SMMT
QUALITY MANAGEMENT
DIVISION

SMMT QMD

VDA 2 – alternative approach for PPAP

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IATF 16949 Product Approval

8.3.4.4 Product approval process

The organization shall establish, implement, and maintain a product and manufacturing approval process conforming to requirements defined by the customer(s).

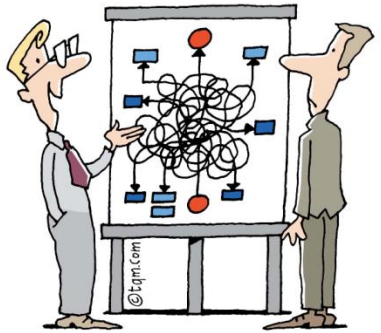
The organization shall approve externally provided products and services per ISO 9001, Section 8.4.3, prior to submission of their part approval to the customer.

The organization shall obtain documented product approval prior to shipment, if required by the customer. Records of such approval shall be retained.

Description of submission levels

In the course of the sample submission planning the necessary scope of the submission (the submission level) is specified.

Unless otherwise agreed submission level 2 applies.



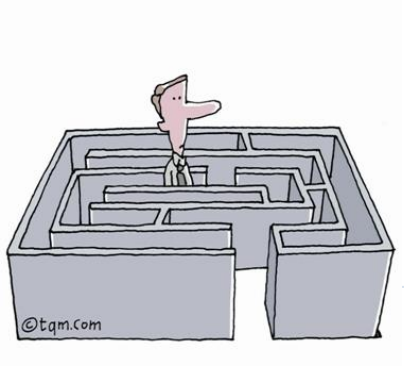
Possible criteria for selecting submission level 0:

- The scope of supply includes no special / significant characteristics
- Internal suppliers (in-house parts) and out-sourced processes
- The quality capability of approved suppliers is demonstrated
- Standardized parts
- Change of supplier no. / DUNS no. but no change of production location and no change in process

Description of submission levels

Possible criteria for selecting submission level 1:

- Modification at the parts to be supplied but with a low maturity level risk (e.g., no special / significant characteristics affected)
- Internal suppliers (in-house parts) and out-sourced processes
- Product family: the sample submission will cover one part no. to submission level 2 or 3, with a simplified procedure to submission level 1 for all other associated part numbers



Description of submission levels

Possible criteria for selecting submission level 3:

- Modification at the parts to be supplied, with an elevated maturity level risk or with significant changes
- Technologically new or significant modification to existing production processes
- The parts to be supplied have a high level of innovation (for supplier and / or customer)
- The parts to be supplied are covered by requirements for maintaining evidence regarding special / significant characteristics (Volume 1 "Documentation and archiving")

Description of submission levels

The submission levels are presented in a table and classified according to:

D **Execution, documentation and archiving with the supplier (if necessary inspection by the customers)**

V **for submission at the customers**

na **not applicable, submission level may not be selected with appropriate criterion**

Submission Elements

	Requirements (characteristics as specification)	Submission level			
		0	1	2	3
	Cover sheet to PPA report	V	V	V	V
1	Test results (e.g., geometry, dimensions, function, material (strength, physical	D	D	V	V
2	Samples (quantity supplied by agreement)	D	V	V	V
3	Technical specifications (e.g., customer's drawings, CAD data,	D	D	V	V
4	**Product FMEA**	D	D	D	D
5	Design & development approval by supplier in case of development	D	D	V	V
6	Confirmation of compliance with legal requirements (e.g., environment,	na	V	V	V
7	**Material data sheet** per IMDS	V	V	V	V
8	**Software test report**	D	V	V	V
9	**Process FMEA**	D	D	D	D
10	**Process flow chart (production and test/inspection operations)**	D	D	D	V
11	**Control plan**	D	D	D	D
12	**Confirmation of process capability**	D	D	V	V
13	**Evidence of compliance with special characteristics**	na	na	V	V
14	**List of test/inspection equipment** (product-specific)	D	D	D	V
	Test/measurement reports and test reports for gauges				
15	**Capability study testing equipment, if appropriate (result)**	D	D	D	D
16	**Tooling list (with quantity/number of cavities and information on the**	D	D	V	V
17	**Confirmation of achievement of the agreed capacity (process**	D	D	V	V
18	**Written self-assessment of the criteria** as per the evaluation matrix for	D	D	V	V
19	**Part history**	D	V	V	V
20	**Confirmation of suitability of the product carrying units, incl. storage**	D	D	V	V
21	**PPA status of the supply chain (purchased parts, directed parts and**	D	D	V	V
22	**Approval of coating systems to customer's requirements**	D	D	V	V

