Suppliers Quality Assurance and Planning Manual

1. Introduction

Quality is a key factor for a successful marketing of our products and services on the worldwide automotive market. The quality of suppliers' materials has a direct influence on the quality of our products. Therefore, in collaboration with our suppliers, main attention is put on quality assurance and planning. Today quality does not represent only the technical quality of products; it is rather defined as quality containment of all processes within a company.

As our partners, you are responsible for the quality of supplied materials and products.
The purpose of this manual is to define CIMOS requirements in terms of supplier chain, for quality and to assure in a long-term:

- achievement of a high quality level of products and services,
- transparent communication,
- creation of conditions for continuous improvement of efficiency and effectiveness of the supply-chain.

A preventive approach and the philosophy of continuous improvements are the basis for quality assurance and planning throughout the automotive supplying chain. The philosophy of continuous improvements must be installed through a complete supplying chain and shall focus on:

- »0 error« in quality,
- cost reduction,
- assurance of in-time deliveries,
- continuous improvement of products, services and processes.

The Supplier must ensure compliance with principles from this supplier manual with his subcontractors and sub-suppliers in supply chain.
The present manual does not in any of its items reduce statutory regulations or specific customer's regulations that are binding for CIMOS and for its supplying chain.

2. General

2.1. Quality Management System

Quality Management System is a tool to achieve the objective of »0 errors«. Implementation of an efficient Quality Management System according to technical specifications defined in IATF 16949 (minimum ISO 9001 certification is admitted temporary) is the main condition to install a long-term business relationship between a supplier and CIMOS.

CIMOS reserves the right to perform an audit of the supplier's management system for quality, processes and products and the right to organise an audit to be carried out by third persons.

The efficiency of the Quality Management System is proved with:

- continuous and provable improvements of processes and products,
- results of delivered parts (PPM, complaint costs, number of complaints)
- delivery performance,
- efficient implementation of corrective actions
- successful communication at all levels
- fulfilment of objectives concerning single projects (in-time, quality, costs).

2.2. General Purchasing Terms

General Purchasing Terms (hereunder referred to as: GPT) define general rules of operating activities of the CIMOS Group with suppliers. GPT are in accordance with the following standards and documents: IATF 16949, ISO 9001, ISO 14001, ISO 45001 and the CIMOS Quality Management Manual. Accepted GPT are the condition to be ranged among potential suppliers that will be involved in the inquiry process in future projects.

3. Project management

3.1. Planning, Development, Process Qualification

Before start of production of a new or modified process the supplier shall prove, conformity i.e. prove its capability to produce products of particular quality and quantity according to stated objectives. Process qualification comprehends all work positions, equipment and employees.

All activities, related to qualification, shall be documented and provable. Suppliers are obliged to perform process development activities in accordance with CIMOS or CIMOS customers' requirements. If not otherwise stated such requirements are comprehended in the APQP.

3.2. APQP (Advanced Product Quality Planning)

Is a structural planning method that defines and introduces activities, which objective is to enable completion of activities in a stated time and in a stated quality.

Activities for each step to be taken shall be clearly defined within process planning and development. They are the basis for process development term plan that is used to define responsibilities and terms for completion of activities.

Process development term plan shall contain:

- **activities to be performed,**
- **description of activities,**
- **duration and date of completion and**
- **the name of responsible person for each activity.**

5 five main steps of process development:

1. Revision of objectives and integrity of documentation
2. Process planning
3. Process preparation
4. Test production
5. Process qualification.

Processes having a direct impact on product's quality shall be accurately defined. Development planning for new or modified processes requires:

- Documented production procedures and adequate and documented material flows;
- Adequate production equipment and working environment;
- Maintenance and preventive maintenance of equipment and of the environment to guarantee continuous capability;
- Procedures and methods for quality evaluation and early error detection in process (process FMEA);

- Conformity with reference regulations/standards, legislation, project responsibilities, QM plan and quality requirements stated by the customer and production criteria, which shall be agreed in a comprehensive way;
- Documented monitoring of process parameters and product's characteristics that shall be available to all competent services;
- Process and equipment approval.

3.3. Product approval

It applies to purchased parts and materials, produced by Cimos suppliers. The procedure is used to evaluate the conformity of product with product definition. The presentation of initial samples shall be performed in the following cases:

- New product
- Modified product
- Product from a new tool, device, ...
- Product from a modified tool, device, ...
- Product from a new production line
- Modified production process
- After interruption of production, longer than 6 months
- New supplier

Initial samples represent a quantity of products, produced with serial production means. The purpose is to verify if requirements and definitions of product/ process and their applicability are met. The minimum quantity of initial sample is the quantity produced within 1 to 8 production hours i.e. minimum 300 consecutive parts. (PPAP, 4th edition, 2.1. Significant Production Run). Samples shall be presented together with a report that is in conformity with the PPAP. (Production Part Approval Process). An incomplete or not presented report may be a cause for rejection.

