

Autoneum Group Supplier Quality Manual

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Appendices

The appendices that are listed below and within the Supplier Quality Manual (SQM) are not attached to this document. These documents are all uploaded and located within the section “Document Control or Document Center” in the Supplier Portal. These appendices are subject to updates when changes are implemented. The Supplier Development System (SDS) message board on the login page will display a message explaining what documents have changed.

List of Supplier Quality Manual appendices:

Appendix A:	Supplier Portal (SDS) Website Manual
Appendix B:	Autoneum Material Compliance Requirement
Appendix C:	IMDS Information Document
Appendix D:	Supplier Quality Assessment
Appendix E:	COA Submittal Locations
Appendix F:	Supplier Change Request Form – Global Update
Appendix G:	MSA Attribute Data Sheet
Appendix H:	Process Capability Study
Appendix I:	Global Customer Specific Requirements
Appendix J:	Customer Capacity Study
Appendix J-1:	Autoneum Capacity Analysis Study Report
Appendix J-2:	GM Capacity Analysis Workbook
Appendix J-3:	FORD Capacity_Analysis_Report_ver_5.6
Appendix J-4:	Fiat Chrysler Capacity (PDR Toolkit 2.7)
Appendix J-5:	Volvo Capacity Analysis Report
Appendix K:	Supplier Quality Improvement Plan – Global Update

Organizational appendices:

BGEU:

Appendix D:	Supplier Quality Assessment (BGEU)
Option A:	Supplier Advanced Product Quality Planning (APQP)
Option B:	BGEU – Certificate of Analysis

BGNA:

Appendix D:	Supplier Quality Assessment (BGNA)
Option A:	Supplier Advanced Product Quality Planning (APQP)
Option B:	BGNA Explanation of APQP Documentation - Update
Option C:	BGNA Supplier Safe Launch Performance Review
Option D:	Autoneum Quality Management System - 2nd Party Audit

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1. Introduction

1.1. Overview

This document outlines the process deployed by Autoneum to improve supplier relations as well as performance and guide supplier-sourcing decisions. The latest released version of this document will be available electronically on the Supplier Portal at www.autoneum.com/supplier-portal, sds.autoneum.com or suppliers.autoneum.com. The Supplier Portal is Autoneum's communication system to our suppliers. This system is used for:

- Supplier documentation (i.e. SQDM, regional appendices, regional Supplier Logistics Manual)
- Supplier attachments (i.e. Quality Certifications, Continuous Quality Improvement (CQI's), Materials Management Operations Guideline/Logistics Evaluation(MMOG/LE)
- Supplier surveys
- Corrective action requests (i.e. communication to closure plus costing)
- Production Part Approval Process (i.e. PPAP requests to approvals)
- PRIDE performance review (Product quality / Relationship / Integrity / Delivery performances / Economic)
- Supplier contacts

The SDS instructional manual is found in the document control section under **Appendix A: Supplier Portal (SDS) Website Manual**. Every active supplier is required to periodically review the contents of this manual and communicate any necessary changes within its own organization. By accepting the purchasing terms and conditions, suppliers are accepting automatically the SQDM.

1.2. Purpose of this manual

This manual defines Autoneum Supplier Quality, and Production Control & Logistics requirements. Updates will be made if necessary in order to maintain the evolving needs and requirements of Autoneum and its customers. The scope of this manual is:

- Communicate Autoneum requirements for all areas of transactions
- Emphasize the importance of prevention-based supplier quality control systems
- Reduce total procurement costs, lead-times, incoming inspections and inventory to achieve mutually beneficial commercial arrangements
- Outline the key evaluation criteria of Autoneum when making supplier-sourcing decisions
- Promote the culture of continuous improvement

By reading and understanding the content outlined in this manual, suppliers will be positioned to succeed in meeting Autoneum expectations.

1.3. Supply chain

It is in the responsibility of the supplier to follow the Autoneum material compliance requirements found in **Appendix B: Autoneum Material Compliance Requirements**.

Suppliers must access the Compliance Process Management tool (CPM tool) and the "How to use the CPM tool" via the following link <http://www.autoneum.com/supplier-portal/>. Suppliers are mandated to utilize the CPM tool to check at the time of initial quotation submission to avoid delays in the launch process.

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Suppliers must register to International Material Data System (IMDS) and submit declarations for all materials supplied to Autoneum, including any usage of conflict minerals (see **Appendix C: IMDS Information Document**).

2. Supplier quality

2.1. Supplier quality assessment

The quality assessment **Appendix D: Supplier Quality Assessment** will be available within SDS based on organization. Autoneum visits suppliers to conduct an individual assessment. The audit results are used for ranking the supplier quality management system.

