



Manual for suppliers

Guideline for Quality Assurance and Planning of Deliveries to

Lumel S.A. And Lumel Alucast Sp. z o.o.



Preamble

Lumel S.A. and Lumel Alucast Sp. z o.o., hereinafter called LUMEL, have the permanent goal of constantly exceeding the quality demands of our customers and thus excel and continuously improve the quality of service. To achieve our goals, a Start of Production with mature products and sustained production processes along the supply chain are required.

An integral part of the entire process chain is supplier of LUMEL who contributes decisively to the joint development and implementation of the ambitious quality targets. Therefore, in the cooperation with all our partners we expect total awareness of quality and a full-time commitment to improving quality at any time. Here, we understand supplier and LUMEL as equal partners of one team.

This Manual summarizes and defines the necessary procedures, requirements and methods to achieve the common quality targets. It forms the basis for mutual success in terms of quality and customer satisfaction.

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1. General

The English version is binding. Actual version is valid and replaces the previous one.

1.1. Introduction

This manual for suppliers is geared to implement a common quality management with the aim of securing and continuously improving the quality of product development and of the products. It provides the basis for the technical and organizational conditions and processes between the supplier and LUMEL and its affiliates which are necessary to achieve the desired quality objectives. It describes the minimum requirements for the management system of the contracting parties with regard to assurance and improvement of quality.

The supplier commits to comply with this manual.

This manual is valid for deliveries of production materials, spare parts and, if applicable, software for electronic parts for LUMEL products.

The provisions of this handbook apply in addition to the “General Terms and Conditions for Purchasing of LUMEL Inc. and its Subsidiaries”.

In case of contradictions, the provisions of this manual precede those of the General Terms and Conditions for Purchasing of LUMEL Inc. and its Subsidiaries”.

Any deviation from this Manual has to be agreed on separately in writing. For all of these standards and other regulations documented, their relevant version shall prevail.

1.2. Zero-Defect-Objective

For all suppliers of products the quality objective “Zero Defect” is imperative. This means that all structures and processes within the quality management of the supplier shall be aligned in a way that deviations from guidelines are systematically avoided (zero-defect strategy). The provisions of the Supply Contract shall apply to defects and other liability claims. Besides, in case of faults the supplier agrees to set up/lead/conduct a quality improvement program with the appropriate SQ organization of LUMEL.

1.3. Business Language

Business language is English, unless another agreement has been made mutually.

1.4. Selection of Subcontractors

The supplier commits to ensure his subcontractors’ compliance with this directive on quality and environmental management.

2. Management Systems

2.1. System requirements for Quality Management

LUMEL expects a certified quality management system according to IATF 16949 or VDA 6.1 as a base for the capacity of any supplier to manufacture and deliver products of required quality. Minimum requirement is the proof of certification to ISO 9001. In this case, a qualification plan for the implementation of IATF 16949 requirements shall be set up. A certified environmental management system following ISO 14001 or a plan for implementation of such a system should be in place.

Changes and updates shall be submitted voluntarily to the purchase department. If evidence is missing, a timetable for achieving the certification shall be submitted.

Certificates should be uploaded to the LUMEL.

3. Selection of Suppliers

3.1. Selection of Suppliers

Suppliers of LUMEL are classified as approved supplier if:

- the supplier is able to prove the implementation of a quality and environmental management system as described in section 2
- the requirements of the departments granting the approval (procurement, development, general logistics, quality assurance) have been met (e.g. by potential analysis or audit)
- the performance of the supplier under an existing Supply Contract has been positively evaluated

3.2. Potential Analysis

The Potential Analysis can be conducted according to VDA 6.3 procedure. It is used for the evaluation of Suppliers, locations, products and technologies and in some cases also development potential. It provides information for the sourcing decision based on comparable manufacturing processes and products.

3.2.1. Preparation

In order to gain information about a Supplier, a Potential Supplier Survey Form, response on RFQ and acceptance of Confidentiality Agreement (Manual and General Terms and Conditions), will be requested by the Purchasing department of LUMEL. The Potential Supplier ensures that at the time of the Potential Analysis, all relevant processes and documents shall be accessible to the audit team.

