



Greene, Tweed & Co. Global Supplier Handbook

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Contents

1. Introduction..... 3

BUSINESS PRACTICES

2. GT Supply Chain Vision 3

3. GT Quality Policy..... 3

4. GT Ethics..... 3

5. Confidentiality..... 5

6. GT Safety & Insurance..... 5

7. Performance Expectations..... 5

8. E-Business Capability..... 5

9. Supply Chain Communications..... 6

10. Supplier Audits & Visits..... 6

11. Regulatory Compliance..... 7

12. Counterfeit & Fraudulent Material Prevention..... 8

13. Payment of Invoices..... 9

14. Terms & Conditions..... 9

SOURCING

15. Supplier Approval..... 10

16. Supplier Classification..... 11

17. Supplier Metrics..... 11

18. Tool, Mold, & Fixture Builders & Surface Treatments 12

DELIVERY

19. Packaging, Labeling, & Routing Requirements..... 13

20. GT Incoming Receiving Requirements..... 14

QUALITY

21. Supplier Inspection Requirements..... 15

22. First Article Inspection Requirements..... 16

23. Product Traceability, Acceptance Authority Media, & Identification Marking..... 16

24. Part Cleanliness & Workmanship..... 17

25. Non-Conforming Material & Quality Notifications..... 17

26. Corrective & Preventive Actions..... 17

27. Supplier Change Notification..... 19

28. Continuity of Supply & Change Control Requirements..... 19

Contents

QUALITY (CONTINUED)

29. Sub-Tier Quality Assurance..... 20

30. Deviation & Waiver Requests..... 20

31. Supplier Request for Engineering Change..... 21

32. Supplier Configuration Management & Part Obsolescence..... 21

33. Control of Records..... 21

34. Continuous Improvement..... 22

35. Chemical Substances, Adhesives, & Other Shelf Life Material..... 22

36. GT Owned Material (Sub Contract & Consignment)..... 23

37. GT Owned Tooling..... 23

38. Sample Material Policy..... 23

REFERENCE

39. Glossary & Acronyms..... 24

40. GT Supply Chain Locations..... 28

41. Industry & Regulatory Standards..... 29

42. Revision History..... 33

1. Introduction

The purpose of this Supplier Handbook is to communicate Greene, Tweed & Co.'s (GT) requirements and procedures to our supply base in order to remove non-value added activities and eliminate delays in delivery. This is being done in order to improve efficiency for both GT and our supply base, and to continually improve supplier quality to ensure our end customer satisfaction. Communication between our supply base and GT is vital to our mutual success.

Latest released Supplier Handbook is available via the Greene, Tweed & Co. external website.

<https://www.gtweed.com/supplier-information/>

BUSINESS PRACTICES

2. GT Supply Chain Vision

Provide Supply Chain excellence to support the business needs in alignment with GT strategy and maintain an ethical approach within the total supply chain solution to create value through technology, quality, delivery, and cost.

3. GT Quality Policy

GT is dedicated to continually improving its product and processes in order to serve the current and future needs of its customers. Our goal is to provide our customers with high-performance products and superior service. We constantly strive to meet or exceed customer engineering and quality specifications. We recognize that every Greene, Tweed employee, regardless of his or her position within the company, impacts our overall quality performance. Therefore, we will maintain at all times an environment which encourages every individual to seek never-ending improvements in the quality of our products and services to our customers.

4. GT Ethics

GT supports the Responsible Business Alliance (RBA) Code of Conduct (formerly the Electronic Industry Citizenship Coalition) and requires our suppliers to acknowledge and implement the Code. Details on the full RBA Code of Conduct can be accessed via the website, <http://www.responsiblebusiness.org/standards/code-of-conduct/>.

Our goal is to seek the most qualified partners to work with and to fully utilize their abilities, without regard to their race, color, national origin, age, disability, sex, sexual orientation or religion. Where this is contrary to local practice we want to be among the leaders in the business community in this direction.

No employee shall take or offer bribes in any form whatsoever. Bribes include anything given or promised to induce a person to do something illegal, wrong or against his or her wishes. In addition, GT personnel should make every reasonable effort to work with partners who also do not engage in this activity. Expenditures of reasonable amounts for meals, entertainment of customers and suppliers that are lawful,

ordinary, and customary business expenses, are expected. Violation of the company bribery policy is considered gross misconduct.

GT respects the confidentiality of information given to us by our customers and suppliers.

- We will abide by the terms of nondisclosure agreements.
- We will not share information presented to us as confidential or proprietary with any third party without permission and appropriate flow down of confidentiality.

GT is committed to protecting our natural environment. We are supportive of strong laws to assure this protection and will fully abide by both the letter and the spirit of all applicable environmental laws at all locations.

We will abide by all applicable laws governing fair competition at each location.

A conflict of interest is any circumstances that could compromise, or cast doubt, on your ability to act objectively regarding GT's interests or any situation that benefits the individual to the detriment of the company. Any personal or financial interest or business relationship (other than publicly traded) with a GT customer or supplier or competitor is a conflict of interest. As an ethical organization, GT seeks to avoid conflicts of interest. In the aforementioned working relationships each employee is expected to maintain a high standard of ethical conduct and integrity. This means in business matters with dual responsibility to the public and GT interest, each individual employee is a responsible custodian of GT's reputation.

Modern slavery is a crime and a violation of fundamental human rights. It takes various forms, such as slavery, servitude, forced and compulsory labor and human trafficking, all of which have in common the deprivation of a person's liberty by another in order to exploit them for personal or commercial gain. We have a zero-tolerance approach to modern slavery and are committed to acting ethically and with integrity in all our business dealings and relationships and to implementing and enforcing effective systems and controls to ensure modern slavery is not taking place anywhere in our own business or in any of our supply chains. We expect the same high standards from all of our contractors, suppliers and other business partners, and as part of our contracting processes, we will include specific prohibitions against the use of forced, compulsory or trafficked labor, or anyone held in slavery or servitude, whether adults or children, and we expect that our suppliers will hold their sub-tier suppliers to the same high standards. Our commitment to addressing the issue of modern slavery in our business and supply chains must be communicated to all suppliers, contractors and business partners at the outset of our business relationship with them and reinforced as appropriate thereafter.

Suppliers shall ensure that their employees and sub-tier suppliers are aware of the importance of ethical behavior in their business practices.

5. Confidentiality

When the supplier has been given access to GT proprietary information, the supplier shall take steps as are necessary to minimize the exposure of that information within its facility and to prevent it from exposure to third parties. If the supplier determines that proprietary or confidential information has been or may have been compromised, they shall notify GT immediately. All suppliers must have a Non-Disclosure Agreement (NDA) with GT and the supplier shall contact GT prior to passing proprietary information to a sub-tier supplier to determine if a separate NDA is required between GT and the sub-tier supplier. Exception to the NDA requirement will be made for suppliers that exclusively provide off-the-shelf items, catalog items or advertising/marketing services.

6. GT Safety & Insurance

GT is committed to providing a safe work environment for its employees and visitors. As part of this commitment, GT requires that Suppliers used for on-site contract facility services must attend a safety training session prior to on-site work, which is then reviewed on an annual basis thereafter. In addition, all suppliers that work on site or visit GT facilities will be required to show evidence of current liability and workers compensation insurance with appropriate waivers of subrogation and GT named as additional insured. GT requires that all employees, visitors and contractors comply with our personal protective equipment requirements, including the use of protective eyewear and safety shoes in designated areas of the facilities. Local safety coordinators will provide further direction on specific requirements for each individual facility during the annual safety training.

Suppliers shall ensure that their employees and sub-tier suppliers are aware of their contribution to product safety and safety others as they perform their activities.