Below are the possible ratings based on the results:

Exceeds expectations	A	The supplier has automatically being approved by Autoneum.
Meets expectations	B	The supplier has met our minimum approval requirements for the quality management system. Suppliers must improve their process by working toward continuous improvements by addressing all "0" and/or "4" related questions.
Developmental	C	The supplier has major deficiencies within its quality system. <u>Corrective action requirement</u> The supplier is required to submit an action plan to address all "0", "4", and "6" scored questions. The corrective action plan must be submitted to Autoneum within six weeks of the audit. After the supplier action items have been addressed and implemented, a mandatory follow-up visit is required.
Disqualified	D	Supplier is disqualified from doing business with Autoneum in the future unless considerable improvements are made within the organization.

2.2. EDI (Electronic Data Interchange) requirements

Autoneum's Enterprise Resource Planning (ERP) system allows for two options in which material requirements will be communicated to suppliers; primary source via direct EDI ("traditional" connectivity) or alternative to WebEDI (internet based).

It is the supplier's responsibility to notify Autoneum plant logistics if it does not receive its release or if a problem is observed with the release once received.

2.3. Certificate of Analysis (COA)

All suppliers are required to electronically submit a Certificate of Analysis with each shipment. The COA shall contain a detailed explanation of the physical material content, measurements and performance information.

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Key COA data:

- **Supplier is mandated to have the COA tolerances match the Autoneum product specification.**
It is at the discretion of the supplier to have tolerances within the product specification, however the results indicated on the COA shall not read outside of the COA tolerance limits. The supplier shall not present any tolerances outside the product specification.
- **Supplier is mandated to follow unit of measurements indicated by the Autoneum product specification.**
It is the supplier's responsibility to make the necessary conversions that follow the unit of measurements specified in the product specification.

Suppliers are to submit the COA to the specific plant location or email address. Please refer to **Appendix E: COA Submittal Locations**. If the supplier is missing its own COA template then reference regional SDQM.

2.4. Change management

Suppliers are expected to have a robust change management system in place for communicating, controlling and implementing changes without disruptions to Autoneum. These changes are being communicated to Autoneum through the use of **Appendix F: Supplier Change Request**.

Supplier changes shall be communicated to an appropriate Autoneum purchasing representative at least 180 business days in advance of change implementation. This allows enough time for Autoneum to review internally, communicate to customers and use existing material in order to accommodate the requested change. All changes must be approved by Autoneum in advance, we reserve the right not to accept. Any cost increases as a result of changes that were not authorized will be borne by the supplier.

If the change is approved, the implementation plan will be coordinated with Autoneum prior to the initiation of the change process. Based on **Section 5: Production Part Approval Process (PPAP)**, the supplier is required to re-submit this document to the appropriate Autoneum plant location. Autoneum reserves the right to change the part number or revision number in order to track such changes.

3. Quality system

3.1. Quality expectations

Suppliers are expected to maintain a quality management system that will effectively manage their manufacturing systems, product quality, and raw material suppliers. To ensure that the products meet all necessary requirements and applicable quality standards, these standards apply:

- Be ISO 9001:2015 certified (CSR should be respected). The supplier shall develop its quality management system in accordance with IATF 16949. Autoneum reserves the right to utilize a representative to verify compliance. In any case, formal corrective actions are required for any non-conformances found during an assessment.
- Review their PRIDE performance scores on a monthly basis. Suppliers scoring less than 50 for three consecutive months are considered as a "high risk" supplier, therefore a Corrective Action Report (CAR) will be issued for their PRIDE performance.

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- Ensure that subcontractors meet all requirements defined in this quality manual. All suppliers shall meet the requirements set by the Production Part Approval Process (PPAP) as outlined in this manual.
- Read, understand and follow the product testing specifications for all product validation requirements. This includes that certain validation testing shall be performed under an accredited laboratory meeting the ISO 17025 certification.
- Follow the Autoneum Advanced Product Quality Planning (APQP) activities for new products or technologies when the supplier has been chosen for this process. Explanation of APQP activities are outlined in Section 4.
- Have a system to conduct a supplier assessment (rating) and monitoring system of their supply base.
- Be compliant with all applicable Environmental, Health & Safety regulations.
- Provide adequate resources to ensure continued compliance to this manual, supply agreements and other purchasing contract requirements.
- Be familiar with product SC/CC requirements as indicated in the Purchased Parts Specifications (PPS)
- Agree to Autoneum periodic requalification requirements.

3.2. Statistical methods

The supplier shall accept statistical methods if required for product analysis.

