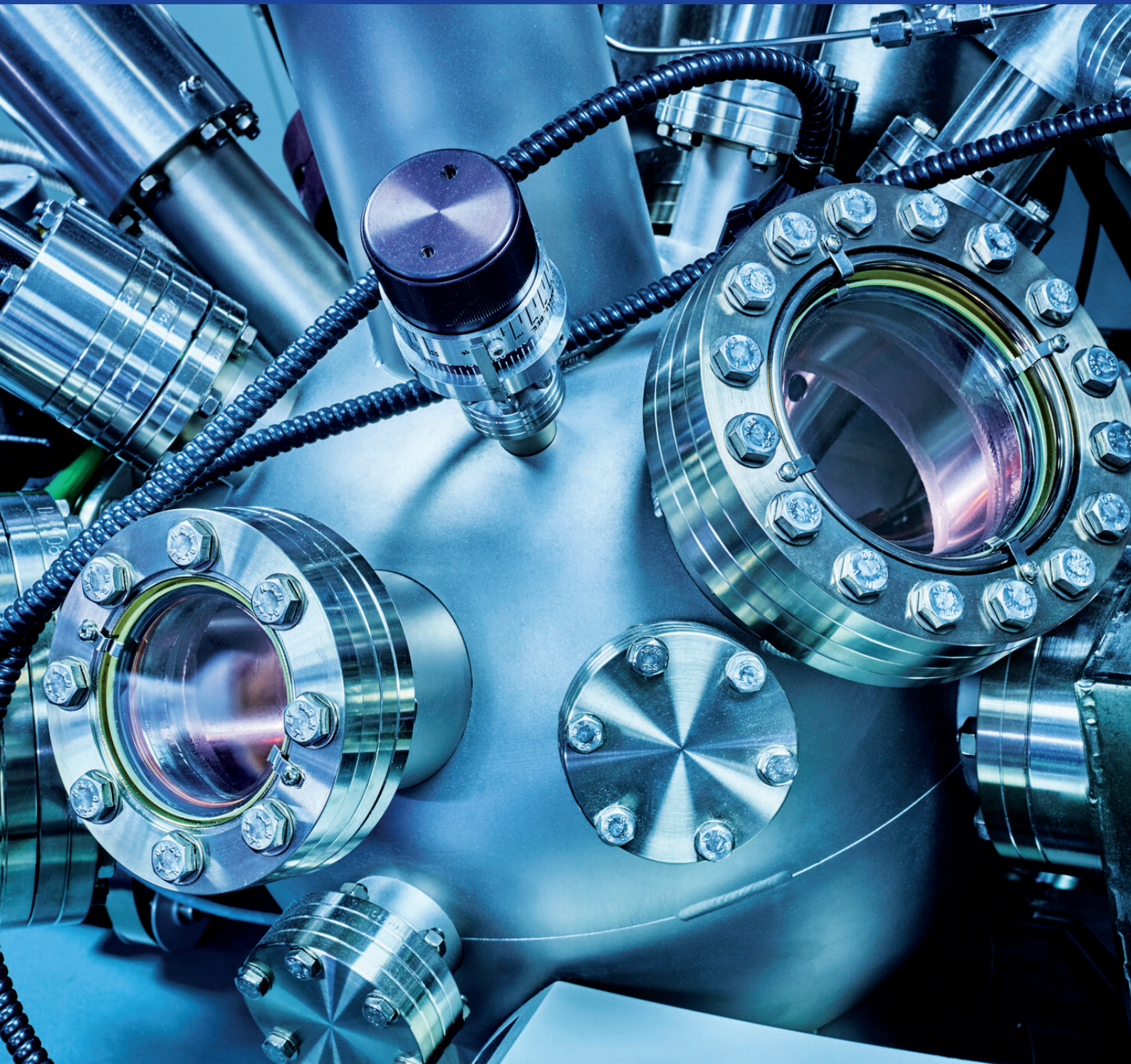


# Supplier Quality Manual



The English version of the Global Supplier Manual is the master version. Although translations are provided by Johnson Matthey, should there be any ambiguity in the translation, then the English language text will prevail.