7. Performance Expectations

GT strives for a goal of zero defects and 100% on time delivery. Any issue that arises from a supplier facility which may jeopardize either of these goals should be communicated immediately to GT through the appropriate Supply Chain contact, both verbally and in written correspondence. A defect is defined as a non-conformance to the GT print, material specification, or purchase order / contract requirement. GT expects the suppliers' top management to share its commitment of meeting customer quality & delivery expectations through continuous improvement. The suppliers which demonstrate a commitment to innovation and deliver results which meet or exceed our performance expectations will have the opportunity to grow with Greene, Tweed, & Co. as we expand in the global marketplace.

8. E-Business Capability

At a minimum, suppliers shall have e-mail, internet access with internet browser, and document scanning capabilities for which to conduct business with GT. Digital photo capabilities are highly recommended in order to facilitate rapid response to some issues.

9. Supply Chain Communications

The GT Supply Chain Sourcing and/or Procurement Specialists are the designated points of contact for communications with suppliers. The Supply Chain Sourcing and/or Procurement Specialists should always be copied on any communication between a supplier representative and any other GT functional department (e.g. Engineering, Quality, Planning, Customer Service, etc.). Suppliers should have a dedicated primary point of contact with at least one back up contact in the case of being out of the office or during emergencies.

The following are types of day to day communications with the suppliers and the expected response times:

- Request for Quote (RFQ) – Response expected within 2 business days for all suppliers except OSP (Outside service providers). OSP quotes are those where GT will supply material and/or parts for processing and require response within 1 business day.
- Acknowledgement of purchase orders – Response expected within 1 business day indicating concurrence with costs, requirements, and delivery dates.
- Expedite requests – Response expected within 4 hours.
- OOR (Open order reports) – Response expected within 2 business day verifying the delivery status for all orders scheduled for the next 4 weeks.
- Supplier Surveys, proof of insurance, NDA's, and evidence of quality management system certifications – Completion & return expected within 2 weeks.
- Corrective action requests – Response expected within 1 business day with containment activities, 15 calendar days for the completed corrective action response plan unless otherwise specified by GT. GT reserves the right to conduct an on-site verification audit of the corrective action effectiveness.

Suppliers shall ensure that their employees as well as their sub-tier suppliers are aware of their contribution to conformity of the product or service and to product safety.

Additionally, in the case that a supplier finds an issue or has a concern with a product that will be supplied to GT, the supplier needs to contact their GT Supply Chain Sourcing and/or Procurement Specialist as soon as possible to drive the resolution of the issue and not wait until the delivery date. Open communications from both GT & the supply base is critical to our mutual success.

10. Supplier Audits & Visits

Per the purchase order terms & conditions, GT Supply Chain shall be allowed to visit and/or audit the quality of work, services performed, and material produced for GT at the supplier's office, manufacturing facilities, and warehouses. GT Supply Chain may also visit or audit at any level of the supply chain the sub-tier supplier offices, manufacturing facilities, and warehouses in accompaniment of a Tier 1 supplier representative. Audits and visits may also include representatives of other GT departments, representatives of our customers, or government personnel. Audits would be conducted in respect to the products and/or materials being procured under purchase order or supplier contracts, and a review of delivery, quality programs, and stock levels of both dedicated and standard inventory items. All suppliers must understand that such audits & visits may be mandated as part of the GT Quality Management System per ISO9001 & AS9100 or in accordance with specific GT customer requirements.

11. Regulatory Compliance

One of Greene Tweed's Commitments and Principles is to “conduct ourselves to the highest ethical and legal standards”. To that end, Greene Tweed is committed to complying with ever-changing, global, regulatory and consumer environmental, health, and safety (EHS) requirements, including the US Environmental Protection Agency’s Toxic Substances Control Act (TSCA) and the European Union's Restriction of Hazardous Substance Directive (RoHS) and Registration, Evaluation, Authorization and Restriction of Chemical substances (REACH), and ITAR (International Traffic in Arms Regulations). To assist in this effort, a Compliance Management System is used to help Greene Tweed address the specific areas of concern. The purpose of our Compliance Management System is to help ensure that rules are observed, violations are detected and remedied in a timely manner and that we comply with statutory obligations. Suppliers may receive requests for surveys, material safety data sheets (MSDS) or safety data sheets (SDS), and/or requests for specific vendor compliance certification to support GT compliance with current regulations in the markets GT serves. Links to Regulatory Information can be found in Section 41 of this handbook.

Conflict Minerals – On August 22, 2012, the United States SEC adopted its final rules implementing Section 1502 of Dodd-Frank, regarding “Conflict Minerals”. The act is aimed at preventing human rights violations in conflict regions originating in the Democratic Republic of the Congo (DRC). This ruling will require supplier verification of sourcing for four types of rare metals: tin, tantalum, tungsten and/or gold as part of that commitment. Although GT is not subject to SEC filings, our customers do require that Greene Tweed provide updated smelter information on our products on an annual basis. Therefore Greene Tweed will annually request this information from our suppliers to meet with our customers’ expectations. The supplier shall notify GT in writing in the event they become aware of any reason to believe that goods they supplied are not DRC Conflict Free. A list of compliant smelters and refiners can be obtained from the website <http://www.conflictreesourcing.org>.

REACH (Registration, Evaluation, Authorization and Restriction of Chemicals) – REACH is a regulation of the European Union (EU), adopted to improve the protection of human health and the environment from the risks that can be posed by chemicals, while enhancing the competitiveness of the EU chemicals industry. In principle, REACH applies to all chemical substances; not only those used in industrial processes but also in our day-to-day lives, for example in cleaning products and paints as well as in articles such as clothes, furniture and electrical appliances. Therefore, the regulation has an impact on most companies across the EU.

REACH places the burden of proof on companies. To comply with the regulation, companies must identify and manage the risks linked to the substances they manufacture and market in the EU. They have to demonstrate to the European Chemicals Agency (ECHA) how the substance can be safely used, and they must communicate the risk management measures to the users. If the risks cannot be managed, authorities can restrict the use of substances in different ways. In the long run, the most hazardous substances should be substituted with less dangerous ones.

TSCA (Toxic Substances Control Act) – TSCA was enacted in 1976 by the United States Congress and placed under the management of the Environmental Protection Agency (EPA). The Act provides the EPA with broad authority to require reporting, record-keeping and testing requirements, and restrictions relating to chemical substances and/or mixtures as they may pose potential threats to the occupational workforce, the public, and the environment. Since 1976, all new chemical substances (i.e., substances placed into commerce since 1976) have required registration with the EPA prior to manufacture or importation. Currently there are roughly 83,000 compounds on the TSCA inventory. The United States EPA has authority to ban the manufacture or distribution in commerce, limit the use, require labeling, or place other

restrictions on chemicals that pose unreasonable risks. Among the well known chemicals the EPA restricts under TSCA are asbestos, chlorofluorocarbons (CFCs), and polychlorinated biphenyls (PCBs), and many other chemicals.

Although the Act is very complex, the following areas are normally of the most concern and can have the greatest impact on Greene, Tweed's operations and business:

1. Import Certification
2. Export Notification
3. Pre-manufacture Notification (PMN) & Notice of Commencement (NOC)
4. Significant New Use Rule (SNUR) & Significant New Use Notice (SNUN)
5. R&D Exemption
6. Polymer Exemption
7. Allegations of Adverse Reactions & Notice of Substantial Risk

ROHS (Restriction of Hazardous Substances) – It is a directive adopted by the member countries of the European Union to control the use of six hazardous substances in the manufacturing of electric and electronic equipment. The six regulated substances are cadmium, hexavalent chromium, lead, mercury, polybrominated byphenyls (PBB), and polybrominated diphenyl ethers (PBDE). RoHS is closely linked with the Waste Electrical and Electronic Equipment Directive, commonly referred to as "WEEE". RoHS and WEEE apply to items placed in commerce in Europe and other countries which have adopted similar legislation.

