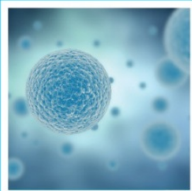




SUSTAINABLE.



CLEANING.



INNOVATION.



GROWTH.

**THE FUTURE.**



# Supplier Manual

## Tennant Company

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Tennant Company may change, delete, suspend, or discontinue parts or the policy in its entirety, at any time, without prior notice. Printed copies of this document are for reference only. Refer to [Suppliers | Tennant Company](#) for current revisions.

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Effective January, 2019  
Supplier Manual

Revision 6.0

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## Foreword:

Welcome to Tennant Company. This Manual has developed to provide our vision, mission and critical processes that will make it easier for us to do business together. Current and potential suppliers should read it carefully to fully understand the policies, objectives and values that drive our Organization. Suppliers who share our values, respect our policies, help us meet our objectives and can provide the greatest value have an opportunity for a mutually beneficial relationship and partnership.

The supplier Manual is managed as a living reference document by Tennant Company, summarizing at all times the newest process guidelines for the above mentioned topics. The Manual contents will be updated regularly as required and available on our Supplier Website as well as by request.

I believe this manual will be helpful in establishing and maintain your relationship with Tennant Company. Please distribute Tennant's Supplier Manual within your Organization as needed.

Yours sincerely,

Steve van Vossen  
Tennant Company  
Vice President Operations Centre of Excellence

## Supplier Manual Acknowledgment Notes:

***The review of this document means you, our Supplier, acknowledge our expectations have been reviewed with you or by necessary members of your organization. Our goal is to form a partnership and solid relationship with our Suppliers. We have an open-door policy and welcome all inquiries, concerns and solutions to all areas.***

## 1. Purpose

The purpose of this Supplier Manual is to define and communicate the minimum supplier requirements at Tennant Company. Tennant strives to ensure all members of the supply base meet and understand Tennant's basic supplier requirements to be used by all suppliers. Other obligations and responsibilities also apply per contract or other agreements and this document in no way supersedes those agreements, but seeks to help support or better define those requirements.

### 1.1 Vision

Tennant's vision is for its products to be recognized as superior in performance and value. Tennant relies on their supply base to provide defect-free material, parts, assemblies, outsourced processes, services and on time delivery.

Tennant's suppliers will conduct business with a high degree of integrity and in a socially and environmentally responsible manner in accordance with Tennant's Supplier Core Expectations, located on the Tennant Supplier website [www.tennantco.com/suppliers](http://www.tennantco.com/suppliers).

### 1.2 Scope

This manual sets forth guidelines and requirements applicable to all existing and potential suppliers of parts, (raw) materials, assemblies, out sourced processes, and services for Tennant products. However, there may be cases where a supplier is required to provide materials or employ processes not specifically defined in this manual.

**In this Supplier Manual, the terms “must” and “shall” mean the described action is mandatory. “Should” means that the described action is necessary and expected with some flexibility allowed in the method of compliance, and “may” means that the described action is permissible or discretionary.**

### 1.3 Proprietary Information

All information, know how, formulae, processes, photographs, drawings, materials, goods and equipment provided to suppliers by Tennant, or arising from work or services done for Tennant shall be treated as confidential and proprietary. Suppliers shall adhere to all requirements of the Tennant Non-Disclosure documents and Supplier Agreement and will not disclose or provide information to others without written approval from Tennant.

To secure the confidentially attached to the proprietary information, the supplier shall store the information/documents separate and shall not store the information, nor reproduce or transform, or store in an externally accessible computer or form of electronic information retrieval system, or transmit in any form or by means whatsoever outside of its usual place or business.

Ideally Tennant will have confidentiality agreements in place with all suppliers. Typically these obligations are contained within one or both:

## 1.3.1 Non-Disclosure Agreements

Tennant values the relations with our suppliers and therefore we would like to protect it through the use of the formal agreement.

The Global Supply person related to a product group has the responsibility to ensure that the agreement is in place.

## 1.3.2 Supplier Agreement

A Supplier Agreement should contain: cost or price, services or products provided, what happens if something goes differently than planned, and information about delivery/payments terms, warranty, deliveries, risks & Ownership, claims and costs recurrence, force majeure, disputes and law, etc. The termination dates should be clear as well for all parties.

All agreements should be in a written format to provide clarity for all parties, but also force to really think through details and put that in writing.

The Global Supply person related to a product group has the responsibility to ensure that the agreement is in place.

Tennant is looking for long term relations that give both companies the competitive advantages and collaboration to be successful in the cleaning market we are operating in. We strive for partnerships and long term collaboration.

## 1.4 Supplier Responsibilities

Tennant expects their suppliers to demonstrate their commitment to quality and environment. The goal is to work collaboratively with suppliers to encourage the following:

1. Suppliers are responsible for always using the latest version of documents published by Tennant on its Supplier website: [www.tennantco.com/suppliers](http://www.tennantco.com/suppliers).
2. It is the responsibility of each supplier to ensure complete understanding of the content of this manual in its entirety and ensuring that all related departments or sub-suppliers are trained in regards to appropriate guidelines and requirements.
3. The supplier must have a business continuity plan which allows for the safeguarding, storage and recovery of engineering drawings, electronic media, and production tooling in the event of damage or loss. This plan must include contingency plans to satisfy Tennant delivery requirements without delay in the event of significant interruptions due to natural disasters, fire, utility interruptions, equipment failure, etc.
4. Social and Environmental responsibility: Tennant values safety and recognizes the safety and health of our employees and workers as well as that of our suppliers. We must all review and improve working conditions to ensure a safe and healthful workplace and must report unsafe working conditions anywhere in the world to our management.
5. Conflict Minerals (see supplier website).
6. Prohibited countries (frequent updates will be sent to organization).
7. Supplier Core Expectations (see supplier website).

## 2. Quality Management System Requirements

### 2.1 Quality Management System

Suppliers shall maintain a Quality Management System (QMS) suitable to the products and services provided to Tennant, which is certified by an accredited third-party certification body to the latest version of, as applicable:

- ISO 9001 – Quality management Systems
- IATF 16949 – Automotive Industry Quality Management System

In the absence of third-party certification, depending on the product, its application, value and criticality, Tennant's Supply Chain Team may jointly authorize the acceptance of other evidence of compliance to Tennant's requirements.

The supplier shall establish, document, implement and maintain a quality management system and continually improve its effectiveness in accordance with the following requirements.

**The Supplier shall:**

1. Determine the processes needed for the quality management system and their application throughout the organization.
2. Determine the sequence and interaction of these processes.
3. Determine criteria and methods needed to ensure that both the operation and control of these processes are effective.
4. Ensure the availability of resources and information necessary to support the operation and monitoring of these processes.
5. Monitor, measure where applicable, and analyze these processes.
6. Implement actions necessary to achieve planned results and continual improvement of these processes.

When a supplier chooses to outsource any process that affects product conformity to requirements, the supplier shall ensure control over such processes. The type and extent of control to be applied to these processes shall be defined within the quality management system.

Note: Ensuring control over outsourced processes does not absolve the organization of the responsibility of conformity to all customers', statutory and regulatory requirements.

## 2.1.1 Tennant Regulatory Compliance

Some Tennant machines are listed with third-party regulatory agencies such as UL (Underwriter's Laboratories), or other NRTLs (Nationally Recognized Test Labs). A subsequent requirement is that select supplied parts are to have Certificates of Compliance/Certificates of Conformance, or Material Certification sent to Tennant with each shipment of affected part numbers. If a supplied part is applicable to this requirement, the Tennant drawing or Tennant purchase order will include the following annotation:

CERTIFICATION OF COMPLIANCE MUST BE SUPPLIED WITH EVERY SHIPMENT.

Certificates of Compliance/Certificates of Conformance must be signed, titled and dated. Such certificates are to accompany the packing slip, on the product packaging, from the supplier.

Note: This requirement is in addition to the Certificate of Compliance/Certificate of Conformance or Material Certification requirements of the First Article Inspection (FAI) Process requirements found in section 4.2.

## 2.1.2 Conflict Minerals and Supply Chain Transparency

Tennant is subject to reporting obligations in the US, EU, and even in specific states like California. One such disclosure is Section 1502 of the Dodd Frank Act, which requires that Tennant collect certain information from suppliers regarding its use and sourcing of tin, tantalum, tungsten, and gold. Each year these required disclosures increase globally. Tennant will advise suppliers regarding these information requirements and suppliers shall keep accurate and separate records and accounts, in accordance with good accounting practices, sufficient to enable Tennant to rely on such reports for purposes of complying with its reporting requirements.

## 2.1.3 RoHS 2 Directive 2011/65/EU Compliance

The supplier needs to provide a Declaration of conformity regarding RoHS 2/3 for the parts that Tennant is asking. We only will ask these parts, for products which are in scope of the RoHS 2/3 Directive.

Regulation: 2011/65/EU RoHS 2 2015/863/EU RoHS 3

Restriction of the use of certain hazardous substances in electrical and electronic equipment, replacing Directive 2002/95/EC.

