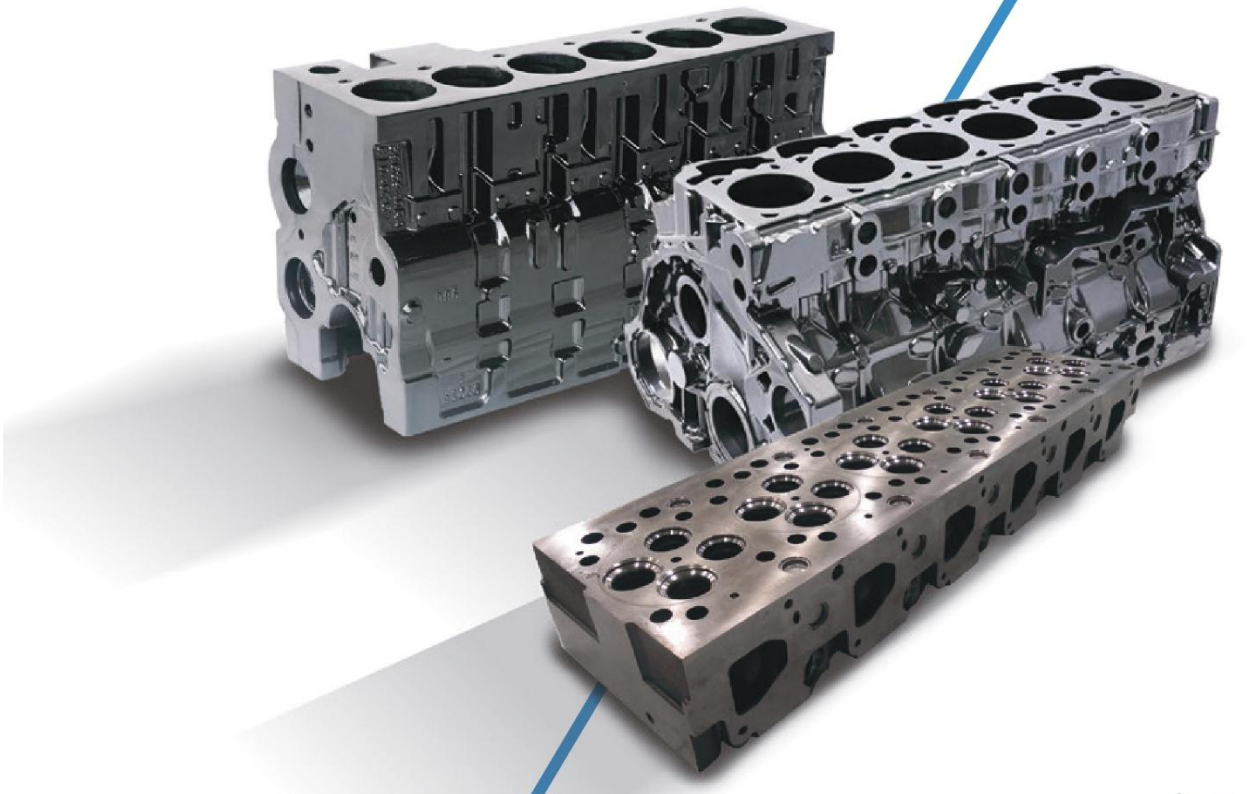
TUPY

MAN-007

Supplier Manual

REVIEW 03



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Summary

1 PURPOSE AND SCOPE

This manual formalizes the activities between Tupy Fundições and its suppliers of materials and services with a direct impact on the quality and/or production of the products, focusing on the requirements of the Quality Management System. It defines procedures, requirements and recommendations for: development of new suppliers/materials/services; performance monitoring; treatment of deviations; promotion of continuous improvement of the supply chain; and communication on compliance with specific customer requirements and international certification standards.

1.1 Application

The content of this supplier manual, in its current revision, is applicable to all suppliers where their materials and/or services have a direct impact on the quality or realization of Tupy products.

2 NORMATIVE REFERENCES

- ISO 9001:2015 - Quality Management System;
- IATF 16949:2016 - Automotive Quality Management System;
- ISO/IEC 17025 - Management System for Calibration Test Laboratories;
- ISO 14001:2015 - Environmental Management Systems;
- NOM-018 STP 2015 - Harmonized system for the identification and communication of skin and risk by chemical substances in work centers;
- NOM-144 Semarnat 2017 - Phytosanitary requirements applicable to the packaging of wood empleaded in foreign trade;
- ISPM-15 - International Standard for Phytosanitary Measures;

3 TERMS AND DEFINITIONS

- **Controlled Shipment (CSL)**
  Inspection of non-conforming material carried out in a separate area of production, where out-of-specification characteristics are checked to ensure effective detection, segregation and corrective actions, eliminating the cause of the problem and preventing recurrences;
- **Corrective Action - CAR (Corrective Action Request)**
  It is the action taken to eliminate the causes of existing Non-Conformities and/or prevent recurrences
- **Auditing**
  It is an on-site verification activity, based on a sample used to determine the effective implementation of a Supplier Quality Management System.
- **Self-assessment audit**
  Self-assessment
- **CSR**
  Specific Customer Requirements.
- **Capability**
  It is the way to assess whether a certain manufacturing process is capable of meeting a certain specification. Cp and Cpk are the indices that measure capacity. See the initial studies of the process
- **Special features**
  Product characteristics or manufacturing process parameters, designated by the customer or defined by the Supplier, that may affect the safety or compliance with standards, operation and performance of the product.
- **Parts Emission Certificate (PSW)**
  It is the guarantee that the Supplier issues that the product supplied meets the requirements established by the customer. It is considered a legal document and is supported by information from the PPAP.
- **Components**
  Any product mounted on the Tupy product. Example: seal, valve guide, etc.