ITAR (International Traffic in Arms Regulations) – United States Department of State export controls to prevent or limit the supply of controlled goods to countries proscribed, principally for reasons of proliferation, security, terrorism or human rights violations. ITAR provides regulations regarding the sale and/or transfer of defense articles. These regulations control the proliferation of weapons, weapon systems etc, to countries that are deemed not eligible to have such products.

12. Counterfeit & Fraudulent Material Prevention

In order to minimize the risk of procuring counterfeit or fraudulent material, the following requirements are invoked on all purchase orders to help ensure that conforming, authentic material is provided. These requirements to each of our suppliers are to be flowed down to each level of their sub-tier suppliers and be included in all lower tier subcontracts which result in delivery of parts to GT.

Definitions:

Suspect Part – A part in which there is an indication that it may have been misrepresented by the supplier, manufacturer, or service provider and may meet the definition of fraudulent or counterfeit part below.

Fraudulent Part – Any suspect part misrepresented to GT as meeting GT requirements, GT specification, or a designated source of supply.

Counterfeit Part – A fraudulent part that has been confirmed to be a copy, imitation, or substitute that has been represented, identified, or marked as genuine and/or altered by a source without legal right with intent to mislead, deceive, or defraud.

The supplier warrants that fraudulent or counterfeit material shall not be supplied to GT or be utilized in the manufacture of GT products by the supplier. The supplier warrants that only new, unused, authentic, genuine and legitimate materials shall be supplied to GT.

The supplier may only purchase or source materials directly from Original Component Manufacturers (OCM), OCM authorized (e.g. franchised) distributors, or aftermarket manufacturers as designated by GT print, specification or purchase order. Use, purchase, or the sourcing of items from non-OCM authorized independent distributors or brokers is not permitted unless first approved in writing by GT. The supplier must present compelling support for its request to use such non-OCM authorized suppliers for GT's approval (including but not limited to OCM documentation that authenticates supply chain traceability of the parts to the OCM) and include in its request all necessary actions it shall take to ensure those items thus procured are new, unused, authentic, genuine and legitimate materials.

The supplier shall maintain a method of traceability that ensures tracking of the supply chain back to the manufacturer of all items per Section 23 of this Handbook. This traceability method shall clearly identify the name and location of all supply chain intermediaries from the manufacturer to the direct source of each item for the Supplier and shall include the manufacturer's batch identification for the material such as but not limited to date codes, lot codes, serializations, or other batch identifications. Full supply chain traceability documentation may include but is not limited to OCM or OCM authorized distributor supplier certificates of conformity, purchase orders, test results, and inspection reports.

The supplier shall notify GT as soon as it becomes aware of any suspect, fraudulent, or counterfeit material which may have been supplied to GT, including any details in regards to the material traceability to the original source of supply and all supply chain intermediaries involved in the processing and/or movement of the materials. The supplier must also report any containment and corrective/preventive activities to GT.

13. Payment of Invoices

In accordance with the existing Greene, Tweed & Co. purchasing procedures, all invoices for goods and services from suppliers will not be paid unless there is a valid purchase order number referenced on the invoice.

A current list of GT credit references & company information is available to suppliers upon written request to the GT Supply Chain Sourcing and/or Procurement Specialist.

14. Terms & Conditions

Purchase order terms and conditions can be located on the GT internet web site as noted below:

<https://www.gtweed.com/terms-and-conditions/>

SOURCING

15. Supplier Approval

GT requires the following documentation to be in place prior to adding a supplier to the Approved Supplier List:

- Signed NDA (Non-Disclosure Agreement), except as noted in section 5.
- Completed supplier survey form (tooling, production component or service suppliers will use form # FR-GP-000-00.027, non-production related suppliers will use FR-GP-0000-00.029).
- Certificate of general liability insurance.
- Capability assessment (if required based on product type or service procured)
- A copy of any quality management system certifications for the facility supplying a product or service for GT such as ISO9001, ISO13485, ISO14001, AS9100, ISO/TS16949, ISO17025, etc. or proof of a documented quality system.

NOTE: We hold the supplier responsible to notify GT of any changes to QMS certification status including any loss of certification or decision not to renew, and to provide updated copies of certifications upon completion of renewal. Notification must take place within 30 days of the prior QMS certification lapse.

During the approval process or conditional acceptance period, GT Supply Chain may require an on-site audit of the manufacturing facility in order to fully approve the supplier or move them out of the conditional category. Once a supplier is approved, the above documentation will need to continue to be maintained and re-qualified on a set timeline in order for the supplier to continue to be used on the Approved Supplier List (ASL). This timeline for recertification is based on the risk category assigned to supplier for the type of product procured. A supplier which has passed the Conditional approval stage will be moved into a Qualified, or Preferred-classification.

Risk Level	Recertification Requirements	Impact	Examples
High	(1) Supplier Survey once per year, AND/OR (2) On-site visit or Supplier Audit Report if required by customer. (yearly, etc). Otherwise the audit requirement will be established based on annual supplier status review by SCM, SQE, &/or SCCM.	Direct impact on performance of the finished product which cannot be validated without destructive testing	Resins, raw material, molded product, special processes, sole source
Medium	(1) Supplier Survey every three years, OR (2) On-site Supplier Audit Report	Impact on performance of finished product but can be validated through non-destructive testing or inspection	O-rings, machined plastics/metals, tools, outside test labs
Low	Supplier Survey every 5 years	Little or no direct impact on the finished product	MRO, office or facility services

16. Supplier Classification

GT's approved suppliers are subdivided into three classifications based on historical quality & delivery performance as well as strategic value and competitive price of their products/processes.

- *Conditional* – The supplier has indicated the existence of a quality system adequate to assure compliance with GT purchase order terms and conditions and other requirements for products or services. The “conditional” status is in effect for a one year trial period to allow for a performance evaluation.
- *Qualified* – Approval has been given based on information provided through a desk top audit or an onsite audit by the SCM or SQE. A new supplier may be initiated into the system as “Qualified” if ISO (or other applicable program) certifications exist and copy of a valid certificate is provided or if low risk.
- *Preferred* – Supplier is in full agreement and acceptance of the GT specifications and purchase order requirements. Supplier consistently exhibits high performance in the areas of cost, quality, and on-time delivery. The supplier has demonstrated stability in materials and processes provided and can provide an action plan for continuous improvement process initiatives, leading to higher reliability, improved design and reduction of the total cost of ownership.

17. Supplier Metrics

Production & Tooling suppliers are monitored based on metrics of Quality & Delivery. Quality and Delivery are weighted equally; both categories contribute 50% to the final. The performance rating is based on Quality and Delivery information obtained at the time of receipt and acceptance at the facility, and will be assessed percentage points based on the following:

- **Quality:** This percentage rating is based on the number of Quality Notifications (QN's) for non-conforming material or documentation compared to the number of purchase order line receipts for the stated time period. Additionally, the supplier will be notified of their defects per million opportunities (DPMO) rating, which is the comparison of number of material units found defective from a QN compared to the overall number of material units received. The GT DPMO goal for that particular time period will be shared for comparison purposes
- **Delivery:** This percentage rating is based on the number of late line items per GT statistical delivery date in comparison to the overall number of PO line items.

The supplier performance evaluation program calculates the supplier ratings by averaging the values for Delivery and Quality for each PO receipt. These scores are totaled and then divided by the number of PO receipts. The quality, delivery, and overall rating scores for A and B spend suppliers of production materials and tooling on the Approved Supplier List are reviewed twice annually by the Supply Chain Sourcing and Procurement Specialists. A Supply Chain Manager may perform this task as an alternate. Copies of these evaluations are provided to the appropriate supplier contact in writing, twice annually, at the time of evaluation. The data used to calculate the supplier score will be available upon request to the supplier.

Suppliers who fall below the 95% level during an evaluation period, or have a sudden increase in quality or delivery issues may be requested to complete a Supplier Action Plan to return them to an acceptable performance level. Suppliers with continued under performance or with unacceptable response to their action plan may be suspended from the ASL and be blocked from future purchase orders.