### Substances & Threshold:

- Cadmium(Cd) and its compounds: 0.01%
- Mercury and its compounds: 0.1%
- Lead(Pb) and its compounds: 0.1%
- Hexavalent chromium (Cr6+) and its compounds: 0.1%
- Polybrominated biphenyls (PBB): 0.1%
- Polybrominated diphenyl ethers (PBDE): 0.1%



Included after July 22, 2019 per Directive (EU) 2015/863 (RoHS 3.0):

- Bis(2-Ethylhexyl) phthalate (DEHP): max 0.1%
- Benzyl butyl phthalate (BBP): max 0.1%
- Dibutyl phthalate (DBP): max 0.1%
- Diisobutyl phthalate (DIBP): max 0.1%

Proof of conformity has to be delivered via a Declaration of Conformance with the minimum following information:

1. On Company Letterhead  
Needs to indicate the declaration is an official company communication of the employee making the declaration.
2. Includes the proper RoHS Directive legislative reference.
3. Includes unique reference to parts or products being covered by the declaration.
4. Declares Compliance Status  
Compliant (does not contain substances above threshold)
5. Signed by appropriate individual (name, contact, title)
6. Dated

## 2.2 Management Responsibility

Supplier's management must notify Tennant immediately of any changes in ownership or significant changes in the supplier's business climate (such as acquisitions, divestitures, litigation or any other activity that may change the financial viability of the supplier's organization).

Supplier's management is to take an active role in quality management.

## 2.3 Control of Documents

Tennant uses drawings, procurement specifications including but not limited to Manufacturing Supply Agreements, Exhibits, Letter Agreements, etc., and other controlled documentation to communicate requirements to its suppliers. Suppliers are required to have a procedure for controlling these documents and to route Tennant drawings & specification changes to all necessary departments. Suppliers must use the latest revision for purchasing, supplying and inspecting based on the purchase order requirements. All superseded documents must be discarded or marked **OBSOLETE**.

## 2.4 Control of Records

Records established to provide evidence of conformity to requirements and of the effective operation of the quality management system shall be controlled.

The supplier shall establish a documented procedure to define the controls needed for the identification, storage, protection, retrieval, retention and disposition of records.

Records shall remain legible, readily identifiable and retrievable.

These records must be stored in an environment that protects documents from deterioration and are readily accessible upon request by Tennant. It is also expected that sub-suppliers' records, pertaining to Tennant products, are retained in the same manner.

## 2.5 Purchase Orders

Tennant Purchase Order (PO) documents are issued to suppliers and will contain: Tennant part number, description, revision level, quantity, delivery date(s), price, delivery condition, First Article Inspection (FAI), regulatory approvals, and other information unique to the purchased product.

The supplier must review and approve Purchase Orders prior to release for production. Incomplete or conflicting requirements are to be resolved in consultation with Tennant, prior to release.

When requested, the supplier must confirm acceptance of the order to the issuer.

Tennant Purchase Order Terms and Conditions can be found at [www.tennantco.com/suppliers](http://www.tennantco.com/suppliers).

## 2.6 Placement of Orders

Tennant may transmit orders electronically to suppliers and such orders shall be governed by the terms of this manual.

The supplier has three business days following receipt to provide Tennant with written objection to an order, after which the order shall be deemed accepted without exception.

The supplier agrees to maintain industry standards of confidentiality, security, care and diligence regarding the transmission and storage of electronic documents and data.

Any electronic document properly transmitted shall be considered a "writing," and any document issued or signed by a party's authorized representative shall constitute an "original" when printed from electronic records maintained in the normal course of business.

## 3. Supplier Qualification Process

All suppliers of production materials sent to Tennant must be qualified suppliers. The extent of the qualification process is dependent upon the criticality of product purchased and other factors determined by Tennant. The qualification process in its most complete form consists of three parts:

- A questionnaire completed by the supplier.
- A quality management system self-assessment completed by the supplier, using the Tennant supplier assessment survey form.
- An on-site assessment by Tennant SQE / SDE department.

Tennant periodically reevaluates suppliers through the use of quality performance data and/or on-site assessments.

### 3.1 Supplier Questionnaire

In the early stages of the supplier selection process, potential suppliers are sent a questionnaire. This questionnaire solicits general information about the company such as location(s), size, capabilities, and financial stability as well as detailed questions regarding the Company's quality management system and quality history.

### 3.2 Supplier Self-Assessment

When a new supplier is being considered, they are sent a quality management system self-assessment survey form. The supplier completes the self-assessment and returns it along with a copy of their supporting documents. Tennant will review to determine if the documented quality system meets Tennant's requirements.

### 3.3 On-Site Assessment

For suppliers of critical components, an on-site assessment of the supplier's facility may be performed. The on-site assessment includes a quality assessment to determine whether the supplier's quality management system is in place and functioning effectively.

If the assessment team determines that the supplier meets Tennant's requirements, Tennant qualifies the supplier to bid on new business and supply production materials.

### 3.4 Supplier Approval

If the assessment team determines that the supplier meets Tennant's qualification requirements, Tennant will add the supplier to the Tennant Approved Supplier List (ASL). Suppliers on the Tennant ASL will be able to receive purchase orders and supply production materials.

### 3.5 Periodic Reevaluation

Tennant periodically re-evaluates current production suppliers through the use of quality performance data and/or on-site assessments. If requested, the supplier shall make their facility available for on-site process verification by Tennant SQE / SDE, with reasonable notice.

## 4. Part Qualification Process

This section defines the generic requirements for production part qualification and approval. The purpose is to determine if all Tennant design and specification requirements are properly understood by the Supplier and that the manufacturing processes have the capability to consistently meet these requirements.

In all instances where a product is manufactured to a new design, for a new system, or for a new application, it is important that Supplier and Tennant allocate responsibility for assuring that all performance, endurance, maintenance, safety and warning requirements are met.

The supplier should be able to present objective evidence of their manufacturing capability on similar processes or products, to demonstrate technical competency, when a (new) process is being used in the production of product for Tennant. Objective evidence can include capability data, FPY, and quality issues with other customers.

The Product Qualification Process can be split into:

- Supplier Design Acceptance (SDA) Process;
- First Article Inspection Process;

***Exempt for this Product Qualification process are:***

- ***“Commercial-off-the-shelf” parts and standard catalog parts \* ;***
- ***Indirect material / MRO suppliers and distributors;***

\* Tennant reserves the right to request a Product Qualification process for parts that are critical to Tennant equipment.

### 4.1 Supplier Design Acceptance (SDA) Process

#### **Definitions:**

#### **Characteristic:**

A dimensional, visual, functional, mechanical, or material feature or property, which describes and constitutes the design of an article and can be manufactured, measured, inspected, tested or verified to determine conformance to design requirements. This includes drawing requirements (including requirements in the drawing title block) and/or specification requirements determined from drawing notes.

#### **Supplier Design Acceptance (SDA):**

A Supplier Design Acceptance is a complete, independent, and documented physical and functional inspection process to verify that all characteristics as specified on the Tennant Engineering drawing and specifications are complete, understood and obtainable with supplier's long-term process capability before the change or start of production begins.

A Supplier Design Acceptance shall be performed:

- The 1<sup>st</sup> time the part is requested to a (new) supplier;

## **SDA Process Flow:**

### *Phase 1: Tennant*

- Tennant must notify the supplier of the SDA requirement.
- If a supplier is asked to participate, a Tennant representative will send the supplier the latest drawing, including all subassembly drawings when applicable.

### *Phase 2: Supplier*

- Tennant has a template available, on the supplier website for the Supplier Design Acceptance (SDA) form (TC-202-12-001). Supplier is responsible for always using the latest version.
- The supplier's responsibility is to complete the Supplier Design Acceptance form by responding objectively to the question: "Can you (supplier) produce this part in conformance to all characteristics on the engineering drawing?"
  - If yes, check the "Yes" box.
  - If "Yes, with the following exceptions or concerns", check the box and provide any exceptions or concerns.
  - If "No", the supplier must explain which characteristics are not obtainable and any remedy recommendations.
- Obtain a hard copy of Tennant Engineering Drawing and manually highlight each characteristic on the Tennant drawing, related to the selected checkbox from the SDA form.
  - If "Yes", highlight the effected characteristics "Green".
  - If "Yes, with the following exceptions or concerns", highlight the effected characteristics "Orange".
  - If "No", highlight the effected characteristics "Red".
- The supplier must verify and highlight the results for:
  - 100% of all characteristics on the engineering drawing
  - 100% of all notes on the engineering drawing
  - Material- and treatment specifications on the engineering drawing
- When the Tennant part contains other Tennant part numbers (for example sub-assemblies, welded parts or cast parts), these parts shall be treated as a separate part and needs their own highlighted Tennant drawing, a separate SDA form is not necessary in this case.
- The supplier should sign and return the completed Supplier Design Acceptance (SDA) form and highlighted drawing to the Tennant issuer.
- Other feedback such as ideas to make the part more cost-effective or improve part manufacturability is also invited and will be logged. Concerns with meeting drawing requirements are considered first priority for resolution.

### *Phase 3: Tennant*

- The Tennant issuer has responsibility to coordinate (between Tennant Engineering and the supplier) resolution to any concerns.
- If the SDA is approved, the form shall be signed and returned to the supplier.
- If the SDA is approved, file the SDA (with the highlighted Engineering Drawing) in the respective part data folder.