Exercise – different methods

	Requirements (characteristics as specification)
	Cover sheet to PPA report
1	Test results (e.g., geometry, dimensions, function, material (strength, physical
2	Samples (quantity supplied by agreement)
3	Technical specifications (e.g., customer's drawings, CAD data,
4	**Product FMEA**
5	Design & development approval by supplier in case of development
6	Confirmation of compliance with legal requirements (e.g., environment,
7	**Material data sheet** per IMDS
8	**Software test report**
9	**Process FMEA**
10	**Process flow chart (production and test/inspection operations)**
11	**Control plan**
12	**Confirmation of process capability**
13	**Evidence of compliance with special characteristics**
14	**List of test/inspection equipment** (product-specific)
	Test/measurement reports and test reports for gauges
15	**Capability study testing equipment, if appropriate (result)**
16	**Tooling list (with quantity/number of cavities and information on the**
17	**Confirmation of achievement of the agreed capacity (process**
18	**Written self-assessment of the criteria** as per the evaluation matrix for
19	**Part history**
20	**Confirmation of suitability of the product carrying units, incl. storage**
21	**PPA status of the supply chain (purchased parts, directed parts and**
22	**Approval of coating systems to customer's requirements**

Retention/Submission Requirements

Requirement

1. Design Record
   -for proprietary components/ details
   -for all other components/ details
2. Engineering Change Documents, if any
3. Customer Engineering approval, if required
4. Design FMEA
5. Process Flow Diagrams
6. Process FMEA
7. Control Plan
8. Measurement System Analysis Studies
9. Dimensional Results
10. Material, Performance Test Results
11. Initial Process Studies
12. Qualified Laboratory Documentation
13. Appearance Approval Report (AAR),
    If applicable
14. Sample Product
15. Master Sample
16. Checking Aids
17. Records of Compliance
    With Customer-Specific Requirements
18. Part Submission Warrant (PSW)
    Bulk Material Checklist (see 4.1 above)

IATF 16949 Change control...

8.5.6.1 Control of changes — supplemental

The organization shall have a documented process to control and react to changes that impact product realization. The effects of any change, including those changes caused by the organization, the customer, or any supplier, shall be assessed.

(…)

When required by the customer, the organization shall:

e) notify the customer of any planned product realization changes after the most recent product approval;

f) obtain documented approval, prior to implementation of the change;

g) complete additional verification or identification requirements, such as production trial run and new product validation.

VDA 2 – notification matrix - handout

1) Is it a change?	2) Does it affect customer's significant characteristics?	3) Is the technical interface to the customer affected?	4) Type of change?	5) Does it affect contract documents (e.g., specifications, customer's drawing, data-sets,....? *	6) Are fitment, form, function, performance, reliability affected?		If customer-specific requirements exist, the agreement is obligatory !	Row
y	y / n	All	y / n	y / n	Change to significant characteristics agreed with the customer for the product, sub-assy., component (electrical/mechanical), process, ...)?		Z	1
y	y	All	y / n	y / n	e.g., fixing to the vehicle, electronic parts and/or connections...		Z	2
		Electronic components (see ZVEI "Product/Process Change Notifications - Guideline for Automotive Electronic Components")						
		Design Mc **	y	y	e.g., change to design, tooling, ...		Z	3
					e.g., change to product software (parameters, architecture)		Z	4
				n	e.g., change to sealing material, change to EMC capacitor, ...		Z	5
			n	y	e.g., change to a dimension not included in the customer's drawing		Z	6
					Change to materials		Z	7
				n	Change to internal specification or tolerances outside customer's specification		Z	8
					Change to internal specification or tolerances but still within customer's specification		-	9
					Change to identification of parts/materials but with unchanged composition		-	10
					Change in early man'f'ing stages (e.g., pre-drilled dimension for a shaft, wafer location,...)		-	11
			y	y / n	e.g., change in process chain (inc. supplier, duplicated production lines, ..)		Z	12
					e.g., change in checks, checking sequence or other reasons,.....		Z	13
				y	e.g., change in hardening parameters, injection temperature, ...		Z	14
					e.g., change in process chain (inc. supplier, duplicated production lines, ..)		Z	15
y					Prod'n -	Change in no. of cavities in tool, progression tools, incremental tools	I	16
						Duplication of production and checking equipment within an existing line	I	17
						New type of machine obtained and installed	I	18

PPAP – notification & resubmission

3.2 Submission to Customer

The organization shall submit for **PPAP** approval prior to the first production shipment in the following situations unless the authorized customer representative has waived this requirement (see Table 3.2).

