

Control of Nonconforming Product: Managing Defective Products in the Supply Chain

Control of Nonconforming Product refers to the systematic identification, documentation, isolation and reworking of products or parts that fail to meet agreed requirements. The term originates in quality management and is anchored, among other things, in ISO 9001 as a core requirement. For buyers and supply chain managers, the control of nonconforming product is a critical element of the procurement process, since defects at the supplier directly affect material availability, costs and delivery dates.

Key facts

- Control of Nonconforming Product describes the controlled handling of defective products, from identification via blocked stock through to disposition.
- The requirement is anchored in quality standards such as ISO 9001 or IATF 16949 and is therefore frequently part of contracts with suppliers.
- In procurement, the process covers complaint handling, blocked stock management and the selection of appropriate dispositions such as rework, scrap or concession.
- Complaint rates, the cost of nonconforming products and 8D report lead times are typical metrics for supplier evaluation.
- An effective process combines incoming inspection, clear mandatory fields in the complaint system and documented decision-making.
- Nonconformities in critical supplied parts are a major input to supply risk management.

Definition: Control of Nonconforming Product

Control of Nonconforming Product is the standard's requirement to ensure that products or services which fail to meet requirements are identified and controlled in order to prevent unintended use or delivery. It includes defined responsibilities and authorities for decisions on further handling, as well as documentation of the nonconformity.

Distinction from General Complaints

A complaint is the communication of a defect to the supplier, whereas Control of Nonconforming Product encompasses the entire internal control loop: detection, traceability, blocking, assessment, disposition and verification of the corrective action. Only when this control loop functions do complaints provide usable data for supplier evaluation.

Normative Background

ISO 9001 requires the control of nonconforming outputs; industry-specific standards such as IATF 16949 for the automotive industry or EN 9100 for aerospace tighten the requirements considerably, for example through mandatory 8D reports and customer approvals for concessions. Buyers should therefore mirror these normative requirements in quality assurance agreements with their suppliers.

Process in Procurement: from Detection to Disposition

Nonconforming products can appear at several points in the procurement process: during incoming inspection, in production, at the end customer or as a field failure. The process begins with the unambiguous identification and the physical or system-based blocking of the affected quantity, so that no defective parts reach production or customers.

Identification and Blocked Stock

In practice, the affected batch or serial number is parked in blocked stock and physically labelled, often using labels or designated quarantine zones. What matters is a clear delineation of the affected quantity, in order to avoid overreactions that unnecessarily block inventory and underreactions that allow further defective parts to circulate.

Disposition Options

The typical dispositions are: scrap, rework by the supplier or in-house, return to the supplier, acceptance with a price reduction, and concession (deviation) following technical assessment. The decision is ideally taken by an authorised committee comprising quality, engineering and procurement; for urgent parts, a time-limited concession can save delivery tracking and material availability.

Complaint to the Supplier

The complaint should be made in a structured manner via a defined procedure, for example with a complaint form, photos of the finding and a request for an 8D report. Clear mandatory fields in the complaint system, such as batch number, defect pattern and defect selection codes, ensure that the data can later be used for supplier evaluation and cost recovery.

Methods and Tools for Defect Control

Effective handling of nonconforming products relies on established quality management methods, which buyers should assess during supplier selection and development. What matters is that methodological capability at the supplier is documented rather than merely claimed.

8D Report and Root Cause Analysis

The 8D report (Eight Disciplines) is the industry standard for structured problem solving: team formation, problem description, immediate actions, root cause analysis, corrective and preventive actions, and evidence of effectiveness. In addition, 5-Why analyses, Ishikawa diagrams and, for measurement uncertainty issues, Gage R&R studies are used.

Inspection Documentation and Traceability

Without complete traceability via batch or serial numbers, the exact scope of the affected quantity cannot be determined precisely. Buyers should define in framework agreements which inspection evidence the supplier must provide with each delivery and how quickly it must respond to traceability queries.

Contractual Anchoring

Relevant provisions cover recall costs, increased inspection effort, limitation periods for recourse claims and the assumption of sorting costs. Even where sorting or rework services are outsourced to third-party providers, the contract should clarify who bears the costs if the supplier caused the defect.

Key KPIs: Making Nonconforming Products Measurable

Only those who measure nonconformities can develop suppliers in a targeted way and feed supply risk management with hard data. The following metrics have proven themselves in practice and frequently feed into supplier evaluations and procurement dashboards.

Quality and Process Metrics

Core metrics are the complaint rate (complaints per million parts delivered), the scrap and rework share, and the lead time from complaint to evidence of effectiveness. In addition, the share of deliveries with blocked-stock postings can serve as an early indicator of processability and quality problems.

Cost-Oriented Metrics

Beyond unit counts, the cost of nonconformance counts: costs for sorting, rework, replacement procurement, premium freight and processing time. These costs are frequently invoiced to the supplier; the recovery rate is an indicator of the quality of collaboration. Those who systematically evaluate suppliers combine quality metrics with logistics figures such as on-time delivery or carrier performance.

Risks and Controls: Avoiding Typical Weak Points

In practice, the process rarely fails because of the method; it fails because of organisation and data quality. The most common weaknesses can be avoided with clear responsibilities and simple system rules.