- Statistical techniques (i.e. control charts) for process or output analysis. With that, Autoneum determines if appropriate measures are needed to achieve and maintain statistical control or to improve the process capability.
- When Percent Inspection Points that Satisfy Tolerance (pist points) are identified on a drawing, the supplier shall use these points as their dimensional measurement locations. The supplier needs to pay attention to whether the pist points are used as special characteristics.
- When Autoneum requires the use of gage repeatability and reproducibility studies, the supplier should use this method based on the type of measurements:
 - Variable gage studies: 10 parts, three operators and three trials
 - Attribute gage studies: 50 parts, three operators and three trials

A template is provided in **Appendix G: MSA Attribute Data Sheet**

- When Autoneum requires the use of Statistical Process Control (SPC), generally on critical / safety and / or special characteristics, the supplier shall use appropriate control charts to monitor their process on a continuous basis, including historical record keeping. Please see Automotive Industry Action Group (AIAG) SPC for examples or references.
- Process control charts demonstrate statistical control / stability before Process Capability (Cp) can be determined. Process Capability Index (Cpk) is defined as maintaining 1.67 or 1.33 unless otherwise specified by Autoneum or our customer requirements. Process control charts showing an out of control condition should be accompanied with a corrective action plan which is documented either on the control plan, process control chart or CAR process.

A template is provided in **Appendix H: Process Capability Study**.

- Pre-controlled or other specification-based techniques are not accepted.
- Suppliers must submit statistical process control data (SPC) on all internal and drawing Key Product Characteristics (KPC/SC) to the required plant quality team.

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3.3. Customer Specific Requirements

A list of customer-specific requirements can be found in **Appendix I: Global Customer Specific Requirements**. Suppliers shall evaluate all applicable statutory and regulatory requirements as well as special product and process characteristics that apply to their organization which then should be incorporated into their quality management system. In addition, suppliers are responsible for cascading these requirements down to their respective sub-tier suppliers until the point of manufacturing origin has been reached.

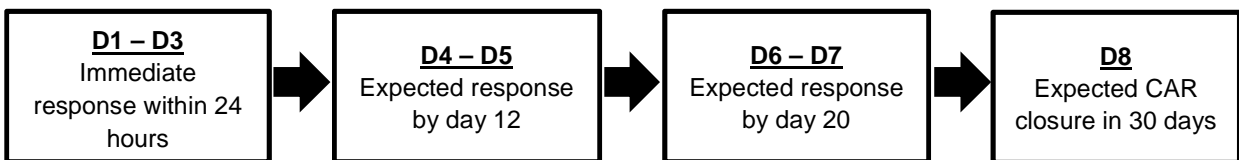
3.4. Problem solving

If products or services supplied to any Autoneum facility do not meet the agreed upon requirements and / or specifications, the supplier will receive notification that a Corrective Action Report (CAR) has been issued. Suppliers are expected to use problem solving techniques. Among the basic techniques that can be used are the following:

- 8-D
- 5-Why
- Cause and effect diagram
- Kaizen events
- 7-D
- Fishbone diagram

3.5. Corrective action

This process flow below contains the requirements to complete the CAR in a timely manner.



The supplier will view and respond to the CAR using the interactive web portal. Autoneum personnel are available to assist whenever possible. Autoneum has developed an 8-step corrective action process with our expectations starting at Day 1 of the CAR issue date. This is the outline below with further explanation:

D1: Plan Your Team

Immediate response within 24 hours

Please include the team leaders name, phone number, email address. For all other team members include name and title.

D2: Problem Statement

Immediate response within 24 hours

Please explain how and where the problem could occur within your process. Include part number, production location and component part name. Also state if you (supplier or your Tier 2 / 3 suppliers) agree with the problem.

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D3: Containment Plan (Immediate Action)

Immediate response within 24 hours

Please describe containment activities. Include certification label, start date and shipment date with batch label as well as quarantine information: Total quantity quarantined and all sorting activity information.

D4: Root Cause

Expected response by day 12

Please identify the root cause for the defective material. Estimate the percentage of affected parts for each failure mode or production period. Please attach any problem-solving documents used.

D5: Corrective Action (Implementation)

Expected response by day 12

Please explain your implemented corrective action. Include implementation date, 1st shipment date of correct material, how material is identified, estimated arrival date as well as shipping and batch label number.

D6: Corrective Action (Effectiveness)

Expected response by day 20

Please explain how your corrective action is effective. Include the description, implementation date and effectiveness information. Attach updated documents like e.g. Controlplan (CP), Process Failure Mode and Effect Analysis (PFMEA) associated with CAR.

D7: Preventive Measures

Expected response by day 20

Please include lessons learned and how you prevent similar issues from occurring in comparable products and processes as well as other facilities.