> **NOTE:** In the situations described below, prior notification to, or communication with, the authorized customer representative is assumed.

The organization shall review and update, as necessary, all applicable items in the **PPAP** file to reflect the production process, regardless of whether or not the customer requests a formal submission. The **PPAP** file shall contain the name of the authorized customer representative granting the waiver and the date.

Table 3.2

Requirement	Clarifications
1. A new part or product (i.e. a specific part, material, or color not previously supplied to the customer)	Submission is required for a new product (initial release) or a previously approved product that has a new or revised product/part number (e.g., suffix) assigned to it. A new part/product or material added to a family may use appropriate **PPAP** documentation from a previously approved part within the same product family.
2. Correction of a discrepancy on a previously submitted part.	Submission is required to correct any discrepancies on a previously submitted part. A "discrepancy" can be related to: • The product performance against the customer requirements • Dimensional or capability issues • Supplier issues • Approval of a part replacing an interim approval • Testing, including material, performance, or engineering validation issues
3. Engineering change to design records, specifications, or materials for production product/part numbers(s).	Submission is required on any engineering change to the production product/part design record, specifications or materials.
Additionally, for Bulk Materials: 4. Process technology new to the organization, not previously used for this product.	

PPAP – notification & resubmission

3.1 Customer Notification

The organization shall notify the authorized customer representative of any planned changes to the design, process, or site. Examples are indicated in the table below (see Table 3.1).

NOTE: Organizations are responsible to notify the authorized customer representative of all changes to the part design and/or the manufacturing process.

Upon notification and approval of the proposed change by the authorized customer representative, and after change implementation, **PPAP** submission is required unless otherwise specified.

Table 3.1

Examples of changes requiring notification	Clarifications
1. Use of other construction or material than was used in the previously approved part or product	For example, other construction as documented on a deviation (permit) or included as a note on the design record and not covered by an engineering change as described in Table 3.2, #3.
2. Production from new or modified tools (except perishable tools), dies, molds patterns, etc. including additional or replacement tooling	This requirement only applies to tools, which due to their unique form or function, can be expected to influence the integrity of the final product. It is not meant to describe standard tools (new or repaired), such as standard measuring devices, drivers (manual or power), etc.
3. Production following upgrade or rearrangement of existing tooling or equipment.	Upgrade means the reconstruction and/or modification of a tool or machine or to increase the capacity, performance, or change its existing function. This is not meant to be confused with normal maintenance, repair or replacement of parts, etc., for which no change in performance is to be expected and post repair verification methods have been established. Rearrangement is defined as activity that changes the sequence of product/process flow from that documented in the process flow diagram (including the addition of a new process). Minor adjustments of production equipment may be required to meet safety requirements such as, installation of protective covers, elimination of potential ESD risks, etc.
4. Production from tooling and equipment transferred to a different plant site or from an additional plant site.	Production process tooling and /or equipment transferred between buildings or facilities at one or more sites.
5. Change of supplier for parts, non-equivalent materials, or services (e.g., heat-treating, plating).	The organization is responsible for approval of supplier provided material and services.
6. Product produced after the tooling has been inactive for volume production for twelve months or more.	For product that has been produced after tooling has been inactive for twelve months or more: Notification is required when the part has had no change in active purchase order and the existing tooling has been inactive for volume production for twelve months or more. The only exception is when the part has low volume, e.g., service or specialty vehicles. However a customer may specify certain **PPAP** requirements for service parts.
7. Product and process changes related to components of the production product manufactured internally or manufactured by suppliers.	Any changes, including changes at the suppliers to the organization and their suppliers, that affect customer requirements, e.g., fit, form, function, performance, durability.
8. Change in test/inspection method – new technique (no effect on acceptance criteria)	For change in test method, the organization should have evidence that the new method has measurement capability equivalent to the old method.
Additionally, for bulk materials: 9. New source of raw material from new or existing supplier. 10. Change in product appearance attributes	These changes would normally be expected to have an effect on the performance of the product.

Thank you!!