

Advanced Product Quality Planning in projects

Advanced Product Quality Planning is the basis for the avoidance of potential faults and for a continuous improvement. The Advanced Product Quality Planning process includes all steps from development to series production. It has been developed to ensure that in the running series, sub-supplier parts are available at the right time, at the right place, in the right quantity and quality and at the agreed price. WIKA reserves the right to support the Advanced Product Quality Planning of the supplier regarding selected projects.

1. Maturity level protection

WIKA carries out component-specific categorisations of risks. This method is used to detect and assess risks in order to derive targeted action. In case of indications of an increased risk, WIKA reserves the right to carry out maturity validation of new parts in accordance with VDA (Maturity protection of new parts).

2. Drawings / specifications / standards

Already when placing the order, WIKA provides a drawing and/or a 3D data record with the revision status ≥ 01 . The supplier's tool conception is based on this status and the confirmed feasibility analysis for critical components. WIKA specifications indicated in the drawing are provided by WIKA.

Generally applicable standards and specifications

The supplier has to make sure that all documents required in the drawing or necessary for the production are up-to-date.

3. Initial sampling agreement including measurement coordination

The initial sampling agreement, if necessary, will be initiated and executed by WIKA. It serves the early coordination of the sampling contents e.g. functional tests, measurement planes, measuring equipment, documents, certificates, etc. This means that the requirements of the initial sampling are clearly defined and documented so that all necessary measures, e.g. procurement of measuring equipment, reservation of capacitance in laboratories, etc. can be implemented in good time.

4. Project schedule

If a project schedule of the supplier is necessary for the scope of allocation, it will be requested accordingly. The schedule must include all necessary steps, deadlines and milestones. The depicted timeframe is binding and taken as such into consideration in the WIKAL project schedule. When there is a risk with regard to a deadline delay, this must be discussed immediately with the responsible WIKAL employee in order to assess this risk for the WIKAL project schedule and to be able to take targeted action. Furthermore, the supplier has to evaluate and document his approvals of the individual stages of the product and process development. The detailed planning of the individual phases must be presented in case of need.

5. Process flow chart

The existence of a process flow chart is presupposed and should be enclosed with the initial sampling on request of WIKAL. This is a graphic presentation (flow chart) of the complete manufacturing process and is supplemented by a brief description of the individual production and testing phases.

6. FMEA

FMEA is a systematic analytical method to evaluate possible faults and their effects. It is a know-how memory which makes decisions more traceable. The supplier compiles a product-related FMEA and updates this regularly on the basis of reject quantities and customer complaints. WIKAL accepts a separation in process and design FMEA. Ideally this is coordinated with the WIKAL FMEA.

7. Control plan

The production control plan describes the system and the product control processes by listing the individual test steps, testing devices, test frequencies and documentation. All special (critical/significant) features contained in the technical specification and/or derived from the FMEA must be presented in the production steering plan.

8. Reference gauges / measuring equipment / Measurement System Analysis (MSA)

In order to make sure that correct units are produced, it is necessary to choose suitable measuring equipment. The supplier is responsible for the selection, use and regular inspection of the measuring equipment. The suitability of the measuring equipment is verified by means of a Measurement System Analysis. If required, WIKAL can send the form to be used for this purpose to the supplier. Reference gauges are produced in coordination with WIKAL as early as possible. The supplier has to make sure that the customer's property remains intact and is properly stored. The monitoring of the measuring equipment is the responsibility of the owner.

9. Traceability

In order to guarantee a traceability back to the receipt of goods, the supplier must make sure that all materials and parts are marked and each manufacturing step can be clearly identified. The marking gives information on the material which has been used, the article number, quantity, batch number, manufacturing date, manufacturing status as well as the in-process inspections performed with the corresponding inspection note. This documentation system guarantees the localisation of all products. In coordination with the responsible buyer, the maximum lot size that can be delimited is defined taking into account economic aspects and the related risk. WIKAL reserves the right to specify the maximum delimitable lot size.

10. Part history

WIKAL recommends its suppliers to establish a part history including all material, product, tool and process modifications as well as the date of use (lot number / delivery date) for each article number that will be used in series production. After having conferred with WIKAL, parts belonging to a product family can also be summarised in one history. However, WIKAL reserves the right to require a separate part history for certain projects. WIKAL can request the part history from the supplier at any time and without restrictions.

11. Functional checks

The supplier must carry out all functional tests in accordance with the drawing, the valid specification and in accordance with the initial sampling agreement as part of the initial sampling procedure.

12. Machine and process capability studies

The supplier will carry out machine and process capability studies corresponding to the criteria marked in the drawing in preparation for the initial sampling. WIKAL will determine target figures for machine capability/process capability indexes in the initial sample test report depending on the evaluated process.

13. Preventive maintenance

The supplier is obliged to guarantee a procedure for corrective maintenance by means of which the ability to supply can be assured at any time.

This plan includes the following points:

- Set ups for maintenance/repairs

- Storage and overhauling
- Equipment and retrofitting
- Tool changing programme for wearing tools

The supplier must set up a monitoring and tracking system for this if he delegates one of these tasks to a sub-contractor. It must be guaranteed that a tool can be clearly attributed to its owner without any doubt during the whole process.

