





1.0 **Scope**

Suppliers to Bergquist, must maintain a certain quality level in order for Bergquist to supply customers with quality product. This document explains the MINIMUM requirements for suppliers. (For outsourcing requirements see PRO7.4.1-03)

2.0 **Purpose**

Provide a set of quality expectations to supplier of The Bergquist Company, in order to develop a successful partnership that will help provide the best quality for our customers.

3.0 **Applicable Documents**

- 3.1 PRO7.4.1-01 Supplier Evaluation
- 3.2 PRO7.4.1-02 Supplier Development
- 3.3 PRO7.4.2-01 Purchasing
- 3.4 PRO7.4.3-01 Receiving Inspection
- 3.5 PRO7.4.1-03 Outsourcing

4.0 **Quality Expectations**

The section of this document entitled “Quality Expectations” is the document that suppliers will receive and review for quality expectations. On-Time Delivery without the use of Premium Freight should be considered a requirement for all suppliers to Bergquist.

5.0 **Frequency**

The Quality Expectations (see Section 8.0) will be used in setting up new vendor relationships. It is designed to be one of the initial documents a supplier receives to ensure the supplier understands what is expected of them.

6.0 **Responsibility**

- 6.1 It is a shared responsibility of the Materials and Quality Managers to ensure that each new supplier to Bergquist receives the Quality Expectations.

7.0 **Records**

The Purchasing Department stores all records generated through the above process in supplier folders on site.

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8.0 Quality Expectations

**Quality Expectations for Suppliers to Bergquist Company**

As a supplier to Bergquist, there is a certain quality level that is necessary for you to maintain in order for Bergquist to supply customers with quality product. This document explains the MINIMUM requirements for suppliers. It is expected that this will be used to develop a successful partnership in order to provide the best quality for our customers.

NOTE: The documents that Suppliers to Bergquist will abide by, in order of priority:

- 1) Applicable Raw Material Specification
- 2) Quality Expectations

**CONTENTS:**

1. Qualification
  2. Changes to Product and Re-qualification
  3. Process/Machine Capability/SPC
  4. Measurement System Studies
  5. Preventive Maintenance
  6. Process Audit
  7. Product Release for Production/Customer Use
  8. Product Release Information
  9. Changes in Product Specifications
  10. Continuous Improvement
  11. Corrective/Preventative Actions
  12. Non-conforming Product
  13. Identification and Trace-ability
  14. Packaging
  15. Certificate of Analysis/Compliance
  16. Incoming Inspection
  17. Withdrawal of Approval
- Attachments

<b>SUPPLIER ACCEPTANCE</b>		<b>BERGQUIST ACCEPTANCE</b>	
<b>QUALITY REP</b>	<b>DATE</b>	<b>QUALITY REP</b>	<b>DATE</b>
<b>SALES REP</b>	<b>DATE</b>	<b>PURCHASING REP</b>	<b>DATE</b>

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## Quality Expectations for Suppliers to Bergquist Company

1. **QUALIFICATION OF SUPPLIER:**

Bergquist will conduct a qualification of a supplier to ensure the reliability and quality of the product being supplied. (See PRO7.4.1-02) This will be done for each product being supplied to Bergquist. The supplier shall maintain a quality system and will be capable of proving the system meets the minimum requirements of Bergquist. If the supplier's quality system is certified, a copy of the certificate will be supplied to Bergquist. This must be for the site where the product is manufactured/supplied from.

2. **QUALIFICATION / RE-QUALIFICATION OF PRODUCT:**

This will be done for each product being supplied to Bergquist. Re-qualification is required if product changes. The supplier will also maintain a monitoring program to establish reliability and tests in order to ensure and demonstrate the products meet the agreed upon requirements. As a supplier, if a product produced for Bergquist is changing or being discontinued, proper lead-time notification is required in order for Bergquist to prepare for the change/discontinuation. The time frame for this notice is:

- Minimum of 6 months in advance for a significant change in product.
- Minimum of 12 months in advance for discontinuation of a product.

3. **PROCESS/MACHINE CAPABILITY/ SPC:**

If requested the supplier shall provide data that proves all processes and machines for the product being supplied are capable ( $C_{pk} \geq 1.67$ ). (See Attachment A for example of Cpk calculation). For processes that are unable to meet this capability, the supplier shall establish special monitoring or other processes to ensure product is meeting requirements, AND will submit improvement plans to reach the acceptable capability requirements. When necessary, special key requirements may be identified between the supplier and Bergquist that may need extra monitoring and data tracking. In the case of commodity products (as defined by Bergquist), certification of analysis test results will suffice in place of Cpk.

4. **MEASUREMENT SYSTEM STUDIES:**

Before delivery of products, the supplier shall evaluate the capability of all test equipment used to measure characteristics as required for each product, and be able to provide information showing the measurement capability.

5. **PREVENTIVE MAINTENANCE:**

The supplier will supply Bergquist information to ensure preventive maintenance has been performed when requested. The supplier must ensure preventive maintenance is done on all equipment used in production

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6. **PROCESS AUDIT:**

During the product qualification process, Bergquist shall maintain the right to audit the supplier's manufacturing site (and Outsourcers - see PRO7.4.1-03 - if part of the flow of product). Follow-up audits will be scheduled based on performance and/or any changes that affect the supplied product. Suppliers are encouraged to perform internal process audits which are validated during the Bergquist site visit.