- **Statistical Process Control (SPC)**
  It is a set of statistical tools used for monitoring and controlling processes and identifying sources of variation.
- **Supplier development**
  It refers to all activities defined to improve the performance of the Supplier Quality System.
- **Initial Process Studies**
  They are short-term statistical studies of one or more process characteristics to determine the level of capability or initial performance of the process.
- **R&R Studies**
  It is a study that evaluates the interaction between the measuring instrument, the operator and the environment. The acronym R&R stands for repeatability and reproducibility.
- **GDF - Supplier Development Management**
  Multifunctional group, whose function is to evaluate and develop new items and suppliers, products and services.
- **Qualified/Accredited Laboratory**
  Installation approved by an accredited third party in accordance with ISO/IEC 17025.
- **Control plane**
  It is a description of the controls used in production processes, to monitor and control the variables of the product or process, which impact the quality of the final product.
- **Containment Plan**
  Immediate action to contain a Non-Conformance in a Process, Material or Service
- **Quality Records**
  It is documented evidence that the processes were executed in accordance with the documentation of the Quality Management System (e.g., inspection and test results, calibration data) and records of the results.
- **Regulation**
  Laws, Decrees, Resolutions, Instructions, Regulations prepared by the Executive or Legislative Branches.
- **Reproducibility**
  It is the variation of the measurement results, obtained with an instrument or device, measured on the same part or feature, several times with different operators.

4 CONTEXT OF THE ORGANIZATION

4.1 Understanding the Organization and its Context

Tupy is a multinational organization that develops and produces structural components in cast iron of high geometric and metallurgical complexity, the organization has solutions present in the most diverse segments, such as cargo transport (in all modes), infrastructure, agribusiness and energy generation. For more than 80 years, the Company has promoted access to health, basic sanitation, drinking water, food and other basic needs to promote quality of life. Technological innovation and the technical knowledge of its employees is its hallmark in the market. The factories are in Joinville/SC, Betim/MG (Brazil), in the cities of Saltillo, Ramos Arizpe (Mexico) and Aveiro (Portugal). In addition, Tupy has offices in Brazil, the USA, Germany, Italy and the Netherlands

Access our website through *the QR CODE* inserted on page 1 of this manual and have access to our Management Policy and various other information about the organization.

4.2 Quality Management System and its Processes

The quality of the products delivered by Tupy Fundições to its customers is directly linked to the performance of its suppliers. The Tupy Foundries segment is highly demanding. It focuses on performance, durability and, above all, safety. Any deviation in raw materials, inputs or services directly impacts internal processes and, consequently, the satisfaction of Tupy customers.

5 LEADERSHIP

5.1 Commitment to Quality and Supply Chain

Tupy's top management recognizes that the quality of its products is directly linked to the performance of suppliers. Thus, the Supplier Quality Management (QM) department is considered a strategic element of the Quality Management System, being responsible for ensuring that the entire supply chain meets the highest standards of performance, technical compliance and continuous improvement.

6 PLANNING

6.1 Supplier and Material Development

6.1.1 Initial Criteria for Supplier Evaluation

The supplier will be evaluated according to the type of supply, considering:

- Commercial and technical feasibility (quotation);
- Supply risks and business profile;
- Production and logistics capacity;
- Technical/process audit (VDA 6.3);
- Financial stability (CKR/BIR reports, approval as appropriate);
- Applicable certifications (ISO 9001, IATF 16949, ISO/IEC 17025) and environmental licenses;
- Compliance and integrity (Code of Ethics, General Purchasing Conditions, anti-corruption policies).

The information from the evaluations will be reviewed and approved by the Supplier Management team, as applicable. If there is a rejection, the supplier's registration will not be initiated.

Note: Even after the technical development phase (GDF/IRC), the above information may be requested by Tupy at any time. To unlock items in GDF projects, approved documentation and compliance with Tupy consumption and profitability rules are mandatory.

6.1.2 Supplier Registration

After the classification of the supplier according to portfolio/applicability, the registration request is sent through the Supplier Portal. The supplier must accept the invitation and upload the required documents as per their classification.

To complete the registration, it is necessary to accept the conditions of the **Supplier Manual**, **Code of Ethics** and **General Purchasing Conditions**, available on the Portal and via QR Code on page 1.

Note: The activation of suppliers will be carried out upon analysis and approval of the documentation received, according to the type of supply and effectiveness of the information.

6.1.3 Environmental Assessment, Certification and License

Based on the information from the registration phase (items 6.1.1 and 6.1.2), compliance with the applicable environmental requirements is verified. Failure to comply with these requirements may result in business interruption.

For supply to Tupy Fundições (Brazil), an Environmental License is a mandatory requirement for all its suppliers of materials and services, which have a direct impact on the quality and/or production of Tupy products, and must be sent to Tupy at the beginning of the business and/or when requested.

It is recommended that all suppliers have ISO 14001 certification issued by an accredited body and send the certificate to the Supplier Development/Registration area.

6.1.4 Transport of Dangerous Goods

For suppliers that provide transport services for hazardous products (waste, chemical and flammable products) it is recommended to have:

Requirements	Mexico	Brazil
Have a plan to respond to external emergencies;	X	X
Driver's certification and federal driver's license updated according to corresponding regulations	X	X
Authorisation for the transport of dangerous goods and waste	X	X
Have an internal self-inspection program and the correct maintenance of the fleet, in the case of Brazil, as required by IBAMA Ordinance 85/1996	X	X
Vehicle identification according to ANTT 420/2004 and resolution NBR 7500/2013;		X
Liability insurance	X	

6.1.5 Conflict Minerals

Minerals from conflict zones must be declared by the supplier in the Supplier Development (GDF) stage, according to item 8.1.4 of this manual. This declaration will be formalized through the EMRT (Extended Minerals Reporting Template) and CMRT (Conflict Minerals Reporting Template) forms, ensuring traceability and compliance with Tupy's guidelines.

6.1.6 Occupational Safety Assessment

It is recommended that suppliers covered by this Manual and who provide services at Tupy facilities have the following documents: **PPA (Accident Prevention Program)** and **PCMSO (Occupational Health Medical Control Program).**

6.1.7 Supplier Quality System Assessment

Raw material **suppliers** must have a Quality Management System certified by ISO 9001 (current version), issued by an accredited body.

Note: For Tupy plants certified ISO 9001, ISO 9001 certification may be guiding for these suppliers, according to supply chain analysis.

For **process materials**, ISO 9001 certification is recommended. The supplier must meet the minimum requirements defined by Tupy, which will be verified in second-party audits according to the annual plan.

For suppliers of **recycled (ferrous) raw material**, ISO 9001 certification is recommended, however, the supplier must ensure traceability and meet the chemical and physical specifications defined by Tupy.

Note: All recycled raw material will undergo an internal transformation process before being incorporated into the Tupy product and its compliance will be previously ensured by inspections, chemical analysis and traceability. In the event of non-compliance, the supplier will be subject to inclusion in the LPS flow as defined in section 9.

Distributors: They must ensure that their sources have ISO 9001 or IATF 16949 accreditation, depending on the applicability of the type of supply.

