is responsible for verifying that the two drawings match and all critical or key characteristics have been identified.

  Material composition information is required to supply evidence that the material used manufacture the parts meets the customer's specific requirements.

- **Engineering Change Documentation**: If the PPAP is being required due to a request for a change to a part or product, the documentation requesting and approving the change must be included in the PPAP package. This documentation usually consists of a copy of the Engineering Change Notice (ECN), which must be approved by the customer engineering department.

- **Customer Engineering Approval:** This approval is usually the Engineering trial with production parts performed at the customer plant. A "temporary deviation" usually is required to send parts to customer before PPAP. Customer may require other "Engineering Approvals".

- **Design Failure Modes and Effects Analysis (DFMEA):** DFMEA is a cross-functional activity that examines design risk by exploring the possible failure modes and their effects on the product or customer and their probability to occur. A copy of the Design Failure Mode and Effect Analysis (DFMEA), reviewed and signed-off by supplier and customer.

- **Process Flow Diagram:** The Process Flow Diagram outlines the entire process for assembling the component or final assembly in a graphical manner. The process flow includes incoming material, assembly, test, rework and shipping.

- **Process Failure Mode and Effects Analysis:** Process Failure Mode and Effects Analysis (PFMEA) reviews all of the steps in the production process to identify any potential process quality risk and then document the applied controls.

- **Control Plan:** The Control Plan is an output from the PFMEA. The Control Plan lists all product Special Characteristics and inspection methods required to deliver products that continually meet the customer quality requirements.

- **Measurement System Analysis Studies:** Measurement System Analysis (MSA) studies will include GR&R studies on measurement equipment used during assembly or quality control checks. Calibration records for all gages and measurement equipment must be included.

- **Dimensional Results:** A list of every dimension noted on the ballooned drawing. This list shows the product characteristic, specification, the measurement results and the assessment showing if this dimension is “ok” or “not ok”. Usually a minimum of 6 pieces is reported per product/process combination.

- **Records of Material / Performance Test Results:** A summary of every test performed on the part. This section may also include copies of all the certification documents for all materials (steel, plastics, etc.) listed on the requirements.

- **Initial Process Studies:** Usually this section shows all Statistical Process Control charts affecting the most critical characteristics. The intent is to demonstrate that critical processes have stable variability and that is running near the intended nominal value.
- **Qualified Laboratory Documentation:** Qualified laboratory documentation consists of the industry certifications for any lab that was involved in completing validation testing.
- **Appearance Approval Report:** The Appearance Approval Inspection (AAI) is applicable for components affecting appearance only. This report verifies that the customer has inspected the final product and it meets all the required appearance specifications for the design. The appearance requirements could include information regarding the color, textures, etc.
- **Sample Production Parts:** Sample production parts are sent to the customer for approval and are typically stored at either the customer or supplier's site after the product development is complete.
- **Master Sample:** A master sample is a final sample of the product that is inspected and signed off by the customer. The master sample part is used to train operators.
- **Checking Aids:** This is a detailed list of checking aids used by production. It should include all tools used to inspect, test or measure parts during the assembly process. The list should describe the tool and have the calibration schedule for the tool. Checking aids may include check fixtures, contour, variable and attribute gages, models or templates. MSA may be required for all checking aids based on customer requirements.
- **Customer Specific Requirements:** This element of the submission package is where any special customer requirements are contained. For bulk materials, the customer specific requirements shall be recorded on the "Bulk Material Requirements Checklist".
- **Part Submission Warrant:** The Part Submission Warrant (PSW) form is a summary of the entire PPAP submission. A PSW is required for each of part number unless otherwise stated by the customer.

How is PPAP Documentation service different than regular documentation service?

- PPAP also known as Production Part Approval Process is a type of documentation that helps manufacturers & suppliers to communicate and approve production designs & processes for the entire stages of manufacturing cycle i.e. before, during & after. Whereas, regular documentation is maintained for the entire processes that are carried out in an organization.

When Should Production Part Approval Be Performed?

- A PPAP is required for any new part submission as well as for approval of any change to an existing part or process. The customer may request a PPAP at any time during the product life. This demands that the supplier must maintain a quality system that develops and documents all of the requirements of a PPAP submission at any time.

What are PPAP Submission Levels?

The PPAP submission requirements are usually separated into five levels or classifications:

- Level 1: Only the customer receives a Part Submission Warrant (PSW).
- Level 2 - PSW with limited supporting data and product samples
- Level 3 - PSW with product samples and all supporting data
- Level 4 - PSW and other customer-defined requirements
- Level 5 - PSW with product samples and supporting data available for inspection at the supplier's manufacturing facility.

What specifically is PPAP and why is it used?

- The goal of the PPAP is to verify that the supplier understands the customer's design and to demonstrate that the supplier is capable of consistently delivering parts that meet all of the requirements.

When Should Production Part Approval Be Performed?

- Yes, Bellow mentioned are the 5 tools of quality which includes PPAP along with:
- Advanced Product Quality Planning (APQP)
- Failure Mode and Effects Analysis (FMEA)
- Measurement Systems Analysis (MSA)
- Statistical Process Control (SPC)
- Product Part Approval Process (PPAP)

Methodology of PPAP Documentation Service by PQSmitra

The PPAP documentation service by PQSmitra is very practical and effective. The sequence of activities are as under:

- Understanding the PPAP documentation requirements.
- Review of the manufacturing process and planning for the documentation
- Preparation of the PPAP documents and submission for review
- Modifications and Finalization of documents.
- Finalization and closure

PQSmitraService Features appreciated by clients

Simple & Practical Approach

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5,56,000+ Consulting Hours

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