Blocked Stock as a Graveyard

Blocked stock that is never finally disposed of ties up capital, occupies warehouse space and obscures the true inventory position. Controls such as maximum blocking periods with escalation levels and regular blocked stock review dates prevent the exception from becoming the permanent state.

Concessions Without Control

Concessions granted permanently instead of temporarily, or repeatedly for the same defect pattern, devalue the process. Procurement and quality should document concessions, set expiry dates and weight them negatively in the supplier evaluation if they become the rule.

Interfaces with Sourcing and Supplier Management

Frequent nonconformities from a supplier are a warning signal that extends as far as the sourcing policy: requalification, dual sourcing through risk diversification or consistent supplier development may follow. In the case of repeated critical defects, escalation up to contract termination is also a legitimate steering instrument, ideally supported by documented lapses in the award file and in RFX processes.

Current Developments: Digitalisation of Defect Control

The control of nonconforming product is increasingly being digitised, from mobile finding documentation with photos to the integration of complaints into procure-to-pay (P2P) systems. This merges quality and procurement processes, which accelerates transparency but presupposes clean master data.

Integration into P2P Systems

If blocked stock is booked directly in the goods receipt stage of the P2P process, invoice verification and

payment remain automatically blocked until the nonconformity is resolved. This links financial control to the quality situation and reduces the need for dunning discussions; the coordination between procurement, quality and accounts payable must be clearly regulated for this purpose.

Data Exchange and Supplier Transparency

Structured electronic complaints with defined mandatory fields enable supplier dashboards and benchmarks across sites. Combining quality data with forward-looking approaches such as demand sensing and delivery date tracking allows the consequences of scrap for material availability to be estimated early and countermeasures to be triggered in a targeted manner.

Typical metrics

Complaint rate: typically < 200 ppm

varies strongly by industry; automotive is stricter than general mechanical engineering

Share of blocked stock: frequently < 1 % of inventory value

high values indicate unprocessed nonconformities

8D lead time: typically < 20 working days

critical defects require shorter response times as agreed in the quality assurance agreement

Recovery rate of defect costs: > 90 % in the case of a clearly attributable supplier fault

requires clean documentation and contractual provisions

Practical Example

A mid-sized mechanical engineering company discovers a recurring hardness deviation during incoming goods inspection of a hardened gearbox shaft lot. The entire batch is blocked, and the supplier receives a structured complaint with photos and batch data within 24 hours. An 8D report is requested within five working days; in parallel, the committee assesses a time-limited concession for urgent machinery projects in order not to jeopardise the delivery tracking of critical orders.

- Book blocked stock with batch reference and label it physically
- Structured complaint to the supplier with defined mandatory fields
- Demand an 8D report with evidence of effectiveness and dated implementation
- Invoice the supplier for sorting and rework costs with proper documentation

Conclusion

Control of Nonconforming Product is far more than a standard formula: it is the operational hub between quality management, procurement and the supplier. A clean process protects against further defect costs, provides reliable data for supplier evaluation and reduces the risk of nonconforming goods reaching customers. Prerequisites are clear responsibilities, well-maintained master data and consistent follow-up of agreed actions. Those who systematically measure nonconformities and embed them in supply risk management turn individual defects into a source of continuous supplier development.

Frequently asked questions

What does Control of Nonconforming Product mean?

Control of Nonconforming Product refers to the controlled identification, labelling, blocking and

disposition of products that fail to meet requirements. The objective is to prevent defective parts from being unintentionally used or shipped. The requirement is anchored in ISO 9001 and, in procurement, particularly affects goods receipt, complaints and supplier evaluation.

What dispositions are available for nonconforming products?

Common dispositions are scrap, rework, return to the supplier, acceptance with a price reduction, and a time-limited concession following technical assessment. The decision should be taken by a committee comprising quality, engineering and procurement, and must be documented. For critical parts, the standard or the customer may stipulate additional approvals.

How does a supplier complaint proceed?

Typically, a finding is documented with batch data, photos and a defect description and reported to the supplier via a defined procedure. The supplier analyses the root cause, usually via an 8D report, and initiates immediate and preventive corrective actions. Procurement tracks deadlines, verifies effectiveness and rates the quality of the response in the supplier evaluation.

Which KPIs are relevant for nonconforming products?

Key metrics include the complaint rate per million parts delivered, the share of blocked stock, the lead time from complaint to 8D closure, and the cost of nonconformance. In addition, the recovery rate of defect costs and the effectiveness of preventive actions indicate how reliably a supplier performs.

How should blocked stock be managed correctly?

Blocked stock should be booked with a clear batch or serial number reference, physically labelled and subject to a maximum blocking period. Regular reviews with clear escalation levels prevent blocked stock from remaining open indefinitely. Every disposition, including disposal, must be documented and traceable.

What is a concession (deviation)?

A concession permits the temporary use of a part that fails to meet a requirement even though its function is assured. It should be time-limited, quantity-related and supported by a technical assessment. Permanent concessions for the same defect pattern are a warning signal and should be negatively reflected in the supplier evaluation.