



# ***EVALUATION SUPPLIER QUALITY SYSTEM (ESQF)***

*APRIL 2020*

*DIRECTION OPÉRATIONNELLE ACHATS*

## TABLE OF CONTENTS

<b>I – ELEMENTS FOR EVALUATING SUPPLIER QUALITY SYSTEM (ESQF)</b>	<b>3</b>
1.1 - Quality Management and organization.	<b>3</b>
1.2 - Respect of the Michelin Purchasing Principles.	<b>4</b>
1.3 - Understanding of customer requirements.	<b>5</b>
1.4 - Staff training and responsibilities.	<b>5</b>
1.5 - Management of product and process evolution.	<b>6</b>
1.6 - Quality of products received from suppliers.	<b>7</b>
1.7 - Process control.	<b>9</b>
1.8 - Inspection programs and measurement quality.	<b>10</b>
1.9 - Flow control.	<b>11</b>
1.10 – Logistic – customer service.	<b>13</b>
1.11 – Process complaints.	<b>13</b>
<b>II – EVALUATION SCORING</b> Elements for evaluating supplier quality system  MICHELIN asks its suppliers to commit to a quality assurance program which guarantees that products supplied will satisfy defined specifications on a long-term basis while respecting the social, environmental and economic aspects of sustainable development. The following elements will be used to evaluate the suitability of the supplier's quality system and the extent to which the system is applied in order to achieve this objective.	<b>14</b>

# ***I - ELEMENTS for evaluating supplier quality system (ESQF)***

## **1.1 – Quality Management and Organization**

- Supplier implements a Quality policy. This policy is appropriate to the organization, clearly deployed and understood by the personnel.
- Quality performance is improved through a dedicated approach. It includes: customer satisfaction, capability indicators, level of non-conformities and claims, on time delivery ...
- The entity's management ensures that rapid responses are given to quality problems by analyzing the root causes and respecting the defined deadlines.
- At least once a year the Quality performance is analyzed (ex: management review). An improvement plan is decided. This analysis includes, among other points:
  - Results from previous audits (internal, external, customers);
  - Customer satisfaction (objectives and results);
  - Customer's claims analysis;
  - Previous improvement plans;
  - ...



- Responsibility, authority and position of the Quality group are clearly defined and applied. The entity has designated a person responsible for products dedicated to Customer (or to Michelin) in terms of Quality, respect of specifications, evolution management, alerting, non-conformity management, control during process...
- The compliance with laws and regulations is ensured and is in place.
- Quality internal audits are planned and performed regularly by skilled personnel. These audits may include Quality audits by management, Layer Process Audit.
- Pertinence of Internal audits is ensured by:
  - A representative and adapted perimeter according to the identified risks, customer requirements, ...;
  - A defined audit method, qualified auditors, preferably based on a checklist;
  - Clearly described corrective actions, monitored and verified for effectiveness;
  - Frequency of audits modified when necessary.
- Documentation, data management (internal and external) and records are managed through a defined process: checking and approval, distribution, revision, modification, destruction of out of-date versions, etc. Work post documentation is correctly managed.

## 1.2 – Respect of the Michelin Purchasing Principles

### A) Respect for people



- Processes exist to identify and ensure compliance to all employee work-related regulations (consider local, national, and international sources - e.g. International Labor Organization - as applicable, notably in terms of safety, work by children, forced labor, non-discrimination, freedom of association, working conditions).
- Tools are in place to create an effective personnel management dialogue with employees.
- A health and safety policy is in place to identify and implement a safety improvement approach and reporting is formalized (work accidents, occupational illnesses, etc.).
- Programs are in place aimed at assessing and improving ergonomics and industrial hygiene, including consideration of the effects of the business on the health and safety of their personnel, possible on-site sub-contractors and the communities around their sites (assessment and measurement of impact, progress plans, and monitoring of results).
- Programs exist for evaluating and improving the quality of work life.
- A process exists to ensure awareness and application of equal opportunities for all persons in the organization.
- Efforts are in place to identify and improve responsible interaction and involvement with local communities, e.g. education, training, improving local living conditions, improving health and safety, (incl. road safety). Actions are also directed toward constructive relationships with public authorities.