## 4.2 First Article Inspection (FAI) Process

### Definitions:

#### Characteristic:

A dimensional, visual, functional, mechanical, or material feature or property, which describes and constitutes the design of an article and can be measured, inspected, tested or verified to determine conformance to design requirements. This includes drawing requirements (including requirements in the drawing title block) and/or specification requirements determined from drawing notes.

- Dimensions/features identified as “Reference” (i.e. noted as “REF” or are in parenthesis on the drawing) must be included on the FAI report and noted as “REF” in the “Tolerance” column.

#### First Article Inspection (FAI):

A First Article Inspection is a complete, independent, and documented physical and functional inspection process to verify that prescribed production methods have produced an acceptable part as specified only by Tennant Engineering Drawings and specifications.

A First Article Inspection shall be performed:

- The 1<sup>st</sup> time the part is provided at production-level (rev. 00);
- A change of manufacturing source, process, inspection method, location of manufacture, tooling or materials, that can affect fit, form or function.
- A natural or human occurrence that has a detrimental effect on the manufacture process.
- A lapse in production for a period of 2 years or as specified by Tennant.

#### Delta First Article Inspection (> rev. 00):

A verification that the article being inspected complies with the changes made to the Tennant Engineering drawing. The Delta FAI records only those characteristics affected by the revision change, provided an approved FAI is on file for the previous revision.

#### Pre-production/Prototype parts (drawings with Alphabetic-revisions):

Only Key Characteristic data is required for Pre-production/Prototype parts.

Key Characteristics may be identified by unique symbols (such as: ♦) on Tennant drawings. Key Characteristics are not intended to relieve the supplier from the responsibility of ensuring that the other characteristics conform to Tennant specifications, but rather to highlight where additional submission elements, process controls and on-going evidence of conformance are needed.

## **FAI Process Flow:**

### *Phase 1: Tennant*

- Tennant must notify the supplier of the FAI requirement.  
It is advisable to place a separate line item on the PO indicating the FAI as a deliverable. Yet that does not exclude the supplier their responsibility for performing a FAI report when applicable.

### *Phase 2: Supplier*

- The supplier shall ensure all verifications conform to all specified documents and specifications.
- When the Tennant part contains other Tennant part numbers (for example sub-assemblies, welded parts or cast parts), these parts shall be treated as a separate part and needs their own FAI documents. The main FAI document will refer to these Tennant parts.
- Any results outside of the specification limits (engineering drawing, related specifications, etc.) should be properly documented with corrections and are cause for the supplier not to submit the FAI. The supplier must make every effort to correct the process so the product conforms to all of the specifications.
  - If the supplier is not successful in producing a product that conforms to all of the specifications, the supplier may submit a Supplier Deviation Request form (TC-202-11-001) for review by Tennant engineering.
- The supplier must verify and record the results for:
  - 100% of all characteristics on the engineering drawing.
  - 100% of all notes on the engineering drawing.
  - Material specifications on the engineering drawing.
- The supplier shall perform tests for all parts and product materials when chemical, physical, or metallurgical requirements are specified by the engineering drawing. Suppliers that make the material used in the final product will need to validate the chemical, physical, or metallurgical results. The use of sub-tier supplier results for material and physical properties is acceptable.
- To properly communicate the FAI information, the supplier shall do the following actions:
  - Place a numbered bullet to each characteristic on the Tennant engineering drawing.
  - Transfer the bullet number and the characteristic to the First Article Inspection Report form (TC-203-01-005).
  - Characteristics that are indicated to occur several times should be documented on the First Article Inspection Report form for all occurrences.
  - Upon completion of the inspection activity for each item listed on the First Article Inspection Report form, ensure all results are included.
  - Do not forget to identify if the item meets requirements (In spec. Yes/No).
- For the first production shipment: The FAI form, annotated (ballooned) drawing, and applicable material/process certifications are to be included with the FAI samples. Suppliers are also required to e-mail the FAI form in the original format, a copy of the ballooned drawing, and all material/process certifications to the following e-mail address: [qualitycontrol@tennantco.com](mailto:qualitycontrol@tennantco.com). The e-mail message "subject" must contain the Tennant part number (incl. revision), supplier name and Tennant location (shipping address) to permit sorting at Tennant Company.
  - If possible (and preferred by Tennant), the complete FAI paperwork package may be sent to Tennant for review prior to the first shipment of parts. Tennant will review the preliminary FAI paperwork and provide any comments or required corrections to the supplier. The final FAI paperwork package shall be submitted as indicated above.

## *Phase 3: Tennant*

- Quality Control reviews the FAI documents and provides approval status and returns to the Supplier.
  - **First Article Approved:** The FAI is signed and returned to the supplier.
  - **Inspection Approved for alpha rev.:** The FAI is signed and returned to the supplier.
  - **Approved with Deviation:** The FAI is signed with the Deviation Number noted and before, reviewed by the appropriate engineering department for review and approval. The FAI is returned to the supplier.
  - **Rejected:** The FAI is signed with the Quality Notification Number noted and returned to the supplier.
- If the FAI is rejected, the supplier must re-submit the FAI with any non-conforming conditions corrected. Tennant must communicate all rejection information to the supplier and indicate a new FAI is required.
- If the FAI is approved, file the FAI (with all applicable certifications) in the respective part data folder.

## **FAI Requirements:**

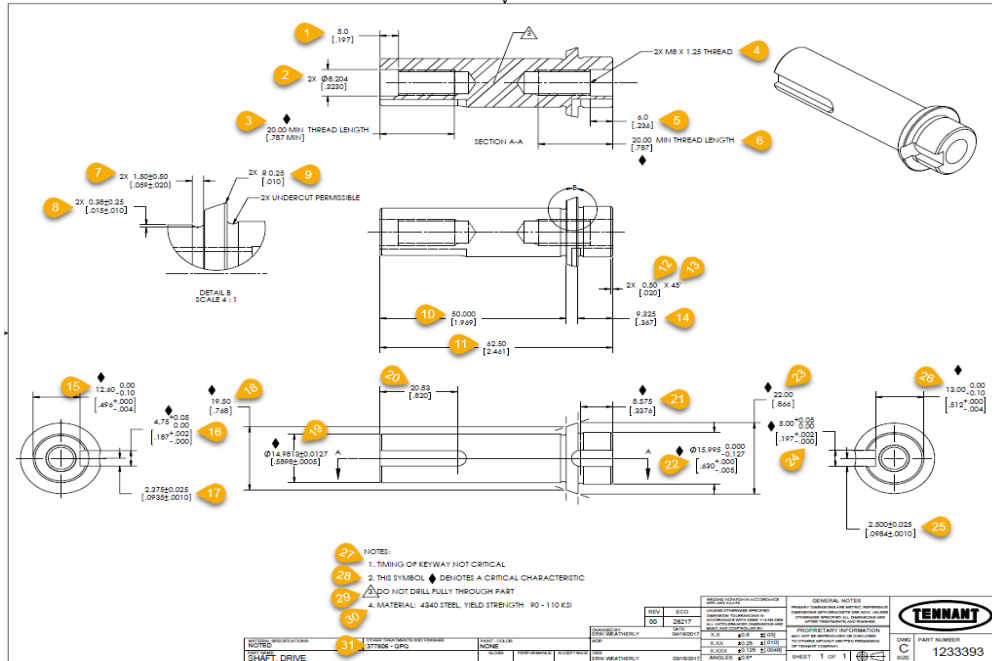
- FAI Samples
  - The inspected parts are from a random sample of 5 parts from the first production lot provided to Tennant.
    - Except when a purchase order indicates less than 5 parts, in that case all parts shall be used as samples.
  - When the manufacturing method uses multiple sources of production, including cavities, spindles, dies, tools, process lines, machines, etc., a sample must be selected from each source.
  - All FAI analysis and submissions must be constructed or assembled using production-intent equipment, tooling, processing, methods and other conditions.
    - Except in the case of pre-production parts.
  - The inspected parts should be uniquely identified to correspond to the actual measurements recorded on the FAI report.
    - All characteristics must be compliant with the Tennant Engineering Drawing unless a Deviation has been authorized by Tennant.
  - Attach an identifying tag to the FAI sample(s) using string (do not use tape or wire).
- First Article Inspection Report
  - Tennant has a template available on their supplier website for the First Article Inspection Report (TC-203-01-005).
  - Suppliers have the opportunity to use their own First Article Inspection Report, as long as all features of Tennant's First Article Inspection report are listed on the suppliers report.
  - Self-made gauges/calipers are not allowed to use during the FAI process, Tennant only accepts valued measurements.
  - All FAI documentation must be submitted in English.