18. Tool, Mold, & Fixture Builders & Surface Treatments

In addition to the supplier approval requirements per Section 15, all tool, mold, & fixture builders will also require completion of the Mold & Tool Shop Survey (form # FR-GP-0000-00.013) in order to be an approved supplier. Tools, molds, and fixtures will require an inspection report as detailed by the purchase order or print requirements. The purchase order or print may also require a copy of the material certification for the raw material. The tool, mold, and fixture builder must maintain documentation including the inspection reports and material certification in line with ISO9001 requirements.

The tool, mold, or fixture shall be permanently marked (e.g. stamped, engraved) with the GTC tool identification number and manufacture date on a non-critical surface as denoted by the print or purchase order.

Tools, molds, & fixtures being transported from a supplier to GTC must be packaged in a way which will protect and eliminate the potential for in transit damage to the tool, mold, or fixtures critical working features.

DELIVERY

19. Packaging, Labeling, & Routing Requirements

All products shipped to GT by a supplier or outside processor must be packaged & transported in a means which will protect it against transit and storage damage, deterioration, contamination, as well as against any other condition that would render the product unfit for its intended purpose. The packaging shall be designed to protect the product taking into account the product weight, size, geometry, physical and chemical properties in order to eliminate the potential of being unfit for intended usage. Metal components and soft materials (such as PTFE) specifically shall not be packaged loosely or in a way which could cause damage in transit from parts coming in contact with each other, such method may include individual use wrapping, boxing, tubing, or egg crating of parts. Additional packaging requirements may be required per the purchase order or engineering drawing. A supplier label shall be applied to each package shipped to a GT facility with all label information legible and readable. Each package should be segregated by both part number and batch/lot code, not mixing multiple batch/lots or part numbers in the same package. Each label must contain the following information:

- GT part number & revision level
- GT purchase order/contract number
- Quantity & unit of measure
- Part Description
- Batch/lot number & manufacture date
- Supplier name & manufacturing address (including Country of Origin, or predominant origin)
- GT receiving facility address
- Packing List requirements as required per the purchase order

Packages drop shipped to locations other than GT facilities will need to follow instructions as given by the GT purchase order.

Be aware that any expedited shipment methods which would be charged at GT's expense require written authorization by GT Supply Chain prior to shipping.

The GT Supplier Routing Guide details the requirements that suppliers must follow to ship material to GT locations and to our subsidiaries. This Supplier Routing Guide affects all suppliers that do business with GT and affects any product that could be shipped to any GT facility, Third party location or direct shipment. It is the responsibility of the supplier to ensure they have the most up to date version on hand and that it's followed by the necessary department. The Supplier Routing Guide includes updated details on GT receiving locations, GT logistics & customs brokerage contacts, and transportation routing instructions.

The latest release Supplier Routing Guide is available via the Greene, Tweed & Co. external website.

<https://www.gtweed.com/supplier-information/>

20. GT Incoming Receiving Requirements

In addition to the packaging and labeling requirements noted in the Section 19, the following requirements must also be fulfilled in order to receive and invoice any product shipped to GT.

- All paperwork provided must be legible & readable.
- All quantities on packing list paperwork and the physical counts must match each other.
- Any product drop shipped from a third party must include the GT purchase order in the packing list, not the purchase order between the Tier 1 supplier and the third party.
- All turnkey/custom finished products must include an inspection report which fulfills the requirements of Section 21 of this Handbook.
- A certificate of compliance (C of C) will be required for any part which has a revision controlled GT print or GTS specification, which states the drawing &/or specification number and revision level to which the material was manufactured, the date of manufacture, the country of origin, GT purchase order number, and the heat/lot/batch the material was manufactured from.
- If any special processes were performed in alignment with print or specification requirements (ie. plating, passivation, heat treatment, welding, etc.) then these shall be noted on the Certificate of Compliance from the entity performing these processes stating the specification and revision or the process parameters they were completed under.
- All supplier & sub-tier special process supplier C of C's will be required to be signed and dated by hand or signed electronically for signature authorization. Typed C of C's with a printed name on the signature line will not be accepted. The C of C shall state the name and address of the supplier or sub-tier supplier whom provided the product or service.
- Metal components must include mill certification with material test report of physical & chemical properties, as well as detail for melt process, anneal condition, etc. The material test report must detail both test method used & units of measure (reference EN10204 Type 2.1 & 2.2) including the date of manufacture.
- Any stock shape thermoplastic or elastomer must include material test report which includes criteria required per GT material specification (reference EN10204 Type 2.1 & 2.2), including the date of manufacture and/or cure date.
- All purchased resins, compounds, & chemicals shall include a material specification sheet in the packing list.
- The supplier must state the Country of Origin on both the shipping documentation and on the invoice, in order to comply with all applicable trade regulations where GT conducts business. If the products contain parts and components of various origins then please supply GT with the predominant origin or a percentage of the product origin breakdown.
- Any completed product returned by an OSP (Outside Service Provider) must include the GT router and match up on the receiving paperwork with date of service provided, if initially sent with order.
- All MRO (Maintenance, Repair, & Operations) contracts must be signed by a company officer.
- All VMI (Vendor Managed Inventory) contractor quotes & purchase orders must be routed through Supply Chain for approval.
- All P-card transactions must have 'attention to' contact listed on packaging. Please note that any chemicals, adhesives, curatives, fillers, reactors, metals, fibers, plastic pellets, or any other item that can be construed as a 'chemical substance' must be procured under a GT purchase order and not a P-card transaction per Section 34.

QUALITY

21. Supplier Inspection Requirements

Part inspection requirements may be detailed on the purchase order, the engineering print, or the material specifications and specify either an AQL sampling level per ANSI standard Z1.4, 100% inspection, or refer to a specific customer requirement. If parts are being inspected to an AQL sampling level, then C=0 will be used so that if any non-conforming conditions is found then 100% inspection is required to be put in place. All inspection measurements shall be conducted using the appropriate equipment which has been calibrated in accordance with a recognized standard (such as ISO10012 or ANSI/NCSL Z540.3). When not otherwise specified, the inspection report shall default to an AQL 1.5 C=0 sampling plan (reference table below). Each inspected sample from the AQL shall have its own individual data recorded on the inspection report. High and low results only for a group of parts will not be acceptable. Parts for the AQL sampling plan should be measured periodically from throughout the entire production run and thus capture if the process starts to deviate from control and/or specification limits.

ANSI/ASQ Z1.4 1.5 AQL, C = 0			
Lot size	Sample Size	Acc	Rej
1 - 8	100%	0	1
9 - 90	8	0	1
91 - 150	12	0	1
151 - 280	19	0	1
281 - 500	21	0	1
501 - 1200	27	0	1
1201 - 3200	35	0	1
3201 - 10,000	38	0	1
10,001 - 35,000	46	0	1
35,001 - 150,000	56	0	1
150,001 - up	64	0	1

Part inspection reports shall include all requirements specified on GT print, purchase order, and/or contract including the specified tolerance, maximum, or minimum condition. The measurement method used shall be noted in the inspection report (e.g. calipers, CMM, tensile tester, visual, etc.) and shall be appropriate to the type of attribute being inspected. The name of the person who completed the inspection should be clearly stated on the inspection report. Measurable results must be actual readings (statements like 'OK' or a check mark shall not be accepted). The use of ditto marks, correction fluid or correction tape is not allowable. Where results based on attribute data is required (e.g., go/no-go gages) the inspection data sheet should clearly state either 'Pass' or 'Fail'. Inspection records shall be retained and identified by material batch/lot number so that these may be readily accessible if requested.