6.1.7.1 Automotive Supplier Quality System Assessment

Automotive suppliers that provide **components**, **painting services**, **heat treatment**, **automotive paints**, **finishing services** or **machining services** must have a Quality Management System according to the **IATF 16949** standard, certified by an accredited body.

Automotive suppliers not certified in the IATF 16949 standard, must at least have ISO 9001 certification, by an accredited third party body, comply with the Minimum Requirements of the Automotive Quality Management System (MAQMSR) which are available at the link: https://www.iatfglobaloversight.org/wp/wp-content/uploads/2016/12/Minimum-Automotive-Quality-Management-System-Requirements-for-Sub-tier-suppliers-2ndEd-rev2.pdf, and must develop their quality management system with the ultimate goal of IATF 16949 certification.

The supplier will be audited according to the audit plan defined by Tupy to evaluate the evolution of its automotive QMS. If there is no evolution, Tupy may apply blocking and/or disaccreditation.

6.1.7.2 ISO/IEC 17025 Certification

Laboratories providing **Calibration and Testing Services** must have a Quality Management System certified under the ISO/IEC 17025 Standard in the current version by an accredited third party body, as well as certification from the Standards Accreditation Body and/or Employers, of the country of origin.

When a non-accredited laboratory is used, the organization is responsible for ensuring that there is evidence that the laboratory has been evaluated and meets the requirements of Section 7.1.5.3.1 of IATF 16949, these are:

a) the adequacy of technical laboratory procedures;

b) the competence of the laboratory personnel;

c) the testing of the product;

d) the capability to carry out these services correctly, traceable to the relevant process standards (such as ASTM, EN, etc.); When national or international standards are not available, the organization should define and implement a methodology to verify the capability of the measurement system;

e) the customer's requirements, if any;

f) the critical analysis of the related records.

6.1.8 Supplier Approval

After analyzing the areas involved and meeting the minimum requirements (Commercial, Environmental, Quality System and Potential Assessments), the supplier may be approved.

6.2 Information for the Supplier

- The requirements of the materials and service are communicated through a purchase order. The physical-chemical requirements are communicated by the purchasing area through the format of technical specifications and standards.
- Inspection and/or rework requirements on Tupy parts are communicated through the Service Order for Inspections; For plants in Mexico, these requirements are communicated by means of the RFQ form in the purchase quotation process
- Requirements for calibrations are communicated through a purchase order;
- The purchase order is assigned by the buyer and placed on Tupy's Supplier Portal;

• The legal requirements for the supply of materials and services are described in the terms and conditions policy applicable to orders for the purchase of goods/services;

• The Customer's Specific Requirements, legal and regulatory, and the need for Special Product and Process Features, are described in section 8 of this Supplier Manual and shall be implemented by the Supplier in its sub-suppliers as well.

6.3 Supplier Re-evaluation

Accredited suppliers who have not supplied for more than **2 years** must follow the process described in paragraphs 6.1.1 to 6.1.8 to return to supply.

Note: For groups in Brazil, the following rules apply:

- **Refractory Material:** 5 Years
- **Cutting Tools (MM16):** 3 years

6.4 PRODUCT APPROVAL PROCESS

6.4.1 PRODUCTION PARTS APPROVAL PROCESS – PPAP

This requirement is mainly applicable in automotive products: Components, Machining Services, Finishing, Painting, Heat Treatment.

The Production Parts Approval Process is carried out in accordance with the requirements set out in the PPAP Manual issued by AIAG in its current version.

In Mexico, in the case of raw materials and process materials, the Bulk Materials Requirements format will be used.

In the case of the Brazilian plant, it will be through PPAP requirements. Level 3 will be used as the default for all submissions for the Automotive items, unless otherwise specified. Tupy reserves the right to request additional requirements.

The purpose of the Production Parts Approval Process (PPAP) is to verify that the technical requirements of Tupy's Engineering Specification are understood by the Supplier, and that its manufacturing process has the potential to produce the product in a manner consistent with these requirements, during current production runs, at the quoted production ratio.

Questions about specific PPAP requirements should be directed to Tupy's responsible representative. The Supplier must obtain PPAP approval from Tupy in the following situations:

• A new Material or component;
• Correction of a discrepancy in Material or component;
• Engineering change in a Material or component;
• Changes that affect the form, durability or performance of the Material or component;
• Changes in the manufacturing process, equipment, facilities;
• Tupy update request

At the end of the PPAP process, the Part Emission Certificate - PSW is issued, indicating that the part or Material meets all Tupy's requirements, and the Supplier is authorized to send the production quantities of the product itself. The supplier must ensure that future production continues to meet all requirements.

6.4.1.1 PPAP Requirements

PPAP parts should be removed from normal production runs. These production rounds shall last from one to eight hours, with sample as per Tupy customer's requirement, unless otherwise specified by Tupy.

These production rounds must be carried out at the production site, in the production relationship, using the tooling, meters, processes, materials and production operators.

No quantity is specified for bulk materials. The sample shall be taken in such a way as to ensure that it is representative of production. For bulk material, the production history of current products can be used to estimate the capacity or initial process performance of new or similar products. In cases where there is no history of production of similar technology, product or material, a containment plan will be applied until a sufficient level of production has demonstrated skill or performance, unless otherwise specified by Tupy.

During the PPAP stage, any out-of-specification results are grounds for suspension of the PPAP sample part/product submission, documentation, and/or records. When this occurs, Tupy must be notified immediately and the Supplier must correct the process. If, upon receiving the request for quotation of the item, the Supplier identifies that it is not in a position to meet the requirements of the PPAP, it must notify Tupy before sending the quotation to determine the most appropriate corrective action

6.4.1.2 Information Submission/Retention Requirements

The Supplier shall perform the appropriate and functional tests and/or validations, generate and maintain detailed documentation, and ensure the availability of information demonstrating compliance with each of the PPAP requirements set forth in the AIAG Manual in its current version, and submit it to Tupy when necessary, regardless of the requirements requested.

PPAP and PSW documents must be dated, scanned and sent to the supplier quality department of the corresponding Tupy plant. The purpose of this request is to keep our System up to date.

Advanced Planning for Product Quality - APQP (Components) As a phase prior to the Production Parts Approval Process, the development of a new component, correction of discrepancy, engineering change, change that affects form or performance, change in the manufacturing process, in the Materials, in the equipment or in the current facilities, the guidelines established in the AIAG APQP Manual in its current version must be followed.