TENNANT		First Article Inspection Report (Form # TC-203-01-005 Rev 3.1)					PO #: 4					
Part Number: 1		Part Description: 2		Revision: 3		Quantity: 4						
Supplier: 5		Supplier code#:		Agency approved file # (U/L etc. if applicable):		Page: 4						
Select One: <input type="checkbox"/> Prototype Parts (Alpha Rev.) [FAI for Key Characteristics only] 6 <input type="checkbox"/> New Part (Numeric Rev.) [Rev00 - Full FAI / all dimensions] <input type="checkbox"/> Rev. Change (Numeric Rev.) [Delta FAI / affected dimensions] <input type="checkbox"/> Other: Process, Tooling, Material, etc. [Full FAI / all dimensions]												
Documents Required along with FAI Samples: <ol style="list-style-type: none"> <li>FAI Form TC-203-01-005</li> <li>Raw Material Certificate (For Full FAI only)</li> <li>Engineering Drawing (Ballooned)</li> <li>Certificate of Conformity (For Full FAI only)</li> <li>Performance/Func. test results (if applicable)</li> <li>Special Process Cert. (if applicable)</li> <li>AAR Report (if applicable)</li> </ol>												
Item #	Dimension 7	Tolerance 8	Inspection Instrument Used 9	Supplier Inspection Results 10					In Spec. 11		Tennant	
				Part 1	Part 2	Part 3	Part 4	Part 5	Yes	No	Accept	Reject
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
Shipping Instruction: FAI Box should be taped with "FAI Enclosed" Tag on all four sides and on the top of the box. For Tag - please see NEXT TAB												
Comments:												
Inspected By: 12			Signature: 13			Email: 14			Date: 15			
<b>TENNANT Company Use Only</b>												
<input type="checkbox"/> First Article Approved <input type="checkbox"/> Inspection Approved for alpha rev.			<input type="checkbox"/> Approved with Deviation Deviation Number: _____			<input type="checkbox"/> Rejected QN # (if rejected): _____						
Comments:												
Tennant QC:			Signature:			Email:			Date:			

- All numbered fields are mandatory, other field are optional (required when available).
  - Part number (1): Enter the complete Tennant part number for the part
  - Part description (2): Enter the name of the part
  - Revision (3): Enter the part revision level of the FAI part
  - PO # (4): The Tennant purchase order number
  - Supplier (5): The name of the Supplier preparing the FAI report
  - Select one (6): Check the type of FAI
  - Dimension (7): Characteristic designator (dim. / notes, etc.) / metric
  - Tolerance (8): Mentioned tolerance, otherwise general tolerance / metric
  - Inspect. Instr. Used (9) Measuring equipment used (caliper, CMM, fixture, etc.)
  - Supp. Inspect. Results (10) Results of the characteristic
  - In spec. (11) Is the result meeting the requirement?
  - Inspected By (12) Name of person who prepared the report
  - Signature (13) Signature of person who prepared the report, an electronic or typed signature is acceptable
  - Email (14) Email, where we can send a signed copy
  - Date (15) Date when the report was completed
- For characteristics that are recorded on material and/or test report certifications, type "Conforms" in the "Supplier Inspection Results" block and reference the certification number in the "Inspection Instrument Used" block.
- For characteristics that require visual inspection, type "Conforms" in the "Supplier Inspection Results" block and state "Visual" in the "Inspection Instrument Used" block.
- For characteristics that are inspected using a functional or go/no-go gage, type "Conforms" in the "Supplier Inspection Results" block and state the gage type or gage number in the "Inspection Instrument Used" block.

- Balloon (bubble) drawing
  - Obtain a hard copy of Tennant Engineering Drawing and manually place consecutively numbered circles (balloons) adjacent to each characteristic (dimensions, notes, material, treatment, etc.) on the Tennant drawing.



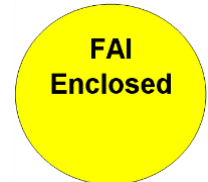
- Material and Special Process Certifications
  - Material Certificate of analysis
    - Raw material certificates needed if parts are fabricated.
  - Performance Test Data (as required by drawing or PO)
    - Some products may require testing and analysis beyond dimensional properties. Examples include: chemical analysis, mechanical testing, x-ray testing, etc. The supplier may use outside accredited lab/test facilities to perform required tests.

If applicable:

- Certificates of Compliance / Certificates of Conformance (3<sup>rd</sup>-party agency approvals such as UL and CE).

### FAI Material Identification Requirements:

- “FAI Enclosed” tag must be affixed on four sides, and the top, of the box/container containing the five samples and documents.
- Required documents must be placed inside the containers in an envelope clearly marked, “FAI Documents”.



## 4.3 Test and Measurement Equipment

Suppliers are responsible for meeting all product specifications and requirements. The supplier shall determine the monitoring and measurement to be undertaken and the monitoring and measuring devices needed to provide evidence of conformity of product to determined requirements. As a minimum, where necessary to ensure valid results, measuring equipment shall:

- Be calibrated or verified at specified intervals, or prior to use, against measurement standards traceable to international or national measurement standards; where no such standards exist, the basis used for calibration or verification shall be recorded;
- Be identified to enable the calibration status to be determined.

In some cases, Tennant may provide test and/or measurement equipment to suppliers. The supplier is responsible at all times for the care, maintenance, safekeeping and proper use of Tennant-owned items.

For maintenance and calibration on Tennant owned equipment is the responsibility of the supplier.

Suppliers must promptly report any loss or damage of Tennant gages and test equipment. This does not include normal wear. Tennant and the supplier will determine who has responsibility for calibration of Tennant-owned equipment. If Tennant assumes responsibility for calibration, the supplier shall make the test and measurement equipment accessible to Tennant and return it within the timeframe requested.

## 4.4 Tennant-Owned Tooling & Fixtures

Tennant often pays for tooling that is uniquely-required for the production of Tennant products (does not include perishable tooling). Examples of unique tooling include molding tools and machining fixtures. Such tooling is the property of Tennant and must be permanently identified as a Tennant asset. Suppliers shall maintain quality records for all Tennant owned tooling and fixtures and make records available to Tennant upon request. Such tooling will not be scrapped, altered or relocated without prior written approval from Tennant. Tennant reserves the right to take possession of the tooling at any time. Original tool designs are considered property of Tennant and the supplier shall provide copies of the CAD designs between the time the engineering drawings have been created and before production.

### Tooling Approval

Tennant generally evaluates First Article samples, but it is the supplier's responsibility to ensure the tool design and tools will ultimately produce consistently acceptable parts or assemblies. A dimensional check of the tool will not be performed by Tennant.

Parts produced by the tooling must successfully pass Tennant's Part Approval Process before the tooling and fixtures can be used for Production orders.

### Tooling Identification

The permanent identification of the tooling and fixtures will include contain the following information: the phrase "Property of Tennant" and Tennant's asset number (Tennant will provide ID number). This can be done with an ID plate, or by machining directly onto larger tooling. The plate needs to be 'fixed to the tool' which cannot be taken away without any use of tooling.

After the Tennant asset identification information has been affixed to the asset, two photographs will need to be taken and sent to a Tennant representative.

1. Must include the whole tool with the attached asset tag visible. If the tool contains multiple cavities it must be open showing all parts in the picture.
2. A close-up of the asset tag affixed to the tool.

## Exclusivity

No supplier shall use Tennant owned tooling to make parts for a different customer. The sole exception to this is if Tennant provides written instructions to sell parts to a different Tennant supplier. This could be for a sub-assembly process, line sequencing, or similar reason.

## Storage and Maintenance

The supplier is responsible for the care, maintenance, safekeeping and proper use of Tennant-owned tooling and fixtures in its possession. This includes the prompt reporting of any damage to tooling. Subject to the terms of the purchasing documents, the supplier may be liable when tooling deficiencies are identified.

Specifically, this shall include:

- Review of tooling mating surfaces for wear, sharpening, parting line mismatch, flash, etc.
- Corrosion prevention
- Keeping date code wheels up to date
- Replacing broken die springs
- Cleaning part residue, mold release, or any other accumulation.

Suppliers shall maintain tool and maintenance logs and provide to Tennant upon request.

## **4.5 Preventive Maintenance**

The supplier shall identify key process equipment and provide resources for machine/equipment maintenance activities and develop an effective planned total preventive maintenance system.

The Supplier Preventive Maintenance program will be documented and PM logs maintained.

These logs shall be available for review by Tennant upon request.

## **4.6 Process Monitoring & Control**

Suppliers are responsible for ensuring all parts meet Tennant's drawing requirements (this includes processes, characteristics or components that are controlled by sub-suppliers). To prevent defective product from being delivered to Tennant, the supplier shall establish and document process standards and control for all aspects of its manufacturing operations. Tennant may request documents related to correct and consistent processes and inspection.

When changes or improvements to process monitoring and/or quality controls are made, Work Instructions, Control Plan, Process Flow & PFMEA, etc. must be updated.

## **4.7 Control of Nonconforming Material**

Suppliers must begin to resolve issues associated with discrepant parts immediately upon internal discovery or notification from Tennant.

A supplier must immediately notify Tennant Supplier Quality Engineering and/or Tennant Procurement upon realization that nonconforming material may have been shipped to a Tennant facility. Immediate notification should be made by telephone followed by written documentation of the problem, lot size, shipment dates, lot identification, etc.

Tennant will notify suppliers of nonconforming material and request a Return Material Authorization (RMA). Suppliers are expected to grant this request. If after 10 calendar days there is no response to the RMA request, Tennant may scrap the parts at the supplier's expense. Parts returned on an RMA will be returned to the supplier at the supplier's expense. The supplier is expected to provide return shipping info along with the RMA.

It is expected that the supplier will put reworked or conforming parts into their inventory and may be added to future purchase orders issued by Tennant. Tennant will not accept any parts shipped without a valid purchase order.

If any portion of product from a supplier's delivery is rejected, Tennant may choose to reject the entire lot. The supplier is responsible for sorting, inspection and other issue-related costs incurred by Tennant due to the nonconformance. If supplier is unable to sort, re-inspect, or provide service to obtain parts, Tennant may provide such service and bill back to supplier for time to perform such activity. In certain circumstances Tennant & the supplier will contract with a 3rd party to perform the work required and billing will take place between 3rd party and supplier.