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# Contents

<b>0 - Introduction</b>	5
0.1- Purpose and objectives	5
0.2 - Overview of the Johnson Matthey supplier manual	5
<b>1 - General Requirements</b>	5
1.1 - General principles	5
1.2 - Management system requirements	5
1.3 - Management of supply chain	5
1.4 - Supplier audits and access to supplier facilities	5
1.5 - Conduct on Johnson Matthey sites	6
<b>2 - Operation of the Johnson Matthey Supplier Management System</b>	6
2.1- Supplier Onboarding and Approval Process	6
2.2 - Supplier performance process	6
2.3 - Supplier complaint and escalation process	6
2.3.1 - Escalation process	6
2.4 - Supplier Development Process	7
<b>3 - Quality Requirements</b>	7
3.1 - Document and Record Retention Requirements	7
3.2 - Risk Assessments and Key Characteristics	7
3.3 - Process Flow Chart, Manufacturing Tests and Sample Plan	7
3.4 - Product Reviews and Specification	7
3.5 - Work Instructions	7
3.6 - Certificate of Analysis and Material Acceptance	8
3.7 - Product Approval Process	8
3.8 - Process Performance	8
3.9 - Production Batch/Lot Sample Retention	8
3.11 - Inventory Management and Safety Stock	8
3.12 - Training	8
3.13 - Problem Solving	8
3.14 - Contingency Planning (Business Continuity Plan)	8
3.15 - Preventive Maintenance	9
3.16 - Product Liability and Safety Representative	9
3.17 - Lot identification and packaging	9
<b>4 - Acronyms and definitions</b>	9
<b>Appendix A - Default and recommended tools</b>	11



**The details outlined within this manual are intended as a minimum mandatory requirement for our supply partners and define the process used in this categorisation, appraisal, approval and management of supply partners (any company providing materials, equipment or services). It has been created to outline the communication and customer supplier requirements to supply partners.**

## 0. Introduction

### 0.1- Purpose and objectives

This manual describes the expectations for suppliers of direct materials working with Johnson Matthey (JM).

The objectives are to:

- Provide a consistent set of processes for suppliers working with JM. Assure that suppliers meet the requirements of JM and its customers
- Provide the framework on how JM will monitor and provide feedback on the performance of suppliers

### 0.2 - Overview of the Johnson Matthey Supplier Quality Manual

The Manual is split into 4 sections:

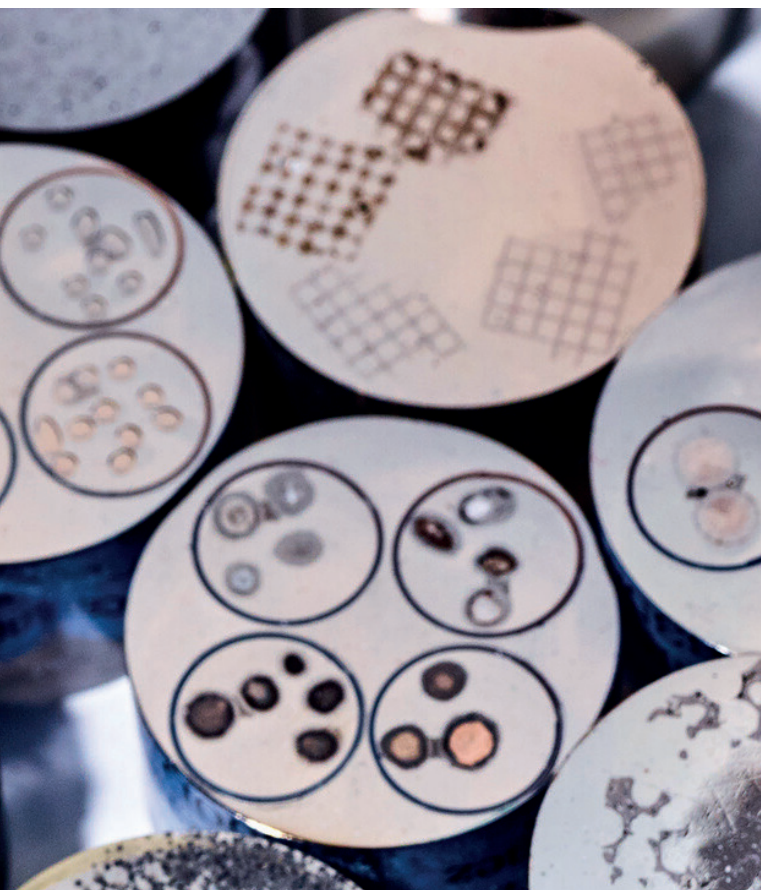
**Section 1:** General Requirements

**Section 2:** Operation of the Johnson Matthey Supplier Management System, that it is split into four primary processes:

- Supplier Onboarding and Approval Process
- Supplier Performance Process
- Supplier Complaint and Escalation Processes
- Supplier Development

**Section 3:** Quality Requirements

**Section 4:** Acronyms and Definitions



## 1. General Requirements

### 1.1 - General principles

JM is committed to deliver defect-free products to its customers on time, every time. Similarly, JM requires the same commitment from its suppliers to supply:

*The right product,  
At the right quality and quantity,  
At the right time, and  
At the right price.*

JM is committed to continual improvement and it expects the same commitment from its suppliers. Suppliers shall employ a defined process for delivering continual improvement that is managed at all levels of their business.

In case the Supplier cannot meet any of the requirements of this manual deviations or exceptions has to be agreed with JM.

### 1.2 - Management system requirements

Suppliers shall operate a management system, ideally certified to ISO9001 or equivalent by an accredited certification body.

Unless otherwise confirmed in writing by JM, all suppliers shall be responsible for design and development of their products. All business processes associated with the manufacture and supply of product to JM shall be covered in the scope of a management system.

Suppliers shall submit copies of relevant certificates to JM upon any change of status or upon any change in the organisation of the supplier; e.g.:

- Acquisition
- Merger
- Relocation

For guidance on JM-recognised certification bodies, please refer to your local JM Quality or Procurement contact.

### 1.3 - Management of supply chain

The supplier shall ensure that its suppliers and sub-suppliers who work on products that will be purchased by JM comply with JM's requirements on:

- Quality
- Health and safety
- Environmental standards and sustainability
- Corporate social responsibility

### 1.4 - Supplier audits and access to supplier facilities

JM may conduct periodic audits of the supplier's systems, products and processes to assure that they meet requirements. The supplier shall provide access to enable audits to be performed; e.g. to the following:

- Areas associated with the manufacture, storage and testing of product and services purchased by JM
- Training and competency records
- Documentation (e.g. FMEA, control sheets, evidence of material approval, etc.)
- EHS data for the supplier's locations.

Reasonable restrictions to ensure confidentiality of supplier information will be permitted.

The supplier shall take all reasonable steps to facilitate an audit on the premises of its own suppliers or sub-contractors if requested by JM.

In some cases supplier can be asked to fill out a quality self-assessment questionnaire.

**1.5 - Conduct on Johnson Matthey sites**

The supplier is responsible for the conduct of its personnel on any JM site (including contracted delivery drivers). The supplier’s personnel shall adhere to local JM EHS, security and general conduct rules, as detailed in the Site-Specific Requirements, or as advised by JM staff.

**2. Operation of the Johnson Matthey Supplier Management System**

**2.1- Supplier Onboarding and Approval Process**

There are a number of steps that need to be completed to become an approved supplier to JM, outlined in Figure 1. The supplier shall follow a JM-defined product approval process.

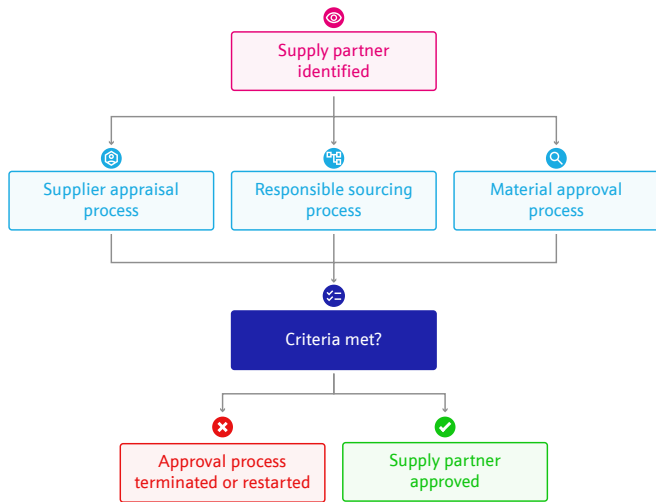


Figure 1: Overview of the Supplier Approval Process

**2.2 - Supplier performance process**

JM periodically carry out a supplier evaluation that is based on the following criteria:

- Latest Quality on-site audit or Self Audit where there has been no on-site audit
- Quality Performance
- Delivery Performance

Other criteria that could be considered include:

- Capacity
- Financial stability

- Price
- Meeting development timelines
- Scale-up capability
- Technical development
- Service and responsiveness
- Number of escalation letters
- Number of issued quality and delivery notices

JM will inform the supplier on the overall rating, along with areas for improvement.

**2.3 - Supplier complaint and escalation process**

JM will always notify the supplier of quality and delivery concerns either by email or by appropriate IT tools with a Supplier Concern Notice (SCN). The supplier shall resolve issues and problems in a structured and timely manner.

In situations where problems cannot be resolved using the supplier complaint process, JM may employ an escalation process, which can include further containment actions to assure product quality, e.g:

- Re-inspection or testing of all parts/materials by the supplier prior to shipment to JM
- Re-inspection or testing of all parts/materials by a third party, approved by JM, prior to shipment to JM
- Re-inspection or testing of all parts/materials by JM or a third party at a JM plant

The supplier shall bear any costs associated with reinspection or testing, and any consequential disruption to JM manufacturing.

In addition to these controls, JM may undertake supplier development actions. These may include targeted process audits and improvement planning. This may lead to downgrading of the supplier and possible deselection.

**2.3.1 - Escalation process**

Typical triggers for this escalation process are but not limited to:

- Repetitive Poor delivery or quality performance
- Major non-conformance to the Johnson Matthey Supplier Manual
- Critical complaints

<b>Escalation step 1</b>	JM Local site management is engaged. An improvement plan has to be agreed with the Supplier with timings to resolve the issue.
<b>Escalation step 2</b>	Next level management is engaged. An improvement plan cannot be agreed with the Supplier or the action plan is not carried out in the agreed time.
<b>Escalation step 3</b>	JM Senior Sector Management is engaged. An improvement plan cannot be agreed with the Supplier or the action plan is not implemented. Quality and delivery performance remain critical. Supplier is recommended for New Business Hold (NBH).

## 2.4 - Supplier Development Process

JM may become involved in development activities with the supplier to improve business performance.



## 3. Quality Requirements

### 3.1 - Document and Record Retention Requirements

The supplier shall maintain all documents and records for a minimum retention period to prove conformance to:

- Legal requirements (e.g. SDS, RoHS, REACH)
- JM specific requirements (e.g. copies of process control plans)
- JM specification requirements (e.g. certificate of analysis values)
- The supplier's quality management system requirements (e.g. 3rd party certification information)
- Traceability requirements (e.g. raw materials utilised, through to product shipment)
- Customer specific requirements

The supplier shall make documents and records available to JM upon request during the minimum retention period, even in the event that the supplier ceases to supply products to JM.

The minimum document retention periods for the different Business Unit are the following:

Clean Air (CA)	15 years
Platinum group metal services (PGMS)	10 Years
Hydrogen Technologies (HT)	15 years
Catalyst Technologies (CT)	10 years

### 3.2 - Risk Assessments and Key Characteristics

The supplier shall complete risk assessments on the manufacturing process and, if design is owned by the supplier, on the product. The default tool is Failure Mode and Effects Analysis (FMEA) performed according to 'Potential Failure Mode and Effects Analysis' reference manual (see the Appendix A).

The supplier shall complete process risk assessments at each location where parts/materials are manufactured; subcontracted processes are included in this requirement.

The supplier shall identify and pay particular attention to key characteristics (a key characteristic is a product or process characteristic which can impact the safety, performance, subsequent processing, compliance with regulations, or fit, form or function of the product).