It is highly recommended to incorporate the following guidelines into your inspection practices:

- The piece used for First Piece Inspection approval should be individually packaged and identified and the measurements for this part denoted on the inspection report. This piece may then be used to verify alignment between supplier and GT measurement results.

- Statistical Process Control (SPC) data such as Cp and Cpk should be calculated and submitted with the inspection report for each measurable & tolerance attribute.
- First Pass Yield (FPY) for the production run should be calculated and submitted with the inspection report and can be calculated as follows:

$$1^{\text{st}} \text{ Pass Yield \%} = \frac{N - (S + R)}{N} \times 100$$

N = Number of parts which ran through process

S = Number of parts which were scrapped during process

R = Number of parts which required rework during process

On a periodic basis GT may conduct a product configuration audit (PCA) in order to confirm a certificate of compliance. This may include either internal or third party analysis for verification of material composition.

22. First Article Inspection Requirements

A First Article Inspection Report (FAIR) may be required to be submitted to GT for a variety of circumstances during the life of a part. These circumstances may include, but are not limited to, the following: new Part Number Add (PNA), Engineering Change Notification (ECN), change of supplier, quality issues, supplier process change or sub tier process change, GT customer request, long time duration between builds, deviation/waiver, industry specific requirements (i.e. Aerospace or Semiconductor). GT requirements for first article inspection reports will be communicated to the supplier in the purchase order or contract per GT procedure WI-GP-00-06.016. When requested, the FAIR must be completed using form FR-QA-0000-00.007 and must be included in the packing list accompanying the parts.

For parts supplied to the aerospace or semiconductor industry a part is considered 'locked in' by the first article inspection and must adhere to 'Copy Exact' guidelines as noted in Section 28. Any change in process, including sub tier processes, will require prior notification and approval by GT Supply Chain.

23. Product Traceability, Acceptance Authority Media, & Identification Marking

The supplier must maintain product traceability throughout all steps of the manufacturing process including all sub-tier processing. All GT suppliers must have a batch/lot identification system that distinguishes one batch/lot of material from another and which must include traceability to the direct source of the raw material lots. The traceability documentation must be able to identify the name and location of the source of the raw material lot as well as all supply chain intermediaries such as distributors or brokers or secondary process suppliers. If the supplier determines that lot traceability has not been maintained, they are to immediately contact GT and perform adequate containment of nonconforming material.

Acceptance Authority Media (AAM) is any media used to record the status of tasks/operations on product or product records during and upon completion of development, manufacturing, modification, or repair. Examples of AAM are stamps, electronic signatures, or passwords which establish appropriate controls for signoff & approval. The supplier is responsible for auditing their processes for any AAM application errors (omissions, typos, legibility), ensure it is used in a timely manner (ie. stamp or sign as you go and not only at the end of process), and ensure no AAM application misrepresentations occur (eg. uncertified personnel, falsification of documentation, work not performed as planned). AAM application training should occur

which adequately communicates subjects such as ethics and proper use of AAM. Assessment of AAM application is an area of special interest to be flowed down with all sub-tier suppliers.

The supplier shall ensure that all supplied product have part identification legibly marked per requirements and method specified by the GT purchase order and engineering print. If a question or any doubts exist on the application of these requirements, please contact your GT Supply Chain contact for clarification.

24. Part Cleanliness & Workmanship

All supplied parts, including those returned from outside processing, shall be free of corrosion, tarnish, or any other surface contamination that is detrimental to the item's appearance or functional performance. Any part not meeting this requirement shall be subject to return to the supplier. All parts should be deburred as required and specified per the print, router, or purchase order.

All supplied heat treated metal components shall have a clean metallic finish and be free of any discoloration or scale due to the heat treating process. For any metal components, no weld repair of parent material is allowed.

Suppliers shall ensure that their employees and sub-tier suppliers are aware of their contribution to conformity of the product or service supplied.

25. Non-Conforming Material & Quality Notifications

Products identified as non-conforming by GT are segregated and identified by a Quality Notification (QN) and/or a red rejection tag. The disposition of the non-conforming product will be documented on the QN and the QN will be used to communicate information between GT and the supplier.

If a supplier of a subcontracted process using material supplied by GT identifies a material as non-conforming, then the material should immediately be segregated by the supplier and the GT Supply Chain Sourcing and/or Procurement Specialist or SQE be contacted for further action. If a decision to proceed with the material is given by GT, then the supplier shall document this in the packing list documents upon material return to GT.

26. Corrective & Preventive Actions

Where requested and or found necessary Supplier Corrective Action Requests (SCAR) and Preventive Action Requests (PAR) are used as a mechanism to ensure that the documented condition of the non-conformance has been investigated, that the causes have been identified, and that the defined corrective action will prevent reoccurrence. In addition, a SCAR/PAR will be issued where a follow-up evaluation is needed on a QN and Returned Goods Authorization (RGA).

A SCAR request will be issued to the responsible supplier upon the GT disposition of the non-conforming material or condition. The supplier receiving the corrective action will complete the following by the due dates assigned:

- Implement immediate containment actions which would include increased detection measures to identify and keep further defective material from reaching GT. This would also include identifying the scope of the suspect material by batch/lots, and then segregating all suspect inventory including work in progress (WIP) and raw material.
- Identify and define the Root Cause using such techniques as 5 Why, Fishbone Diagram, and/or Pareto analysis in order to verify you are not treating only a symptom of the issue. The following questions will need to be answered: How was the defect created in the manufacturing process? Why was the defect not detected during inspection process? What is the earliest point in the process where the problem could have been detected but was not? Are there potentially multiple root causes interacting?
- Based on root cause define the best solution to implement in order to eliminate the issue at the source. Take into consideration potential undesirable side effects of your corrective action. Define what metrics can be used to verify if it is successful. Will the corrective action affect 'Copy Exact' rules as identified in Section 28?
- Verification and validation of the corrective action should be able to demonstrate the ability to turn the problem on and off.
- As part of the verification of the corrective action effectiveness a new first article inspection report (FAIR) may be required. All supplier documentation of the manufacturing and/or inspection processes (e.g. routers, work instructions, inspection plans, maintenance plans, etc) will need to be updated including training records to officially communicate the change.
- Verify if the corrective action can be standardized across similar products and document lessons learned so that future product will not have the same issue.

Corrective action responses should be returned to the Supply Chain Sourcing and/or Procurement Specialist and SQE via e-mail (supplier.quality@gtweed.com). Any parts that are requested to be reworked to bring into specification should also have a copy of the QN attached by the supplier to identify such parts as rework from a prior issue when returned to GT.

The timeliness of the SCAR process, and actions to take when timely and/or effective actions are not achieved, is as follows:

'Closure' of the SCAR is dependent upon when objective evidence is available to support an adequate evaluation of effectiveness and will vary in length. The action(s) to be completed and the time frame is determined by the responsible persons for each action.

The action plan for each SCAR is reviewed for effectiveness by the GT Site Review Committee & the SQE. SCAR's that are deemed not effective will be returned to the responsible party for additional action plans to implement lasting and effective solutions.

27. Supplier Change Notification

If there is a change to the suppliers manufacturing location, utilized equipment, design, raw material composition or properties, sub-tier supplier or processing provider, then GT's Supply Chain needs to be informed of the details in writing with the maximum amount of time possible, not less than 12 months before such change is implemented. The details and justification for the change are to be documented and submitted to your GT Supply Chain Sourcing and/or Procurement Specialist for internal routing and approval.

Suppliers shall notify GT of any changes to their QMS certification status including any loss of certification or decision not to renew, and to provide updated copies of certifications upon completion of renewal. Notification must take place within 30 days of the prior QMS certification lapse.

Suppliers shall notify GT if their company is acquired or merged with another business entity that results in a change of name and date of effectivity. Repercussions to current GT business should be detailed as applicable. Suppliers shall notify GT if they change payment methods (bank accounts, TIN, etc.)