### B) Respect for the Environment

- An environmental policy exists, and the supplier has defined ambitions, short- and long-term environmental objectives. Indicators are in place (energy and water consumption, greenhouse gas emissions, toxic waste, ...).
- The supplier has an environmental management system. It is certified by an accredited organization (ISO 14001,...).
- The supplier has a process to identify and process all applicable government safety and environmental regulations, including the handling, recycling, eliminating, and/or disposing of hazardous materials.
- The Supplier's practices cover all aspects related to the product in order to minimize potential risks to the environment.

- Processes exist to manage and minimize scrap, waste and landfilling including packaging.

### 1.3 – Understanding of customer requirements.



- All Michelin requirements regarding product, services, packing, packaging and logistics are known and correctly applied. If necessary, a contract or a formal acceptance exists, validating the understanding and the respect of these requirements. Records of contract reviews are maintained.
- A feasibility study (done by a multifunctional team) for production, logistics and services is done before acceptance of orders. When necessary, specific targets are defined to satisfy Michelin requirements. Legal regulations satisfaction is also taken in account (if needed) during the feasibility.
- Respect of product codification: from the invoice sent by Michelin until delivery order to Michelin, the codification is guaranteed, and links with intermediate codifications are clearly established. To avoid errors, the codification system implemented allows teams to clearly display that the delivered product matches with the ordered product.
- Any contract deviations are validated by Michelin, correctly communicated within the supplier's organization and clearly documented.
- A capacity study is done to confirm the supplier ability to satisfy requested volumes. The study includes rework conditions validated by Michelin.
- Applicable Michelin technical specifications are updated. They are periodically reviewed, and distribution and implementation are managed. Michelin requirements are correctly deployed and linked to Supplier quality system.

### 1.4 – Staff Training and responsibilities

- A training plan is available and regularly managed. It covers the training of the personnel at all manufacturing steps and associated departments. Each work post has its own description of training sessions. A defined process ensures the re-training of staff at regular intervals, when necessary, or after a defined period of absence from the position. Training records are maintained.
- The completion of Legal and/or mandatory trainings is tracked (e.g., fork lift drivers, welding certificates, ...). Training is provided to employees dealing with products or materials requiring special precautions. Records are maintained.
- Production errors which can potentially occur are part of the training. Use of measurement devices is included in work post training.
- Responsibilities, tasks and authorities of operators are described. Requirements for qualification of personnel are defined and applied. Records exist.

- Training of temporary staff is managed in the same way as permanent employees.
- Examples of customer complaints as well as consequences of unsuitable work are part of training on the work posts concerned.
- A process exists for evaluating employee awareness of the relevance and importance of their activities and how they contribute to the quality objectives.

## 1.5 – Management of product and process evolution

### A) Developing the product

- The development of the product is done through appropriated stages: prototypes, pre-launch and mass production. Review, verification and validation at each stage of the product's development is regularly done, including customer needs satisfaction
- Une équipe multidisciplinaire prépare et valide les différentes étapes de développement. Un représentant Qualité valide la conformité du produit obtenu à chaque étape ;
- Une analyse de risque (par exemple l'AMDEC) est utilisée. Lorsque nécessaire, le lien avec les exigences clients est établi. L'analyse de risque est régulièrement mise à jour. Le personnel de production participe à l'élaboration de l'analyse de risque (ex : étude AMDEC) ;
- Un plan de vérification produit (ou plan qualité) est défini et appliqué à chaque étape de développement (incluant les tests, les vérifications, les inspections, ...). Il comporte, lorsque nécessaire, les actions pour garantir les exigences Clients. Il est géré par une personne désignée. Le plan de vérification produit est clairement lié à l'analyse de risque (ex: étude AMDEC) ;
- Multidisciplinary team prepares and validates the different stages. A quality representative validates the conformity of the product obtained at each steps.
- A risk analysis, such as Failure Mode and Effect Analysis (FMEA) is used. When necessary, the link with customer product requirements is established. Risk analysis is regularly updated. Production personnel contribute to risk analysis (ex: FMEA) creation.
- A specific control (product verification) plan is defined and applied during each development step (including test, checking, inspection). It includes, when necessary, actions to guarantee customer requirements. It is managed by a designated person. The quality plan is clearly linked with the Risk Analysis (ex: FMEA study).