The supplier shall review and update product and process risk assessments on the manufacturing process when any change occurs that impacts the product or process. The supplier shall make the product and process risk assessments available for review by JM.

### 3.3 - Process Flow Chart, Manufacturing Tests and Sample Plan

The supplier shall develop and document a process flow chart and a manufacturing tests and sample plan which shall include subcontracted processes, prior to supply of first production batch to JM. An example of a manufacturing tests and sample plan can be seen in Appendix A.

The supplier shall review and update the process flow chart and the manufacturing tests and sample plan when any change occurs that impacts the product, manufacturing process, measurement systems, or when there are updates to the product or process risk assessments. The supplier shall make the product and process risk assessments available for review by JM.

### 3.4 - Product Reviews and Specification

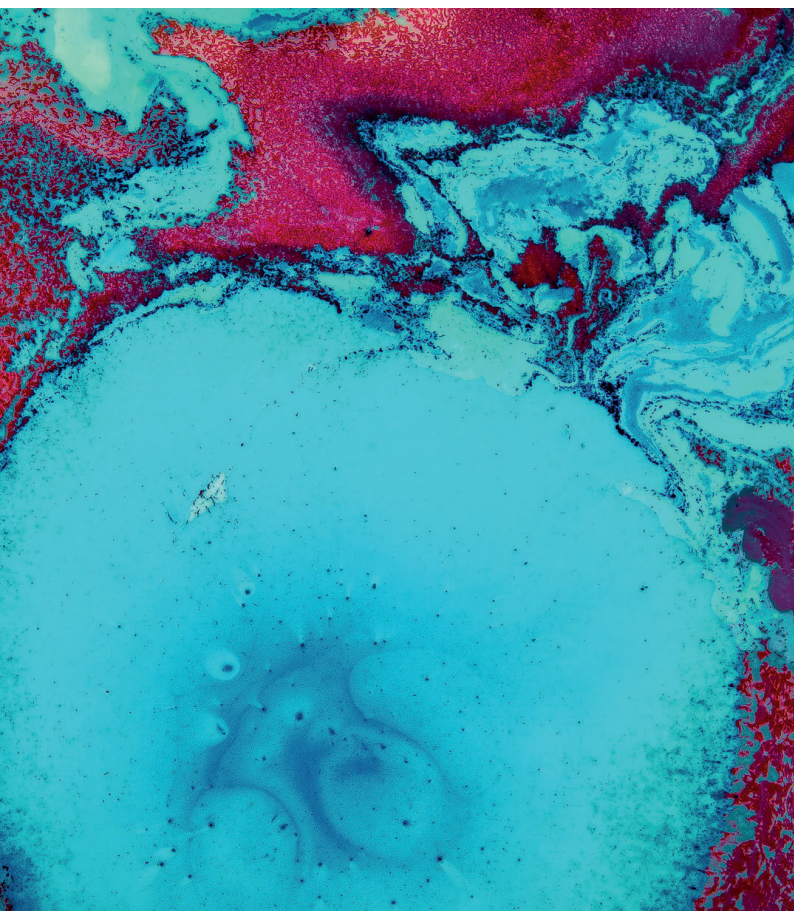
Suppliers with design responsibility shall attend product reviews with JM to capture and document the requirements for each product supplied. Such information is transferred in an agreed specification that is approved by JM and the Supplier.

### 3.5 - Work Instructions

The supplier shall employ documented work instructions for processes that impact conformity to product requirements. Work instructions shall be available for use at necessary workstations and upon request available for review by JM

### 3.6 - Certificate of Analysis and Material Acceptance

The supplier shall provide (electronically (e.g. EDI), or by e-mail, or letter) a certificate of analysis (COA) prior to the delivery of every batch/lot to JM. The agreed specification identifies the required test results to be reported (see Site-Specific Requirements for additional requirements for sending and receiving COAs where applicable).



### 3.7 - Product Approval Process

*See Business Unit Specific Requirements.*

### 3.8 - Process Performance

*See Business Unit Specific Requirements.*

### 3.9 - Production Batch/Lot Sample Retention

The supplier shall retain a representative sample from each production batch/lot for a minimum of the lesser of three years or shelf life plus 50%, unless otherwise agreed with JM.

