



1. Purpose

Regulation of the procedure for production process and product approval (initial sampling) with the goal to provide a documented proof that the requirements outlined and agreed upon in drawings, specifications and/or other documents are met before the start of serial production.

2. Definitions

Samples

These are material items (product samples) subjected to quality inspection. They are checked to find out if they comply with the requirements laid down. A distinction is made between samples for initial sampling for production process and product approval and other samples.

Other samples

Products or materials which were not manufactured entirely with serial conditions, equipment and materials.

Initial samples (samples for production process and product approval)

Initial samples are products and materials fully manufactured with serial production means and under serial production conditions (DIN 55350-15:1986-02).

According to the referenced VDA 6.4 supplementary: Initial samples are products and materials which were produced completely using standard equipment under serial production conditions.

Initial sampling inspections

Initial sampling inspections are dimensional, material and functional inspections on initial samples concerning the specifications agreed upon between buyer and supplier. For significant characteristics statistical evaluations are to be agreed upon and carried out (for example evidence of machine and process capability).

Initial sampling report

The responsible departments of the supplier demonstrate the initial sampling to the buyer by the initial sampling report. Products and materials, which were manufactured completely using serial equipment and serial conditions have to be described in the initial sampling report.

3. Reasons for initial sampling

Corresponding to the guidelines of the VDA (see initiation matrix in VDA volume 2) and the AIAG (PPAP) initial samples and an initial sampling report are necessary if the following conditions apply

- In principle for new parts (if a part is ordered for the first time)
- Design change (change of product, drawing for all characteristics concerned)
- Change of a production process/-procedure
- Change of a subcontractor of the supplier
- Change of supplied parts of a supplier / primary materials of a supplier
- Change of the manufacturing plant or use of additional production plants, new or relocated machinery and/or operating materials
- After use of alternative materials and design
- After use of changed tools (transfer, replacement, modernization, etc.), for multiple tools for each cavity
- Correction of a discrepancy
- Interruption of production for more than a year
- Failed requalification, if applicable others to be agreed upon in particular cases with AK



Exemptions are permitted only upon arrangement with AK for example if one of the following cases apply: Interruption of production / delivery for more than a year, standard parts, etc.

4. Preparation of an initial sampling report

According to the submission level the following documents belong to a complete initial sampling report (PPAP):

- Part submission warrant (PSW) with complete data
- Positioned drawing (refer to all defined drawing dimensions and all specifications listed on the drawing)
- Dimensional, material and performance test results
- Sample parts (5 parts, for multi-cavity tools 5 parts per cavity)
- Additional documents (e.g. process flow plan, control plan, process capability studies, measurement systems analysis)
- Material certificates (if applicable also safety data sheets)
- Entry of all material data into the material data base IMDS and indication of the IMDS identification number on the PSW.

Either the forms of the latest edition of VDA volume 2 or the latest edition of the AIAG PPAP (Production Part Approval Process) have to be used corresponding to the order of AK.

Deviations from the specification and characteristics out of tolerance have to be identified in the initial sampling report accordingly.

For special characteristics (critical or significant characteristics specified as such on AK drawings) applies:

- Short-term process capability $Cmk \geq 2.00$
- Short-term process capability $Cmk \geq 1.67$

The evidence of capability must be enclosed in the initial sampling report. Until evidence of capability is achieved a 100% inspection of the characteristic concerned has to be done by the supplier.

5. Identification of initial samples

Initial samples or samples with an initial sampling report must be packed separately and not be added to a series production shipment. The sample delivery must be clearly identified by the additional remark "Erstmuster Abteilung Qualitätssicherung" on the packaging and the delivery note.

Sample parts must be identified at least as follows:

- Part number
- Part designation
- Inspection report number and date
- Revision number with index
- Number of samples
- Supplier



6. Evaluation of initial samples and release for series production

The initial samples, related documents and IMDS data are checked by the quality department of AK. If applicable, an accredited, external laboratory can be included for assistance. The quality department records the result and informs the supplier as soon as possible. The following results are possible:

- Approved (o.k.): This means that all agreed requirements according to the planning of the initial sampling are met. The release for serial production is granted.
- Conditionally released: This means that the agreed requirements according to the planning of the initial sampling are not met completely. The delivery of products can only be done for a limited number of parts or duration under the adherence of agreed measures. A re-sampling or sending of still missing documents is necessary in time before the limiting defined.
- Not approved: This means that the agreed requirements according to the planning of the initial sampling are not met. An approval for serial delivery is not granted. A new or re-sampling is necessary. The serial delivery is not released. The extent must be agreed upon between AK and the supplier.

After receiving a rejection or conditional approval the supplier informs AK immediately when a re-sampling or new sampling can be expected.

7. Initial sampling and compliance with legal and other requirements

The material data have to be entered into the IMDS independent of the level of the initial sampling report and sent to AK in any case. The number of the material data sheet has to be listed in the initial sampling report.

The substances must correspond to the requirements of the EU Environmental Directive 2000/53/EG, so that the compliance with the heavy metal ban is integral part of the delivery terms. Furthermore, the supplier must enter the contents of the material data sheet directly into the IMDS (international material data system). For this the address (code 1895) is to be used to submit the data to AK.

Furthermore, the ban of perfluorooctane sulfonates (PFOS) pursuant to the directive 76/769/EEC and 2006/122/EC and the ban of decabromodiphenyl ether is to respect.

The parts must also comply with the RoHS directive 2002/95 EC.

The supplier ensures to comply with the REACH directive 1907/2006 EC and registers all his substances or his supplier's accordingly. Substance prohibitions, etc. must be respected.

The use of biocides in AK-products is only then permitted, if they are permitted according to the EU regulation no. 528/2012 „Making available on the market and use of biocidal products“ and the substances are approved.