The documents indicated below, and described in the APQP Manual, must be submitted with the information from the PPAP:

- FMEA of the project / process;
- Drawing;
- Checklist for new equipment, tools and test equipment;
- Results of the quality of products / processes;
- Process flow diagrams;
- Control Plans;
- MSA (Measurement System Analysis);
- Process capability studies. The PPAP process is carried out according to the following criteria:
- Components, Machining, Painting, Heat Treatment Services require emission;
- For Mexico, if the Material is incorporated into the final product and/or is directly related to its fulfillment, PPAP needs are carried out in accordance with the List of Requalification Materials;
- If the Material is not incorporated into the final product, it is not subject to the issuance of PPAP;
- Any material is subject to the issuance of PPAP at the customer's request.

6.4.1.3 IMDS Restricted Substances - International Materials Data System

To meet our customers' requirements regarding the prohibition and/or restriction of the use of heavy metals, such as Mercury, Cadmium, Lead and Hexavalent Chromium, in vehicles and automotive parts, Suppliers must register the components of the raw material and their chemical composition in the International Material Data System - IMDS (www.mdsystem.com) and the declaration of conformity.

This registration is also required, in the case of development of new items or replacement of components and/or changes in the manufacturing process, in any other applicable situation and/or when required by Tupy.

To submit the IMDS record, use ID 7096. The submission of this requirement becomes part of the PPAP documentation and is a mandatory requirement for its approval.

6.4.2 Material Development

For the development of Raw Materials and Process Materials, the pilot batch must be delivered and identified as described in item 8.7.1. At the same time, the supplier must send the following documents to the Technical and Supplier Development Department:

- Technical sheet;
- Chemical Product Safety Data Sheet (MSDS), according to the Globally Harmonized System;
- Material quality certificate.

6.4.3 REACH – REGISTRATION, EVALUATION, AUTHORIZATION, AND REGULATION OF CHEMICALS

All suppliers of products to the European market must comply with the REACH EC 1907/2006 legislation – regulations and guides can be found on the European Chemicals Agency (ECHA) website: http://echa.europa.eu/home_pt.asp.

Information needed for new developments:

- Contact details of the team responsible for the REACH legislation (representing all production units - different CNPJ) - name, company, telephone and e-mail;
- Chemical Composition – substances present in the products supplied, including their CAS number (Unique Substance Identifier – see www.cas.org) and their average percentage in the composition. Also inform the weight of the product (kg). In order for Suppliers of polymeric materials, inform the monomer used;
- Report substances that do not require pre-registration/registration. For this task, ECHA has provided a "browser" that can be accessed at the following address and facilitates the process: http://reach.jrc.it/navigator_en.htm

6.4.4 Product Approval

After the evaluation of the item by the areas involved in terms of technical, commercial, quality, environmental and safety requirements, it can be approved. If any area does not approve, the approval will be subject to the group's evaluation.

During the approval process, the supplier will receive Tupy's technical specification with the product requirements. *(Applicable to suppliers of raw materials and process materials)*

7 SUPPORT

The supplier must ensure the necessary resources, skills of people and effective communication to meet the applicable requirements. The supplier must keep documented information and make it available when requested by Tupy.

7.1 Social Responsibility

Tupy requires its suppliers to maintain a minimum standard of social responsibility, in accordance with applicable legislation. This requirement is mandatory in all Tupy businesses and includes the following aspects:

Respect for its employees: Comply with all applicable labor laws, including: Freedom to remain in employment; Adequate remuneration and limits on working hours (regulated and overtime); Freedom of association.
Maintain salary levels and benefits that meet the basic needs of employees. *Forbidden: forced, slave or similar labor.*
Safe and healthy workplace - Ensure safe and healthy conditions, as per health and safety laws. Do not tolerate harassment (moral or sexual) and discrimination (race, color, religion, sex, age or physical condition).
Environmental protection - Acting in accordance with applicable environmental laws and regulations. Avoid waste, prevent pollution and conserve energy.
Example: ISO 14001 certification or external verifications.
Security in the supply of products and services - Apply minimum reasonable security measures in the design, execution and supply.
Mandatory: report any deviation related to the safety of products or services provided to Tupy.

7.2 Business Conduct

Gifts, favors, and entertainment - Gifts, commissions, perks, or favors that may suggest undue favoritism should not be offered or accepted. Any influence on the choice of processes through favoritism, such as discrepancies in quality or price criteria, is prohibited.
Fair and honest dealings - The exchange of information, during pre-supply negotiations, must be accurate and in accordance with all applicable laws (including those related to competition and unfair practices).
Business relationship - The practice of the conducts described herein contributes significantly to the reduction of business relations with Tupy, creating an ethical, respectful and dignified environment for all and for society.
Environmental responsibility - Tupy expects the supplier to support our awareness of environmental aspects and impacts, both in its business and in Tupy, through an appropriate management policy and an environmental program. Vendor responsibilities include:

- Comply with current environmental legislation and its requirements;
- Keep the authorizations and licenses required by environmental agencies up to date (e.g., operating license, transportation, emergency plans);
- Commit to sustainable development, pollution prevention and conscious consumption of natural resources;
- Maintain updated environmental documentation available to Tupy when requested;
- Manage legal requirements to avoid government interventions that could disrupt supplies or deliveries.

7.3 Safety and Environmental Requirements for the Product

Tupy requires that all products and materials be delivered in compliance with current legal standards, especially those related to the environment, health and safety. This includes requirements for controlled products, restricted substances, toxic and hazardous materials (handling, recycling, disposal, operating licenses, extraction, transportation, etc.). Suppliers must comply with all applicable regulations in their country and ensure that the finished product complies with the governmental, environmental, and safety standards of the destination country.

7.4 Dangerous Goods and Controlled Goods

When delivering dangerous goods, regulations regarding packaging, identification and transport must be observed.

Only chemical products whose Material Safety Data Sheets are in accordance with the requirements of the Global Harmonized System and have been previously approved by Tupy's environment, safety and occupational health sector may be delivered.

The supplier must notify Tupy in advance in writing of the modifications made to the materials, compositions and ingredients and receive Tupy's approval prior to shipment to production.

Before and during the shipment of hazardous goods and materials, the supplier must provide Tupy and the carriers with written notices, including appropriate labels on the products, containers, and packaging. It must also send all special handling instructions, safety measures and precautions necessary to comply with applicable regulations and legal requirements, avoiding accidents or damage during handling, transport, processing, use or disposal.