The consignment of initial samples shall differ from other samples and must be denoted with a label »INITIAL SAMPLE« (see supplement). The initial sample at the supplier's must be clearly denoted and stored in an adequate area.

If not otherwise stated, the standard requirement is »Submission level 3« for components and »Submission level 2« for materials. If Cimos customer demands are different presentation, such requirements are transferred to the supplier. Cimos may require from the supplier to perform PPAP »Submission level 5«. It is performed in the supplier's facility.

Initial sample presentation that is not in conformity with the requirements can be performed only upon consent from the user plant quality office.

Sampling results:

Approved

- All requirements from requested PPAP are met; when the initial sample is composed of many components, all the components must have the status "Approved".

Other

- Awaiting for a result of functional test;
- Temporary approval of a deviation from the customer, Cimos R&D or Industrialization;
- When one or more components of one initial sample have the status „Other"
- An activity defined in the term plan of product/process development has not been performed;
- Minor nonconformities with the drawing, specification or PPAP requirements.

Rejected

- Deviation of functional characteristics
- NOK performed functional test
- NOK performed confirmation at final customer
- If one/more elements of a system have the status “Rejected”
- Incomplete presentation file

A representative of incoming inspection of a particular plant shall inform the supplier about the product/material’s status of applicability with a signature and an evaluation.

In case when the supplier is given the status “Rejected” or “Other”, the supplier shall present corrective actions for the passage to status “Approved” within 7 days.

The presentation report shall contain the following

Contents of the PPAP report			
	X - required; **o** – not required	Components (level 3)	Materials (level 2)
1.	Design records of Saleable Products	x	o
2.	Engineering Change Documents	x	o
3.	Customer Engineering Approval	x	o
4.	Design FMEA	x	o
5.	Process Flow Diagrams	x	x
6.	Process FMEA	x	o
7.	Control plan (QM plan)	x	x
8.	MSA analysis	x	o
9.	Dimensional Results	x	o
10.	Material, Performance Test Results	x	x
11.	Initial Process Study (CP, CPK)	x	o
12.	Qualified Laboratory Documentation	x	o
13.	Appearance Approval Report - AAR	x	o
14.	Sample Product	x	x
15.	Records of Compliance With Customer Specific Requirements	x	o
16.	Part Submission Warrant - PSW	x	x
17.	IMDS number	x	x
18.	Reports - OEE, Run/Rate	x	o

Based on a long-term relationship and experiences with a supplier and upon agreement with the incoming inspection representative, the Presentation report can be divided to three further groups.

Group A

- well-known supplier; no issues registered during sampling and serial deliveries
- simple product for production or modification
- in-house supplier
- family of related products; one product is presented according to requirements of group 2 or 3, the others according to requirements of group A

Group B

- new supplier
- quality issues
- problems with products that have undergone similar production process
- new production process

Group C

- inadequate supplier's measuring and other equipment
- new production processes, unknown process stability
- demanding products, production processes difficult to supervise, consulting with experts
- documentation, products with special record keeping requirements

3.4. Special characteristics

All product/process characteristics are important and shall be controlled, to guarantee their conformity. Special characteristics may be:

- safety characteristics,
- characteristics subject to legislation,
- functionally relevant characteristics, and process critical characteristics.

These characteristics are defined in design documentation and/or are the result of CIMOS' or supplier's FMEA. The supplier shall denote such characteristics in the following: on a drawing, technological procedure, QM plan, different reports. Each deviation from the characteristics may have a negative impact on a product, its function, legislation, quality of further operations therefore; special controls and audits must be performed.

3.5. Layout inspection and functional verification

As per IATF requirement, section 8.6.2 Layout inspection and functional verification to applicable customer engineering material and performance standards shall be performed for each product as specified in control plans. Results shall be retained at supplier end shall to be send to Cimos upon request.

3.6. Statistic methods

Ascertainment and results acquired with the help of statistic methods and tools are designed for quality management and initiation of preventive/corrective actions. A comparison of the achieved with a stated objective is the component part of statistic methods and tools.

Statistic methods are used in all product/process development phases, in controls and tests of external supplies, and in all production process' phases.
Under **statistic methods and tools** we can range: sampling plans, control charts, process capability Ppk, Cpk, capability of testing/measurement equipment and capability of machines Cpm.

