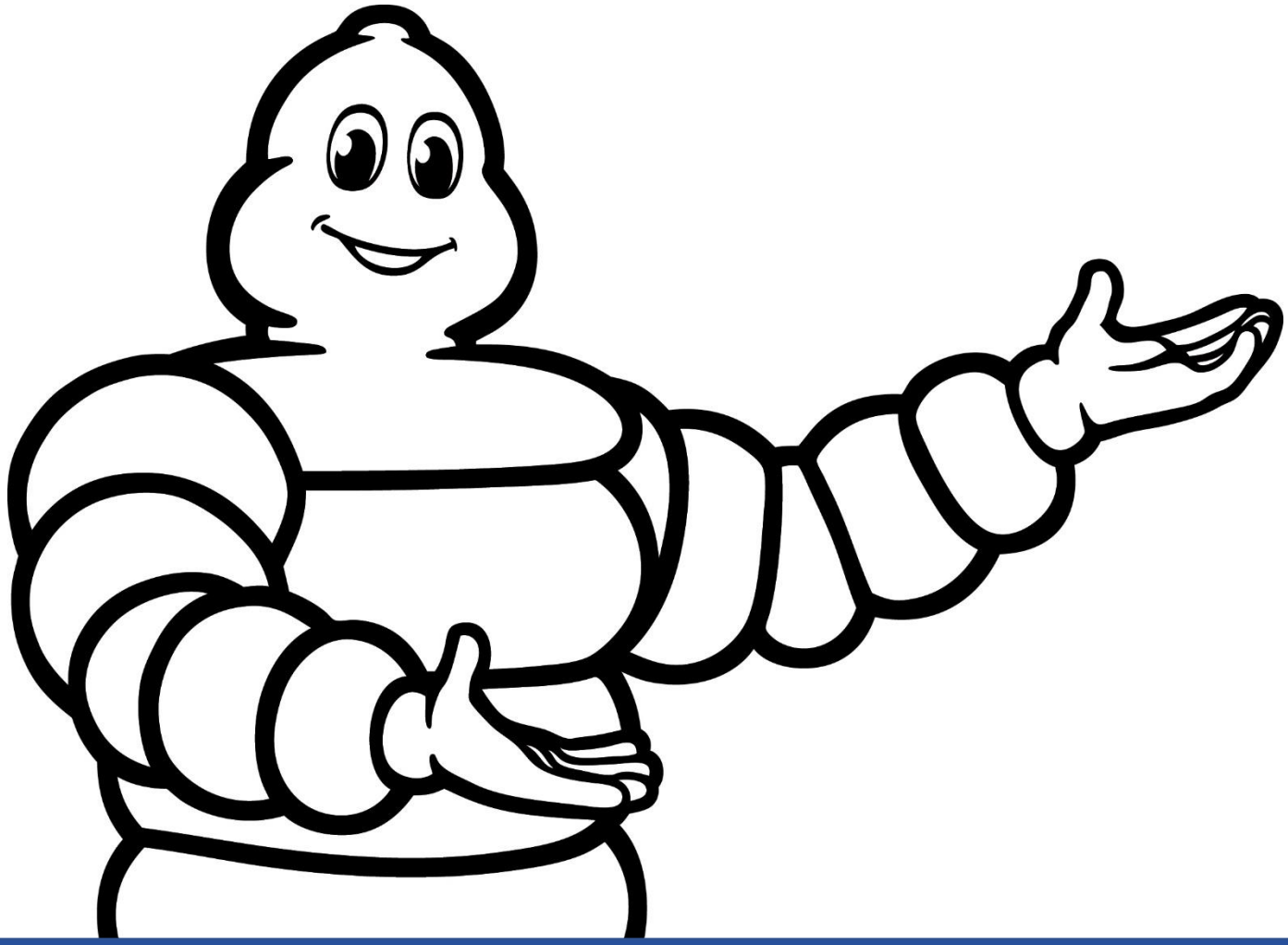
MICHELIN
A BETTER WAY FORWARD



EVALUATION SUPPLIER QUALITY SYSTEM (ESQS)

FEBRUARY 2024

DIRECTION OPÉRATIONNELLE ACHATS

TABLE OF CONTENTS

I – ELEMENTS FOR EVALUATING SUPPLIER QUALITY SYSTEM (ESQS)	**3**
1.1 - Quality Management and Organization.	**3**
1.2 - Respect of the Michelin Purchasing Principles.	**4**
1.3 - Understanding of customer requirements.	**5**
1.4 - Staff training and responsibilities.	**6**
1.5 - Management of development and product and process evolutions	**7**
1.6 - Quality of products received from suppliers.	**8**
1.7 - Process control.	**10**
1.8 - Inspection programs and measurement quality.	**12**
1.9 - Flow control.	**13**
1.10 – Logistic - customer service.	**15**
1.11 – Process complaints.	**16**
II – EVALUATION SCORING 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.	**17**

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 continuous approach and is based on the monitoring of quality indicators. It includes: customer satisfaction, capability indicators, level of non-conformities and claims, on time delivery …

- Process-specific targets regarding effectiveness and/or efficiency are defined, monitored and communicated. Customer requirements are taken into account when setting targets. A regular comparison between specified targets and actual results is made and documented.