- In the event of product evolution: the impact on quality planning is measured (risk analysis/FMEA, product verification plan, control plan,...). Changes not initiated by Michelin are discussed and validated with Michelin.
- Records (measurements, checking, settings, ...) and samples from prototype and prelaunch phases are available for mass production. All documentation is ready before allowing mass production.
- First sample (proto-type) validation is documented and recorded. The results are used to validate the next step.
- Conditions to allow mass production are clearly defined (quality, safety, security, productivity...).
- Product characteristics and process parameters for all treatment phases (target values, tolerance levels, etc.) are correctly defined.

#### **B) Evolution of the process**

- All necessary documentation concerning the evolution is available.
- Methods (FMEA, experimental designs, SPC, capabilities) are used to validate the evolution.
- Quality function validates the impact on product, prior to the evolution, as well as after the final implementation of the evolution.
- Consultation and information to the customer (prior consent) is done about process evolutions before implementation.

### **1.6 – Quality of products received from suppliers**

#### **A) Supplier quality guarantee**

- Purchased products are conforming with described requirements (e.g.: needs expressed, specifications, contracts, approved sources, staff qualification, control methods,...).
- Products conform with legislative requirements (environmental issues, hygiene, safety, MSDS).
- Process for qualification of products (initial sample, industrial testing) and services is used. An approach is in place to ensure the stability of product properties over time.



- The evaluation process for raw materials is described and effectively implemented to guarantee their compliance before use (Reception Control Procedure).
- Evaluation of supplier performance for products and services is regularly done. Targets are defined.
- Lab conditions / skill requirements are appropriate for evaluating incoming products.
- Risk evaluation (availability risks, support solutions, necessary actions for quality guarantee, business continuity approach, ..) is done when necessary with associated action plan.

#### B) Evaluation of suppliers

- Suppliers classification exists with associated rules to define the organization's criteria for the selection and evaluation of suppliers.
- Requirements are described, when necessary, concerning the Quality Assurance program of organization's suppliers. When needed, customer requirements are integrated into the specification sent to organization's suppliers.
- The organization encourages suppliers in their quality approach (ex: to obtain quality certification).
- The organization conducts audits of its supplier's quality systems.
- A process exists for improving quality and service (with the organization's suppliers).
- Quality functions, including industrialization, and tools/methods for solving product-related problems are defined in the supplier's organization.
- Implementation of a monitoring system for subcontracted services. Responsibilities are clearly defined. Organization has defined the supervision of sub-contracted activity with associated rules, including main training needs.
- The supplier has a sustainable purchasing policy. It assesses the CSR performance of its supply chain (e.g. CSR performance review, self-assessment questionnaire, audits,...).
- Purchasing personnel are sensitized to the principles of sustainable purchasing (compliance with laws and regulations, ethics, health and safety, human rights, environment, anti-corruption, fair competition,...).



## 1.7 – Process Control

### A) Important characteristics, knowledge of the parameters to be controlled and potential failures

- The supplier uses statistical techniques for establishing, controlling and verifying the capability of product characteristics and associated process parameters (examples: FMEA, experimental designs, SPC,...). Control limits and tolerances are defined with associated action rules.



- Significant product characteristic and process parameters are identified and linked with associated verification and control methods. This complies with customer requirements when needed.
- Data regarding machines/tools/auxiliary aids when critical for product and process must be clearly identified and managed.
- Review of major parameters and product results with actions taken as needed to maintain or improve control capability. Targets are defined and action plans are triggered in case of deviation. Capability indexes are periodically reviewed.

### B) Application of process control

- Supplier applies suitable methods for monitoring of the process (automatic control loops, error proofing systems, automatic testing, etc.). Action taken in case of deviation. Records of noncompliance are maintained.
- When using statistical concepts (e.g., SPC), Cp/Cpk targets are at least = 1.33, Pp/Ppk= 1.67. In case of deviation, reaction plans are set.
- When control charts are used, the control limits are clearly specified and recognizable and the control charts are regularly maintained and reviewed.
- Instructions, control documents, verification instructions... are available at work places, inspection stations, checking stations. They are consistent with other source documents (control plan,...). They are written by multidisciplinary teams according to a standard format.
- The supplier considers non-conformities, root cause analysis, corrective and preventive action plans, etc. to improve the limits and the rules for process control.
- Rework conditions are specified and secured.

### C) Maintenance

- Preventive and predictive maintenance program is managed with associated rules. Resources for the realization of necessary maintenance are available.

- Critical spare parts are identified and their stocks managed.
- A process is implemented to analyze breakdowns and optimize down-times.
- Tools are managed according to their usage status (OK, NOK, under repair), their operating time, their protection,...

