

melecs

supplier manual

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1. Introduction

The business world is more and more characterized by extreme volatility and competition. Social and environmental responsibility have become increasingly important to fulfill Customers' needs. Furthermore, the trend of a rising percentage of outsourcing means more effort but also more scope for action. For all these reasons, cooperation with Suppliers plays a vital role in staying flexible and competitive, so that MELECS' goal of offering high quality and meeting quality requirements at best costs can be reached.

MELECS Supplier Manual builds the basis for cooperation with Suppliers and is a document agreed on by Supplier Quality, Purchasing, and Logistics. Our Supplier management approach, MELECS' philosophy as well as MELECS' expectations concerning quality, purchasing, logistics, technology, relationship and sustainability requirements are stated.

The Supplier Manual applies to all organizations supplying MELECS (including all branches) with raw materials, semi-finished or finished goods as well as intangible goods like software. Suppliers accepting purchase orders as well as potential Suppliers have to read, understand and fulfill the requirements of this Supplier Manual. The acknowledgement of this manual has to be given by signing it in Section 10. The valid version of all forms is available on the MELECS homepage. It has to be mentioned that this Supplier Manual is seen as supplement to any other quality/purchase/logistics agreements, purchasing conditions, engineering drawings or specifications and other contractual documents and does not replace or alter any other document. Improvements by Suppliers exceeding the requirements stated are always encouraged.

MELECS is looking forward establishing long-term relationships with Suppliers that are beneficial for both sides.

1.1 About MELECS

MELECS is developing and producing electronic components for the sectors Automotive, Lighting, White Goods and Industry. MELECS is the largest electronics manufacturing service provider with Austrian roots, accounts for sales revenues of about 450 million euros (FY 2022) and benefits of more than 25 years of experience. At the highly automated electronics production lines in Siegendorf/Austria and Győr/Hungary, medium to large numbers of printed circuit board assemblies and electronic devices are produced. In Vienna MELECS Holding and R&D are located. The sites in Wuxi/China (MELECS EWW) and Querétaro/Mexico (MELECS EWQ) are producing for our global Customers.

In the following the Supplier Quality Management, Strategic Purchasing, Operational Purchasing and Logistics Department are presented.



1.2 Global Strategic Purchasing

1.2.1 The Supplier Quality Management Department

Supplier Quality Management (SQM) at MELECS is part of Global Strategic Purchasing and is one major element of our strategy. SQM is profiting of a solid internal network including supplier quality employees from Siegendorf, Győr, Wuxi and Querétaro. The aim is to guarantee a solid Supplier base offering high quality.

Generally, the SQM Team is carrying out the following tasks:

- Controlling, monitoring and development of Suppliers
- Defining quality requirements (e.g. ppm rates, complaint reaction time)
- Supplier auditing and pre-evaluation
- Cooperation with Strategic Purchasing in Supplier selection and evaluation
- Advanced product quality planning (APQP)
- Cooperation with Strategic Purchasing in creating quality assurance contracts
- Validation of conformity according to quality requirements
- Arrange production part approval process with the Suppliers (PPAP)
- Complaint management
- Quality improvement plans for Suppliers

The following quality documents are created internally by MELECS:

- Potential analysis report (before Supplier selection)
- Annual audit report of series Suppliers
- Complaint reports
- Sorting result reports
- Incoming goods audit report

The SQM Department is a team categorized in the areas Supplier Quality Engineering, Incoming Inspection Quality and Supplier Quality Assurance.

Supplier Quality Engineering is concerned with all tasks that ensure that no defective inputs are used in production:

- Complaint controlling/management and monitoring of respective costs and damages
- Implementation of preventive quality techniques
- Blocking or release of complained purchased parts
- Organization of sorting actions for purchased parts
- Monitoring of blocked purchased parts and organization of returns
- Statistical analyses of Supplier evaluation



Incoming Inspection Quality accounts for:

- Execution of incoming inspection after ID check, collaboration in the definition of inspection scope
- Processing of attached documentation (COCs, inspection certificates, material certificates, measurement protocols, etc.)
- Clarification of ID check deviations, collaboration in eventual extraordinary releases (CCC, CA)

Supplier Quality Assurance is responsible for:

- Supplier auditing
- Performance of process analyses and improvements regarding qualitative and logistics processes at Suppliers
- Performance of advanced product quality planning for purchased parts (APQP)
- Monitoring of new product/process introductions
- Organization of initial sample reports
- Guaranteeing the documentation of the release status of the purchased parts
- Evaluation and release of the PPAP documents according to VDA or AIAG PPAP

1.2.2 The Strategic Purchasing Department

The other part of Global Strategic Purchasing is the Strategic Purchasing Department in the narrow sense. The Strategic Purchasing Department is following a Lead Buy Concept with Purchasing Managers being positioned at different locations. Category Strategies have been developed for the different product categories and types. These are detailed strategies which provide the responsible persons with detailed information and objectives in order to take profound decisions and ensure comprehensiveness.

The Strategic Purchasing Team is carrying out the following tasks:

- Supplier management
 - Supplier selection
 - Supplier evaluation
 - Supplier classification
 - Cooperation with SQM in Supplier development
- Supplier risk management
- Contract management
- Price negotiations
- BOM pricing



1.3 The Operational Purchasing and Logistics Department

MELECS defines logistics as integrated logistics planning, organization, steering, processing and controlling of the external material and goods flow and the closely related internal information flow. The Logistics Team ensures that qualitatively appropriate material and parts are available for production and that finished goods are delivered to the Customer at the right time.

The structure of the Logistics Department is divided in the following areas:

- Operational purchasing
- Logistics
 - Incoming goods
 - Warehouse inbound & internal logistics
 - Warehouse outbound & shipping

The Operational Purchasing and Logistics Department is responsible for:

- Sending information about needs one year in advance (if possible)
- Sending forecasted quantities per part to the Supplier once a month
- Creating purchase requisitions
- Placing orders via E-Mail, FAX or EDI
- Monitoring purchase orders
- Ensure material availability for production: Material supply according to SAP-stated needs at appropriate prices and time
- Transferring material to other locations
- Checking incoming goods for the quantity and identification label
- Storage of parts and finished goods
- Shipment: transport organization, special transports, empties from Customers, returnable boxes
- Escalation management: Identification of critical parts for procurement

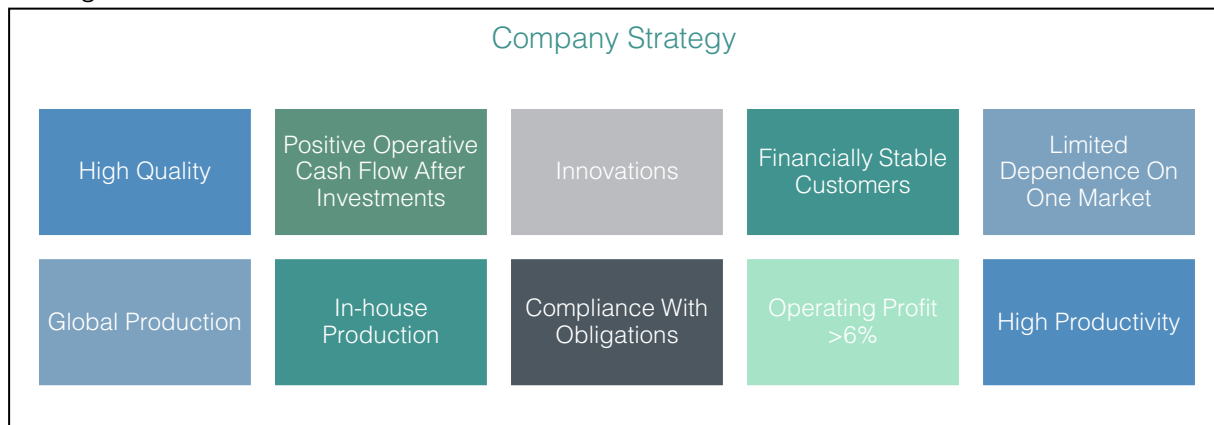
1.4 Values & Principles

MELECS' strategy is to reach profitable growth through innovation, productivity, sustainability and responsible employees. The expectations and satisfaction of our Customers are the driving force for our organizational, technical and economic activities. It is our goal, to become the preferred partner for our Customers and their business partners.

As only an economically solid company in the long run is a reliable partner for Customers and Suppliers, we constantly work on increasing productivity and decreasing failure costs to achieve a good economic result. Through continuous improvement of our processes, based on determined quality and environmental goals as well as the application of a living quality

policy, we constantly increase our performance regarding processes, quality and environment. We strive to sustainably develop and manufacture safe products for the market.

Our Suppliers have a significant influence on the quality and environmental impact of our products. Thus, we work together with the best Suppliers and actively operate Supplier management including cooperation and development as essential factors of our business success. High quality and reliability of technical products as well as competitiveness in the market are essential and can only be achieved by optimizing cooperation of MELECS and Suppliers between the individual stages of manufacturing, determining the applicable quality assurance system and testing methods, reducing processing times and avoiding duplicate testing.



1.5 Supplier Code of Conduct

The Supplier Code of Conduct defines the principles and requirements of MELECS to be followed by its Suppliers of goods and services in respect of their responsibility for individuals and the environment. MELECS reserves the right to change the requirements of this Code of Conduct in the case of moderate changes of the MELECS Compliance Program. In such case, MELECS expects its Suppliers to accept these moderate changes.