- 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, customer's)
  - 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 responsible person dedicated to its Customers (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 (including products and process) audits are planned and performed regularly by qualified 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, archiving rules, 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 environmental regulations, including the handling, recycling, eliminating, and/or disposing of hazardous materials.

- The Supplier 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 logistic 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 contracts' review are maintained.

- A feasibility study (done by a multifunctional team) for production, development, logistics and services is done before acceptance of orders. When necessary, specific targets are defined to satisfy Michelin requirements. Satisfaction of legal regulations are also taken into 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, as well as contingency plans to guarantee deliveries.

- Applicable Michelin technical specifications and special characteristics (if existing ones) are updated. They are periodically reviewed, and distribution and implementation are managed. Michelin requirements are correctly deployed and linked to Supplier quality system.

- BCM approach is in place to cover all types of supply risks. Immediate Internal and external communication is triggered in the event of delivery bottlenecks affecting the customer.

1.4 – Staff Training and responsibilities

- The need for qualified staff is anticipated in the event of a major project or significant change. A multi-skilling grid is used to meet the staffing needs including support services. (fluctuations in customer orders, staff absences).

- If necessary, a training plan is available and regularly managed.It covers personnel training at all steps of development and project management, manufacturing and associated departments. Each work post has its own description of training sessions. A defined process ensures the re-training of staff, when necessary, at regular intervals 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, medical…). Training is provided to employees dealing with products or materials requiring special precautions. Records are maintained.

- Production errors are included in 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 and job expectations for temporary employees are managed in the same way as permanent employees.

- Examples of customer complaints as well as consequences of unsuitable work are part of training for concerned work posts.

- 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 development and product and process and evolutions

A) Developing the products

- 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 satisfaction needs. A model management plan is defined and applied (identification, documentation and management of evolutions).

- Multidisciplinary team prepares and validates the different stages. A quality representative validates the conformity of the product obtained at each step. Validation is documented. For each point specifying a validation step : every validation is documented and recorded.

- A risk analysis, such as Failure Mode and Effect Analysis (FMEA) is used. When necessary, the link with customer product requirements is established. The risk analysis is regularly updated. Production staff contributes to risk analysis (eg: FMEA). The scope of the risk analysis must include any reworked products.

- 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, tools, transports and series packaging, inspection and measuring equipment).

- Product characteristics and process parameters for all treatment phases (target values, tolerance levels, etc.) are correctly defined and acceptance between development and production is recorded.

B) Process evolution

- All necessary documentation concerning the evolution are available, including software and/or automatism.
- Methods (FMEA, experimental designs, SPC, capabilities) are used to validate the evolution.
- Quality functions validate 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) concerning process evolutions is done before implementation. Changes not initiated by Michelin are discussed and validated with Michelin.

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, including delivery quantities and punctualities…).
- Products conform with legislative requirements (environmental issues, hygiene, safety,...).
- 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 receipt control process for raw materials is described and effectively implemented to guarantee their compliance before use.
- 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 assessment (availability risks, support solutions, actions required to guarantee quality, Business continuity approach, ..) is carried out if necessary with an associated action plan. Their status are clearly displayed.

B) Suppliers' evaluation

- Suppliers classification exists with associated rules to define the organization's criteria for the selection and evaluation of suppliers including supply chain risks assessment.

- 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 with qualified auditors (following an internal or external standard).

- 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 suppliers organization.

- Implementation of a monitoring system for subcontracted services. Responsibilities are clearly defined. Organization has set a 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 personal 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 methodologies 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 and can only be modified by authorized person.

- 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. Recorded data is available and can be allocated to product and process.

B) Application of process control

- To respect specified tolerances, 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 non-compliance are maintained.

- Supplier must define the necessary capabilities for products / process characteristics to be followed. When using statistical concepts (e.g., SPC), Cp/Cpk targets are at least = 1.33, Pp/Ppk= 1.67. In case of characteristics where a certain capability cannot be obtained, a 100% inspection is required. In case of deviation, reaction plan are set.

- When control charts are used, the control limits are clearly specified and recognizable and the control charts are regularly maintained and reviewed.

- According to the last update validated, instructions, inspection documents, verification instructions,... are available at workplaces, inspection stations and verification stations and are updated after any changes are made. They are consistent with other source documents (inspection plan,…) and are drawn up by multidisciplinary teams using 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. Conditions for the use of remaining materials at the end of the campaign and / or conditions for recycling are defined and guaranteed.

- At the workplace, products and materials are provided as needed, taking into account the order quantity/lot size in accordance with the logistics concept.

- Parameters and softwares that influence the process are protected against unauthorized access.