## 1.8 - Inspection programs and measurement quality

### A) Inspection programs

- Product inspection during manufacturing and final inspection is adapted and correctly applied. Necessary records are maintained.
- Quality records for conformity of significant characteristic and process parameters are managed.
- The release is allowed through a clear protocol and frequency of checking is adapted. The certificates of analysis (COA) are correctly completed. The release approval is clearly written by an authorized person.
- When parts or samples are sent to be measured, final product remains blocked until conformity confirmation.



### B) Contrôle de monitoring and measuring equipment

- Formalized definition of the scope of the laboratory (e.g., types of measurement, products, measurement ranges,...). The layout permits correct measurements.
- Each item of inspection, measurement, or test equipment is identified with a unique designation (including employee-owned equipment). Measurement devices used for significant product characteristics and major process parameters are clearly designated (in work instruction, verification plan,...).
- Inspection, measuring and test equipment are capable compared to the required accuracy and precision.
- Appropriate actions, including customer notification, are taken on product and process when inspection measurement or test equipment is found to be out of calibration.
- The validation process of measurement equipment includes: qualification (capacity in relation to need, accuracy,...), updating as necessary, software qualification as appropriate, alignment with Michelin methods when necessary, monitoring of the measurement quality over time (use of reference materials, inter-laboratory testing,...).



- Management of measuring equipment (for process, for product, in laboratory) includes: calibration (at specified intervals in relation to required standards), setting and re-adjusting as appropriate, identification of calibration status, protection against unauthorized adjustments, protection against damage linked with handling and storage conditions. A "daily" verification is in place.
- Metrology is linked to national and international standards.
- Correct management and filing of calibration records.
- When a supplier uses subcontracted calibration activities, there is an appropriate management of this activity (defined scope, performance capabilities, accreditation, calibration reports,...).

## 1.9 - Flow Control

### A) Flow management, handling, storage, identification, traceability

- Risks linked to flow management, handling, storage, and identification are treated in the risk analysis (e.g., FMEA study) and with a multidisciplinary approach.
- Work place layout is adapted (including ergonomically) to the product and working conditions.
- A 5S type approach ensures the improvement of the organization of workstations and then its preservation over time ("Sort", "Set In order", "Shine", "Standardize" and "Sustain").
- Incoming products are stored appropriately. "Suspect" and/or quarantined products are stored securely.
- Correct stock rotation rules optimize the situation at all processing steps (from incoming materials to final products). Appropriate inventory systems (e.g., Kanban, Just in Time, FIFO) are used to manage stocks
- Organizations are in place to prevent any damage to the product during handling, storage and delivery. Evaluation of storage conditions at appropriate intervals to detect any deterioration
- Appropriate means are used for identification of materials, parts, products (incoming, manufacturing, storage and prior to dispatch steps), as well as control and test status. When needed, the release status is clearly displayed.
- Specific campaigns (e.g., tests, limited production) are managed with a special approach permitting a total separation from normal production.



- A traceability system exists to reconstruct the manufacturing process. Traceability includes: values of key parameters, measurement results, identification of all materials, timing, raw materials used, etc. When mandatory or required, traceability data is maintained.

#### **B) Product contamination risks**



- Methods and procedures exist to prevent any contamination and to control contaminated products. There is a guarantee that lots are separated and that there is neither cross contamination nor mixing of the products.
- There is product protection using containers, pallets, packaging, etc.
- Parts, incoming products, critical auxiliary materials are protected against environmental/climatic influences.
- Order and cleanliness for workshops and storage facilities is efficient. Cleaning cycles are defined.
- Auxiliary materials, with direct effect on product, are monitored accordingly.
- Scrap and rework product must be clearly identified and stored in dedicated zones.

#### **C) Treatment of non-conformities**



- Methods exist for detecting, identifying and isolating non-conforming products at all process steps including finished products. Dedicated zones are clearly defined for non-conforming products.
- Non-conformances are recorded to permit defect analysis.
- Procedures and responsibilities are clearly defined for non-conforming products.
- Rules and limits for reworking/repair products are clearly defined.
- There is a treatment of non-conformities with defined methodology (similar to 8D approach). Reaction plan includes immediate corrective actions. FMEA is updated when necessary.
- Rapid communication, both internally and externally in the event that non-conforming products. Being already delivered, is launched.
- There is evidence of control of unidentified or suspect products considered as non-conforming.