The Supplier herewith declares:

Compliance with laws

- to comply with the laws of the respective jurisdiction(s).

Prohibition of corruption and bribery

- to not tolerate or engage in any form of corruption or bribery, including any unlawful payment offers or similar gifts to government officials to influence the decision-making process.

Respect for fundamental rights of staff members

- to promote equal opportunities and equality of its staff irrespective of their color, race, nationality, social origin, disability, sexual orientation, political or religious conviction and sex or age;
- to respect the personal dignity, privacy and personal rights of each employee;
- to not employ or force anybody to work against his will;
- to not tolerate unacceptable treatment of workers, such as psychological pressure, sexual and personal harassment or discrimination;
- to not tolerate any behavior (including gestures, language and physical contacts) that is sexually harassing, coercive, threatening, abusive or exploitative;
- to provide for adequate remuneration and to guarantee the statutory national minimum wage;
- to comply with the statutory maximum working time of the respective state;
- to acknowledge, as far as the law permits, the freedom of association of employees and to neither prefer nor discriminate members of employee organizations or trade unions.

Prohibition of child labor

- to not employ workers who have not attained the minimum age of 15 years. In countries, falling under the exception for developing countries under the ILO Convention 138, the minimum age may be reduced to 14 years.

Health and safety of staff

- to assume responsibility for the health and safety of its employees;
- to reduce risks and to provide for best possible precautionary measures against accidents and occupational diseases;
- to offer training and ensure that all staff members are well informed about industrial safety issues;
- to set up or apply an industrial safety management or equivalent scheme.

Environmental protection

- to observe and comply with environmental legislation and international standards;
- to minimize environmental pressures and to continuously improve environmental protection;
- to set up and apply an environmental management scheme pursuant to ISO 14001 or an equivalent scheme.

Supply Chain Involvement

- to promote compliance with the contents of the Code of Conduct by its Suppliers;
- to observe the principles of non-discrimination when selecting and dealing with Suppliers.

1.6 Mission & Vision

Our vision is to increase further our competitive market position in order to guarantee continuous success of MELECS and its Suppliers.

The mission of the SP Department of MELECS is to ensure that our supply base is constantly improving in terms of quality, lowest costs, offered service, lead times and prevention of quality and delivery disruptions.

The mission of SQM is to ensure constant, secure and qualitatively high product supply by selected Suppliers.

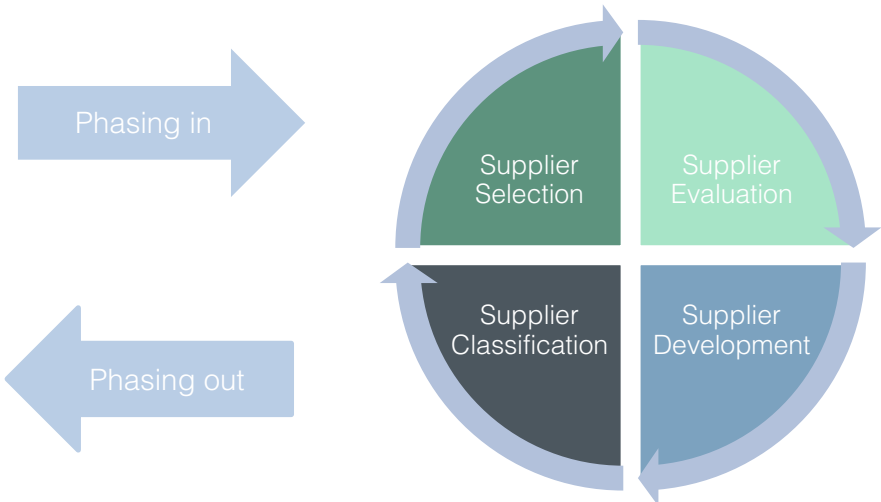
The mission of OL is to provide optimal inbound and outbound flows of material and parts at the right time and place.

1.7 Corporate Quality Policy

MELECS Quality Policy aims at fulfilling our Customers' quality requirements at competitive prices. Therefore, we continuously improve our processes to work already towards our Customers' future requirements. The target is to achieve zero defects together with our Suppliers. Suppliers are checked, monitored and developed via regular Supplier evaluation and resulting actions/audits are carried out to secure continuous quality delivered by our Suppliers.

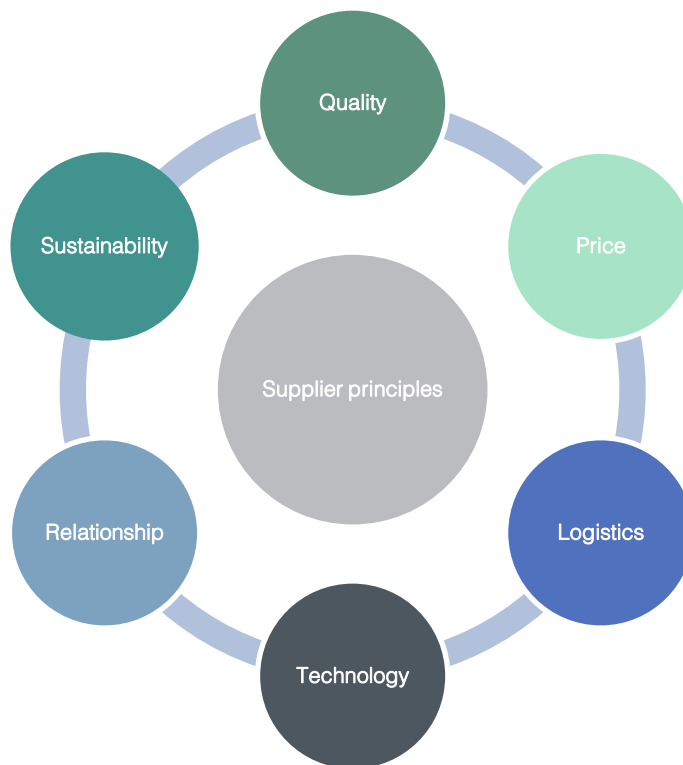
2. Supplier Management

Supplier Management deals with aspects concerning Supplier selection, evaluation, development and classification as can be seen in the following cycle:



2.1 Supplier Selection

MELECS is using a decision matrix for Supplier selection. The Supplier that fulfills needs at the best is selected according to: Quality, Price, Logistics, Technology, Relationship and Sustainability.




MELECS prefers to be an A-Customer for its Suppliers, receiving best service. It is a necessity that Suppliers have well English-speaking employees in Sales, Marketing, Quality and General Management. Otherwise, a good communication basis is not given and collaboration is more complicated, also because MELECS' Customers require English materials and contact persons speaking English.

For new projects, Strategic Purchasers are checking the existing Supplier base as well as available supply in the market. The goal is to compare offers from different Suppliers in order to choose the one offering the best combination. Prerequisites include transmission of all requested information and documents such as Supplier self-assessment, financial information and non-disclosure agreements. Audits are carried out to clarify technological prerequisites. In case a new Supplier would be the best choice, an approval process has to be started.

2.2 Supplier Evaluation

Supplier evaluation is the systematic evaluation of a Supplier's performance with respect to certain criteria. Suppliers are classified in four categories, meaning an ABCD-Supplier-Analysis is carried out. A quarterly Supplier evaluation is conducted for Suppliers delivering high risk or high volume products or showing bad performance and high reclaim rates. After completion of the evaluation, the Supplier is informed about the outcome and is asked to provide suggestions for performance improvement, if necessary. Suppliers are monitored



regarding their performance since it influences directly the performance of MELECS. Bad performance results in further investigation and evaluation, in case of needed action from MELECS side (e.g. Supplier development). More information about MELECS Supplier evaluation is available online on the MELECS homepage.

2.3 Supplier Classification

MELECS is dividing Suppliers into four groups:

- A Suppliers are preferred Suppliers and belong to the best Suppliers for a given period.
- B Suppliers are accepted Suppliers, meaning that they are good and fulfill the requirements of MELECS. Nevertheless, the need for improvements is given and should be appealed by the Supplier.
- C Suppliers are restricted Suppliers which do not meet the stated requirements to a large extent and are characterized by weaknesses.
- D Suppliers are desourced Suppliers. They do not comply with stated requirements.

Regarding cooperation, MELECS is maintaining partnerships with preferred Suppliers all around the globe. The goal is to establish sustainable and fair partnerships for the long term so that a win-win situation and profitable growth on both sides is achieved. Proactive and intensive communication is essential to avoid misunderstandings and make a profound basis for a good relationship. It is highlighted that there exists the necessity to regularly communicate with decision makers.

Especially with preferred Suppliers and strategic partners, early cooperation for new projects is important. This guarantees mutual knowledge exchange and saves time and resources. Another aspect is the support offered to the MELECS R&D department by specialists of Suppliers/Partners which is seen to be highly valuable.

Suppliers in the categories C and D have to be developed further. In some cases, MELECS might provide training and supplier development and is monitoring the supplier. If no improvements can be identified, certain actions are taken. Being more specific on that, if the Supplier's performance is categorized as C, MELECS will check with the Supplier which areas have caused this negative performance and will start with the Supplier necessary steps (review meetings, action plan) to improve the performance and to achieve an improvement via supplier development for the needed areas. In case the Supplier's performance is categorized to be D, MELECS has to check and decide whether the supplier can be put in the supplier development program. If yes, MELECS has to include the Supplier in the development program and has to follow the actions on a regular basis. If the supplier is not showing signs of potential development and especially if the Supplier is categorized as D Supplier in subsequent evaluations, MELECS has to decide about business on hold and further actions.