- It is demonstrated that the processes are implemented in accordance with the customer requirements and that the resulting products meet the customer specifications.

C) Maintenance

- Preventive and predictive maintenance programs are managed with associated rules. Resources for the realization of necessary maintenance are available, with the latest version of the sofware installed.

- Critical spare parts are identified and their stocks managed.

- Scheduled and unscheduled maintenance activities that have been carried out are documented. A process is implemented to analyze breakdowns and optimize down-times. Special incidents are documented.

- Tools are managed according to their usage status (OK, NOK, under repair), their operating time, their protection,….

- Preventive and predictive maintenance programs are managed with associated rules. Resources for the realization of necessary maintenance are available). All types of tool using software (with the latest version) are concerned.

1.8 - Inspection programs and measurement quality

A) Inspection's programs

- Product inspection from start-up and during manufacturing and final inspection are appropriated and correctly applied. The necessary records are kept.

- Quality records for conformity of significant characteristics and process parameters are managed and are in line with the control plan.

- The release is authorized by a clear protocol and frequency of checking is appropriate. The certificates of analysis (COA) are correctly completed. The technical specifications are present and, if necessary, visual/aspect indicators are present. Approval of the release is clearly written by the authorized person. The protocol can include production stoppages.

- When parts or samples are sent to be measured, final product remains blocked until conformity confirmation.

- The data related to validated machinery/tools/aids is noted in the production control plan and/or the production and inspection documents.

- Required measures for process disturbances are described in the production control plan and are implemented and documented.

B) Control of 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 conform when 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 is documented and 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 the 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 connected to national and international standards.

- Correct management and filing of calibration records.

- When supplier uses subcontracted calibration activities, there is an appropriated management of this activity (defined scope, performance capabilities, accreditation, calibration reports,…).

1.9 - Flow Control

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

- The risks associated with flow management, handling, storage, and identification are dealt with as part of the risk analysis (e.g., FMEA study) and a multidisciplinary approach. This risk analysis applies to materials, software and products.

- All workplace layout are adapted (including ergonomically and safety) to the product and working conditions.

- A 5S type approach ensures the improvement of the organization of workstations as well as its preservation over time ("Sort", "Set In order", "Shine", "Standardize" and "Sustain").

- Incoming products are stored appropriately. "Suspect" and/or quarantined products or reference parts are stored securely and cannot be used.

- 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 including residual quantities (raw materials, auxiliaries, ...)

- Organizations exist to prevent any damage to incoming materials and products 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. These means guarantee that there are no mix-ups or errors in the materials, parts or products.

- 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 re-build the manufacturing process. Traceability includes: values of key parameters, measurement results, identification of all materials, timing, raw materials used including supplier's identification, etc. When mandatory or required, traceability data is maintained and recorded.

- The use of separated parts, reworked parts and reusable products is clearly defined. traceability is ensured.

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.

- Tools, equipment and 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 and identified areas prohibiting the use of non-conforming products are clearly defined for non-conforming products, to avoid that non-conform products move to next production step.

- Non-conformances are recorded to permit defect analysis.

- Procedures and responsibilities are clearly defined for non-conforming products.
  The delivery of non-conforming product is submit to prior formal agreement from customer.

- The rules and limits concerning the products to be reworked or repared are clearly defined and respected.

- There is a treatment of non-conformities with defined methodology (similar to 8D approach). Reaction plan includes immediate and corrective actions. The effectiveness of the Action plans must be verified. FMEA is updated when necessary. For repeat failures, a more detailed analysis of the causes must be carried out accordingly.

- Procedures exist to take into account the detection of non-conformities after dispatch or during use.

- There is evidence of control of unidentified or suspect products considered as non-conforming.

1.10- Logistics - Customer service

A) Logistical and Michelin service requirements

- Michelin requirements for delivery dates, quantities, transportation, packing, packaging, identification, COA,... are applied. Action plans are set in case of deviation.

- Administrative documents and invoices are well managed. When needed, responses to Michelin are transmitted with effectiveness.

- Safety stock 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. Methods of inspection 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 by the main steps (working group, problem description, immediate actions, root causes, corrective actions, action validation, preventive actions, effectiveness of action plan,…)

- This 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 about 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 rules:

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

Some referential parts, because of their importance , have their result impact :

- Chapter 3 score is multiplied by 3
- Section 9C "Treatment of Non conformity" score is multiplied by 2
- Chapter 11 score is multiplied by 2

Some specifics lines may be 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:

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

Note ESQF chapter 2 = $\frac{\text{Sum of scores of chapter 2}}{20}$ x100

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)

100%-90%	**Audit passed**.
89%-80%	**Audit passed** Documentation may be required to measure progress on key points
79%-70%	**Audit not passed.** Improvement plan is necessary. Re-scoring will be done after examination of documents.
69%-60%	**Audit not passed.** Improvement plan is necessary. Re-scoring will be done after examination of documents.
<60%	**Audit not passed**. Improvement plan is necessary. Another 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)**

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