Before the employment of a particular method, it is necessary to define the adequate dimension of a sample. When defining the dimension of a sample it is necessary to consider the objective of analysis and the type of method used. To establish a more accurate status within the population it is necessary to perform random sampling in equal intervals. When control charts are used the optimal dimension is n=5 and the minimal is n=3. To establish process capability the planned number of samples shall be taken throughout a longer period. By doing this we can include all impacts occurring during production and which may increase the difference of measurements. To establish the capability of a machine, the planned number of samples shall be taken throughout a shorter period, to establish if the machine is capable to be used for a planned production process.

Process capability is defined with a comparison of variations in a process and with tolerances' limits. Results of such comparison are the indexes of capability: Cp,Pp,Cpk,Ppk and Cpm.

Cp and **Cpk** describe **potential process capability**. If we eliminate the unusual causes of variations the potential process capability is the best capability we can expect to obtain. **Cpk** is used if:

- process is in statistic control,
- to anticipate process capability,
- if grouping of sample is possible,
- samples are taken periodically, min. n=3 as a basis to improve the process.

Pp,**Ppk** describe the **real process capability** and consider all variations within a process. **Ppk** is used:

- to evaluate real process capabilities,
- if we cannot verify whether a process is in statistic control,
- during test series,
- if grouping of samples is not performed and
- if samples are taken periodically at n=1.

Sampling periods are defined for each case separately.

With **Cp,Pp** we can evaluate the difference of measurements, i.e. we establish under what conditions the process can be maintained within a tolerance.

Cpk,Ppk indicate the certainty according to which a process can be maintained within tolerance limits and at the same time it considers the status of a medium value. **Cpm** *defines* the span of process and movements of the medium value from the nominal value and compares them with the area of tolerance limits. If not otherwise stated the process capability is proved and assures the required quality in the following cases:

- Short term process capability - **Cmk ≥ 1.67**
- Preliminary process capability – **Ppk ≥ 1.67**
- Long term process capability - **Cpk ≥ 1.33**

3.7. Process FMEA

FMEA - **F**ailure **M**ode and **E**ffect **A**nalysis is an analytic preventive method used to avoid occurrence of potential errors before they occur. This method is used for early detection of errors and for cost reduction and reduction of risks deriving from errors. This procedure is performed: in case of development of new processes, modification of processes, deviation from the planned quality and continuous improvements of quality.

Before we start the analysis, the following incoming data shall be available:

- specific customer's requirements,
- product FMEA,
- production requirements,
- assembling and mounting requirements,
- product function,
- purpose of product,
- product's environment,
- special requirements,
- QM plan for prototypes and series, samples, prototypes,
- history of defects in similar processes.

FMEA is performed in five steps:

1. **Process structure and elements** – familiarity of a process and of a production system whose part is the process under analysis;
2. **Functional analysis** – analysis of single process operations and their impact on process;
3. **Analysis of possible errors** – "brainstorming" of possible errors; errors are connected and form a mesh of errors;
4. **Risk analysis** – each error scenario is ranked and evaluated from three points of view:
   - importance for the customer,
   - occurrence / repetition of error and
   - detection possibilities.

   This step defines major risks.
5. **Optimisation** – major risks are reduced with corrective actions.

3.8. Management of changes with 2nd Tier suppliers

Suppliers are responsible for the development of their sub-suppliers according to previously mentioned methods. If a supplier wishes to change a sub-supplier, the supplier is obliged to obtain CIMOS' approval. CIMOS holds the right to evaluate and release suppliers. Each change of suppliers, locations or equipment means that a new confirmation of a product/process is needed.

3.9. Process, product modification

Each product or process modification at suppliers' shall be approved by CIMOS. The supplier is obliged to keep and if necessary to present the history of modifications on a product or in a process. Each modification requires a new presentation of PPAP.

3.10. Containment of logistics and quality nonconformities

Reclamation is every detected deviation of a product from defined requirements. It may be technical or logistic. A supplier shall take over the responsibility and the costs occurred in accordance with *Technical Supply Terms*. Upon receipt of reclamation, the supplier shall implement corrective actions to prevent re-occurrence of error, will mitigate the consequences and assure smooth provisioning. **Immediate actions (3D)** shall be reported within 24 hours upon receipt of reclamation. **Further actions (8D)** shall be presented within 10 days, if not otherwise agreed. With the objective to pursue the cause and to solve it a supplier shall implement the methods of 5 *Why*, *8D* and verification of the action's efficacy.