2.4 Supplier Development

Supplier Development as part of the SQM Department is one of the major aspects in establishing sustainable and valuable relationships with Suppliers. The idea is that Suppliers are supported and developed so that mutual benefits are achieved by continuous improvement. MELECS aims at identifying improvements for the quality management system of Suppliers by carrying out Supplier audits. Suppliers are asked to adopt recommended measures to improve their systems so that goods comply with the specified quality, quantity and lead time requirements. Another objective is to assist Suppliers with improvements in certain specified areas, by providing Suppliers with specified recommended measures.

MELECS is interested in developing, supporting and encouraging Suppliers offering high future potential or preferred Suppliers due to good quality, high degree of innovation and/or good relationship. Mutual understanding is key as well as working towards the same goals. Suppliers achieving excellent performance and Suppliers offering extraordinary high future potential are rewarded with the MELECS Supplier Award which is assigned once a year. The goal is to achieve a win-win situation by Early Supplier Involvement for which intensive collaboration with MELECS' R&D Department should be established for developing new products. This leads to early failure detection, cost savings and know-how transfer. It has to be highlighted that the Supplier's product portfolio should fit our requirements very well also with regard to future developments. Advantages for Suppliers being rewarded are further cooperation in new projects and direct access to and workshops with the R&D Department. In workshops, products can be presented, the benefit being to see where overlapping exists.

Further information can be found in the section Supplier Quality Improvement Program.


2.5 Sub-contractor Management

Before engaging any Subcontractor or changing a Subcontractor, Suppliers have to obtain written authorization of MELECS. In all cases, Subcontractors have to follow the requirements stated in the MELECS Supplier Manual. Furthermore, Suppliers are responsible for the quality of delivered products as well as for keeping documents available from the Subcontractor.

3. MELECS Expectations

MELECS is requiring its Suppliers to fulfil stated expectations or requirements. These refer to the above stated Supplier Selection Criteria, according to which MELECS demands:

- Quality - Consistent high quality
- Price - Competitive prices
- Logistics - On-time delivery and appropriate manufacturing capability and capacity

- 
- Technology - Innovative products and technical support
 - Relationship - Cooperative and valuable supplier relationships
 - Sustainability - Social and environmental sustainability

The stated expectations or requirements are described in detail in the following sections.

The Supplier concludes this document on behalf of itself and all of its subsidiaries, parent corporations and affiliates (collectively "Company"). For purposes of this document, the term "affiliate" means with respect to the Supplier, any corporation or other legal entity that the Supplier now or hereafter controls, where control means that the Supplier directly, or indirectly through one or more intermediaries, controls, or is controlled by, or is under common control with, the person specified.

4. Quality Requirements

4.1 General Quality Aspects

Since MELECS is offering high quality products to its Customers and is certified with the norm ISO 9001, IATF 16949 and ISO 14001, we expect Suppliers to also operate with high quality standards and to deliver consistent quality. Furthermore, continuous improvement is a main philosophy applied at MELECS. Hence, we also require our Suppliers to continuously improve their products and processes with regard to quality, prices, flexibility, technology, communication, relationship and sustainability.

Quality of delivered parts has to be as agreed on in the respective contract. This means that additionally to the Supplier Manual, MELECS defines the special project/Customer related quality targets in a Quality Assurance Agreement documentation. In case a ppm rate is fixed, deviations from this rate are not accepted and entitle MELECS to reject the entire delivered batch or to rectify or select parts of it in consultation with the Supplier at the Supplier's expenses.

All products to be delivered have to fulfil stated quality requirements and should be manufactured and inspected according to the rules of the quality assurance system implemented by the Supplier. Furthermore, Suppliers are asked to prove conformity during an on-site audit including the following stages:

- Plan and modify the product or service specific to MELECS requirements
- Design and develop the product
- Design and develop the process
- Verify the product and process
- Launch the product

- Apply corrective action if necessary

With reasonable advance notice (approximately 20 working days in normal cases, no more than 3 working days for quality issues), MELECS is entitled to conduct its own audit together with its Customers (Tier 1 or OEM) or to have an audit performed by a third party appointed by MELECS, who must not be a competitor of the Supplier, at the Supplier's premises during normal working hours in order to check compliance with the provisions of the QAA, Supplier Manual, SNA, etc. and the implementation of quality measures.

If the Supplier is provided with a sample or if a sample was produced by the Supplier and accepted by MELECS, construction and characteristic features of this sample are considered a completion of the description of the product to be delivered. The Supplier has to check and confirm its compliance with the sample and description. Only samples produced/sent for MELECS during sample process are valid. If the Supplier, its Sub-suppliers or Sub-contractors become aware in the course of engineering, production or testing of the product to be supplied that its description is faulty, misleading, incomplete or differing from the sample, the Supplier is required to immediately inform MELECS in writing about it and make proposals for remedy.


4.2 Quality Management System

MELECS expects its Suppliers to implement and guarantee an effective quality management system which is reflected in continuous improvement of products and processes, quality of delivered products, delivery reliability, communication, fast and effective handling of new and revised projects as well as corrective actions. The quality management system has to be described in a quality assurance manual or something similar.

MELECS Suppliers are required to be compliant with common quality standards, the minimum requirement being ISO 9001 for Suppliers of BOM materials, if not otherwise requested by the Customer. Suppliers possessing accredited certificates of IATF 16949 and ISO 14001 are preferred. Since we committed ourselves to environmental protection by establishing an environmental management system and getting the ISO 14001 certificate, we expect our Suppliers to also contribute to environmental protection in the long run. Please consider that the certification status is a part of Supplier evaluation.

MELECS requires the suppliers of automotive products and services to develop, implement, and improve a quality management system (QMS) with the ultimate objective of becoming certified to Automotive QMS Standard. MELECS' objective is to move suppliers through the following QMS development progression (using a risk based and performance based model), with the ultimate objective of becoming certified to Automotive QMS Standard.

- a) certification to ISO 9001 through third-party audits; suppliers shall demonstrate to MELECS the conformity to ISO 9001 by maintaining a third-party certification issued by a certification



body bearing the accreditation mark of a recognized IAF MLA (International Accreditation Forum Multilateral Recognition Arrangement) member and where the accreditation body's main scope includes management system certification to ISO/IEC 17021;

- b) certification to ISO 9001 with compliance to defined QMS requirements (as Minimum Automotive Quality Management System Requirements for Sub-Tier Suppliers [MAQMSR]) through second-party audits;
- c) certification to ISO 9001 with compliance to IATF 16949 through second-party audits;
- d) certification to IATF 16949 through third-party audits (valid third-party certification of the supplier to IATF 16949 by an IATF-recognized certification body).

MELECS categorises the suppliers and using a performance and risk based model for the supplier development - Suppliers are requested to proactively support these activities to show an improvement (e.g; in Supplier evaluation).


Changes of an approved certification have to be reported to MELECS within three business days of occurrence, expiration of certificates three months before expiry. Immediate notice is required if certificates are cancelled. In case Suppliers offer quality systems that are not certified by a third party, MELECS may choose to perform an on-site compliance assessment. In any case, MELECS reserves the right to audit and evaluate the quality management system, processes and products of Suppliers.

4.3 Archived Records and Reference Samples

Suppliers have to ensure appropriate record keeping including compliance with stated timely requirements. Records of the quality system have to be kept for 15 years, unless otherwise specified, to allow and facilitate failure analysis if necessary. Records to be retained include traceability records, process control records and other external quality documents which encompass:

- CoC (Certificate of Conformity)
- Special Characteristics Report
- PPAP (including all documents stated in 4.9.1)
- Production Evaluation Report

To be more specific, documents stating specifications from the developing to the production phase (e.g. FMEAs, drawings, control plans, all PPAP documents like initial sample test reports, reference samples, work instructions) have to be kept for 15 years (special characteristics) or 3 years (other characteristics) after production of series and spare parts ends. It has to be highlighted that these regulations do not replace legal requirements and might be changed (just increase), if predetermined differently by a MELECS Customer.



Longer archiving up to 30 years is recommended with regard to limitation periods of product liability claims. In case MELECS requires documents for proof of adherence to important product or material characteristics, Suppliers have to provide access to relevant documents.

4.4 Material and Product Traceability

Material and product traceability is essential to know where which parts or products are at what time. This allows for better control of goods flows and facilitates management. Traceability has to be available up to batch level. Mix of batches has to be strictly avoided and clear traceability of batches has to be ensured. Materials and products have to be handled, produced and delivered with a First In – First Out method. Furthermore, materials and products have to be clearly marked with a batch identification number and change status. Traceability codes and batch identification numbers have to be communicated to MELECS.

4.5 Special Characteristics

Another aspect concerns special characteristics. A change or deviation in these characteristics can have serious effects on product safety, functionality and lifetime, assembly capability, quality of following manufacturing operations and legal regulations. Therefore, Suppliers need to pay special attention to these special characteristics and must specify them in all relevant documents like FMEAs, control plans, work instructions, drawings, etc. The table representing the requirements for special characteristics can be found as download on the MELECS homepage.