28. Continuity of Supply & Change Control Requirements

GT supplies customers in the semiconductor industry which require adherence to 'Copy Exact' guidelines, however GT expects this notification process for all supplied products. Copy Exact is a disciplined approach for design and process change management throughout the supply chain and ensures true interchangeability of components and spare parts. This includes:

- **Physical Interchangeability (form and fit)** – Equivalent parts capable of being installed, removed or replaced without sustaining or causing damage, misalignment, or interference.
- **Functional Interchangeability** – Parts equivalent in safety, characteristics of operation, performance, durability, serviceability, structural strength, material and protective finish.

GT has an obligation to our customers to control all of our products and processes throughout the supply chain. These customers demand prior notification and approval for any changes to design, process, equipment, location of manufacture, source of supply or materials for products we supply them. Once a process is approved through acceptance of the First Article, it is considered 'locked in' as the 'Process of Record' (POR) or 'Process Qualification Program' (PQP). However, these rules apply to all parts whether or not a formal POR or PQP exist. Aspects of a product which fall under 'Copy Exact' rules include specifications, ingredients, particle size, particle shape, manufacturing/construction/assembly process, location of manufacture, equipment used in manufacturing, and the use of subcontracted parts, materials or services. Any material reformulation per the above criteria must be communicated to the GT Supply Chain with a minimum 12 months advance notice prior to ceasing the old formulation in order for GT to qualify a new or alternate formulation, and also to be able to purchase a bridge quantity of material for use during the qualification process.

Specific Copy Exact training is available through the external GT website (<http://www.gtweed.com/supplier-information/>) and will be mandatory on an annual basis for completion for all suppliers involved in the Semiconductor sector.

29. Sub-Tier Quality Assurance

It is GT's requirement that Tier 1 suppliers maintain responsibility for all sub-tier suppliers and processing providers, including flow down of purchase order requirements.

- ISO9001 Requirements – Control of documents and records, identification and traceability, control of monitoring and measuring equipment, control of non-conforming material, corrective and preventive action requirements must be flowed down to sub-tier processes in order to verify good product, reduce potential for error, and contain any suspect batch lots.
- Copy Exact Requirements – Process of Record requirements as noted in Section 28 must be flowed down to sub-tier suppliers.
- Sub-Tier Special Processes & NADCAP Requirements – Certain end customers of GT may require additional NADCAP certification on sub tier sources that perform special processes. Such special processes may include but are not limited to chemical processing, coating application, composite materials, machining, heat treating, material testing, non-destructive testing, and welding. If applicable, these requirements may be noted in the purchase order, contract, or engineering print and adherence must be strictly enforced.
- Test Laboratories & Calibration – Sub-tier sources for testing are required to be certified to ISO17025 with a scope which includes the type of testing being performed. All inspection measurements which take place at a sub-tier facility shall be conducted using the appropriate equipment which are calibrated in accordance with a recognized standard (such as ISO10012 or ANSI/NCSL Z540.3).
- AAM Application - Requirements as noted in Section 23 must be flowed down to sub-tier suppliers.

Suppliers shall ensure that their sub-tier suppliers are aware of their contribution to conformity of the product or service, to product safety, and to the importance of ethical behavior.

30. Deviation & Waiver Requests

In the case that the supplier identifies a non-conformance or otherwise questionable attribute in their supplied product, they will need to submit a supplier deviation/waiver request (SDR form # FR-GP-0000-00.012) to allow shipment to GT. The supplier should contact their GT Supply Chain Sourcing and/or Procurement specialist to notify them of the situation and request a GT SDR form (latest revision form to be provided by GT Supply Chain). On this form the supplier shall provide as much detail as possible including the part number, lot number, quantity, purchase order number, description of the nonconformance, root cause & corrective action, the "Requested By" person and date, then submits this to GT Supply Chain for evaluation prior to shipping the product to GT. The supplier should also include at this time any information on lead time for new product if the deviation/waiver request is rejected.

Upon disposition of the deviation/waiver, the GT Supply Chain Sourcing and/or Procurement specialist will contact the supplier and notify them on the acceptance or rejection. If the deviation/waiver request is accepted, then a signed copy of the form will be e-mailed or faxed to the supplier which will allow them to ship the parts. A copy of the signed deviation/waiver form must be included and stapled to the front of the packing list documents when shipping the product to GT.

In some cases, a disposition cannot be made until the discrepant parts are looked at by GT Engineering. In these circumstances, the GT Supply Chain Sourcing and/or Procurement specialist shall notify the supplier

that they should ship parts for investigation. A copy of the unapproved deviation/waiver shall be included and stapled to the front of the packing list documents with a note in the approval box stating 'Approval pending GT investigation, Send to MRB'.

31. Supplier Request for Engineering Change

In the case that a supplier is having an ongoing issue problem or believes there is an unfeasible specification or requirement for a product that they have been contracted, a procedure for requesting engineering change has been established (GT procedure WI-GP-00-06.018). The supplier should request from the appropriate GT Supply Chain Sourcing and/or Procurement specialist the current revision of form FR-GP-0000-00.016 to document the proposed change and the repercussions of making or not making the change. The GT Supply Chain Sourcing and/or Procurement specialist will forward the request to the Engineering personnel responsible for consideration, and if approved then the request will result in change to the specification and/or drawing. Upon release of a change the next open purchase order may include a request for a first article inspection to be submitted. If the change is not approved the GT Supply Chain Sourcing and/or Procurement specialist will contact the supplier and the appropriate business decisions will be made regarding existing orders in accordance with GT requirements.

32. Supplier Configuration Management & Part Obsolescence

The GT purchase order is the only document which specifies the acceptable part configuration to be produced. Only product made to the drawing revision level and/or material specification level noted on the purchase order may be provided. It is the supplier's responsibility to verify the documents used to manufacture and inspect the parts are at the correct revision level matching the purchase order. If there is an issue with being able to produce to the purchase order revision level noted, then GT Supply Chain needs to be notified by the supplier immediately in order to correct the situation.

In the case that the supplier has stock on hand of a prior revision level part, these parts will need to be segregated from production and GT Supply Chain needs to be immediately notified for disposition activities.

33. Control of Records

Record control & retention related to GTC purchase orders and product shall be in accordance with the supplier's standard procedure for control of records, and such procedures must meet, at a minimum, the requirements of ISO 9001. Any product which is manufactured for the aerospace industry must meet control of record requirements per AS9100. Records shall remain legible, readily identifiable and retrievable within 72 hours of GT's request to the supplier. Records shall be retained and remain available for review for a minimum period of 10 years after completion of the work of GT's purchase order unless otherwise specified by the purchase order and/or specifications.

34. Continuous Improvement

GT is committed in the Continuous Improvement of our products, processes, systems, and people. The culture of Continuous Improvement is vital to the development and growth of our supply base for the mutual benefit of the supplier and GT. Tools that can effectively be used to promote Continuous Improvement include:

- Attainment of a quality system certification
- Use of Lean sigma & six sigma tools
- Error-proofing equipment for quality and safety
- Process mapping, Fishbone, 5 why concepts
- 5S workplace organization
- Design & process FMEA's (Failure Modes & Effects Analysis)
- Preventative maintenance program
- Monitoring of SPC (Statistical Process Control) for capability of process
- Waste analysis (Muda)
- 8D problem solving methodology
- Analysis of First Pass Yield

GT has a number of resources which can help suppliers identify opportunities for improvement and growth regardless of the size and scope of the supplier, and encourage our supply base to engage us in their continuous improvement activities.

35. Chemical Substances, Adhesives, & Other Shelf Life Materials

All shelf life material shall be permanently marked on the container &/or packaging with the following information:

- Lot traceability identification
- Date of expiration or best if used by date
- Any storage conditions to achieve shelf life, if not stated on material package

Upon receipt at GT, any shelf life material must have greater than the specified minimum amount of life remaining as identified in the GT specification or purchase order. The date of manufacture is defined as the date the product completes all production processes required to make it usable for its intended purpose. The date of manufacture should be traceable by batch/lot identification.