5 Why method is used for detection and analysis of the main problem. The analysis defines the cause-consequence relation leading to the source of a problem. A standard procedure of problem solving is composed of four steps:

1. *Comprehension of problem* – it is necessary to identify, clarify, analyse, locate the cause of problem and to comprehend the course of problem;
2. *Research of the cause* – an analysis is performed to detect the cause:
   - of a specific problem,
   - why the problem has not been detected previously and
   - why the system permitted the occurrence of a problem ;
3. *Problem solving* – definition and performance of activities aimed to solve the problem; if the main cause is not known then short term actions will be taken to protect the customer; when the activities are implemented we must monitor their efficiency;
4. *Preventive activities* – activities that will guarantee the non-occurrence of a problem in future; they have to be transferred transversally to familiar processes.

On the basis of a defined cause we can define:

- adequate preventive or corrective actions,
- implementation times and
- responsible persons.

Such actions are described in the **8D** form. The accuracy of implemented actions is controlled by **monitoring the efficiency of actions**. Delays in presenting the actions will be subject to compulsory measures and will influence on the evaluation of a supplier. Penalties are defined in the General Purchasing Terms (GPT).

Main steps to fill-in the 8D form:
D0 – preparation for the method 8D,
D1 – definition of a team,
D2 – problem description,
D3 – definition of temporary corrective actions,
D4 – definition of the main cause and why it was not detected,
D5 – definition and confirmation of continuous corrective actions,
D6 – implementation and validation of continuous corrective actions,
D7 – prevention of re-occurrence,
D8 – revision of the group's contributions.

3.11. Escalation process

With the aim of effectively solving problems and ensuring adequate quality and safety The Escalation Process is defined as described below.
The supplier development escalation model covers three stages and is designed to lead to supplier development through continuous monitoring and improvement.

Escalation scheme:

		Project		*Series*	
Escalation level	*Compliance with requirements / cause*	*Activity*	*Consequence*	*Activity*	*Consequence*
E1	▪ minor individual nonconformities	▪ Corrective Actions Plan	E1/1 Costs	▪ 8D on the basis of 5Why	E1/1 Costs E1/2 revision of actions
E2	▪ recurrent nonconformities ▪ jeopardised time-limits	▪ Corrective Actions Plan ▪ Support to supplier	E2/1 Costs E2/2 revision of actions at supplier's E2/3 stop of inquiries	▪ Improvement plan ▪ Introduction of CSL1	E2/1 Costs E2/2 extraordinary audit E2/3 repetition of PPAP
E3	▪ Jeopardized end customer	Presentation of the Improvement plan to the Cimos Management	E3/1 Costs E3/2 Withdrawal of projects E3/3 suspension of collaboration	▪ presentation of the Improvement plan to the Cimos Management ▪ Introduction of CSL2	E3/1 Costs E3/2 suspension of collaboration

Plan of improvements

Improvement plan can be issued in case of:
- disrespect of agreements and obligations,
- inadequate reactivity or
- negative quality trend.
- supplier evaluation results in grade B or C.

This is a programme of activities to be performed by a supplier with the intent to improve an unacceptable situation.

Steps are defined:
1. Issue of a plan of improvements,
2. Delivery of a plan of improvements,

3. Confirmation of conformity or rejection,
4. Presentation of a plan of improvements,
5. Reporting about the realisation of single points from the plan,
6. Monitoring and in case of a persistent negative trend conclusion or continuation.

CSL (Control shipment level 1 and 2)

The control of deliveries is a demand to allot (in 100%) nonconforming products outside the process. It shall be performed till cause of error is detected and solved. Supplier will be informed in written form about the implementation. The purpose of additional control is to prevent delivery of nonconforming products.

It shall be initiated upon CIMOS' request in the following cases:

- if a reclamation of a customer is an outcome of a supplier's error,
- repetition of quality problems,
- inadequate actions upon a reclamation,
- inadequate audit results at suppliers',
- instable suppliers' processes,
- unsuccessful improvement plan.

Two control levels are defined:

- **Level 1**: Control process is started by the supplier's employees in supplier's location. It consists of a problem solving process as well as a process of additional control.
- **Level 2:** Additional control process performed by third persons. Third persons are defined by CIMOS and costs are covered by the supplier. In special cases the Level2 can be performed outside the supplier's location, in a location defined by CIMOS.

4. Nomination, qualification and monitoring of suppliers

The Supply concept is based on selection, monitoring, evaluation and development of the supply chain. The main purpose is to develop an integral supply chain with the objective to achieve major operation efficiency of quality, competition, environment safeguard, in-time deliveries…

1 ⇨ Suppliers General Information

During the first contact with a supplier, the supplier will be requested to fill-in a form »*Suppliers General Information*« *and made self assessment of quality system management, environmental, health and safety as well as social responsibility.* A correctly completed and presented form is a condition for the classification in the database of potential suppliers. All data will be used for the selection of suppliers that will receive inquiries.