In addition to the delivery note, a Certificate of Conformity (CoC) has to be sent with each delivery. The CoC confirms that all tests have been operated according to the control plan, all dimensions are fulfilled, all requirements for dangerous substances are fulfilled and the specified material is used.

4.6 Quality Planning

MELECS goal is to involve our Suppliers as soon as possible in quality planning of new projects and inform them in the early stage of product development of the special Customer and MELECS requirements. In case a new product has to be launched by a Supplier, several stages have to be passed reaching from design concept to production launch of the new component. Suppliers should use Advanced Product Quality Planning (APQP), a respective form is provided as download on the MELECS homepage.

APQP should already be implemented in the development and design phase in order to identify potential sources of failure at an early stage. APQP includes for example:

- Clear Customer or MELECS requirements regarding the supplied material/product
- Manufacturability analysis at the time of submission of the bid

- 
- Team Feasibility Commitment
 - Control Plan
 - Design and Process FMEA
 - Determination of important/special product and process features
 - Testing and inspection instructions based on the information obtained from FMEAs
 - Process, machine and measuring system analyses
 - Quality assurance of subcontracted product components
 - Appropriate design of packaging
 - Inspection of prototype components
 - Tests of compliance with specifications and production approval
 - Documentation

A Team Feasibility Commitment (TFC) from the supplier is definitely necessary by the supplier`s product quality planning team, to confirm, that the design can be manufactured, assembled, tested, packaged, and shipped in sufficient quantity at an acceptable cost, and on schedule.

For TFC, the AIAG format has to be used and the final TFC has to be confirmed to MELECS within APQP phase (before the PPAP).

After all Supplier APQP elements have been completed, the Supplier can submit the PPAP documentation package at the requested level of submission. The MELECS APQP document is available on the MELECS homepage.


4.7 Statistical Methods

In order to avoid errors, at least the following statistical methods shall be applied:

- Process capability analyses
- Inspection of incoming goods, work test certificates
- Qualification of testing and production facilities (process capability analyses, machine capability analyses, measurement system analysis)
- Qualification of the product (release testing) and requalification
- Process control (SPC, check-cards) for serial production
- Capture and analysis of field failures and analysis of 8D Reports
- Tests accompanying the production of a series
- Methods of cause analysis such as fault tree analyses and cause-effect diagrams

4.8 Product and Process FMEA

The Failure Mode and Effects Analysis (FMEA) is used to prevent defects. It must be performed so that its results can be utilized in planning. The FMEA has to be carried out for all stages of the product life cycle. It allows detecting risks and their corresponding



significance, probability of occurrence and possibility of detection, so that appropriate measures can be taken before serial production starts. The Supplier has to develop or repeat the FMEA if new parts are developed or produced, new manufacturing methods are used, a plant location is changed, drawings or processes are modified and defects are occurring. Design FMEA needs to be carried out for all parts designed by the Supplier. It is crucial that in case the Supplier is responsible for the design, the Supplier prepares and submits the Design FMEA to MELECS. Process FMEA must be performed for all processes necessary to produce a certain part. It is recommended to include an analysis of similar parts as well as error simulation

4.9 Part Qualification


4.9.1 Production Part Approval Process (PPAP)

The Production Part Approval Process (PPAP) is a standardized process used in the automotive sector. The purpose is to ensure that a Supplier can meet the specifications and quality requirements stated by the Customer. Products made and tested under series production conditions are referred to as initial samples. These are used to prove that the established manufacturing process is able to produce parts that meet all requirements during the actual production run at the quoted production rate. The respective test results must be documented in the Initial Sample Report (PPAP) according to the VDA or AIAG forms (available as download on the MELECS homepage). Content of different PPAP Levels is also available on MELECS homepage.

The required quantity of initial parts is provided by MELECS Supplier Quality Assurance.

The sample parts, the Initial Sample Report (PPAP) and other samples are clearly marked by labels provided by MELECS when placing the purchase order. If delivered together with other parts, the sample parts shall be delivered packaged separately marked. Not only have initial samples to be clearly identified, they also have to be provided on time and must come with the Initial Sample Report (PPAP) and other documents as stipulated by the submission levels. Furthermore, measured samples must be delivered to MELECS, so that we can perform internal measurements. It should be clear, that Suppliers are requested to use matching numbers for the initial samples and the corresponding drawing provided by MELECS. MELECS reserves the right to detect deviations from the stated specifications at a later date which had not been identified during the PPAP.

Regarding retention of reference samples, MELECS requires the Supplier to keep reference samples from initial sampling. MELECS will also take and consider the PPAP samples as reference samples. Suppliers shall retain documents and product samples for the time the part is active (a part is active as long as it is being supplied to the Customer for original or



service applications) in production plus a minimum period of 15 years, as already stated above.

4.9.1.1 Reasons for Initial Sampling

Initial Sampling is only relevant with respect to Customer-specific components (A-parts). It is of special importance for the smooth launch and the quality of a series. The presentation of other samples is of particular importance to the development, design and engineering of MELECS products and enables the performance of tests and taking measures at an early stage. Initial sampling is intended to ensure compliance of the agreed products with the specifications and drawings of MELECS having regard to the capacity of the Supplier. In this way, proper initial sampling is a helpful complement to delivery contracts. The evaluation of the initial sampling and the Initial sample Report submitted by the Supplier is included in MELECS Supplier evaluation.

The Initial Sample Test Report shall be drawn up pursuant to VDA 2 “Assurance of Quality of Deliveries”, submission level 3, and is required in the case of:

- First time orders
- Change of Subcontractor
- Product modifications
- Drawing index modification
- Delivery stop
- Interruption in delivery or production of more than one year
- Changes in production processes
- New or modified equipment
- Relocation of production
- New or relocated machinery and/or operating materials
- After use of alternative materials and designs

Other samples (development samples) do not have to be tested or approved since they serve exclusively for experimental purposes.


The Supplier must ensure, by appropriate methods, that the test results in the manufacturing process are reproducible. The measuring report shall include the statistical squares for all values measured in accordance with the drawing/specification which is to be submitted as an element of the Initial Sample Report.

4.9.1.2 Submission Levels

There exist five PPAP levels, also called Submission Levels:

PPAP Level 1: Submission of the PSW to the Customer

PPAP Level 2: Submission of the PSW, product samples and limited supporting data



PPAP Level 3: Submission of the PSW, product samples and complete supporting data
PPAP Level 4: Submission of the PSW and other requirements defined by the Customers
PPAP Level 5: Submission of the PSW, product samples and complete supporting data available at the organization's manufacturing location for review

The submission levels required by MELECS are stated in the Initial Sample Inspection Requirement Table which is available as download on the MELECS homepage.

MELECS has the right to request a new PPAP submission for already approved parts when the initial PPAP approval is older than one year or in case the conformance to product specifications is not given or in question.

4.9.1.3 Initial Sample Documentation

The PPAP process includes a series of documents that have to be transmitted by the Supplier such as overview, process flow, control plan, test and measuring reports (see for that the template at MELECS homepage under downloads with name; "Dimensional Inspection report – Template for suppliers"), capability reports, certificates, checklists, list of test equipment and materials. All these documents are summarized in the PSW (Part Submission Warrant) document. It has to be highlighted that the initial sample documentation has to be delivered together with the initial samples. If MELECS received all the documents and decided that they are fine, signature and approval are given. In case some documents or conditions are missing, limited approval can be granted until supplier recovers the necessary documents. In case this leads to subsequent costs, these will be charged to the Supplier.

4.9.1.4 Deviation in Initial Samples and Handling of non PPAP Approved Parts

Supplier shall only submit initial samples as well as documents and records, if all agreed specifications are fulfilled. Should there appear any deviations, the Supplier has to obtain written permission from MELECS using the MELECS Deviation Request Template (valid version available on the MELECS homepage) which should be attached to the submitted documentation. It is important to mention that MELECS will not process initial samples with deviations having no prior deviation approval.

Prototypes, first off tool parts and pre-series components do not have to be PPAP approved. Nevertheless, non-PPAP approved parts have to be measured to guarantee their conformity and Suppliers must forward an inspection report to the respective contact person. If FOT parts are not in line with the MELECS requirements, Suppliers have to change their tooling so that produced parts comply with stated drawings. After all necessary documents have been prepared and parts fulfill the requirements, Suppliers can start with PPAP.



4.10 Safe Launch (or Early Production Containment)


The Safe Launch (SL) procedure has to be applied for all pre-production, production, service and accessory part requirements that involve the PPAP and also if prescribed by MELECS for parts including high risk. A person responsible for the SL process has to be nominated and a SL control plan has to be developed and documented during the APQP process. It is seen to be a great improvement to and the validation of the Supplier's production control plan since it ensures that all requirements and critical conditions of a part are known and fulfilled. All issues identified in the PPAP are considered in detail. SL is important for MELECS and its Suppliers since the purpose is to reduce risks, protect MELECS assembly/manufacturing plants and warehouses from non-conforming materials and products and protect the Supplier by early identification, containment and correction of quality problems at the Supplier's premises. The SL time has to be agreed on with the representative MELECS quality contact person.