The dangerous product must be transported only by transport authorized by the competent bodies and have the necessary licenses for its transport.

7.5 Confidentiality

The Provider undertakes to maintain confidentiality of all information related to the contracted services, whether technical or not, patentable or not, as well as data on the works analyzed, executed or monitored, during and after the term of this agreement, under the penalties provided for in the applicable legislation.

The parties may not disclose, facilitate to third parties or use outside the company, directly or indirectly, during or after the term of this agreement, any information obtained by any means of communication between the parties, without prior written authorization from the appointed Coordinator.

7.6 Contingency Plan

Suppliers must identify risks that may affect supply and maintain Contingency Plans (e.g., alternative manufacturing, packaging, transportation, use of third parties in cases of power outages, failures in critical equipment, or returns), ensuring continuity of supply of products and/or services in emergencies.

7.7 Change of Approved Product and/or Process Specifications

Any modification to the manufacturing process, product design, components, packaging, subcontractors, or change in the manufacturing site of previously approved products must follow the recommendations of the most recent edition of the PPAP Manual and/or as defined by Tupy in section 6.4.1 of this Manual.

No technical changes are allowed without prior consent from Tupy. The supplier must inform Tupy's Supplier Development Department and Technical Department of any modification to the approved process that may impact the performance of the supplied product. For this, it is mandatory to request and fill out the Deviation Request form.

7.8 Violations - Non-Compliance

Cases of non-compliance subject to the issuance of a Corrective Action Request and penalty in the supplier's indicator:

- Incorrect, incomplete, or unsubmitted product documentation as per section 8 of this Manual;
- Material with characteristics outside Tupy's specifications, detected in the incoming inspection or in process (customer or Tupy);
- Expired materials;
- Mixed products;
- Damaged packaging;

- Incorrect identification;
- Delay in responses and/or breach of agreements with Tupy;
- Stoppage or loss of line time at the customer's or Tupy plant due to non-conformity of raw material, material or service;
- Interruption of the supply of raw material, material or service;
- Security risk.

Cases subject to action plan and penalty (do not generate Corrective Action Request):

- Early or late delivery*;

Quantity delivered more or less.

Note: Transportation services are excluded, where late deliveries are subject to the issuance of Corrective Action.

7.9 Non-conforming product awareness - Costs of non-quality

The supplier must make its employees aware of the consequences of shipping products with quality failures, such as rework, production stoppages and non-quality costs generated by failures detected at Tupy or at the customer's factory.

The supplier may also be held responsible for non-quality costs arising from failures in materials, components or services provided, which cause downtime or complaints at Tupy or the customer.

7.10 Determination of the Need for Controlled Shipment - CSL

If the organization's corrective actions are not effective, Tupy may determine the need for Controlled Shipment. One or more of the following issues can be considered in determining the implementation of controlled freight:

- Defect(s) detected at Tupy;
- Recurring failures;
- Line stops and/or major interruptions;
- Severity of the problem;
- Inadequate containment action causing non-conforming parts to reach TUPY or its customers;
- Inefficient production process.

Based on the severity of the problem, Tupy will decide whether Level 1 or Level 2 will be more suitable. Once the definition is established, Tupy's Supplier Quality area will notify the supplier, requesting an agreement through the controlled shipment communication letter (CSL).

7.10.1 Controlled Boarding Level 1 – CSL1

The supplier must implement a 100% inspection process in its plant to ensure the supply of compliant materials. Unless otherwise authorized by Tupy, the area intended for the CSL inspection process must not be inserted in the natural flow of the supplier. It must be a control point subsequent to the flow (separate workstation).

7.10.2 Level 2 Controlled Shipment – CSL2

If nonconforming materials are detected in the CSL1 stage, the vendor is entered in CSL2 automatically.

In this case, the inspection of the products is carried out at the Supplier's or Tupy's facilities, by a third-party company (hired or appointed by Tupy), which will represent Tupy's specific interests of the containment activity. The outsourced company is approved by Tupy and paid by the Supplier. Upon being notified of the entry into controlled freight, the Supplier must take the following steps:

- Control all non-conforming parts in your facilities, in warehouses, in transit and at Tupy;

• Provides an inspection area, preferably separate from CSL1. This inspection area must be clearly identified and must be properly illuminated and equipped;
• When applicable, review all necessary PPAP documentation and send it to Tupy again;
• Define and implement a corrective action plan;
• Failure to make repairs and rework in the containment area. The containment process should be conducted independently of the production process, and when possible a containment can be applied to the process that generated the defect;
• Store all the necessary information in graphs and charts. These should be updated and continuously reviewed by the supervision. This information should be used to guide troubleshooting, establish controls, and block errors;
• Clearly define an efficient flow of Material in the containment area, avoiding the mixing of defective Materials with approved Materials (define Material inlet and outlet areas).
• Identify each of the packages sent to Tupy, with information from the CSL. Example: "100% controlled lot – CSL (1 or 2)". Inspector information and signature of the person in charge. For bulk materials, carry out the identification through the invoice.

Note: Tupy may determine the entry into CSL 1 or 2 regardless of the quality history, and may suspend the supplier for new business until the process is completed.

7.10.3 Retention and Submission of Results

Records of these inspections must be kept for a minimum of 1 year.

During the CSL process, the supplier must send the controlled shipment Data Sheet to Tupy on a weekly basis.

7.11 Controlled Shipment Exit Criteria

The period of stay in this regime will be linked to the criteria listed below:

• Absence of recurrence of Non-Conforming Material for a minimum period of 60 days after the implementation of the action plan;
• Evidence that a thorough troubleshooting process has been used, that the root cause of the problem has been discovered, and that corrective actions have been implemented and validated;
• The Supplier must remain in controlled shipment until it receives written authorization from Tupy to exit this process;
• The SPC should be used, where appropriate, to confirm the stability and capability of the process for 60 days after the implementation of the corrective action plan

7.12 Lessons Learned

In the event of a customer complaint about a warranty problem involving Tupy Suppliers, Tupy may share the information of the lessons learned with other Tupy Suppliers in the same segment of the Supplier that originated the complaint, provided that private data of the parties are not exposed and it is considered applicable, in critical analysis.

The Supplier shall collect the information resulting from experience, both from previous projects and from ongoing projects (e.g., from field and production area failures, project performance, product safety), and apply it, as lessons learned in new projects and work in progress, to its production operations and its supply chain.