Chemicals, adhesives, curatives, fillers, reactors, metals, fibers, plastic pellets, or any other item that can be construed as a 'chemical substance' must be procured via a GT purchase order so as to maintain traceability within the GT system in alignment with industry standards and regulatory requirements (ie. REACH, RoHS, TSCA, Conflict Minerals), and shall not be procured via a P-card transaction (Visa, Amex, etc) or as undocumented samples.

36. GT Owned Material (Subcontract & Consignment)

Subcontract materials are shipped to and stored at Suppliers on an as needed basis/quantity and inventory shows in Supplier's warehouse location in SAP. Material is not to be utilized for customers other than GT, unless expressed written consent including terms of this usage has been given through GT Supply Chain. Materials owned by GT should be clearly marked and properly stored.

Suppliers shall establish and maintain documented procedures for storage, use and inventory reconciliation. Suppliers shall store materials in appropriate/climate controlled environments when required.

Materials are consumed upon receipt of the PO for the finished product at the GT facilities. Quantities for this material (components) are displayed on the PO's and Supplier should notify of discrepancies, over or under consumption and scrap per order to aid in inventory reconciliation. . Inventory accuracy is a joint effort between Supplier and GT and should be reconciled on a monthly basis.

37. GT Owned Tooling

Tooling paid for by GT and used at a supplier facility may not be utilized for customers other than GT, unless expressed written consent including terms of this usage has been given through GT Supply Chain. Tooling owned by GT should be clearly marked as GT property. Any GT owned tooling must be surrendered back to GT upon request.

The supplier shall establish and maintain documented procedures for the verification, storage, and maintenance of GT supplied tooling. Any damage or loss of such tooling shall be immediately reported to the GT Supply Chain.

New GT owned tooling will require production approval qualification prior to use. The supplier must notify GT Supply Chain when new tooling is required in order to provide the qualification requirements for production approval.

38. Sample Material Policy

No sample product or substance (whether solicited by GT employee or unsolicited) will be allowed within any GT facility, production process/product, or R&D process/product, regardless of method of transport (hand carried by supplier representative, distributor, or GT employee, UPS, Fedex, etc.). Any materials entering a GT facility must be procured via a GT purchase order and include documentation in alignment with Section 20.

REFERENCE

39. Acronyms & Glossary of GT Terms

A3 Problem Solving – Single page (11x17) corrective action reporting format
 A Suppliers – Suppliers who make up the top 80% of overall GT spend (80%, 15%, 5% in spend analysis)
 AAM – Acceptance Authority Media (eg. Stamps, electronic signatures, passwords)
 AIAG – Automotive Industry Action Group (specification source)
 ANOVA – Analysis of Variance
 ANSI – American National Standards Institute (specification source)
 APQP – Advanced Product Quality Planning
 AQL – Acceptance Quality Level
 ASME – American Society of Mechanical Engineers (specification source)
 ASN – Advance Shipment Notification
 ASTM - American Society for Testing and Materials (specification source)
 ATG – Advanced Technology Group
 B Suppliers – Suppliers who make up the middle 15% of overall GT spend (80%, 15%, 5% in spend analysis)
 BOM – Bill of Material
 C Suppliers – Suppliers who make up the bottom 5% of overall GT spend (80%, 15%, 5% in spend analysis)
 CAR – Corrective Action Request
 CDOV – Concept, Design, Optimize, Verify
 CE – Central Engineering
 CER – Central Engineering Request
 CI – Continuous Improvement
 CMM – Coordinate Measuring Machines
 C of C – Certificate of Compliance
 COO – Country of Origin
 COPQ – Cost of Poor Quality
 COTS – Commercial Off The Shelf
 Cp & Cpk – Process Capability Indicators used in Statistical Process Control
 DDTC – Directorate of Defense Trade Controls
 DFM – Design for Manufacturability
 DFMEA – Design Failure Modes & Effects Analysis
 DFSS – Design for Six Sigma
 DHM – Design Hand off Meeting
 DMAIC – Define, Measure, Analyze, Improve, Control which is Six Sigma problem solving methodology
 DMADV – Define, Measure, Analyze, Design, Verify which is a Six Sigma problem solving methodology
 DOE – Design of Experiments
 DPD – Digital Product Definition
 DPM – Defects per Million, sometimes also referred to as PPM (Parts per Million defective)
 DPMO – Defects per Million Opportunities
 DWR – Deviation Waiver Request
 EAR – Export Administration Regulations
 ECHA – European Chemicals Agency
 ECN – Engineering Change Notification
 EDI – Electronic Data Interchange
 EICC – Electronic Industry Citizenship Coalition (released Code of Conduct, now RBA)

EHS – Environmental, Health, & Safety
EMA – Electro Mechanical Assembly
EN – European Standard (specification source)
EPA - United States Environmental Protection Agency
FAIR – First Article Inspection Report
FAR – Federal Acquisition Regulation
FIFO – First In First Out, process for inventory usage
FMEA – Failure Modes & Effects Analysis
FPY – First Pass Yield, quality rate of parts made which do not require any rework, repair, retest, or scrap
FV – Future Value
Gage R&R – Gage Repeatability & Reproducibility, statistical analysis of inspection method to verify consistency
GD&T – Geometric Dimensioning & Tolerancing
Go/No-Go – Pass/fail criteria for inspection, attribute inspection for compliance
GT or GTC – Greene, Tweed, & Co.
HMP – High Melting Point
HPHT – High Pressure High Temperature
ICE – Incremental Center of Excellence
ICS – Internal Compound Specification
IDDOV – Identify, Define, Develop, Optimize, Verify which is a Design for Six Sigma methodology
IP – Intellectual Property, confidential company information
ISO – International Organization for Standardization (specification source)
ITAR – United States Department of State International Traffic in Arms Regulations
JIS – Japanese Industrial Standard (specification source)
Kaizen – Localized, small scale continuous improvement projects
KPI – Key Process Indicator
Lean Sigma – Strategy to eliminate waste in order to improve delivery performance & reduce cost
LOI – Letter of Intent
LSS – Lean Six Sigma
LTA – Long Term Agreement
MIL-STD – Military Standards (US Department of Defense)
MOQ – Minimum Order Quantity
MRB – Material Review Board
MRO – Maintenance, Repair, Operations
MRP – Manufacturing Requirement Planning, production scheduling tool
MSA – Measurement Systems Analysis, technique used to quantify the capability & precision of a measurement system
MSDS – Material Safety Data Sheet
MTR – Material Test Report/Results
NADCAP – National Aerospace & Defense Contractors Accreditation Program (specification source)
NCR – Nonconformance Report
NDA – Non-Disclosure Agreement
NDT – Non-Destructive Testing
NPD – New Product Development
OCM – Original Component Manufacturer
OEM – Original Equipment Manufacturer
OSHA – United States Department of Labor Occupational Safety & Health Administration
OOR – Open Order Report