D8: Final Discussion

Expectation CAR closure in 30 days

Approval of the CAR comes from Autoneum plant personnel.

Autoneum has the right to close the CARs that are open 30 days or more. All charges relating to this quality issue impacting Autoneum or its customers will be passed onto the supplier.

With the interactive web portal SDS, suppliers are alerted to problems relating to quality, delivery or service. In regions where SDS is already available the above described process is implemented in this tool.

3.6. Supplier chargeback policy

Issues with product quality, product packaging / shipping or on-time delivery may result in a charge-back to the supplier. These will be determined by costs incurred by Autoneum as a result of the error or discrepancy including those costs associated with each level of containment.

Examples of charge-back situations are detailed below: (This list is not exhaustive)

Fee associated with non-conforming product costs – material recovery only

Infraction	Penalty charge
Non-conforming product	All rejected material will be charged at the PO Cost for product.
Administration fee for CAR's processing	No charge with only material cost recovery

Fee associated with non-conforming product costs – material plus non-material costs

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Infraction	Penalty charge
Administration fee for CAR's processing	CHF 175 per CAR
In-process of semi-finished non-conforming products caused by the supplier	Process material cost per Autoneum plant
3.7.1. quality containment level I, inspection and / or sorting costs	If requested, supplier support personnel present for in-house inspections, otherwise inspection and sorting cost per man hour will be agreed per case
3.7.2. quality containment level II, third-party inspection and / or sorting service fees	All 3 rd party sorting cost will be charged 100% to the supplier until resolution
Returned parts to the supplier	Supplier is responsible for providing shipping RMA or freight carrier act #
Landfill fees: associated with supplier scrapping parts at Autoneum	Landfill costs
Downtime of production lines caused by supplier issue	Charges will be itemized and determined through Autoneum accounting department at the affected facility.
Downtime of customer production line caused by supplier issue	Based on actual customer invoice costs

3.7. Quality controlled shipping requirements

When containment actions have failed continuously and the part quality continues to disrupt Autoneum and / or our customer's production, Autoneum shall place the supplier on controlled shipping level I and / or level II requirements. These requirements will be communicated in writing to the supplier. All associated costs pertaining to control the situation shall be passed directly onto the supplier. The results of these activities must be made available to the Autoneum manufacturing plant as requested.

3.7.1. Controlled shipping level I (CS level I):

To ensure product quality is defect free prior to shipment, the supplier is required to conduct an off-line, redundant 100% inspection of all products after the regular manufacturing process. All associated costs during these activities are in the supplier's responsibility. The company shall communicate the inspection methodology. Both parties shall reach a mutual agreement on the inspection criteria. All results from these activities are to be communicated to Autoneum. The duration and exit criteria for this action will be stipulated in writing to the supplier. Controlled shipping may be imposed when any of the following conditions (but not limited to) exist with a supplier product or service.

- Lengthy resolution of a known problem
- Inadequate quality containment
- Chronic receipt of materials or services that do not meet the contractually agreed requirements

3.7.2. Controlled shipping level II (CS level II):

If the supplier is not able to contain product quality from an imposed CS level I activity, Autoneum will escalate the situation to CS level II. CS level II requires the supplier and / or Autoneum to contract a mutually agreed upon third party containment group to conduct further inspections on the product, which

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is in addition to the implemented CS level I requirements. This may also include the placement of an Autoneum resident engineer. All costs associated with these activities are the responsibility of the supplier. Autoneum must agree upon the methodology and location of the inspection. The duration and exit criteria for these actions will be stipulated in writing to the supplier. This may be imposed when any of the following conditions (but not limited to) exist with a supplier product or service.

- Quality issues related to safety critical products
- Inadequate resolution of an issue that required CS level I
- Chronic or repeat issues of significant magnitude
- Issues resulting in field actions with Autoneum's customers

3.8. Traceability

Suppliers shall be able to support the identification of products by developing and documenting a traceability method throughout the manufacturing plant. The method defines appropriate traceability systems, processes and methods by product, process and manufacturing location. It should

- Include a clear definition for the identification of nonconforming and / or suspect products and their segregation location.
- Be able to identify suspect materials, including retaining information for accessibility and retrieval in an appropriate response time.
- Be a serialized identification process for individual products, if specified by the customer or regulatory standards.

If products are related to safety or regulatory characteristics, then the identification and traceability requirements are to be extended to externally provided products.

4. Advanced Product Quality Planning (APQP)

The APQP process provides suppliers with general guidelines ensuring that the product design, process and quality are developed to meet Autoneum's requirements for full volume production.