8 OPERATION

8.1 Specific Customer Requirements – CSR

It is important for suppliers to meet the Specific Requirements of Customers, where the same criteria must be applied to sub-suppliers.

The Supplier will be subject to proof of compliance with these requirements, in a timely manner or through audits carried out by Tupy.

Updated customer-specific requirements are available at the link below:

CSR - Tupy Foundries

Note: In case of doubt, to find out which customer requirements apply to them according to the product and/or service they provide, please contact the Supplier Management of the corresponding plant.

8.1.1 Requirements for Security Features

If Tupy's Customer's Product Engineering (Parts Drawings) specifies Safety Characteristics that imply a risk to the safety or health of people, these characteristics will be communicated to the Supplier and the supplier must identify these characteristics in the control documentation of its processes and must comply with the respective legal and regulatory requirements.

8.1.2 Conflict Minerals

Tupy maintains a strict commitment to the responsible origin of the minerals used in its processes. Materials from countries classified as conflict zones are not accepted. Suppliers must declare awareness of these restrictions and ensure that the materials supplied do not have this origin.

This information will be recorded through the **Extended Minerals Reporting Template (EMRT)** and **Conflict Minerals Reporting Template (CMRT)** forms in the Supplier Development process. The veracity of the statements may be verified in subsequent audits.

8.1.3 Record Retention

Records control must meet legal, regulatory, organizational, and customer requirements. They shall be retained in most cases for the period of time that the product is active, in accordance with production and service requirements, plus one calendar year, unless otherwise specified by the customer. Refer to the specific customer requirements provided in item 8.1 of this manual.

8.1.4 Product Safety Representative (PSCR)

Tupy requires from its automotive suppliers, described in item 6.1.7.1 of this manual, a Management function defined as Product Safety Representative (PSCR), and the implementation of organizational and technical measures (Risk Management System) to ensure the safety of the product in its parts and its sub-suppliers.

The PSCR function must be fulfilled according to customer requirements (see paragraph 8.1) and the requirements defined in paragraph 4.4.1.2 of the IATF.

Note: The product safety officer must be qualified in the "Product Safety and Compliance Representative (VDA PSCR)" training and complete the responsibility letter submitted at the development stage.

8.2 Supplier Quality Structure

The Supplier must have a Quality organizational structure that guarantees the satisfaction of Tupy's demands and needs and that allows it to supply products with the desired Quality, quantity and punctuality.

8.3 Updating Certifications

It is the Supplier's responsibility to keep Tupy informed about the update in the certifications of its Quality, Safety and Environmental Management System, once the validity of the certification is completed. The supplier must keep its QMS certification current in the Supplier Portal. If the updates are not submitted to the portal within 90 days after expiration, the certificates will be considered invalid, which may cause the impediment of the business or the acquisition of the material.

8.4 Environmental License Update

It is mandatory that the supplier has an environmental license relevant to its activity to supply any product, productive service or transport of dangerous products. The license must always be up to date according to the country's legislation. The supplier is responsible for sending Tupy the current license or renewal protocol at the time of expiration.

8.5 Material Inspection

The materials supplied will be received and inspected according to Tupy's inspection methods. The non-conformities detected will be recorded through the corrective action form, which must also be used to fill out and respond to the action plan.

By having greater knowledge about the product, the supplier will be able to propose interlaboratory analyses in the GDF stage to align methods and ensure compliance with Tupy's specifications.

8.6 Material Quality Certificate

All material delivered to Tupy must be accompanied by the Quality Certificate. The absence of this document can lead to the rejection or conditional release of the material, as defined by Tupy's Engineering team.

Certificates must be sent by email in advance or on the day of shipment, ensuring availability at the time of the receipt inspection for approval and release of the material. The shipment must be made to the following addresses:

- Saltillo Plant: inspeccion.recibo@tupy.com.mx;
- Ramos Plant: inspeccion.recibormz@tupy.com;
- Joinville plant: insprec@tupy.com.br
- Betim Plant: inspecao.lab.betim@tupy.com

Note: The batch without the respective certificate may cause the opening of non-conformity to the supplier, as established in item 7.8 of this manual.

8.7 Product Identification

8.7.1 Product Identification

Unless otherwise defined in the Technical Specification of the product or part supplied, the identification shall contain at least:

- Name of the supplier;
- Product description;
- Tupy product or item code;
- Expiration date (if any), which must be legible and highlighted;
- Batch number;
- Quantity.

8.7.2 Product Packaging

Unless otherwise defined in Tupy's Technical Specification, the supplier must develop packaging that guarantees the integrity of the product and facilitates handling and storage. The use of returnable and recyclable materials is recommended.

For wooden packaging, the supplier must comply with the ISPM 15 standard (International Phytosanitary Measures) and carry out phytosanitary treatment.

8.8 Logistical Commitments

8.8.1 Logistical Commitments – Supplementary

Any logistics incidents may be considered in the supplier's performance analysis, positively or negatively affecting future purchases.

8.9 Disposal of Materials and Products from Suppliers

All materials and products, owned or subcontracted by the supplier, that enter Tupy's facilities must be disposed of by the supplier in accordance with the applicable legislation. The supplier must comply with all of Tupy's environmental standards. Waste generated in any work at Tupy must be treated according to the plant's internal Waste Management procedures. Companies responsible for transportation and final disposal must be authorized, follow current legislation and carry out the disposal in accordance with the applicable standards. These companies must issue the Final Destination Certificate and send it to Tupy's Waste Management, along with the Waste Transport Manifest.

8.10 Calibration Certificate

Measuring equipment sent for maintenance, verification and/or calibration must be delivered to Tupy, with the respective calibration certificate.

8.11 Products, Tools and Equipment Owned by Tupy and/or Customers

Products supplied by Tupy and/or customers (such as parts, tools, measuring equipment, packaging, transportation, etc.) must be identified and registered as "Tupy's Property" and controlled to allow quick location and verification of the state of conservation. For tools owned by the end customer, the identification must follow the standard defined by Tupy. The supplier is responsible for verifying, storing, transporting, handling, preserving quality and validity, as well as correctly identifying products owned by the customer.

8.12 Request for deviation

A product with deviation is considered to be one that has a characteristic outside Tupy's specifications. Products with deviations can only be sent with prior approval from Tupy's technical department. To do so, the supplier must request and fill out the Diversion Request form and forward it to the Supplier Development area.