In all cases, the supplier shall inspect 100% of the suspect material until corrective action(s) have been completely implemented. Containers shall be clearly marked, "100% inspected".

## 4.8 Supplier Corrective Action Request (SCAR)

Suppliers may be asked to utilize, document and submit the Supplier Corrective Action Request (SCAR). The SCAR (TC-203-03-001) follows the *Eight Disciplines (8D)* corrective action methodology and is intended to be both a problem-solving tool and communication tool. Suppliers may use their company's problem-solving and communication document with approval from the Tennant requestor.

### SCAR Guidelines

**D1 – Cross Cross-Functional Team:** Identification of team-members that can successfully resolve the problem. Tennant also expects the supplier to identify a "champion" for the SCAR process. The champion is responsible for following-up on activities, ensuring time commitments are met, and updating the Tennant requestor with updated documents.

**D2 – Problem Description:** Identification of all facts, data and information that describe and quantify the problem in detail.

**D3 – Short-Term Action:** Immediate actions to prevent further escape. The supplier is expected to take all actions necessary to quarantine/return/replace/certify suspect material at all locations throughout the supply chain.

The supplier must describe and document how and when the clean-point will be identified. The supplier shall inspect 100% of all suspect material until corrective action(s) have been implemented. Containers shall be clearly marked "100% inspected".

**D4 – Root Cause:** In-depth analysis of the problem to determine the true underlying cause(s) and/or reason for the non-conformance. Generally there are failures in regards to both the occurrence and the detection that must be identified for correction. If a cause is unknown the supplier is to identify the specific steps that will determine root-cause(s) along with the person responsible and due dates.

**Occurrence Cause:** Answers the question: "Why did the problem occur?"

**Detection Cause:** Answers the question: "Why did the problem escape detection?"

There may be multiple answers to either, or both, types of causes.

**NOTE:** An example of a poor root cause is, "Statements from the supplier indicating that the root cause is 'operator error' and the corrective action is to remind or retrain an operator, and/or increase inspection, alone, are NOT acceptable corrective actions. These examples of proposed actions would be considered insufficient and not address the true underlying root cause(s) of why the supplier's policy, instructions, process, procedure, and/or system allowed the problem to develop and occur and not be detected by quality controls.

**D5 – Corrective Action Plan:** Actions eliminating the problem and the possibility of reoccurrence. Each identified cause, for both occurrence and escape from detection, requires corrective actions. Methods may include: mistake-proofing systems, training, process changes, tool changes, etc. The supplier shall include, for each action, a primary owner and the target/completion date.

**D6 – Corrective Action Verification:** Quantitative results confirming that the corrective actions will resolve the issue.

**D7 – Preventative System Improvements:** Corrective action(s) throughout the quality system where applicable, as well as for like-products or like-processes.

**D8 – Approval Sign-Off:** The issue is not considered closed until both the supplier and the Tennant issuer are satisfied with identified and implemented actions.

### **SCAR Response and Update Timing Expectations:**

The supplier is required to document, track and update SCAR statuses, to the Tennant issuer, continuously until closure of the issue.

Timeline Expectations: While Tennant recognizes different levels of complexity to the 8D process, Tennant expects SCAR's to be treated with urgency. The following timeline guidelines should be adhered to:

- **24 Hours:** Response with actions completed through D3 – Short-Term Action.
- **3 days:** Response with actions completed (or plan identified) through D5 – Corrective Action Plan.
- **60 days:** Response with all actions completed (or plan identified), and continuously until implementation of all actions

## **4.9 Deviation Process**

Tennant controls the parts provided by our global supply chain based on approved/validated parts and processes. A deviation is initiated to request a temporary change to a Tennant print, engineering specification, or quality standard. Tennant requires notification and reserves the right to refuse proposed deviations to the Tennant Engineering Drawing. Tennant approval is required before a supplier ships deviated parts.

Tennant accepts two types of deviations:

- Supplier initiated deviations
- Tennant initiated deviations

### **Supplier Initiated Process:**

- Supplier shall notify Tennant and request approval for the deviation using the Supplier Deviation Request Form (TC-202-11-001).
- Supplier completes the form and sends to the Tennant representative.
  - Supplier Deviation Request Form found at [www.tennantco.com/suppliers](http://www.tennantco.com/suppliers).
- Tennant representative uses the Supplier Deviation Request Form to generate the deviation.
- Tennant representative circulates for approval from key Tennant stake holders.

- Tennant representative sends a deviation authorization to the supplier.

Note: If requested change is permanent, an Engineering Change Request (ECR) shall be submitted.

- A copy of the deviation authorization shall be printed and fixed on the outside of the packaging until the deviation has expired or is no longer needed (i.e., new drawing release).

Red-line drawings, e-mails, verbal instructions, etc. are not acceptable forms of authorization.

Requests for deviation will be considered only for unusual circumstances and will not be accepted on a routine basis.

The supplier is to maintain a record of the expiration date and/or quantity authorized. The supplier must also ensure compliance with the original or superseding specifications and requirements when the authorization expires.

### **Tennant Initiated Process:**

Same process as Supplier Initiated, except Tennant personnel (typically engineering) will submit & circulate the deviation for approval.

Note: Tennant initiated changes are commonly used to pull changes forward to accelerate the implementation date.

If the proposed change is long term/permanent, a Process/Product Change Notification (TC-203-01-010) is required to be submitted to Tennant for approval before the change is implemented. The PCN Form is located at [www.tennantco.com/suppliers](http://www.tennantco.com/suppliers).

## 5. Material Identification and Labeling Requirements

### 5.1 Introduction

The following specifications are required for accurate identification and efficient receiving of materials from Tennant external suppliers. Provided examples are for illustrative purposes only and may not be exactly to scale or meet bar code print quality standards.

Tennant's external suppliers are required to provide specific material information for the following purposes:

- Identification of a group of items sharing the same Tennant part number, which have been shipped together and which should be received against a common purchase order.
  - i.e. a single Purchase Order of 100pcs shipped as 5 boxes @ 20pcs each.
- Identification of items for movement and storage within Tennant warehouses.

To support these requirements this specification includes two types of labels:

- A purchase order label, and
- An item label

It is possible that the purchase order label can support both requirements. This depends on the material quantities and packaging configuration. The following guidelines are to be applied:

- When multiple pieces of a single part number are packaged into a single container, it is not necessary to have the pieces labeled if the items were not packed into the container for purposes of shipment. In this case the purchase order label will suffice.
- When multiple pieces of a single part number are packaged for *shipping* into a single container, the internal packages should be identified with the item label specified here, and one of the scenarios described in the next chapters applies.
- When individual items are not packaged together, they should be identified with the purchase order label.
- Shipping different Tennant Part numbers in a single container is not allowed. Even if the different Tennant Part numbers share the same Purchase Order.

"Recommended Applications for Labels" (Section 5.10) describes examples of how labels can be attached to items or containers, and will enable you to determine when each label applies.

### 5.2 Purchase Order Label Format

The purchase order label is designed to support receiving of the material, and if possible the movement and storage of material within Tennant's warehouses. For parts shipped to Tennant each shipping container must have at least one Purchase Order Label applied.

Labels are to be sized so that when applied to a flat surface all data is readable. Labels should not be applied to surfaces which result in barcodes being unreadable. Please reference "Recommended Applications for Labels" (Section 5.10) for examples of how to apply the purchase order label to different types of material.

The label is to have dark printing with a contrasting background label color.

The adhesives used on labels are to be pressure sensitive and the label type should be a thermal transfer label.



Each field should have a thin border around it, and contain a field title in the upper left-hand corner of the border (see figure 5.1, 5.2, 5.3 and 5.4). Titles should be approximately 0.06" (1.5 mm) high letters.

Recommended label sizes:

- 4" x 6" (100mm x 150mm),
- 2" x 4" (50mm x 100mm)

Sample labels for each recommended size:

PART NO. <b>1008883</b>  ACTUATOR, 24VDC. 50MM STROKE 500N		
QUANTITY <b>250 FT</b> 	 <b>6798945</b> PURCHASE ORDER NO.	
SUPPLIER ABC MANUFACTURING KALAMAZOO, MI 49007	PART REVISION <b>03</b>	DATE MFG. <b>8/25</b> <b>2019</b>
SERIAL <b>278A5667</b> 	DELIVERY LOCATION TENNANT CO. 701 N. LILAC DRIVE MPLS, MN 55422	

Figure 5.1 Label size 4" x 6" (100mm x 150mm)

PART NO. <b>1008883</b>  ACTUATOR, 24VDC. 50MM STROKE 500N 12345	PART REV. <b>03</b>
QUANTITY <b>250 PC</b> 	PURCHASE ORDER NO. <b>6798945</b> 
FROM: ABC MANUFACTURING KALAMAZOO MI 49007 TO: TENNANT CO. 701 N. LILAC DRIVE MPLS, MN 55422	

Figure 5.2 Label size 2" x 4" (50mm x 100mm)

## 5.3 Item Label Format

The purpose of the item label is to provide identification for material which is either broken from the packaging container that it was received in, or not packaged in a container for shipping to Tennant. This label should not replace the Purchase Order label as the purchase order is not included in these formats and thus they cannot support receiving.