4.1. Phase 1: Pre-award / selection (gate 3)

- Check Autoneum requirements (i.e. purchasing, quality and logistics);
- Mandatory feasibility analysis to assess potential risks (i.e. product, process, resources, planning);
- Compliant offers according to the Autoneum purchasing requirements (i.e. cost breakdown, commitment with regards to planning and requirements.)

Autoneum encourages innovation and Value Analysis/Value Engineering (VA/VE) suggestions in order to maximize total value. In the event of offering alternative, cost-lowering solutions, suppliers must first quote exactly what is being requested and then subsequently provide any alternative solutions via a separate supplemental quotation.

4.2. Phase 2: Product and process design (gate 3)

- Clearly defined design responsibility: Autoneum or the supplier.
- After the development inputs are agreed on, product or process development starts with the aim to fulfill Autoneum requirements.

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- Relevance of statistical methods (see section 3.2)
- To conduct the development phase, the supplier shall use all the basic automotive tools, such as:
 - Functional analysis (design responsibility with the designer)
 - DFMEA (design responsibility with the supplier)
 - Process flow chart
 - PFMEA
 - Design verification plan
 - Control plan

4.3. Phase 3: Product and process validation (gate 4 & 5)

The supplier must provide to Autoneum all the necessary evidence for validation of its product or process, such as:

- Dimensional performance report
- Material performance report
- Process capability study
- Production capacity analysis (cycle time, scrap rate, OEE and etc.).

4.4. Phase 4: Ramp-up (gate 6)

In case of any identified deviation during ramp-up, the supplier must set up the needed measures to achieve zero defect and guarantee zero parts per million (PPM) at Autoneum (i.e., quality firewall).

4.5. Phase 5: Serial production

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The supplier must respect the planned measures in the agreed control plan, including:

- ensuring periodic requalification in the control plan and providing evidence to Autoneum if required.
- providing a CoA (Certificate of Analysis) according to the defined characteristics.
- informing Autoneum via Supplier Change Request Form (see **Appendix D**) in case of any changes. The supplier is not allowed to implement the change without official acceptance from Autoneum.

Detailed description of the supplier APQP deliverables are determined by organizational location found in **Option A: Supplier Advanced Product Quality Planning (APQP)**.

5. Production Part Approval Process (PPAP)

5.1. Standardization of supplier PPAP

Autoneum has improved its PPAP by standardizing the process release and approval across Autoneum manufacturing sites. Standardizing the process will minimize both Autoneum's and our supplier's workload. This will also speed up the process for approving our supplier PPAPs and internal process releases. Finally, this will help Autoneum to keep up on records for parts released and maintained on a yearly basis to ensure that all parts are up to date.

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All suppliers must follow the PPAP guidelines:

- All Part Submission Warrants (PSW) have to be written to Autoneum. The specific address needs to be provided by the regional purchasing organization. PSWs will be rejected if sent to an incorrect site. However, PSWs can be signed off by any Autoneum quality representative at any of our locations.
- All PPAP documentation must be submitted through the Supplier Development Portal where available at www.autoneum.com/supplier-portal, sds.autoneum.com or suppliers.autoneum.com. Otherwise direct to the respective site for help.
- Any shipment of production level product without first obtaining either an approved PSW or an engineering deviation (written approval Temporary Deviation Notification (TDN) or interim PSW), shall be classified as defective product. This does not include any product that is produced during Section 4: Advanced Product Quality Planning (APQP).

5.2. PPAP submissions

All suppliers need to pay close attention to the requirements outlined in the PPAP email that is generated through SDS. See information below:

Autoneum is informing you that your PPAP package for the specified part number listed below is Due 2017-02-23.

Plant Location:	Jeffersonville (US05)
Supplier:	Supplier's Name
Part Number:	106299000101
PPAP Submission Date:	2/23/2017
Level Required:	Level 4 PPAP

Part Submission Warrant (PSW) should be written to "Autoneum"

For detailed PPAP Requirements, click on the link below:

[PPAP Requirements](#)

Autoneum has defined what the required documentation is for every level of PPAP. Standard PPAP documentation requirements based on the PPAP level requirements are outlined below:

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AUTONEUM PPAP Requirements

Requirements Per Submission Level	Level 1	Level 2	Level 3	Level 4	Level 5	Bulk	Low Level	High Level
1. Design Records: Drawings, CAD Data, and/or PPS	R	S	S	S	R	S	S	S
2. Authorized Engineering Change Documents: (Tracking of Changes)	R	R	S	*	R	*		S
3. Customer Engineering Approval	R	R	S	*	R	*		
4. Design DFMEA (if applicable)	R	R	S	*	R	*		S
5. Process Flow Diagram/Chart: (prototype, pre-production, production)	R	R	S	*	R	*	S	S
6. Process PFMEA	R	R	S	S	R	*		S
7. Control Plan: (prototype, pre-production, production)	R	S	S	S	R	S	S	S
8. Measurement System Analysis Studies: (R&R - Repeatability & Reproducibility)	R	R	S	*	R	*		S
9. Dimensional Performance Results	R	S	S	S	R	S	S	S
10. Material, Performance Test Results	R	S	S	S	R	S	S	S
11. Initial Process Capability Studies: (CmK, CpK, and PpK - SPC if needed)	R	R	S	*	R	*	S	S
12. Qualified Laboratory Documentation	R	R	S	*	R	*	S	S
13. Appearance Approval Report (AAR) (if applicable)	R	R	S	*	R	*		
14. All Tooling Asset Tag Pictures	R	R	S	*	R	*		S
15. Master Sample, Boundary Sample, and/or Initial Samples	R	R	S	*	R	*	S	S
16. Checking Aids/Work Instructions	R	R	S	*	R	*		
17. Customer Specific Requirements	R	R	S	*	R	*		S
18. Part Submission Warrant (PSW)/PPF Submissions)	R	S	S	S	R	S	S	S
19. Supplier PSW's / PPF Status	R	R	S	S	R	*		S
20. BOM	R	R	S	*	R	*		
21. Critical Characteristics List	R	R	S	*	R	*		
22. Material data declaration - (IMDS) Approval	R	S	S	*	R	S	S	S
23. Process capacity verification: PPAP or Run@Rate Build Confirmation Documentation	R	R	S	*	R	*		S
24. Full capacity verification (per customer specific document)	R	S	S	S	R	S		S
25. Packaging Approvals: Logistic Data Sheet	R	R	S	*	R	*	S	S
26. All available Certificates (ISO/TS16949, ISO9001, ISO14001, OHSAS18001, CCC)	R	S	S	*	R	S	S	S
27. Material Safety Data Sheet (MSDS)							S	S
28. CPM Tool Material List Agreement							S	S
29. Quality Agreement								S
30. Design verification plan when raw material/ Part specific Verification Plan							S	S
31. Product traceability (area, content and type of marking)								S
32. Layout, flow and list of equipments (tools, checking fixtures, packaging, red area, waste container)								S
33. Tooling and machine acceptance report								S
34. Checking fixtures acceptance report								S
35. Technical file for Tool, machine, device, checking fixture								S
36. Certificate of Conformity (CoC)							S	S
37. Production process audit								S
38. Supplier Emergency Plan								S

Legend:

- S** Supplier must submit to Autoneum
- R** Required documentation if asked by Autoneum
- *** Must retain documents and submit upon request

- Level 1 & 2 PPAP: these requirements are reserved for specific commodities and/or special circumstances that are only allowed and issued by the Autoneum quality management.
- Level 3 PPAP: for new suppliers and part numbers, it is expected that the supplier follows the requirements outlined above.
- Level 4 PPAP: suppliers are issued this level
 - For the annual PPAP validation submissions including dimensional layouts, functional test results and other documents which are required at supplier's cost, unless a written waiver is obtained from Autoneum.
 - An approved PPAP in one Autoneum Location can be released to a different Autoneum plant; However, the PPAP documentation may need to be updated. For example, Capacity Study, PSW, Testing, or other documentation specific to the Autoneum Plant.

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- Level 5 PPAP: is a warrant with product samples and complete supporting data reviewed at the supplier location.
- Bulk: Autoneum reserves the right to call out what product fall under "Bulk Material". Bulk Material is non-dimensional substance (Solid, Liquid, or Gas) with the exception of some off-the-shelf components. A supplier shall not assume that their products are exempt from producing a PPAP to Autoneum. These are the only products that Autoneum classifies as a bulk material:

Fiber	Bico	Flame Retardant	Mold Release	Staples	Hot Melt	Bulk Chemicals: such as Isocyanate, Polyol, Dyes, etc
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Suppliers who fall within the bulk material requirements shall be responsible for providing a PPAP to Autoneum.