8.13 Handling of Non-Conformities

When a non-compliance occurs, as defined by Tupy, the supplier receives a Corrective Action Request (CAR/RNCF) to identify the root cause and define definitive corrective actions. The deadlines for response are:

- **24 hours** to define **containment** actions;
- **5 working days** for **full response**.

The delay implies demerit in the IQF (Supplier Quality Index). If the deadline exceeds **30 days**, the supplier will be included in the LPS flow (item 9.4).

8.14 Containment of Materials at Tupy or Customer's Plant

If application problems occur with the Material supplied, the Supplier may be required to carry out immediate containment at Tupy or to hire a third-party company to carry out the 100% inspection. If, after 100% inspection, a repeat infringement is detected, the Supplier enters CSL status. (See section 7.10).

8.15 Containment of materials that are in the supplier's plant

When a Non-Conformity is reported, the supplier must carry out a 100% inspection of the stock in its factory of this product. These parts must be identified by the Supplier as 100% inspected lots.

Note: For bulk materials, 100% controlled batch identification must be carried out through the material quality certificate.

8.16 Disposal of Materials

After identifying the root cause of the material failure and certifying the impossibility of using the material in the Tupy plant, the supplier has a period of 10 days to define the removal of the material from the Tupy unit, if it does not do so within the established period, Tupy reserves the right to dispose of the material and charge the supplier.

Note: Every cost related to the transportation of returns is considered a non-quality cost, so the supplier must bear all the amounts.

8.17 Delivery times – Items in Development

The supplier will not be penalized in the Delivery Quality Index (IQE – item 9.1) for discrepancies in the delivery of items under development, but it is expected that the agreed deadlines will be met.

Note: For current items, the supplier must maintain a system that ensures 100% deliveries within the required timeframe.

8.18 Manufacturing Process Monitoring

The Supplier must monitor the performance of its manufacturing processes, through graphs and/or applicable indicators, such as performance, productivity, lead time, etc. This monitoring will be verified through process audits carried out by Tupy, when necessary.

9 PERFORMANCE EVALUATION

9.1 Supplier Quality Index (IQF)

The Supplier Quality Index - IQF, is evaluated according to the Material or Service Quality Index (IQM or IQS), Delivery Quality Index (IQE), Commercial Posture Index (IPC), Quality System Index (ISQ), the supplier is notified by e-mail.

The monitoring carried out monthly through the quality index applies to suppliers of direct materials, services performed on Tupy parts, critical services with the potential for plant downtime and services related to the health and well-being of their employees.

Formula for calculating the IQF of suppliers of Productive Products and Services

IQF = (40% x IQM or IQS) + (20% x IQE) + (20% x CPI) + (20% x ISQ)

Formula for calculating the IQF of Non-Productive Service providers

IQF = (70% x IQM) + (10% x CPI) + (20% x ISQ)

Formula for calculating the IQF of Scrap suppliers - Mexico

IQ = 100% - ∑ Non-conforming deliveries (Ton) / ∑ Deliveries (Ton)

9.1.1 Quality Objectives

The Supplier must establish a continuous improvement process whose objective is zero quality defects in the products delivered. The minimum level of performance accepted by Tupy is 80%

Supplier Classification		
Classification	**IQF**	**IQF Rating**
EXCELLENT SUPPLIER	94 ≤ IQF ≤ 100	+ A
RELIABLE SUPPLIER	90 ≤ IQF <94	A
ACCEPTABLE SUPPLIER	80 ≤ IQF <90	B
DOES NOT MEET EXPECTATIONS	IQF <80	C

9.1.2 Criteria for taking action on suppliers

Supplier performance (IQF) is evaluated on a monthly basis. The possible actions are described in the table below according to the month's performance.

IQF MONTHLY	**IQF CLASSIFICATION**		**ACTIONS TAKEN ON SUPPLIERS**
94 ≤ IQF ≤ 100	A+	EXCELLENT	• POSSIBILITY OF ACTIONS FOR CONTINUOUS IMPROVEMENT
90 ≤ IQF <94	A	RELIABLE	• POSSIBILITY OF ACTIONS FOR CONTINUOUS IMPROVEMENT • POSSIBILITY OF CONVENING A MEETING AT TUPY • POSSIBILITY OF ACTION PLAN
80 ≤ IQF <90	B	OPPORTUNITY FOR IMPROVEMENT	
IQF <80	C	DOES NOT MEET EXPECTATIONS	• START OF THE PERFORMANCE RECOVERY PROCESS OR SUPPLIER DE-ACCREDITATION ACCORDING TO LPS FLOW

Note: The actions described above can be applied, regardless of the monthly performance result, to:

- Inadequate response to the product approval process – PPAP;
- Inadequate response to the corrective action request process;
- Lack of response or inadequate response by the Supplier to the Tupy Quality Management System Requirements, applicable to suppliers;

9.2 Process Audit

According to the applicability of the supplier's quality management system and type of supply, Tupy has the right to audit its manufacturing process or quality management system, according to VDA 6.3, ISO 9001, IATF 16949, applicable CSRs. As part of the quality assurance system, process audits can also be extended to sub-suppliers, accompanied by a technical representative designated by the supplier

Non-conformities identified in the audits will be sent through reports and must be responded to within a maximum period of up to 15 working days through an action plan. The delay or non-response of the action plan may cause the supplier to enter the LPS flow (item 9.4), as defined by Tupy.

The criteria for defining the need, type, frequency and scope for carrying out audits are defined in the following table:

Quality Management System (QMS) Certification	**Impact of the Material on the Final Product**	**Quality Performance**	**Audit History**

Considers the maturity of the supplier's Quality Management System	Considers the relevance and impact of the material/service provided for the compliance and functionality of the Tupy product	Considers the history and criticality of non-conformities related to the materials/services provided	Considers the time elapsed since the last audit carried out on the supplier