2 ⇨ General purchasing terms

Before start of the inquiry phase the supplier shall accept the »*General Purchasing Terms (GPT)*«, defining all terms of collaboration with CIMOS for all product families. The following parameters have influence on receipt of inquiries: release of supplier, developmental potential and risk evaluation.

3 ⇨ **Non-disclosure Agreement**

It regulates the confidentiality of the exchanged business secrets. We expect our suppliers' to sign the *»Non-disclosure Agreement«.*

4 ⇨ **Inquiry**

»Inquiry« is a form that contains all the data needed for preparation of offer.

5 ⇨ **Cost Analysis**

Offer shall be presented with *»Cost Analysis«.*

6 ⇨ **Nomination = Purchase order**

Supplier will be informed about the selection with *»Purchase order« or "Agreement".* The project has been launched and supplier selected.

7 ⇨ **Process development phase**

During Process development phase the supplier is obliged to inform us about the progress of activities described in Term plan.

8 ⇨ **Process qualification**

Before confirmation of initial samples, CIMOS will perform process qualification at the supplier's location for all strategic projects.

9 ⇨ **Initial sample**

Confirmation of initial sample (**PPAP requested Level**) is a condition for passage on serial deliveries.

10 ⇨ **Monitoring and evaluation of suppliers**

Upon positive confirmation of initial samples, the supplier will pass to serial deliveries and CIMOS will start to asses the supplier's performance and inform them about results and targets and specific requests.

Supplier must ensure:

1. **quality within the stated objectives,**
2. **100% quality and time conformity of deliveries.**

In case of deviations from the agreed, the supplier shall actuate actions and cover costs defined in the *»General purchasing terms«*. Supplier shall meet the FIFO system principles.

CIMOS evaluation is based on:

- Quality, environmental and health and safety requirements,
- commercial terms and
- in-time deliveries.

The evaluation will be performed at least once per year, for the previous year. Suppliers are informed about the evaluation with *»Supplier's Evaluation«*. Possible evaluations are:
A – confirmed supplier,
B – conditionally confirmed and
C – supplier not confirmed.

CIMOS' objective is to collaborate with suppliers ranged in group A. Suppliers ranged in group B or C shall present an improvement plan. Classification in group B and C may cause interruption of inquiries, projects and collaboration. If corrective actions are performed adequately, classification in-group A will be possible.

Suppliers shall develop their management systems and bring into effect continuous improvements programmes within the field of the Environmental Management and in accordance with the standard ISO14001 as well as Health and safety according ISO45001 (OHSAS 18001 or equivalent). Achievements in this field will reflect on the total evaluation of a supplier.

5. Social responsibility

For Cimos it is of paramount importance that corporate activities take account of the social responsibility to employees and to society as a whole. The Client and the Supplier share a common goal of operating in accordance with the directives of the UN Global Compact(Davos, 01/99) and the principles laid down by the International Labour Organisation (ILO) in the "Declaration on Fundamental Principles and Rights at Work" (Geneva, 06/98).

Supplier should confirm compliance with the applicable laws, directives and minimal ethical standards like example:

- preservation of human rights,
- elimination of discrimination on the basis of gender, race, origin, religion or belief, membership of a trade union or the like, handicap, age, sexual identity, nationality, marital status, political affiliation, veteran status or other characteristics protected by local laws,
- no harassment of whatever nature,
- no child labour,
- no forced or compulsory labour,
- no human trafficking,
- provision of conditions that enable employees to enjoy a reasonable standard of living,
- maintenance of adequate social working conditions,
- respecting of employees' privacy,
- protection of employees' identity and assuring non-retaliation against employees;
- enabling to employees continuous education and training,
- freedom of association and collective bargaining,
- compliance with occupational safety and health requirements,
- compliance with current laws and regulations,
- the prohibition of corruption and bribery.

The Supplier must ensure compliance with the above mentioned principles, with all subcontractors and sub-suppliers, and regularly monitor the effective compliance with these commitments.

To map ESG (Environmental, Social, and Governance) scores across our entire supply chain as part of our ongoing commitment to sustainability and in compliance with the latest European Union regulations under the Corporate Sustainability Reporting Directive (CSRD) the completing the self-assessment questionnaire is requested on the synESGy platform
If necessary, implement an action plan to improve ESG performance.

6. Supply chain management process