14. Emergency plan

An emergency strategy is to be developed for processes having effect on the ability to supply (e.g. special tools / bottleneck machines / testing devices / spare parts supply / machines and measuring equipment / interruption of power, gas or water supply).

15. Products provided by WIKAL

For products and packaging provided by WIKAL, the supplier will carry out an incoming inspection during which the provided parts are checked for quantity, identity and visually recognisable damage. Measuring requirements will be coordinated with WIKAL.

16. Prototypes and pilot lot parts

All prototypes and pilot lot parts must be marked clearly and sufficiently according to the illustrated development status. Products and materials, which are not completely manufactured under serial conditions are designated as A samples (prototypes). Products and materials, which have not yet been manufactured using the equipment and procedures provided for the later serial production and/or partially under serial production conditions, are designated as B samples (pilot series).

17. Process sign-off

WIKAL carries out process sign-offs / process audits on supplier premises with the aid of WIKAL's own checklist. This is based on the specifications in accordance with VDA 6.3. The process sign-off is planned in coordination with the responsible department of the supplier.

WIKAL can carry out the process sign-off within the scope of the first article inspection (e.g. new supplier). When the sign-off is finished, the supplier will be informed on the audit result within one working week, but usually the information is given on the visiting day. If the result requires improvement measures, the supplier must elaborate an action plan and send it to the WIKAL lead auditor within the agreed period of time. The process sign-off includes the capacity studies, the observance of delivery periods, documents for the first article inspection and an Advanced Product Quality Planning.

18. Material data acquisition

If requested by WIKAL, material data acquisition will be part of the sampling inspection. The supplier will input the necessary data into the system and will make them available to WIKAL free of charge. Furthermore, the supplier must present a disposal or recycling concept.

IMDS (International Material Data System)

The term IMDS describes an archiving, exchange and management system for the automotive industry. On the basis of this system, a material data sheet is created indicating all materials used for a component together with the proportional material components as well as all data necessary for later recycling the vehicle part.

REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals)

This is an EU Directive on chemical substances that came into force on 1 June 2007. As an EU Regulation, REACH is equally and directly valid in all member states.

RoHS (Restriction of the Use of Certain Hazardous Substances)

The current EC directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment regulates the use of hazardous substances in instruments and components. This directive and its transposition into national law are designated with the abbreviation RoHS.

19. First article inspection

The first article inspection is the last step of the pilot lot phase and leads to series production. It includes the final inspection and approval of the components for use in series production. First articles are products which have already been manufactured by means of series production equipment at the intended site and under series process conditions. These initial samples are also designated as C samples. This is meant to guarantee that the products manufactured by the supplier meet all WIKAL requirements in accordance with the drawings and specifications.

Initial sample test report (FAI, First Article Inspection)

WIKAL makes the form available to the supplier immediately after placing the order. The supplier will complete this report. If multiple-cavity tools are used, a first article inspection will be carried out for each cavity.

Submission stages

Basically, WIKAL reserves the right to decide on the submission stage.

Sending documents and approval of parts

The complete documents must be stored in a folder which is to be sent by e-mail to WIKAL. The initial sample delivery must be marked as such (FAI - initial sample) on the delivery note. The marking secures the assignment of the parts to the initial sample test report. The supplier may not deliver any series parts to WIKAL until they have been approved in written form.

Second sample inspection

WIKAL reserves the right to charge the supplier for the costs of a second sample inspection if the first article approval cannot be given due to an insufficient preparation on the part of the supplier.

20. Reference sample

A reference sample should help to achieve the required quality level, which is particularly important when the available data is insufficient or not clear and consequently the parts cannot be approved. WIKAL recommends the supplier to keep at least one reference sample together with the first article inspection documents for the required time period. The reference sample must be marked as such and have the same dimensions as the delivered parts. Unless agreed otherwise, the supplier must keep a reference sample from the supplier for each cavity of a tool or process.

21. Acceptance test certificates

If required by WIKAL in the order documents or in the technical documentation, the latest version of the inspection certificate according to DIN EN ISO 10204 must be established. Exceptions from this rule must be negotiated separately and must be documented in the order. The inspection results will be certified by a department which is independent from the manufacturing department and confirmed by an expert designated by the manufacturer. Inspection results on the basis of specific tests, i.e. tests according to the technical conditions specified in the order are part of the inspection certificate. To determine whether the parts meet the requirements specified in the order, the nominal and actual values must be clearly indicated. The nominal values will be taken from the technical documentation. The inspection certificate must be available to WIKAL in electronic form on receipt of the goods at the latest.

22. Packaging

The selection of the packaging has an impact on the product quality and must therefore be determined in cooperation with WIKAL prior to serial production.

If necessary, transport and packaging tests must be scheduled to test the suitability of the packaging.

23. Retention periods

In view of the limitation periods for product liability claims, it is recommended that the supplier retains the material up to 30 years.

24. Requalification

Requalification is a periodic check of the component in question. Where appropriate, requalification will be made via self-certification (e.g. VDA 2, 4.10). The extent and frequency of requalification are to be agreed with the responsible WIKAL-SQE.

25. Standard and catalogue parts and materials

- Sampling of standard parts/materials => initial sampling omitted
- Sampling of catalogue parts/materials => only in case of special request by WIKAL



Contact

Do you have any questions? Please do not hesitate to contact us.

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