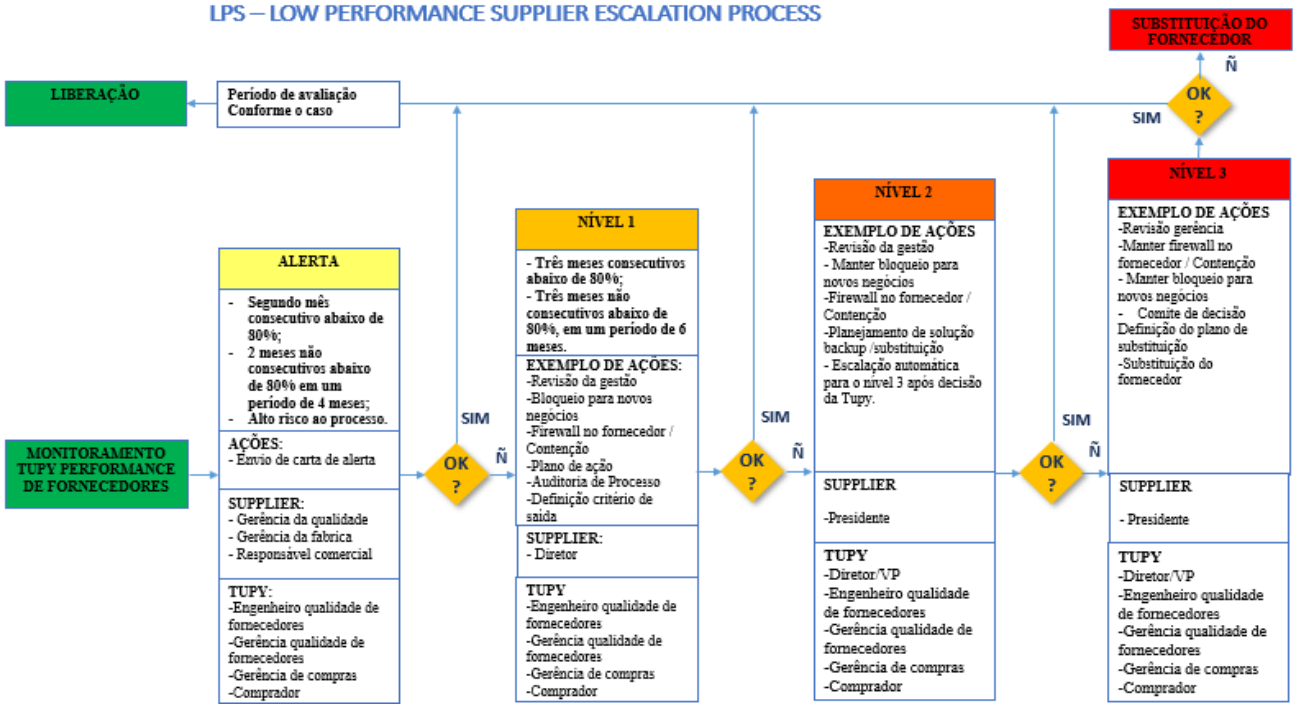
Based on these criteria, Tupy will carry out the annual audit plan and define the need for a face-to-face, virtual or self-assessment audit. If the qualification level in the audit is "C", the supplier may be blocked from new business until an action plan is presented and a new audit is carried out with the increase in the qualification level.

9.3 Evaluation of Productive Capacity

Whenever Tupy deems it necessary, the supplier will provide information related to the capacity or quality of the process, this measure can be applied preventively, correctively or as a result of quality problems in the products supplied. Annually, Tupy may require from its suppliers capability studies (Cp and Cpk) of characteristics that it deems critical to the process

9.4 Performance recovery or supplier de-accreditation process – LPS

If the Supplier presents low performance or does not meet Tupy's definitions, the following escalation criteria may be adopted:



After the supplier enters the LPS (Low performance supplier) flow, the supplier's multifunctional team, with Tupy's support, will define actions to resume performance. The minimum exit criterion is 3 consecutive months, above 80%, and can be postponed by the EQF if there is instability or actions in progress.

Note: Regardless of the phase of the flow, actions may be adopted or requested by Tupy from suppliers.

10 IMPROVEMENT

10.1 Development of the Supplier Quality Management System

The development, implementation and improvement of a Supplier Quality Management System should consider:

• ISO 9001 certification by accredited certification body (3rd Party);

• ISO 9001 certification with compliance with specific customer requirements through customer audits;

• Certification ISO9001 with IATF16949 compliance through second-party audits;

• IATF 16949 Certification by Accredited Third Party (Applicable to automotive suppliers only).

The supplier must apply the same criteria to its suppliers. For Calibration Service provider, they must meet the requirements set out in ISO/IEC 17025.

10.2 Recommendations for Quality Management System Development

For the development of their Quality Management System, Suppliers are recommended to use the following Manuals (current version) and Methodologies:

- FMEA - Failure Mode and Effect Analysis;
- APQP - Advanced Product Quality Planning;
- MSA - Analysis of Measurement Systems;
- CEP - Statistical Process Control;
- PPAP - Production Parts Approval Process;
- Control Plan;
- 6 Sigma – DMAIC;
- Methods of analysis and problem solving (MASP, 8D's, Ishikawa), etc;
- Lean Manufacturing.

Revision Control

Review	Amendment	Date
01	Updated in 2.2 Supply Capacity Analysis. Added in 2.8.1 "Distributors of suppliers of raw materials and process materials must have accreditation ISO9001 or IATF16949 of their sources, certified by an accredited third party body". Added in 2.8.2.1.1 "ISO9001/IATF16949 certifications can be requested by Tupy from its Suppliers or Distributors." Updated in 2.10 the legal requirement for special product and process characteristics. Updated the name of the Stellantis supplier in item 7. Added in 7.3 "Changes to this requirement will be notified through this Supplier Manual or Purchase Orders"	July / 2022
02	General revision of the manual; Updated in 1.4 the direction of the Betim Unit and Aveiro Unit; The supplier pre-selection process is updated in 2.2; In 2.7.3 the requirements for non-accredited laboratories are updated; The process of auditing and evaluating the supplier's production capacity is updated in 2.7.4; The applicability of PPAP has been updated in version 3.1; In 3.1.2 the APQP documentation requirements applicable to the PPAP. Included in 4.1.7 is the safety risk of materials, such as the case of Non-Conformity issuance.; The text of the lessons learned is updated in 4.3; The monitoring process for suppliers is updated in 4.4.1 and the formulas for the IQF calculation according to the type of delivery are described	May / 2024

	Updated in 4.4.2 the IQF values for the Reliable and Excellent Provider Ratings (98 to 94); Updated in 4.4.4 the table of criteria for provider development and IQF monthly qualifications; The process of retrieving performance or enabling the provider is updated in 4.4.5; The environmental liability requirement is updated in 6.7 Updated 7 Specific Customer Requirements	
03	General Review in the Manual	Feb /2026