## 1.10- Logistics \_ Customer service

### A) Logistics and Michelin service requirements



- Michelin requirements for delivery dates, quantities, transportation, packing, packaging, identification, COA,... are applied. Action plans are defined in case of deviation.
- Administrative documents and invoices are well managed. When needed, responses to Michelin are transmitted with effectiveness
- Safety stocks agreed with Michelin are correctly managed.
- Process capacities are regularly evaluated to ensure Michelin's needs (quantity and quality terms). Incoming products are provided in the right quantity
- Different modes of transportation are defined through a clear process. Inspection methods are used to confirm. All potential product damage during transportation is anticipated (temperature, contamination,..). The supplier has a system to monitor the performance of carriers of product to Michelin.
- The supplier regularly monitors delivery timeliness performance.
- A method exists for tracking and reporting of incidences of supplemental freight costs.

### B) Conformity of deliveries

- Consistency of order identification system and product labelling prior to delivery, guaranteeing the type of product delivered. Product labelling is maintained during transport.
- There is a process preventing dispatch of products that do not conform to specifications.
- Releases of product to Customer are identifiable and documented. Release traceability is guaranteed.
- Special releases and releases under deviation are recorded and identified.

## 1.11- Process Complaints

### A) Process for assimilating complaints

- The supplier has implemented a procedure to effectively review, manage and record customer complaints.

- A process for internal communication of customer complaints throughout the organization (including workers) is in place.

#### **B) Corrective and preventive action**



- Established procedure exists to treat claims (e.g., 8D approach). It always passes through the main steps (working group, problem description, immediate actions, root causes, corrective actions, action validation, preventive actions, effectiveness of action plan,...).
- There is an application of solutions to other similar processes (including other production plants).
- Effectiveness of responses to Michelin requests for action and respect of deadlines.
- There are indicators to measure non-conformities for delivered products and they are used to improve the quality level.
- All necessary records concerning treatment of complaints are maintained.

## ***II – EVALUATION SCORING***

#### **A) Principle for calculating ESQF scores**

Evaluations are carried out by MICHELIN at the supplier's premises.

Each chapter is composed off one or several sections. A performance score is allocated for each section using the following principles:

Full compliance with the requirements	10
Requirement mainly satisfied, minor deviations	8
Requirements partially satisfied, significant deviations. OFI could be proposed	6
Requirements inadequately satisfied, major deviations. Corrective action is required.	4
Requirements not satisfied. Corrective action is required	0

The score of certain parts are increased:

- Chapter 3 score is multiplied by 3
- Section 9C score is multiplied by 2
- Chapter 11 score is multiplied by 2

Some specific points are considered as “key points». They are designated by



When a corrective action is requested on a key point, chapter score is reduced (multiplied by 0.7).

The ESQF score is calculated as follows:

$$\text{Note ESQF Quality} = \frac{\text{Sum of scores of 10 chapters (except ch. 2)}}{\text{Sum of maximum scores of 10 chapters (except ch. 2)}} \times 100$$

$$\text{Note ESQF chapter 2} = \frac{\text{Sum of scores of chapter 2}}{20} \times 100$$

#### B) Conditions necessary for certification:

The result of the audit is determined, according the ESQF given score in the following tables:

- ESQF audit score for quality part (Ch. 1 - 3 à 11)

<b>100%-90%</b>	<b>Audit passed.</b>
<b>89%-80%</b>	<b>Audit passed</b> Documentation may be required to measure progress on key points
<b>79%-70%</b>	<b>Audit not passed.</b> Improvement plan is necessary. Re-scoring will be done after examination of documents.
<b>69%-60%</b>	<b>Audit not passed.</b> Improvement plan is necessary. Re-scoring will be done after examination of documents. Michelin expert visit will permit to validate specific points
<b>&lt;60%</b>	<b>Audit not passed.</b> Improvement plan is necessary. Un second audit will be organized to validate the improvement. Governance committee will decide business adjustments

- **ESQF audit score for chapter 2 (Respect of the Michelin Purchasing Principles)**

<b>100%-90%</b>	<b>Audit passed</b>
<b>89%-80%</b>	<b>Audit passed</b> Documentation may be required to measure progress on key points
<b>&lt; 80%</b>	<b>Audit not passed.</b> Improvement plan is necessary. Re-scoring will be done after examination of documents.