The label must be placed in a highly visible location.

The label needs to be attached to each part. A tag may be used on the part, or a label must be affixed to a bag or box that contains the part.

The following data elements must appear on the item label:

- Part number with barcode
- Tennant's part description
- Quantity
- Unit of measure
- Part revision
- Part manufactured date
- Country of Origin

Recommended label sizes:

- 2" x 4" (50mm x 100mm),
- 1" x 3" (25mm x 75mm)

Sample labels for each recommended size:

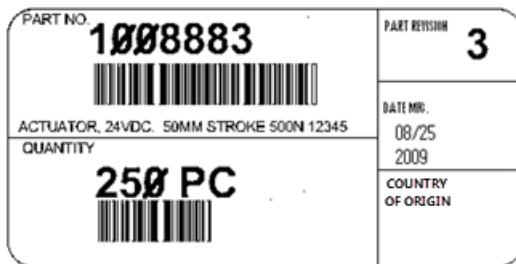


Figure 5.3 Label size 2" x 4" (50mm x 100mm)



Figure 5.4 Label size 1" x 3" (25mm x 75mm)

## 5.4 Mixed Load Identification

When material is shipped to Tennant, a single package could combine different purchase order items. These packages will need to be broken down to receive the items inside.

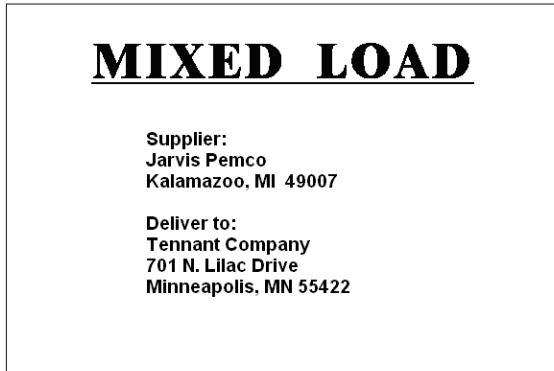
In this situation the following is recommended:

1. Apply the mixed load identification label to the package or mixed pack.
2. Items should be bagged or boxed to identify separate purchase order items.

3. Apply the smaller format Purchase Order label to the individual bags or boxes.

Mixed loads per pallet should be identified with a Mixed Load identification label, see figure 5.5.

Packing slips for all products on pallet must be in one location listing of all products with part numbers and quantities placed on top of the pallet load. Identical labels are to be located on two adjacent sides.



**Figure 5.5** Mixed Load identification label

## 5.5 Definitions of Packaging and Application of Labels

For purposes of material identification, Tennant defines the following levels of packaging:

- **Unit pack:** The smallest unit of packaging. This can contain one or more of the same items. The unit pack is typically the stocking level and it can be used as a shipping container.
- **Shipping container:** This is the container which is used to ship items for a single purchase order item. The shipping container should only include unit packs of items listed on the purchase order. The shipping container can include one or more unit packs of the same material.
- **Multi-Pack:** A pack containing smaller packages of items. A Multi-pack is a shipping container and should not include items from different purchase orders.
- **Mixed Pack:** A pack containing multiple items from different purchase orders. This can be a pallet.

When applying labels to items shipping to Tennant Company the following guidelines should apply:

1. Either the PO label or the Item label can be applied to the Unit pack level. The PO label must be applied if the unit pack is not packed inside a shipping container.
2. The PO label must be applied to a shipping container if the contents do not have the PO label.
3. A PO label or an item label must be applied to a multi-pack. The PO label is required if the items inside do have the PO label.
4. The Mixed Pack should have a Mixed Load label or identification. The next level inside the mixed load should have the purchase order labels applied.

## 5.6 Label Field Specifications

<b>Part Number</b>	<ul style="list-style-type: none"> <li>• Tennant Company's part number: 15-character alpha-numeric</li> <li>• Human-readable format             <ul style="list-style-type: none"> <li>– Bold font</li> <li>– Minimum of 0.375 (9 mm) high</li> </ul> </li> <li>• Barcode format             <ul style="list-style-type: none"> <li>– Directly below the human-readable part number characters</li> <li>– Font size a minimum of 0.375" (9 mm) high</li> </ul> </li> </ul>
<b>Description</b>	<ul style="list-style-type: none"> <li>• Tennant Company's description: 40-character alpha-numeric</li> <li>• Human-readable format             <ul style="list-style-type: none"> <li>– Font size a minimum of 0.125" (3 mm) high</li> </ul> </li> </ul>
<b>Quantity</b>	<ul style="list-style-type: none"> <li>• Quantity related to the container with the label: 5 digit numeric</li> <li>• Human-readable format             <ul style="list-style-type: none"> <li>– Bold font</li> <li>– Font size a minimum of 0.375" (9 mm) high</li> </ul> </li> <li>• Barcode format             <ul style="list-style-type: none"> <li>– Directly below the human-readable part number characters</li> <li>– Font size a minimum of 0.375" (9 mm) high</li> </ul> </li> </ul>
<b>Purchase Order</b>	<ul style="list-style-type: none"> <li>• Tennant Company Purchase Order: 10-character alpha-numeric</li> <li>• Human-readable format             <ul style="list-style-type: none"> <li>– Font size a minimum of 0.125" (3 mm) high</li> </ul> </li> <li>• Barcode format             <ul style="list-style-type: none"> <li>– Directly below the human-readable characters</li> <li>– Font size a minimum of 0.375" (9 mm) high</li> </ul> </li> </ul>
<b>Supplier</b>	<ul style="list-style-type: none"> <li>• 25-character alpha-numeric</li> <li>• If there isn't enough room to print the complete supplier name, an appropriate abbreviation may be used</li> <li>• Human-readable format             <ul style="list-style-type: none"> <li>– Font size a minimum of 0.125" (3 mm) high</li> </ul> </li> </ul>
<b>Part Revision</b>	<ul style="list-style-type: none"> <li>• Part revision related to the container with the label</li> <li>• Human-readable format             <ul style="list-style-type: none"> <li>– Bold font</li> <li>– Minimum of 0.375 (9 mm) high</li> </ul> </li> </ul>
<b>Date Mfg.</b>	<ul style="list-style-type: none"> <li>• Date Mfg. related to the container with the label</li> <li>• Human-readable format             <ul style="list-style-type: none"> <li>– Bold font</li> <li>– Font size a minimum of 0.125" (3 mm) high</li> </ul> </li> </ul>
<b>Serial Number</b>	<ul style="list-style-type: none"> <li>• Use when appropriate for component type</li> <li>• Human-readable format             <ul style="list-style-type: none"> <li>– Font size a minimum of 0.125" (3 mm) high</li> </ul> </li> <li>• Barcode format             <ul style="list-style-type: none"> <li>– Directly below the human-readable characters</li> </ul> </li> <li>• Font size a minimum of 0.375" (9 mm) high</li> </ul>
<b>Destination</b>	<ul style="list-style-type: none"> <li>• Human-readable format</li> <li>• Font size a minimum of 0.125" (3 mm) high</li> </ul>

## 5.7 Data Area Characteristics

DATA AREA	TITLE	HUMAN READABLE MIN. LETTER HGHT	MAX. LENGTH	SPECIAL NOTES	BAR CODE SYMBOL
Part Number	PART NO.	0.375 in (9 mm)	--	Designated by Tennant Co.: if none, use Purchase Order item number	<ul style="list-style-type: none"> <li>▪ Code 39</li> <li>▪ No \$, /, +, %</li> <li>▪ No checkdigits</li> <li>▪ X dimension = 0.13 - .017 in.</li> <li>▪ Wide/Narrow Ratio range 2.8:1 to 3.2:1</li> <li>▪ Max length 5.5 in (140 mm)</li> <li>▪ Min Height 0.375 in (9 mm) Incoming</li> <li>▪ Min Height 0.25 in (6 mm) Aftermarket</li> <li>▪ Quiet Zones= .250 in (6.4 mm)</li> <li>▪ Start/Stop code = *</li> <li>▪ PCS ≥ 75%</li> <li>▪ MRD ≥ 37.5%</li> <li>▪ ANSI GRADE 2.5</li> </ul>
Quantity	QUANTITY	0.375 in (9 mm)	5+ (Q)	See Appendix B for Unit of Measure codes	
Purchase Order Number	PURCHASE ORDER NO.	0.125 in (3 mm)	7+ (K)	Avoid horizontal alignment with the quantity bar code symbol	
Serial Number	SERIAL	0.125 in (3 mm)	--	Use when appropriate for component type	
Description	N/A	0.125 in (3 mm)	40 max	Designated by Tennant Co.	
Supplier (Name, city, state and zip)	SUPPLIER or From	0.125 in (3 mm)	25 max		
Part Revision	PART REVISION	0.375 in (9 mm)	--		None
Manufactured Date	Date Mfg.	0.125 in (3 mm)	--		
Delivery Location	DELIVERY LOCATION or To	Tennant Co. Street City State Zip 0.1 in (2.5 mm) Other Delivery Info 0.2 in (5 mm)	Freeform	Include delivery info from purchase order or material release	

## 5.8 Definition of Material Identification and Labeling Terms

<b>Item</b>	A single part or material purchased, manufactured, and/or distributed.
<b>Label</b>	A card, strip of paper, etc. marked and attached to an object to convey information.
<b>Master Label</b>	A label used to identify and summarize the total contents of a multiple pack of the same part number.
<b>Mixed Item Pack</b>	A pack containing items with different part numbers.
<b>Mixed Load Label</b>	A label used to identify that the multiple pack contains different part numbers.
<b>Multi-Pack</b>	A pack containing smaller packages (sub packs) of items.
<b>Pack, Package or Load</b>	A unit that provides protection and containment for shipping items from one point to another.