3.2.2. Process

3.2.2.1. Requirements and evaluation

Requirements and evaluations will be conducted according to VDA 6.3 and requirements of LUMEL and/or its customers.

3.2.2.2. Report and Improvement Plan

The report for the Potential Analysis will be handed to the evaluated company maximum 7 working days after the visit. The Supplier is obliged to submit the Improvement Plan with timing plan and follow up activities to the Purchasing Department within 10 working days after audit. In case of sourcing to be placed, the Improvement Plan of the Supplier must be implemented within the agreed deadlines. The effectiveness of the measures shall be demonstrated by the Supplier, without being requested, to the agreed deadlines, and the results shall be submitted to LUMEL.

4. Advanced Quality Planning

4.1. Feasibility Statement

The supplier shall attach to his offer a feasibility statement including a risk analysis and therein confirm that the product can be manufactured, packaged and shipped consistently according to the technical specifications and other agreements in the required quality and quantity.

4.2. Consideration of quality-related Aspects in Project Management

LUMEL reserves the right of project handling according to VDA guideline "Product development – maturity level assurance for new parts" or AIAG APQP

4.3. FMEA

Suppliers with design responsibility shall carry out a system/design FMEA for the part of their own design. The supplier shall carry out process FMEA for the entire process chain (from incoming to outgoing goods).

The implementation of FMEA for product and process has to be done based on AIAG FMEA or VDA volume 4 or AIAG & VDA FMEA. Wherever the FMEA has defined a high risk potential, detailed measures shall be planned, implemented and documented in order to optimize the product / process. The supplier has to check these measures for efficiency and have them documented.

4.4. Definition and Handling of quality-related Characteristics / Planning of Test Processes

The supplier has to consider here in particular the following:

- *Critical characteristics*
- *Significant Characteristics*
- *Safety Characteristics*

The necessary measures to ensure the quality-related features (e.g. work organization measures, error proofing, testing processes) shall be planned by the supplier and documented in the control plan.

4.5. Planning, Approval and Capability of Test Medium, Suitability of Test Process

The supplier shall design all concepts and test equipment in a way that all quality relevant features of the product and the manufacturing processes can be tested in a way that compliance with the specifications is monitored effectively. The capability of the equipment to be tested as also the suitability of the applied test processes have to be proved by applying an accepted procedure in accordance with AIAG MSA or VDA volume 5. The reference of the used test and measurement equipment used during verification of the relevant characteristics of product and process shall be documented in the control plan.

4.6. Manufacturing Resources and Machine Capability

The supplier has to plan all necessary manufacturing resources and external means of transport in a way that they are available in sufficient manufacturing capacity. Cmk >1.67, unless otherwise stated). Evidence shall be submitted to LUMEL upon request.

4.7. Control Plan

The supplier shall set up a control plan according to IATF 16949. LUMEL reserves the right to both adjust and verify the appropriate definition of quality-related characteristics (section 4.4) and the control plan itself.

4.8. Contingency Plans

In order to mitigate the impact of unforeseen events (such as tool breakage, machine failure, software loss); contingency plans have to be set up not later than the pilot series for all process steps which can impact quality and delivery reliability. These contingency plans shall be updated at regular intervals. The contingency plans shall be submitted to LUMEL upon request.

4.8.1. Warranty Periods

To be agreed on separate Warranty Agreement depending from customer

5. Parts Identification,

5.1. Labeling of Production

All parts shall be identified according to the requirements of LUMEL.

6. Approval of Products and Processes

6.1. Parts Classification / Submission

All new materials which are purchased by LUMEL are assigned to submission based on PPAP. The submission level depends (but is not limited), from criteria defined in PPAP. For specific cases LUMEL may define different submission level.

Supplier may apply for a different submission level at any time. A new submission level needs to be approved by the Quality Manager of LUMEL.

6.2. Initial Sampling, Requirements

Initial samples, which have to comply to PPAP or VDA volume 2, are requested by the purchasing department to a defined date for:

- *New parts*
- *Technical changes*

The supplier shall provide the relevant parts history for sampling. For parts which are subject to an approval for the design type, the supplier shall obtain the necessary approval and submit it to LUMEL. In case the initial sampling deadline cannot be met, the supplier has to inform immediately the responsible purchaser and the relevant SQ organization of LUMEL in order to agree upon the necessary measures.