- Low level: applicable in case of known material / catalog product / known product without any development / raw material.
- High level: applicable in case of unknown supplier / unknown process / unknown material / finished part (including Autoneum part) / trade part / new product development

5.3. Capacity study

The supplier must fill out the appropriate Original Equipment Manufacturer (OEM) Customer Capacity Study. The Run at Rate build should validate the assumptions made in the capacity study. These templates are found in the supplier portal under "document control." Where a customer is not referenced, the supplier should use the Autoneum Capacity Analysis Study report. Please see the following table for further details:

Customer specific capacity study

Autoneum Capacity Analysis Study Report	Appendix J-1
GM Capacity Analysis Workbook	Appendix J-2
FORD Capacity Analysis Report_ver_5.5	Appendix J-3
Fiat Chrysler Capacity (PDR Toolkit 2.7)	Appendix J-4
Volvo Capacity Analysis Report	Appendix J-5

6. Supplier performance

6.1. Supplier Performance Index (SPI) – PRIDE

Autoneum uses a Supplier Performance Index to monitor supplier performance. This index consists of measurements in five specific areas that make up **PRIDE**:

Product quality:

Defective products received and quantified as parts per million (PPM)

Responsibility of plant quality

Total = 25 points (automatic calculation through SAP)

$$P = 25 - (\ln(\text{Supplier PPM}) * (25 / \ln(500)))$$

The **P** score of "0" is the result of a supplier PPM higher than 500

Relationship:

A cross-functional team within the purchasing department makes an assessment of the supplier.

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Responsibility of procurement. Total = 10 points

i. Terms & Conditions or contract available: 1 Point

ON-OFF condition about acceptance of T&C or contract:

- 0 points and deletion of all other points
- 1 point for positive fulfillment

Valid contracts: T&C, basic purchasing agreement, framework sub-supply agreement (trade).

ii. Technical support (former R&D and innovation): 3 points

Meaning delivering basic technical support for samples, projects, prototypes, mandatory certifications, drawings, contributes to develop their and our products.

- 0: supplier is very weak
- 1: technical support not good and should be improved
- 2: average basic performance
- 3: technical support over average

iii. Flexibility and communication: 3 points

Ability to understand Autoneum needs. Ability to react / adapt accordingly.

- 0: supplier is very weak
- 1: not good and should be improved.
- 2: average basic performance

3: over average

iv. Continuous improvement: 3 points

Supplier is able to improve in all kind of weak areas (relationship, economical, technical, IT systems, health and safety, VA/VE, MOVE, financial stability)

- 0: supplier is very weak
- 1: not good and should be improved
- 2: average basic performance
- 3: over average

R = innovation + flexibility + continuous improvement

Integrity:

Quality system/environmental standard: quality certifications, environmental certifications and MQA audits

Responsibility of procurement . Total = 20 points (automatic calculation through SAP)

I = QMS cert. + environmental cert.

Quality management system

Points	Penalty charge
0	No QMS certification
7	Autoneum MQA
10	ISO 9001 or higher certification
15	ISO/TS 16949 or IATF 16949

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Environmental system

Points	Explanation
0	No environmental certification
5	ISO 14001 certification

Delivery performances:

Delivery performance is based on the supplier incoterms (2010). Miss-delivery per million (MPM) is calculated by the specific Incoterms.

Responsibility of plant PCL.

Total = 25 points (calculation automatic through SAP)

A Supplier Incoterms based on Purchase Order	
Incoterms - DDP/DAP	$MPM = \left(\frac{\text{No. of Lines in the Wrong QTY or Date}}{\text{No. of Total Lines Delivered}} \right) 1,000,000$
Incoterms - FCA	$MPM = \left(\frac{\text{No. of Lines Delivered in Wrong QTY}}{\text{No. of Total Lines Delivered}} \right) 1,000,000$

MPM	D scoring
Level 1: MPM < 499	100%
Level 2: 500 < MPM < 1,999	75%
Level 3: 2,000 < MPM < 4,999	50%
Level 4: 5,000 < MPM < 49,999	25%
Level 5: MPM > 50,000	0%

Economic:

Purchased materials price in comparison to pricing trends, VA/VE performance, and overall competitiveness

Responsibility of procurement. Total = 20 points

Total PRIDE

Performance is based on a 100 point scale.

The **PRIDE** scores are calculated on a monthly basis and are posted inside SDS in a two-step process.

- Step 1: The PRIDE scores will be released and uploaded into SDS as preliminary data within three weeks of the closed of the month.
- Step 2: The PRIDE scores will be finalized within six weeks of the close of every month in order to review, verify, and make any changes to the PRIDE scores.

The supplier should review the PRIDE scores to review their performance.