<b>Shipping/Parts Identification Label</b>	A single pack, master or mixed load label used to identify the contents of a shipping pack.
<b>Single Pack</b>	A pack that contains one or more items with the same part number.
<b>Single Pack Label</b>	A pack that contains one or more items with the same part number.
<b>Sub pack</b>	One of the smaller packs that makes up a larger multiple pack.
<b>Tag</b>	A label that is hung from an object.
<b>Container</b>	A unit of shipment for at least one item. A container can be a package, pallet, or a load.

## 5.9 Barcode Technical Specifications

### Bar Code Symbology:

Bar codes **shall** be Code 39 symbology and **shall** conform to the specific requirements in this section.

### Code Configuration:

The four characters (\$, /, +, %) **shall not** be used on the Incoming Containers for Bulk Materials Label.

### Check Digits:

Check digits **shall not** be added to the bar codes or human readable interpretation.

### Code Density and Dimensions:

This standard requires that the bar codes meet a minimum height and that the bars and spaces maintain specific sizes and ratios. Acceptable (100%) scanner read rates also require that quiet zones and gap widths be a specific size.

### Bar Height:

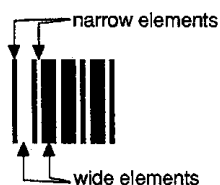
The bar height for Incoming Containers for Bulk Materials Labels SHALL be a minimum of 0.5 inches (13 mm).

The bar height for Aftermarket Parts Labels SHALL be a minimum of 0.25 inches (6 mm).

### Narrow Elements:

The bars and spaces in a symbol are called elements. For each bar code symbol, the narrow element width (known as the X dimension) SHALL be within the range of 0.013 to 0.017 inches (0.33 to 0.43 mm).

Wide to narrow Element Ratio



The ratio of the average width of the wide elements to the average width of the narrow elements **SHALL** be 3:1, with an allowable range of 2.8:1 to 3.2:1.

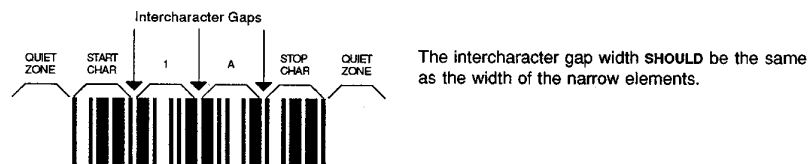
## Quiet Zones:

For optimum scanning, a symbol's leading and trailing clear area known as the quiet zone **should** be at least 0.25 inches (6.24 mm).



## Intercharacter Gap Width:

Nine bars and spaces represent a character. An intercharacter gap is the space between characters.



## Reflectivity and Contrast:

Reflectivity and contrast **shall** pass infrared light testing at B900 nanometers. Labels passing infrared testing can be read with both visible and infrared equipment, while labels produced with visible light material can only be read with visible light equipment.

Bar code symbols **shall** comply with traditional AIAG requirements of either ❶ Print Contrast Signal (PCS) or ❷ Minimum Reflectance Difference (MRD); or ❸ **shall** meet the alternate (preferred) ANSI Print Quality Grade requirement.

Symbols **shall** meet at least one of the following specific requirements:

- ❶ Print Contrast Signal (PCS) > 75%
- ❷ Minimum Reflectance Difference (MRD) > 37.5%
- ❸ American National Standards Institute (ANSI X3.182-1990) Print Quality Grade **shall** be a minimum grade of 1.5 when received at Tennant Company and **should** be a minimum of 2.5.

## 5.10 Recommended Applications for Labels

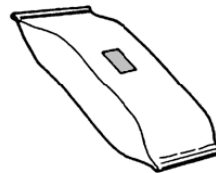
### Hanging Tags:

When it is not possible to attach a label to an item, container, or package without folding it is recommended to use a hanging tag, and use the purchase order format. The label should attach to one side and not extend beyond the edges of the tag. The tag and wire needs to be durable enough to prevent damage in shipping and handling.

PART NO. <b>1008883</b> ACTUATOR, 24VDC, 50MM STROKE 500N		
QUANTITY <b>250 FT</b>	PURCHASE ORDER NO. <b>6798945</b>	
SUPPLIER JARVIS PEMCO KALAMAZOO, MI 49007	PART REVISION <b>3</b>	DATE MFG. <b>8/25 2009</b>
SERIAL <b>278A5667</b>	DELIVERY LOCATION TENNANT CO. 701 N. LILAC DRIVE MPLS, MN 55422	

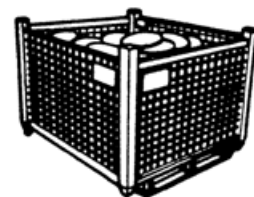
### Examples of identification types and location of label placement:

**BAG** – Place one label at the center of face.



**BALES** – Identical labels shall be located at the upper corner of an end and the adjacent side.

**BASKET, WIRE MESH CONTAINER** – Identical labels shall be located on two adjacent sides.

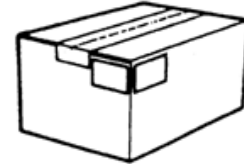






**METAL TUB** – Attach hang tag label to ear of tub, or use a label holder.

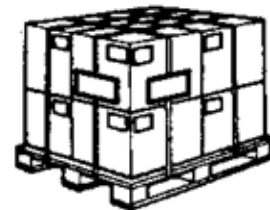
**BOX OR CARTON** – Identical labels shall be located on two adjacent sides. The upper edges of the labels should be as high as possible up to 20 inches from the bottom of carton.



**BUNDLE** – Identical tags shall be located at each end.

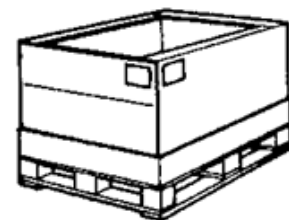
**CARTONS ON PALLET** – Each carton shall be individually labeled as described in chapter 5.4 **Mixed Load Identification**.

Use “Mixed Load” labels as necessary.



**DRUMS, BARRELS, OR CYLINDRICAL CONTAINERS** – Identical labels shall be located on the top and near the center of the side.

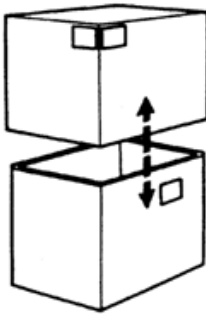
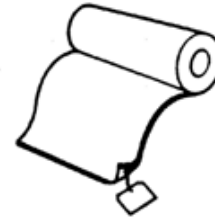
**PALLET BOX** – Identical labels shall be located on two adjacent sides.





**RACK** – Attach hang tag label to ear of rack.

**ROLL** – Hang one tag 2.0 in. (51 mm) from end of the material.



**TELESCOPIC OR SET-UP CONTAINERS** – Identical labels shall be located on two adjacent sides of the outer box. Some applications may also require identification of the inner box.

### 5.11 Unit of Measure Table

Term	Definition	Term	Definition	Term	Definition
5GL	5 Gallon	ML	Milliliter		
CM	Centimeter	MM	Millimeter		
CS	Case	OZ	Ounce		
CTN	Carton	PAC	Pack		
FT	Feet	PC	Piece		
G	Gram	PLT	Pallet		
GAL	Gallon	PT	Pint		
IN	Inch	QT	Quart		
KG	Kilogram	ROL	Roll		
L	Liter	SET	Set		
LB	Pound	SQF	Square Feet		
M	Meter	YRD	Yard		
M2	Square meter				

## 6. Packaging Requirements Overview

Suppliers are expected to provide packaging that will protect product throughout the complete distribution chain, from the supplier to Tennant and from Tennant to the end user. Primary shipping cartons from suppliers must be able to withstand all small parcel shipping environments.

Larger, bulkier items from suppliers must be shipped in a manner to withstand all rigors of overseas containers, truckload, less-than-truckload (LTL) shipping, cross docking, air freight, and all types of multiple handling.

All products/shipments must be in new, clean, intact and in saleable condition when delivered to Tennant. Shipments will be free of dirt, dents, scratches, scuffs, oil, bum marks, punctures or other deformation or physical blemishes.

Shipments that contain more than one part number (per container or carton) must have each part number segregated by part number within the main shipping carton.

Shipments that will travel internationally must be packaged to withstand the hazards of inland and ocean transportation, below deck stowage and multiple stages of handling. Special consideration shall be given to the packaging to ensure that breakage, damage and theft are prevented; rust and corrosion are inhibited and water intrusion is prevented.

NOTE: In a situation where product is received and does not conform to Tennant's packaging and labeling specifications, the product will be returned to the Supplier - at the Supplier's expense - using the Tennant 'return to supplier' procedure.