The supplier has to inform the purchasing department and the relevant SQ organization responsible of the following situations among others:

- *Planned product changes*
- *Planned changes to tools, technologies and materials*
- *Planned changes to production process*
- *Planned relocation of production*
- *Planned changes to the packaging or logistics processes*
- *Proposed new sub-contractors or changes of subcontractors*

The information shall be submitted timely and in the agreed format to allow the assessment of the impact and to take necessary steps prior to implementation.

Requirements for a new product and production process approval shall be coordinated with the relevant SQ organization of LUMEL.

7. Development of Suppliers

7.1. Supplier auditing

LUMEL is authorized to look into and evaluate the quality capability and performance of its suppliers and subcontractors on-site. This assessment is usually done in form of process and product audits, in exceptional cases even in form of a system audit. The supplier shall grant both LUMEL, the customer of LUMEL and agencies that are responsible for motor vehicle safety, approval and homologation or similar the right to check on-site whether the supplied products, processes and/or services meet the agreed requirements. During these audits LUMEL is authorized to look into related documents and records of the supplier.

The supplier commits to implement the measures defined within the agreed deadlines.

7.2. Supplier Evaluation

The departments of LUMEL evaluate the quality capability of a supplier on the basis of fixed sector-specific criteria (e. g. Quality, Logistics, Purchasing). The supplier will be informed about the evaluation systematic and the result thereof. Results of Supplier Evaluation are considered also for defining/setting audits planning. In case of C classification the supplier automatically gets the status “new business blocked” until the implementation of an improvement plan and getting minimum B classifications (if not otherwise agreed). In accordance to LUMEL expectations described in chapter 2.1 , suppliers without certified Quality Management System cannot be classified as A supplier.

7.3. Improvement of Supplier Capability

LUMEL prefers to work with A-suppliers. This applies both to suppliers with whom LUMEL already does regular business and to new suppliers. If the result of the Supplier Evaluation is in a B- or C-classification, further development to an A-supplier is required. In this case the supplier has to define corrective actions. Where appropriate, the necessary measures will be agreed with LUMEL. The measures will be implemented independently by the supplier. If LUMEL provides agreed services to support the supplier, the supplier bears the costs. If the assessment results in a C-classification, it will be decided case by case how to proceed.

8. Series Production Support

8.1. Requalification of Delivered Products

The supplier is obliged to check regularly that his scope of delivery meets all specifications agreed with LUMEL. Requalification shall be provided according to IATF 16949 chapter 8.6.2.

The supplier provides the results of the requalification documents without request every 36 months, if not agreed differently, counting from the date of the first PPAP approval.

8.2. Continuous Improvement Process

In the current series production, the development and implementation of measures that lead to continuous improvement is one of the most important tasks. The following is mandatory:

- *Centering of the processes*
- *Increase of productivity*
- *Improving process capability by minimizing the variance*
- *Reduction of inspection frequency*
- *Reduction of scrap and rework*
- *Systematic analysis of complaints*

8.3. Self-Report by the Supplier

If the supplier determines that delivered products do not meet the agreed quality requirements, he shall report this immediately to the relevant SQ organization of LUMEL.

8.4. Quality Complaints from LUMEL side

All parts identified as erroneous (incoming inspection, assembly line, field complain) or as suspect state will be rejected. LUMEL does not carry out 100 % incoming goods checks. The supplier waives his defense of late notification. LUMEL informs the supplier immediately about defects of delivery once they are discovered in the course of normal business operations. The supplier shall be liable to LUMEL for all resulting damages from the failure to comply with the given regulations and other arrangements for quality management. The supplier shall take immediate action to ensure production processes and problem-solving. LUMEL may require the following immediate actions:

- *Additional 100 % checks to agreed features by the supplier at the supplier's and outside of supplier's plant*
- *Failure-free follow-up deliveries shall be labeled. The labeling shall be agreed with the relevant SQ organization of LUMEL*