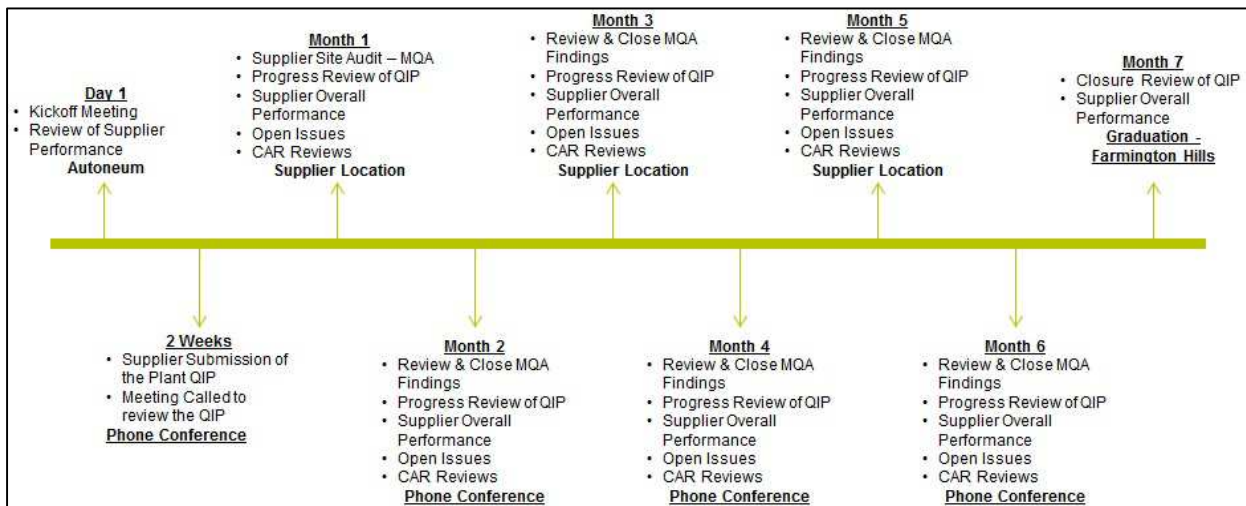
Actions that must be taken based on the PRIDE scoring as following:

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No Risk supplier (Green) Score above 75 points	Autoneum will continue its business relationship with these suppliers.
Moderate Risk supplier (Yellow) Score between 74 - 51 points	Suppliers with PRIDE performance score of 74 to 51 are considered "Moderate Risk" suppliers. The CSQ group will continue to review the PRIDE performance to see why the supplier is scoring within this range. These activities will not result in a PRIDE performance CAR unless we are seeing a quality situation.
High Risk supplier (Red) Score below 50 points	Suppliers with PRIDE performance score of less than 50 for 3 consecutive months are considered "High Risk" suppliers and therefore a PRIDE performance CAR will be issued to the supplier. The supplier is expected to respond to the CAR in a timely manner indicating necessary corrective actions including effective dates.

6.2. Supplier Quality Improvement Plan (SQIP)

Suppliers are monitored for PRIDE performance, CARs, monthly PPM, and yearly PPM levels. Based on these results, suppliers who continually demonstrate poor performance trends can be issued an **Appendix K: Supplier Quality Improvement Plan**. The SQIP process begins with a kick-off meeting at a specified location to review quality performance, to open dialogue between the organizations and to mutually agree on continuously improving the supplier's processes and deliveries. This process timeline may look like this:



The supplier presents a quality improvement plan. Autoneum and the supplier will mutually agree on the initial plan. Autoneum will monitor supplier performance on a monthly basis to review product quality, implementation and effectiveness of the quality improvement plan.

In order to finalize this process, a supplier must show stable product quality for a given number of months. The supplier will graduate from the program upon successful completion of these activities.

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6.3. Quality management system certifications

It is the responsibility of the supplier to ensure that they maintain a valid quality certification. Where applicable the supplier must supply the certificate through the SDS portal.

6.4. Supplier emergency contact

All suppliers are required to complete a "Supplier Emergency Contact". This information must be submitted at least annually by January 31st and when management contacts change. The list must reflect the identical contact inside SDS where applicable.

7. Contingency plan

The supplier shall carry out a risk assessment of its operations that support Autoneum production facilities, quality requirements and delivery schedules. Each assessment should consider these requirements:

- Identify and evaluate internal and external risks to all manufacturing processes and infrastructure equipment essential to maintain production output and to ensure that customer requirements are met.
- Define contingency plans according to risk and impact to the customer.
- Prepare contingency plans for continuity of supply in the event of any of the following:
 - Key equipment failures
 - Interruption from externally provided products, processes, and services
 - Recurring natural disasters
 - Fire
 - Utility interruptions
 - Labor shortages
 - Infrastructure disruptions
- Set up a communication process that notifies all customers and other interested parties for the extent and duration of any situation impacting customer operations.
- Conduct a periodically defined test by the supplier to simulate the contingency plans that ensure the effectiveness of the written procedures.
- Conduct a contingency plan review, minimum annually, using a multidisciplinary team including top management and update the plan according to their findings. If any changes to the contingency plans were made, a revision history should be seen within these documents.

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Revisions & updates

Description of revision	Responsibility	Revision date
Initial revision and release	Head Group Quality	01.06.2018

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