7. **PRODUCT RELEASE FOR PRODUCTION/PROCESS:**

Before a product is available to be used for production, the following approvals need to be completed:

- Product Approval
  - Product Specification communicated to supplier
  - Demonstration of the product made to specification and capability analysis of the process for producing the end product
  - Product Part Approval Process (PPAP), level 3, may be required and will be specified in material specifications.
  
- Supplier Approval
  - Evaluation of Suppliers Quality System – Including a completed Supplier Survey
  - Process Audit, if necessary, as it pertains to the product being produced

8. **PRODUCT RELEASE INFORMATION:**

When the Product and Supplier Approvals are accepted, Bergquist will inform the supplier that the release is valid for the production of:

- That specific product
- For that processing line
- At that manufacturing site

9. **CHANGES IN PRODUCT SPECIFICATIONS:**

When there is a modification to the product that has to be made, Bergquist will inform the supplier of the proposed change through a new specification (which may be a revision change). Bergquist will work with the supplier to ensure the proposed change meets the minimum quality requirements. A collaboration agreement will be accepted on the specification.

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10. **CONTINUOUS IMPROVEMENT:**

To ensure that the supplier's products and processes are improving in quality, the supplier shall have information available regarding improvement processes, line rejects, Quality Meetings, Quality Reports, etc. that pertain to continuous quality improvement. It is the goal of The Bergquist Company to assist the supplier with the development of a Quality Management System which conforms to the TS16949 standard with the first step of conforming to the ISO9001 standard. Note that external laboratories are to be certified to ISO 17025 at a minimum unless otherwise agreed upon.

11. **CORRECTIVE/PREVENTATIVE ACTIONS:**

In the instance of non-conforming product caused by the supplier, a Supplier Corrective Action Request (SCAR) will be submitted to be completed in a prompt manner (identified with the Corrective Action Request). The supplier will have a procedure to take all actions necessary to correct and/or prevent non-conforming product, in order to continue to supply Bergquist and our customers with defect-free product. No response or a non-prompt response will not be acceptable and the supplier and Bergquist will work to identify a prompt, acceptable action to ensure good product (if necessary, 100% inspection, extra processing, etc.) The supplier will have a procedure to identify potential non-conformity and implement appropriate preventative actions.

12. **NON-CONFORMING PRODUCT:**

If a product supplied to Bergquist does not meet the agreed upon specifications, then the supplier should contact Bergquist **PRIOR** to the shipment of the product. This should be done through the Advanced Product Specification Deviation Request Form for Suppliers (Attachment B). Bergquist may or may not accept the product under a deviation from standard request.

13. **IDENTIFICATION AND TRACEABILITY:**

The supplier shall provide proper identification/labeling as required by the agreed upon product specification.

14. **PACKAGING:**

The supplier shall provide acceptable packaging as required by the agreed upon product specification.

15. **CERTIFICATE OF ANALYSIS OR COMPLIANCE:**

The supplier shall provide, for all product(s) supplied, a certificate of analysis or compliance stating the product conforms to the agreed upon specifications. Certificate must be supplied prior to or at time of delivery.

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16. **INCOMING INSPECTION:**

Bergquist will, visually inspect all incoming product packages and at times, will verify Certificate of Analysis testing, for specification conformance. Corrective Actions may be issued if product does not meet specs.

17. **WITHDRAWAL OF APPROVAL:**

Bergquist reserves the right to withdraw an approval if it is identified that the standards or related document requirements have not been met and affect the quality, reliability, and processing of the products.

**Quality Expectations for Suppliers to Bergquist Company – Attachment A**

**Process Capability Data for Products Supplied to Bergquist**

A level of adequate capability is necessary to ensure the best quality for our customer. Below is what is expected of quality data to provide evidence of capability.

Cpk or Ppk:

Based on the set of specifications Bergquist requests, Cpk/Ppk will give an understanding of how well a supplier is capable of meeting the agreed upon target and how variable the process is.

EXAMPLE:

- INCLUDE - Actual test results
- INCLUDE – Statistical Analysis (need at least 30 data points for meaningful data)

Individual test results (NOT averages) for capability qualification					
10.0	13.2	10.4	8.9	11.0	11.6
10.5	13.7	11.7	11.7	10.5	10.8
8.5	11.0	11.6	12.4	10.4	11.2
11.0	16.0	12.2	12.3	10.8	13.0
12.8	10.4	11.4	10.8	12.7	12.0
10.7	11.2	10.6	10.9	12.4	11.1
<u>Statistical Analysis</u>		<u>Specifications</u>			
AVG=	11.43	LSL=	5.0		
STDEV=	1.36	USL=	17.0		
Ppl=	1.58	TARGET=	11.0		
Ppu=	1.37				
<b>Ppk=</b>	<b>1.37</b>				

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Definitions:

$$Ppl = (AVG - LSL) / (3 * StDev) \quad Ppu = (USL - AVG) / (3 * StDev)$$

$$StDev = \sqrt{[(n \sum x^2 - (\sum x)^2) / (n(n-1))]}$$

Ppk = the minimum of Ppl and Ppu

LSL = Lower Spec Limit

USL = Upper Spec Limit

In the event where the product is not made often enough to produce sufficient data points, actual test result data will be accepted. Capability data will be expected when adequate data points are produced.

In the event the results show the process has a capability of < 1.67, the supplier, will submit improvement plans to make the process more capable of producing the product. (See also AIAG SPC Manual)

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