- *Sending of evidence (e.g. inspection records, analytical reports) in compliance with the required specifications*
- *100 % verification of inventory in stock and at the assembly line of LUMEL and if necessary also at the customer of LUMEL by the supplier*
- *Return or pick-up of the NOK-parts from the LUMEL production site at the expense of the supplier within 5 working days*
- *Rework or replacement of the stock at LUMEL*
- *8D-process including 8D-report on implementation and documentation of problem solving measures*
- *Regular sending of a Supplier Progress Report.*
- *Identification of parts and packaging in coordination with the SQ organization of LUMEL for at least 3 consecutive deliveries*
- *In case of recurring errors an additional action plan has to be established in order to prevent another re-occurrence.*

If the supplier does not respond appropriately to the situation, LUMEL initiates necessary measures at the expense of the supplier in order to establish customer protection and to maintain production. If the supplier is not able to carry out the necessary measures such as testing, sorting and reworking by himself, he has to contract a service provider at his own expense and in agreement with LUMEL. Acceptance by LUMEL is required.

Information about approved service providers can be obtained from the relevant SQ organization of LUMEL.

The supplier has to decide immediately on the disposition of the NOK-parts at LUMEL and inform LUMEL correspondingly. Otherwise, the parts will be scrapped on Supplier cost at LUMEL Company.

In problem situations, escalation process is implemented.

8.5. Claim costs

LUMEL will debit all costs resulting from accepted claims to its suppliers.

Complaint costs can include but not limited to :

- *Labor costs – analyses*
- *Parts handling*
- *Material costs – scrapping costs*
- *Production delays*
- *Rework time etc.*

8.6. Escalation Process

In problem situations, three levels of escalation stages will be implemented.

8.6.1. Escalation Level 1 - Efficiency of Measures not sufficient, Failure re-occurs

- 100% incoming goods check at LUMEL at the expense of the supplier until accuracy is proven over a period of at least 3 series supplies, or, after approval by LUMEL, according to other agreements (such as day-related production, precise quantity, complete 8D-report).
- Joint meeting between the SQ organization of LUMEL, other departments concerned and the supplier within 5 working days.
- Coordination of actions on problem resolution in the short term to re-achieve the targets or the specifications.
- Optional measures:
 - Process Audit at the supplier (based on VDA 6.3), carried out by supplier (self-audit) or by LUMEL on supplier costs,
 - PPM-level improvement action plan – a plan to monitor quality performance of supplier - actions in order to achieve set target during the agreed time period
 - Measures to improve/secure the process, carried out by LUMEL at the supplier's premises and on supplier costs.

8.6.2. Escalation Level 2 - Measures from Escalation Level 1 not met or not effective

Escalation level 2 is carried out if escalation level 1 does not bring expected results and/or a downgrading to B- or C-supplier (Supplier Evaluation) takes place. In case of a downgrading to a C-supplier LUMEL defines the necessary steps and informs the supplier.

In consequences the Managing Director / Plant Manager of the supplier will be invited within 5 working days to present how the measures for a sustainable performance improvement will be realized.

8.6.3. Escalation Level 3 - Measures from Escalation Level 2 not met or not effective

Escalation level 3 is carried out if escalation level 2 does not bring expected results. LUMEL coordinates other measures such as:

- Regular reporting meetings with the Managing Director / Plant Manager of the supplier on LUMEL side
- Supplier support by LUMEL or 3rd party at the expense of the supplier
- Part resourcing
- Business on hold
- Subject-related additional expenses incurred by LUMEL in the context of problem solving will be charged to the supplier.

8.7. **Parts Re-Working**

The supplier shall inform the relevant SQ organization of LUMEL about each problem-related rework process on parts that are shipped to LUMEL. This rework process shall be approved by the relevant SQ organization of LUMEL in writing prior to shipment of the parts.

The supplier shall ensure by appropriate measures and provide evidence on request that the reworked parts meet all required specifications.

The reworked parts and the corresponding transport packaging shall be labeled appropriately, containing the following information:

- *Brief description of rework*
- *Contact person at LUMEL with whom the rework was agreed*

If defective parts cannot be reworked in a way that they meet all specifications defined, the supplier may send these parts with a special release only. The concession or deviation approval granted by LUMEL shall be available in writing.

Applications for concession / deviation approval should be directed to the relevant SQ organization of LUMEL.

In case of delivery of reworked parts without prior informing and approval, the supplier will be automatically raised to Escalation Level 2.