The development of the SL control plan includes supplementary controls, inspections, testing and audits of important factors in production such as set-up, machinery, fixture, tooling, operator, material/parts/components/products, preventive maintenance and climate. The SL control plan consists of:

- Increased frequency and/or sample size
- Sub-Supplier or Sub-Contractor containment, support, audits and validation
- Increased verification of packaging and label requirements/accuracy
- Increased verification and validation of the effectiveness of error proofing
- Immediate implementation of containment and corrective action in case of non-conforming materials or products

Furthermore, the Supplier is required to establish a validation process containing:

- Nomination of a person responsible for the SL process as well as the development and implementation of the verification process
- Implementation of the SL process with entry date, exit criteria and exit date as stated by MELECS
- Introduction of containment stations as an offline, separate and independent check of the production process at the end of the process
- Identify additional inspections, testing, and dimensional checks required at the SL station based on Special Characteristics (SCs), or high RPN and/or issues identified during product and process development
- Staff training regarding standardized work at containment stations
- Implementation of a reaction plan for single defect
- Introduction of an audit process of containment to ensure adherence to SL control plan
- Integration of Sub-Suppliers and Sub-Contractors in the validation process



MELECS is reviewing the SL control plan and informs the Supplier concerning approval. Our aim is to agree on the quantity and timeframe of the SL with the Supplier. Nevertheless, it should be clear that these are dependent on our Customers' requirements.

Concerning documentation of the SL control plan, the Supplier has to use the control plan format referenced in the AIAG APQP and Control Plan Reference Manual. The Supplier is required to document:

- Additional inspection, functional test and dimensional checks
- Inspection work instructions for the containment stations
- Evidence of execution and validation of the control plan
- Problem solving concerning quality issues (description, root cause, corrective action)
- Duration of SL process (mandatory: 100% inspection of all parts during the SL process duration)
- Identification of shipments to show compliance with requirements

After validation of effectiveness of the Supplier's process control plan and adherence to the criteria stated below, the Supplier is eligible to leave the SL process. SL exit criteria:

- Quantity and timeframe requirements are met without any discrepancies
- No non-conforming materials or products have been identified


Suppliers have to deliver via controlled shipping in the case of failure to execute the stated SL process or non-conforming material or products are delivered.

4.11 Run at Rate

Run at Rate is implemented to assess and verify the Supplier's actual manufacturing process when operated under normal conditions with respect to quality and capacity requirements stated by MELECS and its Customers. The aim is to identify whether the process is capable to produce materials and products as stated in the PPAP and capable to meet or exceed the daily contracted capacity. The Run at Rate process has to be carried out in case new products are produced, capacity is increased or equipment has been moved to other locations. The Run at Rate process should be done after the Supplier has an approved PPAP status. The process is lasting the same time as the daily contracted hours. This duration is sufficient to prove that the process is capable.

The Supplier has to inform MELECS as early as possible in the APQP process about the type of Run at Rate which can be either a MELECS or Supplier Monitored Run at Rate process. In case of a MELECS Monitored Run at Rate:

- Perform a practice Run at Rate and production simulations
- Changes of the schedule have to be communicated to the contact person at MELECS at least two weeks before the planned Run at Rate.



The Run at Rate can be assessed with different results: Pass, Pending, Fail. Corrective actions are necessary if Run at Rate results do not comply with stated requirements. A corrective action plan has to be delivered to MELECS and fully implemented. An on-site review/audit or a Run at Rate study is carried out in order to verify the process. (Valid version for “Run@Rate template” is available on MELECS homepage).

4.12 Non-conforming Material & Delivery

4.12.1 Methodology

MELECS will immediately notify the Supplier in case of non-conforming material or delivery. Non-conformity refers to PPAP or other approved parts not fulfilling the stated requirements with regard to print dimensions, material and substance specification, reference samples, engineering and packaging specifications, identification of parts and mixed or wrong shipments. Maximum period for complaint for defective parts is 2 years after delivery. The Supplier receives a complaint including evidence of the non-conforming product or delivery if possible. Suppliers have the right to request a sample of the material or product in question.


The maximum response time in the case of complaints is 24 hours (within one working day). After receiving a complaint from one MELECS plant, detaining and corrective actions must be immediately introduced, documented and reported. MELECS expects to receive a completed 8D-Report with regards to corrective action in form of the format provided by MELECS (valid version for “Global 8D Report template” is available on MELECS homepage).

Other format can be accepted only after agreement with the responsible MELECS SQE. A report on containment activities (3D) is expected within 24 hours (within one working day), corrective action (5D) is expected within 3 working days (in case of priority 1 complaint) or in 8 working days (in case of priority 2 complaint). In special cases, another reaction time plan can be defined by MELECS SQE.

Priority 1: Errors which have an impact on the safety or regulatory compliance, the fit, the function, the performance or the other mounting capabilities of the product, or could, threaten the supply to Customers.

Priority 2: All other errors (cosmetic error, collective waste, etc.), in which Customers' supply security is not endangered.

The 8D Report is to be completed within 30 calendar days from the complaint's creation date. Other reaction timing plans can be defined by a MELECS quality representative in special cases. If the allotted times are not adequate for you, please contact your MELECS quality representative within 24 hours (within one working day) stating the complaint as well as the part number. Information about secured delivery note number and marking of next secured



deliveries is mandatory. The way of marking has to be confirmed by the responsible MELECS quality representative. Furthermore, the Supplier immediately has to check and inform all MELECS plants about which further deliveries or products could be affected, so that fast reaction is possible. The involved Supplier has to take immediate actions to avoid other defective products are sent and to sustain MELECS delivery capability. A schedule must be submitted for all remedial action.

Complained/suspect parts disturb the normal production process at MELECS. In order to maintain the normal production, Suppliers have several options which they can follow. In any case the mentioned MELECS contact person has to be contacted regarding the coordination of the actions:

- Return concerned material and send us sorted and marked replacement with special transport according to the MELECS demands.
- Organize sorting at our site and/or at our Customer's side with your own personnel. For this purpose, an inspection instruction and on-site support is required of the Supplier. The release of the sorting instruction has to be done by MELECS.
- Organize sorting at our site and/or at our Customer's by a third party service provider. Please contact MELECS regarding the contact details of the released sorting companies. For this purpose, an inspection instruction is required of the Supplier. The release of the sorting instruction has to be done by MELECS.

In any case, suitable problem-solving methods have to be used for analysis of cause. More extensive, detailed analyses are to be made available if requested by MELECS, these encompass Ishikawa diagrams, 5 why, error simulations, failure tree analysis etc. It is crucial that the Supplier informs MELECS about the effectiveness of the corrective actions taken, as above required MELECS needs this in 8D form with evidences.

MELECS created an escalation model which is used for taking measures in case delivered goods are characterized by inadequate quality.

Furthermore, MELECS needs an emergency plan which should be provided by the Supplier in order to secure that the Supplier can solve the problems in a short time meaning that no production problems occur at MELECS such as production stop.

MELECS reserves the right to check the processing of complaints. This process is not seen to be finished until the Supplier can prove that applied measures are sufficient in terms of type, extent and duration. Moreover, it has to be ensured that the occurred problem is prevented permanently and universally, meaning lessons learned for other products and processes.



4.12.2 Controlled Shipping Level 1 and Level 2 (CSL-1/CSL-2)

Occasionally, Supplier response or actions to a complaint may not be adequate to prevent recurrence or to effectively contain suspect products and safeguard MELECS as well as our Customer from potential field issues or production stoppage. If this occurs, MELECS engages external providers which implement special measures such as a Controlled Shipping Level process to help reduce the risk. MELECS will inform the supplier in writing, defining the controls we have chosen and where those controls should be implemented.

Controlled Shipping Level 1 (CSL-1)

CSL-1 typically includes a problem solving process as well as a continuous inspection process. CSL-1 is implemented at the manufacturing location and utilizes in-house staff for the process. The primary goal is to ensure that no defective products can leave the production facility and that all corrective actions and controls implemented are effective. CSL-1 is often referred to as the “Manager’s Containment” because in most cases, it requires a sign-off and formal control by someone on the management staff.

Controlled Shipping Level 2 (CSL-2)

CSL-2 includes the same processes as CSL-1 with additional inspection and auditing performed by a third party representing the customer’s interests specific to the containment activity. Normally the third party is selected and approved by the customer, but paid for by the party under controlled shipping. CSL-2 can be implemented at several locations in the supply chain depending on where the action will be most effective (manufacturing plant, customer plant, off site, etc....). Data must be collected for either level of containment to ensure the effectiveness of the containment, lot control and traceability of all suspect or controlled product and to demonstrate the permanent corrective actions are effective. In some cases, the controlled shipping may verify interim actions.

4.12.3 Process after Previous Complaint

Suppliers are required to mark deliveries of the specified material after previous complaint. This means that subsequent deliveries from stock and WIP have to be tested, sorted and marked. Each individual packaging unit must be clearly identified with this form, including in all events the auditor, date, defect and type of examination. The marking of individual parts needs to be agreed on with the responsible MELECS plant. Rework of defective products has to be approved by the SQM Department of MELECS and all reworked items have to be precisely marked as such.