### 3.10 - Change Management

The Supplier shall employ a defined change management process. Changes initiated by JM shall be included within the

scope of the change management process.

If Supplier wishes to make any change that could affect the physical and/or chemical properties (inclusive of impurities) to a Material or product supplied to JM, Supplier must notify JM in advance. On notification, JM will indicate the necessary notice period required for the Supplier to effect any such change.

The different types of changes are outlined in specific Business Units Appendices, as may be updated from time to time. In case of an emergency scenario where there is no choice but to make changes to ensure ongoing supply due to legal, regulatory or force majeure events, the supplier shall communicate these changes to JM as soon as reasonably possible.

Prior to JM agreeing to the changes, the Supplier will provide data comparing the chemical and physical properties for all affected products.

### 3.11 - Inventory Management and Safety Stock

The supplier shall use a 'first-in-first-out' (FIFO) inventory management system. Obsolete stock shall be managed in a similar manner to non-conforming product.

Safety stock (if applicable to the contract) has to be intended as the minimum level of stock that must always be visible and available for inspection by JM at any time without advance notice.

Supplier shall hold a reasonable amount of safety stock to cover disruptions in supply as agreed with Johnson Matthey.

### 3.12 - Training

The supplier shall ensure that appropriate training needs are identified and documented including those for subcontracted processes. This shall include training to cover JM Supplier Manual requirements.

### 3.13 - Problem Solving

The supplier shall employ a defined problem-solving process, which leads to identification and elimination of root causes of a non-conformance.

An example technique is outlined in Appendix A.

### 3.14 - Contingency Planning (Business Continuity Plan)

The supplier shall assess and document the risks facing the supplier's business, especially those that could affect supply to JM.

The supplier shall assess the likelihood of occurrence of these risks and document plans to ensure that supply to JM is not interrupted. Examples of such risks include utility interruptions, labour shortages, key equipment failure, severe weather events and field returns.

The supplier shall demonstrate upon JM request that contingency plan are available and updated.

### 3.15 - Preventive Maintenance

The supplier shall employ a defined system for carrying out planned total preventive maintenance. This shall include having replacement parts available for key manufacturing equipment.

### 3.16 - Product Liability and Safety Representative

Supplier shall provide JM with contact details of a nominated person at each of their locations that JM could contact in relation to product safety and product liability throughout supply chain.

### 3.17 - Lot identification and packaging

Each pallet/container of material shall be labelled in a permanent manner with at least the following information:

- Lot number
- Quantity and units of measure
- Production date
- Supplier name
- Country where the material was manufactured
- JM raw material code
- Raw material description

Material shall be packaged adequately in the agreed packaging to ensure undamaged delivery to JM and in accordance with all relevant regulatory and legal requirements.

Hazardous materials must be packaged in accordance with regulatory requirements.

## 4. Acronyms and definitions

CA	Clean Air
COA	Certificate of Analysis
CT	Catalyst Technologies
Direct materials	Materials that are directly incorporated into a product being manufactured for sale to JM customers
EDI	Electronic Data Interchange
EHS	Environment Health and Safety
FIFO	First In First Out
FMEA	Failure Mode and Effect Analysis
HT	Hydrogen Technologies
JM	Johnson Matthey
NBH	New Business Hold
PGMS	Platinum Group Metal Services
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RoHS	Restriction of Hazardous Substances
SCN	Supplier Concern Notice
SDS	Safety Data Sheet





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## Supplier quality manual

# Appendix A

This appendix provides details and sources for the default and recommended tools referenced in the Supplier Quality Manual.

These tools are available from the Automotive Industry Action Group (AIAG) through its website.

Visit: [www.aiag.org](http://www.aiag.org)

### Failure Mode and Effect Analysis - FMEA Handbook

This publication provides information on the development of Design and Process FMEAs.



### Manufacturing Tests and Sample Plan (Process Control Plan)

This publication provides information on the development of a Process Control Plan



### Problem solving

These publications (*CQI-20 Effective Problem Solving Guide and CQI-21 Effective Problem Solving Leader Guide*) support organizational efforts to develop and implement a robust problem solving process