9. **Documentation**

The supplier shall provide sufficient documentation and keep records as evidence that the planning, development and manufacturing is done according to the specification.

Among other documents and records the following is mandatory:

- *Special characteristics according to IATF16949*
- *PPAP or VDA volume 2: Quality Assurance for Supplies Production process and product approval PPA*
- *MSA or VDA volume 4: Quality Assurance in the Process Landscape*
- *The supplier has to archive the documentation appropriately to VDA volume 1 but minimum 15 years.*

10. **Further applicable Documentation**

Applicability of the following documents is based on the actual release status.

- *LUMEL Quality Contract*
- *ISO 9001, IATF 16949 and all Customer Specific Requirements*
- *Publications of the Automotive Industry Action Group (AIAG)*
- *VDA reference books*

11. **Corporate Social Responsibility**

LUMEL Code of Conduct - the actual release status, is always mandatory. LUMEL will provide the actual version to supplier upon request.

The suppliers are obliged to support international standards on human rights, labor conditions, anti-corruption and environment.



The suppliers actions should guide by the United Nations Global Compact's ten principles in these areas, in particular:

- *The suppliers should support and respect the protection of internationally proclaimed human rights and make sure that they are not complicit in human rights abuses.*
- *The suppliers should uphold the freedom of association and the effective recognition of the right to collective bargaining, the elimination of all forms of forced and compulsory labor,*
- *The suppliers is obliged to the effective abolition of child labor and he elimination of discrimination in respect of employment and occupation and do not engage subcontractors or suppliers that do so*
- *The suppliers should support a precautionary approach to environmental challenges, undertake initiatives to promote greater environmental responsibility and encourage the development and diffusion of environmentally friendly technologies.*
- *The suppliers should work against corruption in all its forms, including extortion and briber.*

As an employer, the suppliers accepts the basic labor rights stated by the International Labor Organization (ILO): freedom of association, the effective recognition of the right to collective bargaining, the abolition of forced labor, and equality of opportunity and treatment.

We do not allow behavior that is physically coercive, threatening, abusive or exploitative.

12. Abbreviations

<i>8D</i>	<i>Eight Disciplines Problem Solving</i>	
<i>AIAG</i>	<i>Automotive Industry Action Group</i>	
<i>APQP</i>	<i>Advanced Product Quality Planning</i>	
<i>CAD</i>	<i>Computer-Aided Design</i>	
<i>Cmk</i>	<i>Critical Machine Capability</i>	
<i>Cpk</i>	<i>Process capability index</i>	
<i>CSR</i>	<i>Customer Specific Requirements</i>	
<i>D/TLD Audit</i>	<i>VW audit requirements Formel-Q</i>	
<i>FFA</i>	<i>Field Failure Analysis</i>	
<i>FMEA</i>	<i>Failure Mode and Effect Analysis</i>	
<i>ID number</i>	<i>Identification Number</i>	
<i>IMDS</i>	<i>International Material Data System</i>	
<i>Inc.</i>	<i>Incorporated</i>	
<i>ISO</i>	<i>International Organization for Standardization</i>	
<i>LOP</i>	<i>List of open points</i>	
<i>MSA</i>	<i>Measurement System Analysis</i>	
<i>NOK-part</i>	<i>Not Okay Part</i>	
<i>NTF</i>	<i>No-trouble-found</i>	
<i>OEM</i>	<i>Original Equipment Manufacturer</i>	
<i>PPAP</i>	<i>Production part approval process</i>	
<i>PPF</i>	<i>Production process and product release</i>	
<i>Ppk</i>	<i>Preliminary Process Capability</i>	
<i>PPM</i>	<i>Parts per Million</i>	
<i>PSB</i>	<i>Product Safety Officer</i>	
<i>Q-State</i>	<i>Quality State</i>	
<i>RPS</i>	<i>Reference Point System</i>	
<i>SAP</i>	<i>Enterprise Resource Planning System</i>	
<i>SOP</i>	<i>Start of Production</i>	
<i>SPR</i>	<i>Supplier Progress Report</i>	
<i>SQ</i>	<i>Quality Specialist</i>	<i>VDA German Association of the Automotive Industry</i>