4.12.4 Chargeback

It has to be clear that Suppliers have full responsibility for their delivered products regarding quality, on-time delivery, conformity to specifications and reliability. The Supplier takes (financial) responsibility for the consequences of defective or non-conforming product and rejected PPAP submissions, including, but not limited to, costs incurred for repair, rework, restoration, modification, containment, sorting, premium freight, and replacement of defective material, resulting overtime, and productivity loss incurred by MELECS or MELECS' Customers. Additionally, all related costs in the supply chain incurred demonstrably by the Supplier, have to be overtaken by the Supplier. MELECS is using a Cost Summary Sheet where all costs related to a certain reclaim are included. An example is provided as download on the MELECS homepage.

Additional expenditure resulting from defects attributable to the Supplier shall be borne by the Supplier up to the Supplier's level of liability insurance. This additional expenditure includes for example:

- Selection and rectification costs
- Dwell and changeover times in the case of production downtime
- Compensation for lost Customers
- Recalls
- Penalties
- Complaint handling costs
- Additional costs for audits by agents of MELECS on sites of the Manufacturer necessary due to the poor quality of products.

MELECS may extrapolate these lump sums for the purpose of combining them to a once-only charge.

4.12.5 Supplier Quality Improvement Program (SQIP)

At MELECS, a Supplier Quality Improvement Program (SQIP) is in place. It is a structured program offered to Suppliers to improve their Quality Management System performance, drive consistency and ensure robust and sustainable quality management activities. The exact SQIP targets will be defined and agreed between the Supplier and MELECS. The status of the progress will be checked via regular SQIP meetings.



4.12.6 Public and Product Liability Insurance

The Supplier herewith confirms that a Public and Product Liability insurance is existing. This insurance needs be renewed until the end of the validity of this Quality Assurance Agreement. A Certificate of Insurance shall be sent to MELECS.

This insurance shall cover at least

- death, bodily injury or other health impairments of persons (damage to persons)
- destruction, damage to or loss of property (property damage)
- costs of call-backs

The limits of indemnity must not be below 20.000.000 EUR (or an equivalent sum in another currency) any one occurrence. And the territorial scope of cover must be worldwide.

4.13 Periodic Audits and Requalification

Consistent, high quality is key for the success of MELECS. Therefore, we regularly (according to MELECS target yearly) audit our A-Suppliers and their products, if not otherwise agreed. MELECS annual audits encompass layout inspection and functional testing.

In the case of Customer-specific components (called A-Parts), a regular, periodic review, a requalification corresponding to an initial sampling shall be performed annually (if special agreements between MELECS and between the supplier about content of the requalification are available, than supplier shall do his requalification according to this agreement). The requalification results shall be made available to MELECS upon request. MELECS shall be informed immediately about any variations from the specification identified during requalification. Specific periodic updates requested by our Customers have to be submitted and must include relevant supporting documentation.

If agreed with MELECS, Suppliers can perform audits or requalifications per product group in case the products are very similar. Layout inspection and functional testing normally include the parameters dimension, material and function. These processes must be planned and presented with the Initial Sample Inspection, documented in the Sample Inspection Report and shown in the control plan. Requalification has to be clarified in the APQP process, in case of no special requirement, a yearly requalification is necessary from Supplier side. Internal process audits have to be carried out for products requiring verification for critical characteristics to check the effectiveness of the verification management. Suppliers can use their own questionnaire for auditing purpose. If requested by MELECS, Suppliers have to transmit this questionnaire.



4.14 Material Compliance and Recording

For MELECS it is vital that Suppliers understand and can verify the composition of their raw materials. Suppliers are asked to provide a Material Composition Report so that MELECS can check the conformity of raw materials used in a purchased product with regard to industry standards. Permanent changes and modifications of raw materials used require prior approval by MELECS.

MELECS requires its Suppliers to record material data for all old and new parts in the IMDS (International Material Data System www.mdsystem.de) and in some special cases also in CAMDS (China Automotive Material Data System www.camds.org/camds_en). The requirement for CAMDS data shall be clarified in the PPAP stage between Supplier and MELECS SQA. This is seen to be a condition for PPAP, meaning missing material data sheets result in an initial sample rejection.

4.15 Hazardous Substance Requirements

There are some hazardous substance initiatives which Suppliers have to follow and show by providing respective reports to MELECS. Information can be obtained by Global Strategic Purchasing and is normally stipulated in the respective contract. In case of first delivery or changes in deliveries, material safety data sheets for hazardous and auxiliary substances or materials have to be submitted to MELECS.

Delivered products must not contain dangerous substances. The binding rules result from the last valid cited regulations and laws, to which a brief description is given below:

- EU Regulation REACH:
REACH stands for Registration, Evaluation and Authorization of Chemicals. The aim is to protect human health and environment from risks caused by chemicals. All members of a supply chain must provide information about the chemical substances they use and make an assessment of the risks they bring with them. It applies to chemicals manufactured or imported in quantities of one ton or more per year. (<https://echa.europa.eu/regulations/reach>)
- EU Directive WEEE:
WEEE refers to Waste Electrical and Electronic Equipment and aims at improving environmental management, resource efficiency, circular economy, collection, treatment and recycling of waste of electrical and electronic equipment at the end of their life.
- EU Directive RoHS:
The goal is the Restricted Use of Hazardous Substances (RoHS) in electrical and electronic equipment and the utilization of safer alternatives for humans and the environment. (http://ec.europa.eu/environment/waste/wEEE/index_en.htm)

- GADSL:
The Global Automotive Declarable Substance List (GADSL) is a globally harmonized list developed to exchange information regarding the material and substance composition of automotive parts. (<http://www.gadsl.org/>)
- TSCA:
The Toxic Substances Control Act (TSCA) controls chemical substances manufactured, processed, or imported in the United States. (<https://www.epa.gov/tsca-inventory>)

4.16 Conflict Materials

The Supplier ensures to not deliver goods which may contain so-called “Conflict Minerals” particularly from the Democratic Republic of Congo or from its neighbouring countries. Upon request of MELECS a corresponding confirmation is to be provided by the Supplier. MELECS’ Conflict Minerals Policy is provided as download on the MELECS homepage.

4.17 CQI Requirements

The Supplier is obligated to comply with the following CQI standards, depending on the type of process performed:

- Heat treatment: CQI-9
- Plating: CQI-11
- Coating: CQI-12
- Welding: CQI-15
- Soldering: CQI-17
- Plastic parts: CQI-23
- Die casting: CQI-27

CQI-8 Layered Process Audit and CQI-19 Sub-tier Supplier Management also can be requested by MELECS. The exact CQI requirements have to be clearly documented in the Sourcing Nomination Agreement. If no clear documentation about the request is stated, all above mentioned CQIs are requested depending on the type of process performed.

Furthermore, MELECS requests the Supplier to perform an annual assessment in accordance with the relevant standard in each case and to inform MELECS of the results by submitting a results sheet and to allow MELECS to inspect the results on a visit to its premises (e.g. in connection with an audit). MELECS also reserves the right to perform these assessments itself.

4.18 Product Safety and Conformity Responsible

If not otherwise agreed with MELECS in the APQP process, the Supplier has to determine a Product Safety and Conformity Responsible in its organization for every production location in order to meet the requirements of product safety and product liability. If the Supplier does not determine a specific Product Safety and Conformity Responsible, MELECS assumes that the leader of quality management of the Supplier fulfills this task.

5. Purchasing Requirements

5.1 General

MELECS' Suppliers have to offer high quality products at competitive prices as well as annual price reductions achieved by volume increase and learning effects. Continuous, proactive measures for price reductions should be taken. The goal is to break down costs in its elements to make possible improvements in certain areas and cost components visible.

Appropriate contact persons at Suppliers should be available and able to help in case concerns and questions arise. Furthermore, it is seen to be essential that several documents such as Sourcing Nomination Agreements, Quality Assurance Agreements, Non-disclosure Agreements are signed in a timely manner. The same applies for inquiries which should be managed timely and correctly. Any information provided has to be appropriate and correct.


5.2 Request for Quote (RFQ)

MELECS will invite potential Suppliers to participate in the quoting process. We kindly ask invited Suppliers to use the related forms to facilitate the process, otherwise we cannot accept the quote. Further information can be provided by Global Strategic Purchasing.

Requests for Quote (RFQs) received from MELECS normally include quality requirements, technical specifications and drawings as well as PPAP document requirements. We ask our Suppliers to get in contact with the respective contact persons at MELECS in case RFQs are unclear or some necessary information is missing.

5.3 Risk Management

Suppliers are asked to actively cooperate with MELECS with regards to upcoming risks. Suppliers should inform MELECS as soon as risks become apparent and/or they receive information about certain upcoming risks at their own as well as at their suppliers' plants and regions. In the following, a list including potential risks to report is provided which should give an overview and has not the aim of being complete:

- 
- Natural disasters
 - Tool damage
 - Change in ownership structure or management
 - Non-delivery or delay in delivery
 - Extraordinary lead times
 - Quality issues
 - Insolvency or financial problems
 - Raw material volatility
 - Civil action, political instability, riots etc.

5.4 Statutory and regulatory requirements

The Supplier shall ensure that all products, processes, and services conform to the current applicable statutory and regulatory requirements in the country of receipt, the country of shipment, and the customer-identified country of destination. The Seller shall document their process (see IATF 16949, 8.4.2.2).


The Supplier shall pass down all applicable statutory and regulatory requirements and special product and process characteristics to their suppliers and require the suppliers to cascade all applicable requirements down the supply chain to the point of manufacture (see IATF 16949, 8.4.3.1).