The use of conflict minerals must be excluded. The supplier must contact his sub-suppliers to ensure that conflict minerals are not delivered.

8. Information und Documentation

The supplier is obliged to inform AK about any changes in the production process, production conditions or production location also referring to his sub-suppliers before serial delivery. This information must be passed to AK at least six months before the planned change. AK decides whether an initial sampling for serial release has to be done.

The retention periods are based upon VDA volume 1 (latest edition). The documents of the initial sampling report must be stored for the active time of the part plus one calendar year (at least 15 years) at the supplier and presented on request. The supplier must keep at least one retention sample for which the same storage time applies.

Guideline for Suppliers: Initial Sampling



The supplier shall be informed of series production approval in the form of a test report (i.e. on the cover page of the initial sampling report).

The supplier receives the IMDS data sheet evaluation via IMDS.

9. PPAP documents to submit

This list is intended to ensure complete initial sampling documents. Please take care that all documents are available completely to the person responsible.

Due to increased expense, incomplete documents / a rejected initial sampling report are invoiced with a processing fee of 125,- €.

If not agreed upon otherwise, the documents have to be submitted according to AK submission level 2. The cover sheet of the initial sample inspection report must either correspond to VDA volume 2 or PSW according to AIAG PPAP depending on the respective order.

The items referenced by VDA volume 2 refer to the fifth edition, November 2012.

The items referenced by PPAP refer to the fourth edition, 2006.

AK	Requirements / Documents	AK Submission Level				Ref.	Ref.
		0	1	2	3	VDA 2	PPAP
0	Cover sheet – initial sampling inspection report according to VDA volume 2 or PSW according to AIAG PPAP in the latest edition	V	V	V	V	0	(18)
1	Inspection results for product approval (e.g. geometry, dimensions, function, materials (strength, physical characteristics), weight, appearance, haptics, acoustics, odours, tactile feedback, surface, reliability, EMC/ESD-tests, electrical reliability), material test certificates	D	D	V	V	1	(9) (10) (13)
2	Sample parts (quantity / delivery quantity as agreed)	D	V	V	V	2	(14)
3	Technical specifications (e.g. customer drawings, CAD-data, specifications, approved design modifications, short-circuit resistance, voltage resistance, functional reliability/safety (FUSI)	D	D	V	V	3	(1) (2)
4	Design FMEA	D	D	D	D	4	(4)
5	Design/development releases by the supplier (if he has development responsibility by agreement)	D	D	V	V	5	(1) (3)
6	Verification of compliance with legal and customer specific requirements (e.g. environment, safety, recycling, RoHS, Reach, country-specific certificates)	NA	V	V	V	6	(17)
7	Material data sheet to IMDS*), ID-No. on the cover page of the initial sampling report	V	V	V	V	7	(10)
8	Software test report, process conformance**)	D	V	V	V	8	(-)
9	Process FMEA	D	D	D	D	9	(6)
10	Process flow diagram (manufacturing and test/inspection operations)	D	D	V	V	10	(5)
11	Control plan	D	D	V	V	11	(7)
12	Proof of process capabilities	D	D	V	V	12	(11)
13	Evidence of safeguarding of significant characteristics	NA	NA	V	V	13	(17)
14	List of test/inspection equipment (product specific)	D	D	V	V	14	(16)
15	Measurement systems analysis (MSA), where appropriate (result)	D	D	V	V	15	(8) (11) (16)
16	Tooling overview (with quantities / number of cavities and information on tooling concept)	D	D	V	V	16	(-)
17	Evidence of achievement of agreed capacity (process validation)	D	D	V	V	17	(-)

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18	Written confirmation of compliance with criteria as evaluation matrix for maturity of product and process	D	D	V	V	18	(-)
19	Product life history	D	V	V	V	19	(2)
20	Evidence of suitability of the transport and storage facilities used	D	D	V	V	20	(-)
21	Overview of components in the supply chain (purchased parts, setting parts and in-house parts) with PPAP decision	D	D	V	V	21	(-)
22	Release of coating systems to customer requirements	D	D	V	V	22	(-)
23	Qualified laboratory documentation	D	D	V	V	(-)	(12)
24	Feasibility study	D	D	V	V	(-)	(-)
25	Overview of the supplier's purchased and in-house parts with part and process approval status	D	D	V	V	(-)	(-)
26	Evidence to secure traceability and data archiving of special characteristics	D	D	V	V	(-)	(-)
27	Depending on customer requirements additional documents if applicable (i.e. materials list), to be agreed upon with AK in advance	D	D	V	V	(-)	(-)

Abbreviations:

- V: Requirement for the respective level, has to be submitted to the customer with the PPAP, a copy must be kept at manufacturer's plant
- D: Requirement for the respective level, must be available immediately when required by AK
- na: Not applicable, submission level may not be selected
- *) : Independent of the contractual arrangements, the material data sheet must be provided by IMDS for items over the real supply chain
- **): e.g. Automotive Spice or CMMI. The customer must specify the level required

The supplier shall document the procurement structure of its suppliers and provide the documentation to AK on request.

11. Bibliography

VDA Volume 1: Documentation and Archiving
 VDA Volume 2: Quality Assurance of Suppliers
 AIAG: PPAP Production Part Approval Process
 AK-specific documents (purchasing conditions, etc.), supply source: AK

12. History of change

Rev.	Description	Date	Name	Checked
2	Customer specific requirements added	23.04.18	Fangmeier	JB
1	Initial release	07.05.14	Fangmeier	JB

07.05.14	QMB	R. Fangmeier	07.05.14	EK	J. Berger
Date	Depart.	Name	Date	Departm.	Signature
Created by			checked / approved by		