### 6.1 Delivery Documentation

All deliveries must be marked and accompanied by documentation as follows:

- All products must display the bar code information as outlined in "Material Identification and Labeling Requirements" (Chapter 5).
- First copy of packing list must be placed in a pouch outside the carton, box, bag, crate, etc. and marked, "Packing List Enclosed."
- The second copy of the packing list must be placed in an envelope inside the carton, box, bag, crate, etc. of each (separate) shipment.
- The packing list shall be folded such that no description of the product is visible from the outside.

#### 6.1.1 Packing List Detail

Each packing list must include:

- Seller's, i.e., exporter complete company name and address, including contact name, telephone and email address,
- Buyer's, i.e., importer complete company name and address,
- Consignee, i.e. ship-to-party complete company name and address, including contact name and telephone number,
- Shipper's, i.e. ship from complete company name and address, if different from Seller,
- Tennant purchase order number(s) or (applicable reference number, e.g. return authorization number), and
- Package/carton and piece/pallet quantities.

## 6.1.2 Packing List Line Item Detail

Each line item on the packing list must include:

- Case number,
- Detailed description of products, including name by which each item is known, Model number(s), Material and Tennant Part Number(s),
- Item quantities and unit of measure for each product,
- Total number of boxes in shipment, and
- Item gross and net weights.

Suppliers must provide packaging that will protect product throughout the complete distribution chain. All products/shipments must be packed, clean, undamaged, delivered to Tennant in a manner the package(s) can then be shipped direct to a customer.

## 6.2 International Packaging and Labeling Requirements

A package that must be shipped, stored or stacked in a certain position must display appropriate arrows and instructions. Hand-drawn arrows or instructions are not acceptable. Products containing hazardous substances must display the necessary hazardous signage indicating the nature of the hazardous product, such as the product UN ID Code and relevant Class ID Labels on the package.

Styrofoam filler, commonly referred to as 'peanuts' or 'popcorn', is unacceptable.

All wooden packaging materials must be ISPM15 compliant. Failure to comply with this requirement will result in the return of the goods back to its origin along with potential fines and penalties.

The Supplier's foreign shipper must provide products in packaging suitable for export to the designated carrier/freight forwarder.

The Supplier or his agent is required to properly block and brace all shipments to secure the load from moving within the container for the entire shipment, door to door, per International Maritime Standards. This is especially important for less than a container load (LCL or LTL) quantities shipping as a full container load (FCL or FTL). Failure to do so could result in carrier non-acceptance, or if additional safety preparation is required to move the cargo, costs will be passed back to the supplier or his agent.

United States Department of Homeland Security now requires all containers transiting via ocean to be sealed using ISO/PAS 17712 Standard seals or bolts.

Air freight shipments packaged in cartons large enough to contain a person must be secured with metal banding on all four sides.

Country of Origin Markings – See document “**Importing into United States Manual**”, stored on Tennant’s Suppliers website.

Packing list – See document “**Importing into United States Manual**”, stored on Tennant’s Suppliers website.

Supplier Import Requirements – To ensure efficient and timely delivery of cargo from international supply points to Tennant U.S. sites, see document “**Importing into United States Manual**” stored on Tennant’s Suppliers website.

## 6.2.1 Requirements Specific to Europe

For deliveries made in Europe, Suppliers are required to use standard quality "Euro pallets" (80 cm x 120 cm) which can be exchanged at the point of delivery. Where necessary, Tennant located in Uden, Netherlands (TNV) is prepared to operate a pallet pool exchange service. Deliveries made to TNV using "Euro" pallet format are not accepted with an overhang.

TNV will make arrangements with suppliers delivering product on pallets to have set quantities per part per pallet. (This is a reflection of the purchase order quantity.) This determines the height of the pallet. In the case where smaller quantities of product do not maximize the pallet volume potential, multiple products may be loaded. In these cases the pallet must be marked "Mixed Product." For "Mixed Product" pallets, the maximum height is 1.50 cm. Product delivered to Tennant/Uden, Netherlands in boxes (on or off pallets) must not exceed 25 kg. All wooden packaging materials must be ISPM15 compliant. Failure to comply with this requirement will result in the return of the goods back to its origin along with potential fines and penalties.

## 6.2.2 Requirements Specific to USA

For deliveries made in the US, all packaging must be capable of passing an ISTA (International Safe Transit Association) 1 series test cycle as a minimum. The ISTA 2 & 3 series and ASTM (American Society for Testing and Materials) D4 169 test cycles will more accurately simulate the Tennant distribution channels and are recommended where available.

Products shall fit flush or within 2" inside the perimeter of the pallet. If this cannot be accomplished due to product configuration, supplier must demonstrate that the unit load passes International Safe Transit Association (ISTA) test method 1E. All solid wood packaging material - including pallets - will have moisture content below 20% at the time of shipment.

Corrugated transit shippers for Tennant will be compliant to Item 222 of the National Motor Freight Traffic Classifications. Packages meeting this performance standard are to be labeled with the box manufacturer's certificate stamp.

Tennant requires all packaged product weighing greater than 75 lbs. to be marked with a warning logo to identify heavy lifting. Any industry standard logo that identifies strenuous material handling is acceptable. All items over 150 lbs. will be palletized for machine lift.

## 6.3 Environmental and Disposal Attributes

All packages containing environmental claims or recycle symbols will comply with applicable government regulations as designed through the FTC and EPA.

Suppliers delivering to TNV are subject to "European packaging regulations" complying with country specific environmental policies.

All solid wood packaging materials (including pallets) will have the appropriate pallet markings to indicate completion of a treatment method to prevent infestation in accordance with 7 CFR 319.40 as published by the US Department of Agriculture.

## 7. Chemicals & Hazardous Products/Materials

Suppliers/ Sellers are responsible for the identification of hazardous materials and compliance with all applicable hazardous material transportation regulations, i.e., Code of Federal Regulations, ICAO, ADR, etc.. Suppliers/ Sellers are also required to supply Material Safety Data Sheets (MSDS) for all applicable hazardous and non-hazardous materials.

- Hazardous Material Transportation
  - The supplier/ seller is responsible for the preparation of hazardous product documents in accordance with all applicable regulations.
  - The supplier/ seller shall supply all regulated hazardous materials to Tennant Company in appropriate packaging required by applicable shipping regulations.
  - For a hazardous material that is regulated for transportation, the supplier/ seller shall provide the following information on an MSDS or Dangerous Good Declaration:
    - United Nations Identification Number
    - Proper Shipping Name
    - Packing Group
    - Hazardous Class Number
    - Hazardous Class Description
    - Spill Response/ Emergency Contact Information
    - Label(s) required
    - Sub-Chapter reference for exempted items
    - Special Handling and Storage requirements such as temperature, isolation, etc.
- Material Safety Data Sheets (MSDS)
  - For a material that is either hazardous or non-hazardous, the supplier/ seller shall provide the minimum proper information about the product on a Material Safety Data Sheet (MSDS) as stated below:
    - Chemical Name
    - Product Description (examples: part, vendor part number, Tennant part number)
    - Chemical Abstract Service (CAS) registration number
    - Product manufacturer's name and address
    - Spill response information
    - First aid information for proper treatment of injuries resulting from contact with substance
  - 
  - MSDS's must be supplied to Tennant before the first purchase of the product.
  -
- Suppliers/ Sellers are required to inform Tennant Company if their product contains any of the following materials before first shipment of material to a Tennant facility:
  - Ingredient or chemical not registered under the U.S. Toxic Substance Control Act (TSCA)
  - Ozone Depleting Chemicals
  - Asbestos
  - Lead Paint
  - Mercury
  - Other chemicals as specified
- 
- Product that off-gases or gives off offensive odors while in storage must be pre-approved before shipment.

## 8. Continuous Improvement

Tennant strives for quality, reliability and on time delivery of our products. Tennant recognizes this requires partnership with a strong supply chain. A continuous improvement philosophy should encompass the supplier's processes, systems and products. To be effective, an effective improvement strategy must have tactical and strategic elements.

### Tactical

- Specific and measurable to include performance requirements, goals & results
- Identify where and when it will be used

### Strategic

- Company objectives & supporting long range plans
- Sustained effort focused on value add processes
- Customer satisfaction

### **Supplier Development**

Tennant's Supplier Development program uses dedicated resources focused on driving continuous improvement in the performance of our supply chain. Tennant Supply Chain personnel are here to partner with suppliers & drive improvements throughout the value stream.

Tennant and our suppliers can benefit from Supplier Development. Here are some key outcomes:

- Improved quality
- Improved customer responsiveness (on-time delivery, lead time reduction)
- Cost reductions (Inventory, overtime, labor and burden)
- Growth without capital expenditure

## 9. Warranty

The supplier shall comply with Tennant's General Purchase Order Terms and Conditions for Warranty located at [www.tennantco.com/suppliers](http://www.tennantco.com/suppliers).

## Revision History Record

\*also update the following location after an ISO rev, use the Web Change Request to submit new documents to update  
[https://www.tennantco.com/en\\_us/about-us/suppliers.html](https://www.tennantco.com/en_us/about-us/suppliers.html)

<b>Date Revision</b>	<b>Section</b>	<b>Revisions</b>
Jan, 2019 Revision 5.0	All sections	Complete new upgrade of the Supplier Manual (formerly known as "Supplier Quality Manual"), with the addition of all Packaging and Labeling requirements as also the "Chemicals & Hazardous Products/Materials" (which were all stored as separate documents on the supplier website).