6. Logistics Requirements

6.1 Delivery Reliability and Delivery Capability/Capacity

MELECS has to react very fast and short-term to Customer's wishes and requirements. Short lead times and on-time delivery are two of the main important factors for MELECS serving our Customers. Hence, flexibility of Suppliers and their corresponding logistics systems are very important so that we can fulfill our promises. Therefore, Suppliers should be able to respond short-term to changes in quantities and dates as well as to deliver short-term quantities by flexible production or safety stock. Moreover, Suppliers should accept date and quantity postponements to a later point in time. A further requirement for Suppliers is that realization of necessary cancellations of quantities is done based on changes required by our Customers. Additionally, MELECS requires Suppliers to provide appropriate contact persons regarding purchasing, procurement and logistics aspects. Contact persons should react very fast and should have appropriate competencies in the corresponding field.

MELECS places orders at Suppliers having sufficient capacity so that our requirements are fulfilled. Suppliers should only accept orders if they have the capability and capacity to



produce as stated by MELECS. It has to be mentioned that Suppliers are not allowed to change location of production without written approval. MELECS prefers Suppliers being able to serve all sites.

For MELECS delivery reliability and ability to delivery are very important and thus they are measured constantly. Another important aspect is that MELECS requires its Suppliers to only deliver products/parts which are not expired and have an expiration date (according to data sheet) of minimum two months in future from the day of delivery.

6.2 Requirements for Different Procurement Possibilities

There exist several different procurement possibilities which are described in the following.

6.2.1 Purchase Orders (POs)

Purchase orders (POs) are containing all relevant information including material numbers, prices, quantities, delivery dates and conditions, product drawings, etc. After receipt of a PO the Supplier is required to confirm each material number, agreed prices, quantity and delivery date. It should be clear that acceptance of the PO is an acceptance of the standard terms and conditions of the PO. MELECS expects to receive an order confirmation per EDI or E-Mail within 48 hours.

6.2.2 Delivery schedules

In case Suppliers have agreed on delivery schedules stated by MELECS, they have to comply with these delivery schedules. Extraordinary lead times should be avoided in any case and information regarding this event should immediately be passed on to the respective contact person at MELECS. General aspects concerning delivery schedules are contained in a delivery schedule regulation. There are fixed, variable and non-binding pre-planning time frames. In fixed time frames, quantities and dates are fixed and have to be correctly delivered by the Supplier (non-compliance to the agreed terms has to be announced by the Supplier at least 48 hours after receipt of the delivery schedule). In variable time frames (non-binding pre-planning time frames), the Supplier will get forecast quantities and has to use this information for material and capacity planning.

6.2.3 Web-Tool

If agreed, the Supplier has to deliver according to defined minimum/maximum quantities (fixed quantities or dynamic quantities according to needs) as stated in the MELECS WEB-Tool JONAS (Just in time Online Auskunftssystem). Suppliers can access this tool via <http://melecs-jonas.com>.



6.2.4 Consignment stock agreements

Another point concerns storage of goods. Suppliers offering storage possibilities are seen to be good partners. Especially provided consignment stocks are perceived to be beneficial at MELECS. In case, suppliers do not offer logistics services, MELECS works together with 3PL providers which are overtaking not only transports but also other logistics activities.

Regarding consignment stock operations, the Supplier is transferring delivery plans or minimum/maximum quantities to MELECS. Delivery is stored as consignment stock of the Supplier in the inventory. Transfer of ownership of the parts to MELECS is taking place as soon as the parts are transported from inventory to production. After taking parts from inventory, the Supplier receives respective payments. All these stated aspects are clearly defined in an underlying consignment stock contract between MELECS and the Supplier.


6.3 Process in case of delayed delivery

The penalty for delayed delivery is independent of the Supplier's fault and any proof of damage. MELECS reserves the right to claim damages exceeding the amount of the penalty. In the case of a time-sensitive contract, MELECS shall not be obliged to grant an additional time limit for delivery. When it can be foreseen that the Supplier will fail to properly deliver or perform by the agreed date, MELECS shall be entitled to take all measures necessary to prevent an imminent delay in delivery/performance at the Supplier's cost and risk. In the case of early delivery, MELECS reserves the right to charge the Supplier any extra cost, e.g. warehouse and insurance costs, and to effect payment in accordance with the agreed delivery date. Until the agreed date, MELECS shall only bear the responsibility of a depository.

6.4 Packaging & Transport Requirements

The Supplier is responsible for packaging, storage and transport of its materials and parts. Measures have to be taken to avoid external influences in order to ensure that no damage or pollution is caused and products arrive in good condition. In case special surface cleanliness requirements have been agreed, Suppliers have to be especially careful and choose appropriate packaging. It is of major importance to MELECS that Suppliers are compliant with INCOTERMS 2010 as stated in the respective contracts.

Requirements concerning packaging, labelling, shipping and other logistics activities are specified in the respective PO, product specification, drawing or any other agreement. Furthermore, MELECS has stated general packaging regulations (available online as stated below) as well as individual ones. For specific parts (e.g. drawing parts), returnable boxes are used. For these MELECS is predefining the type of packaging. At first order, MELECS is sending to the Supplier a packaging instruction for packing respective products in returnable



boxes as well as the necessary number of returnable boxes (the empties account is continuously adjusted). In some other cases, MELECS is providing the Supplier as well with detailed packaging instructions, especially for packaging with returnable boxes. These instructions include information concerning packaging material, packaging process, arrangement of euro pallets and labelling of the delivery. Suppliers have to comply with the stated requirements, regulations and instructions to ensure safe transport and storage of products.

Delivery processes are complex and often include multiple stages. Hence, strong collaboration between business partners is crucial. Identification of packaging and loading units is necessary for proper management of several different process stages. Since products are delivered worldwide, all Supplier labels have to be designed in a way that allows continuous, unique identification, tracking and traceability of products for all included parties (Suppliers, Logistics Service Providers, Customers) on a global scale at any time. This is especially relevant for efficient incoming goods process management, internal material flow management and fast management of other processes by using machine-readable data on 1D and 2D barcode symbols. The Supplier has to specify the country of origin on the product as stated by law and according to MELECS stipulation. Labelling all parts with exact manufacturer name, lot number and date code is important. MELECS is recommending the format of the VDA label which corresponds to the international rules of the automotive industry and can be accessed under the following link:


<https://www.vda.de/de/services/Publikationen/vda-4994---global-transport-label---version-1.0.-m-rz-2016.html>

Labels can be put in respective label compartments, if there is no compartment available, labels in form of stickers have to be used. These should be easily removable without leaving residues if applied on reusable packaging material. Before new labels are applied, old labels have to be removed.

In any case, Suppliers have to define a label per packaging unit that includes the following elements and respective barcodes:

- Name of manufacturer
- Material description and number
- Location of production
- Date code (Year, Week)
- Number of pieces
- Lot number
- Order number MELECS

Another aspect concerns delivery notes. At every delivery, a delivery note has to be attached including the following data as minimum requirement:

- 
- Consignor/Shipper Supplier, address MELECS Customer
 - Delivery note number and date
 - Order number MELECS
 - Quantity
 - Part number MELECS
 - Manufacturer description, Supplier material number
 - Customs tariff number
 - Country of origin of delivered parts

With respect to shipping, routing information explicitly stipulated by MELECS has to be followed. MELECS is using sea freight, air freight, truck transport and parcel service. The choice of transport mode is dependent on required delivery speed as well as the dimensions and weight of the consignment.

For air shipment, it is crucial that the packaging material is suitable for this type of transport, meaning that it is protecting the consignment from air humidity. Normally, our sourced materials, parts and products are very sensitive and if indicated not stackable. The maximum height of pallets for air transport is 160 centimeters and pallets have to be heat-treated. The IPPC logo has to be clearly identifiable on each pallet to avoid customs problems. For truck transport, it is important to ensure that the truck tarpaulin is not damaged because products should not get wet. Carton packaging always has to be tied with a tape. Packaging and labeling regulations are available online on the MELECS homepage.

7. Technology Requirements

7.1 Technical Support

MELECS works together with well-equipped Suppliers offering state-of-the-art technology and a high degree of innovation in order to be always one step ahead and stay competitive. Technical support provided by the Supplier is a major element of a good relationship and partnership for MELECS. Suppliers are asked to support MELECS with background information, detailed product information, technology roadmaps, etc.

7.2 Development and Realization of Products and Processes

7.2.1 Planning contents

MELECS must be informed about planning regarding implementation of the activities stated in this subsection, using one of the following forms:

- “Project status purchased parts”

- “Project status of purchased parts for Suppliers with design responsibility”

In some cases, MELECS might renounce this requirement. The APQP form is attached as download on the MELECS homepage.

7.2.2 Project status

Suppliers shall provide project progress reports to inform MELECS about the project status. MELECS asks Suppliers to use the form “Project status of purchased parts” or “Project status of purchased parts for Suppliers with design responsibility”. These reports are necessary for regular project evaluation. MELECS reserves the right to verify project progress.

7.2.3 Internal release of series production

It should be clear that release for start of series production cannot be given before all planned activities of the project are successfully completed. The Supplier must document the internal release with date and signature of all responsible persons from Quality Assurance, Production, Planning and other departments involved.


8. Relationship Requirements

8.1 Cooperative and Valuable Supplier Relationship

Suppliers are required to offer competent contact persons in terms of technical support and language skills. Since MELECS serves global Customers, English documents and English speaking contact persons have to be available. Furthermore, MELECS appreciates having a dedicated account, meaning a single point of contact to facilitate communication. In case of absence of the contact person, MELECS wants to be informed about the nominated substitute. MELECS demands cooperative management attitude from the Supplier's employees in order to establish clear, valuable and sustainable relationships. It is of common interest to cooperate and achieve mutual benefits. Regarding communication, we expect Suppliers to communicate openly, honestly and in a timely manner. We expect to be treated with the same respect we grant to our Partners.

8.2 Invoicing

For Suppliers not having the possibility of EDI invoices, electronic invoicing via email is accepted. Suppliers are kindly asked to send all invoices in form of PDF named *[Supplier Name]_[Invoice Number].pdf* to the email address: EWS-account-mailbox@melecs.com



Suppliers are asked to contact our Accounting Department for invoicing requirements. In general, the following information has to be contained in all invoicing documents:

- Unique invoice number
- Supplier number
- PO number
- Quantity
- Unit and total price
- Country of origin
- Description of the merchandise
- Agreed INCOTERMS
- Date of shipment
- Name and address of shipper
- Name and address of consignee

The Supplier has to ensure that the physical goods shipped are the same as stated in the invoice and all other shipping documents.

8.3 Electronic Data Interchange (EDI) Requirements

Suppliers using Electronic Data Interchange (EDI) in accordance with VDA 4984, a fast and secure method for data exchange, are preferred.

In 90% of the cases, MELECS requires Suppliers to use the EDI format EDIFACT – D10A. In some exceptional cases, other format might be possible. MELECS prefers to receive the following messages via EDI:

- Regarding order handling:
 - ORDERS
 - ORDRSP
 - INVOIC
 - DESAVD
- Regarding delivery schedule handling:
 - DELFOR
 - INVOIC
 - DESADV

8.4 Identified Tooling and Clear Ownership

Tooling has to be labelled so that it can be easily identified and ownership is clearly indicated. Suppliers have to use metal tags, etchings or stampings to mark the tooling permanently as instructed by MELECS. If MELECS or our Customers have special wishes concerning how to mark the tooling, the respective party will provide proprietary tags to the Supplier.



8.5 Management of Change


Suppliers are asked to follow all requirements stated by MELECS. MELECS has a zero tolerance for not allowed changes. Unauthorized changes made by the Supplier are very critical for MELECS since these can have a big impact on the high quality of our products. Therefore, MELECS expects from its Suppliers to be highly committed and to provide information about all planned changes of products and processes as well as all changes related to (sub-tier) Suppliers with the Supplier Change Request (SCR) which has to be submitted to the responsible MELECS SQA. (Valid version for “Change request template” is available on MELECS homepage.)

These include changes in parts, product design, processes, process/assembly aids, sources, locations, materials, tooling and deviation requests to PPAP approved parts. It should be mentioned that this change control process is performed and monitored for the protection of all MELECS manufacturing sites, our Customers and Suppliers.

Furthermore, steps documented in the following list have to be performed and are seen to be a minimum requirement for Suppliers:

- Adopt a documented policy of zero tolerance for unauthorized changes.
- Manage all product, process, sub-tier Supplier changes in a solid way, and try to eliminate all existing gaps.
- Perform a complete documentation of changes which is including information about affected lots, expected results, possible downstream effects, etc.
- Inform and demand the same change management approach from your Suppliers.

As stated above, Suppliers must clearly document all changes. Prior approval from MELECS is necessary to proceed with changes. The reason is that different types of changes can negatively affect our business. The Supplier should further note that the written approval of a Supplier Change Request is no authorization for the Supplier to ship. After receiving a written approval by MELECS, the Supplier has to submit a new PPAP documentation for the change. If a production trial run or any other change management control process is required, the Supplier is informed. The change will be only approved with a signed PPAP document. This means the Supplier is allowed to apply the requested changes only with a signed PSW (full PPAP approval). Once all AIAG/VDA PPAP requirements are fulfilled, the Supplier is authorized by the representative at MELECS to ship the changed products. No shipment is possible before the agreed implementation date. If deviating products are shipped, MELECS must be informed and deviating products have to be clearly identified. Costs arising for any necessary testing by MELECS or our Customers due to the validation of changes or deviations caused by the Supplier, have to be overtaken by the Supplier. Furthermore, the Supplier has to ensure that changes or deviations do not have a negative impact on the performance of our products or the MELECS' end Customer products.



Regarding changes of the Supplier's Supplier base, MELECS has to be notified in writing via sending the SCR to the responsible contact person not less than 90 days before any anticipated change. For all changes taking place in less than 90 days, this form does not apply. Unapproved changes made by the Supplier are subject to chargebacks on costs, incurred related to the change. The Supplier Change Request form indicates the different types of change that require approval from MELECS. Suppliers have to demonstrate that the products affected by the Supplier change are meeting the agreed requirements. Part numbers and a timing plan to outline the change preparation have to be included in the SCR. In some cases, it is necessary to submit PPAP for the Supplier change. It has to be noted that this applies only for permanent changes and not for temporary Supplier changes, which are dealt with by the purchasing contact person in a temporary deviation process.

Damages and costs incurred due to the Supplier's non-compliance with change management requirements stated by MELECS have to be beard by the Supplier.

8.6 Protected and Secure Supply Chain

Supply Chain Protection and Security are crucial in general, but especially in the sector, MELECS is operating in. Hence, Suppliers have to take all necessary measures to protect and secure their processes and the processes of their Suppliers. Suppliers should actively work towards establishing robust processes avoiding unnecessary internal disruptions. Nevertheless, emergencies and external disruptions can occur which have a huge impact on a Supplier's delivery capability and hence on MELECS operations. Therefore, Suppliers have to commit themselves to risk management and to the installation of an emergency concept, which should be developed, monitored, controlled and clearly communicated.

9. Sustainability Requirements

9.1 Code of Conduct

All Suppliers are asked to comply with the MELECS Code of Conduct which is stated in section 1. It is included not only in this Supplier Manual, but also in our contracts on a normal basis. In case no contract between MELECS and the Supplier including the Code of Conduct exists, MV0710 Code of Conduct needs to be signed separately. A Supplier's own Code of Conduct does not replace the signing of the MELECS Code of Conduct.

9.2 Integrity Next

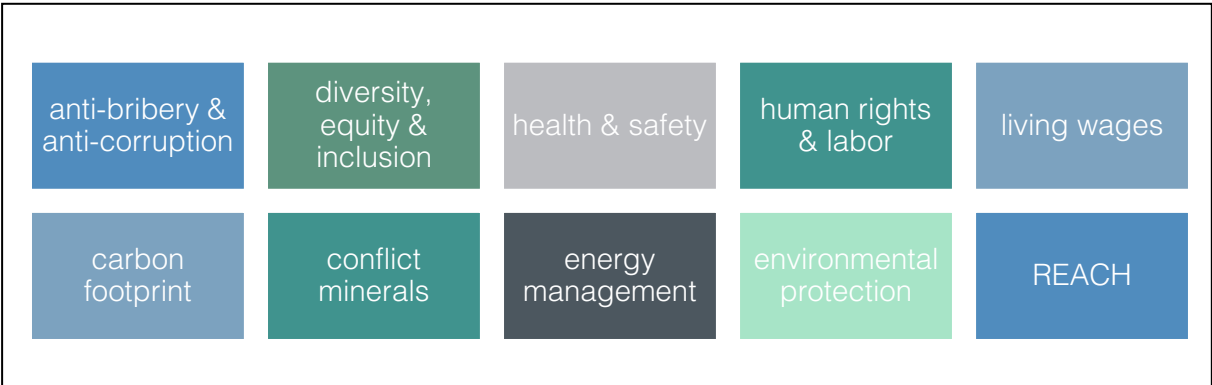
For MELECS and its Customers, social and environmental sustainability in the whole supply chain is an important topic. Therefore, we require our Suppliers to follow a sustainable path

as well. For monitoring compliance and sustainability topics at our Suppliers, we use the platform Integrity Next. It offers several different questionnaires that are filled out by Suppliers in form of a self-assessment. Suppliers can register free of charge on the website [www.integritynext.com](https://app.integritynext.com) by using the following link:

<https://app.integritynext.com/registration/supplier/481cf15c-833d-4416-81d8-b6c7c991bcd1>

Once registered, the Supplier can fill out the questionnaires. If the Supplier has already filled out questionnaires and wants to update them, the Supplier can do it on the platform after login to the account.

The following social and environmental Integrity Next criteria have an influence on the Supplier's rating in the supplier evaluation:





10. Supplier Manual Acknowledgement

I as authorized representative of the organization
certify that we have received, read and understood the Supplier Manual to full extent and
accept the stated obligations. I agree that these obligations are binding for the relationship
and resulting activities with the MELECS Group.

(Supplier name)

(Business address)

(Place), (Date).....

(Signature)

(Printed name)

(Job title)

(Phone)

(E-Mail)

*The complete form has to be returned to:
MELECS EWS GmbH
Andreas Pinzker, Vice President Global Strategic Purchasing
GZO – Technologiestraße 1, 7011 Siegendorf, Austria
purchasing@melecs.com*

**We want to thank you for the acknowledgement of this Supplier Manual and are looking
forward to our cooperation!**