OSP – Outside Service Provider
P Card – Purchasing credit card
PAR – Preventive Action Request
PCA – Product Configuration Audit
PC&P – Petro Chemical & Power
PDCA – Plan, Do, Check, Act problem solving discipline
PER – Process Engineering Request
PFD – Process Flow Diagram
PFMEA – Process Failure Modes & Effects Analysis
PM – Preventative Maintenance
PNA – Part Number Add
PO – Purchase Order
Poka Yoke – Error proofing within a process
POR – Process of Record
PPAP – Production Part Approval Process
PQP – Process Qualification Program
PSW – Part Submission Warrant
QA – Quality Assurance
QC – Quality Control
QFD – Quality Function Deployment which is a Design for Six Sigma technique for syncing customer needs with product design and manufacturing capability (also called ‘House of Quality’)
QML – Qualified Manufacturers List
QMS – Quality Management System
QN – Quality Notification
RACI – Responsibility Assignment Matrix (Responsible, Accountable, Consulted, Informed)
RBA – Responsible Business Alliance
REACH SVHC – European REACH regulation 1907/2006 ‘Substances of Very High Concern’, material reporting requirements for European sales
REF – Reference Only Dimension
RGA – Returned Goods Authorization (also known as RMA)
RGD – Rapid Gas Decompression
RFQ – Request for Quote
RICE – Rubber Incremental Center of Excellence
RMA – Returned Material Authorization (also known as RGA)
RoHS - European Commission Restriction of Hazardous Substances directive
S&OP – Sales & Operations Planning
SAE – Society of Automotive Engineers (specification source)
SAP – GT Business Management Software
SARTS – Supplier Assessment & Review of Technical Specification
SC – Supply Chain
SCS – Supply Chain Specialist, either a Procurement Specialist or Sourcing Specialist
SCM – Supply Chain Management
SCAR – Supplier Corrective Action
SCAT – Single Pin Connector Assembly Team
SDR – Supplier Deviation Request
SDS – Safety Data Sheet (formerly MSDS)
SEC – United States Securities and Exchange Commission
SIPOC – Diagram to explain a process (Suppliers, Inputs, Process, Outputs, Customers)

SMED – Single Minute Exchange of Dies, concept for reducing set up time
SOP – Standard Operating Procedure
SPC – Statistical Process Control
Special Processes – A production process where the output is unable to be measured, monitored, or verified until after the resulting product has been used (surface treatment, plating, welding). Process is verified by certifying the process parameters.
SQE – Supply Chain Quality Engineer
SRC – Site Review Committee
SREC – Supplier Request for Engineering Change
SRM – Supplier Relationship Management module in SAP software
Standard Work – Concept of everyone using the same best practice process
SVHC – Substance of Very High Concern, material with European regulatory restrictions
SWOT – Strength, Weakness, Opportunity, Threat Matrix
Tier 1 Supplier – Prime supplier
Tier 2, 3, ... Supplier – Sub-level supplier of Prime supplier
TPM – Total Productive Maintenance
TSC – Theoretically Sharp Corner
TSCA – Toxic Substance Control Act, United States Environmental Protection Agency regulation
VMI – Vendor Managed Inventory
VSM – Value Stream Mapping, method for identifying opportunities for improvement also known as Process Mapping
VOC – Voice of Customer
WEEE – European Commission Waste Electrical and Electronic Equipment directive
WI – Work Instructions
WIP – Work In Progress
4 Blocker – Summary reporting format
4D/8D – Report formats for GT Corrective Actions
5S – Workplace organizational methodology aimed to reduce waste in different forms
5 Why – Problem solving technique to get to true root cause of an issue
6 Sigma – Strategy to understand, measure, & reduce variability in order to improve quality & cost

40. GT Supply Chain Locations

United States

Greene, Tweed & Co.
2075 Detwiler Road, P.O. Box 305
Kulpsville, PA 19443-0305 USA

Greene, Tweed & Co.
1930 Rankin Road
Houston, TX 77073 USA

Europe

Greene, Tweed & Co., Limited
Ruddington Fields
Nottingham, England
NG11 6JS

Asia

Greene, Tweed & Co. Japan
12F PMO Tamachi Center Building
5-31-17 Shiba, Minato-ku
Tokyo, 108-0014, Japan

41. Industry & Regulatory Standards

Automotive Industry Action Group
26200 Lahser Road, Suite 200
Southfield, MI 48033-7100
USA
<http://www.aiag.org/>

AIAG guidelines for FMEA, APQP, Control Plans, etc.

American National Standards Institute
1899 L Street, NW
Washington, DC 20036
USA
<http://www.ansi.org/>

ANSI Z1.4, *Sampling Procedures and Tables for Inspection by Attributes*

ANSI/NCSL Z540.3, *Requirements for the Calibration of Measuring and Test Equipment*

American Society of Mechanical Engineers
3 Park Avenue
New York, NY 10016-5990
USA
<http://www.asme.org/>

ASME Y14.5, *Geometric Dimensioning and Tolerancing*

ASME Y14.100, *Engineering Drawing Practices*

American Society for Testing and Materials
100 Barr Harbor Drive
PO Box C700
West Conshohocken, PA 19428-2959
USA
<http://www.astm.org/>

ASTM Materials & Testing Specifications

European Committee for Standardization
CEN-CENELEC Management Center
Avenue Marnix 17
B-1000 Brussels
Belgium
<http://www.cen.eu/>

European Standard (EN) specifications

European Chemicals Agency
P.O. Box 400
00121 Helsinki
Finland
<http://echa.europa.eu/web/guest/candidate-list-table>

European REACH SVHC candidate list for material reporting requirements

Enterprise and Industry Thematic site on EUROPA, © European Union
Restriction of the use of certain Hazardous Substances (RoHS)
http://ec.europa.eu/enterprise/policies/european-standards/harmonised-standards/restriction-of-hazardous-substances/index_en.htm
Waste Electrical & Electronic Equipment (WEEE)
http://ec.europa.eu/environment/waste/weee/index_en.htm

RoHS & WEEE directives

International Organization for Standardization
1, ch. De la Voie-Creuse
CP 56
CH-1211 Geneva 20
Switzerland
<http://www.iso.org/>

ISO9001, *Quality Management System*

ISO10012, *Measurement Management Systems – Requirements for Measurement Processes and Measuring Equipment*

ISO13485, *Medical devices – Quality management systems – Requirements for regulatory purposes*

ISO14001, *Environmental Management Systems – Requirements with Guidance for Use*

ISO17025, *General Requirements for the Competence of Testing and Calibration Laboratories*

ISO/TS16949, Quality Management Systems – Particular Requirements for the Application of ISO9001 for Automotive Production and Relevant Service Part Organizations

Japanese Standards Association
4-1-24 Akasaka Minato-ku
Tokyo 107-8440
Japan
http://www.jsa.or.jp/default_english/default_english.html

Japanese Industrial Standard (JIS) specifications

Performance Review Institute
161 Thorn Hill Road
Warrendale, PA 15086-7527
USA
<http://www.pri-network.org/Nadcap/>

NADCAP, National Aerospace & Defense Contractors Accreditation Program

Society of Automotive Engineers

400 Commonwealth Drive
Warrendale, PA 15096-0001
USA
<http://www.sae.org/>
<http://counterfeitparts.sae.org/>

ISO/EN/AS9100, Quality Systems, Aerospace, Model for Quality Assurance in Design, Development, Production, Installation, and Servicing

Responsible Business Alliance (formerly the Electronic Industry Citizenship Coalition (EICC))
1737 King Street, Suite 330
Alexandria, VA 22314
USA
[http://www.responsiblebusiness.org/standards/code-of-conduct/.](http://www.responsiblebusiness.org/standards/code-of-conduct/)

RBA Code of Conduct in regards to Global labor, health & safety, environmental practices, business ethics, & management systems including sub-tier supplier flow down

U.S. Department of Defense
Defense Standardization Program Office
<http://www.assistdocs.com/>

Military Standard (MIL-STD) specifications

U.S. Department of State
Defense Standardization Program Office
https://www.pmdtc.state.gov/regulations_laws/itar.html

International Traffic in Arms Regulations (ITAR)

U.S. Department of Labor
Occupational Safety & Health Administration
<https://www.osha.gov/Publications/OSHA3514.html>

Hazard Communication Standard: Safety Data Sheets (SDS)

U.S. Environmental Protection Agency
TSCA Substance Registry Services
http://ofmpub.epa.gov/sor_internet/registry/substreg/home/overview/home.do
Summary of the Toxic Substances Control Act
<https://www.epa.gov/laws-regulations/summary-toxic-substances-control-act>

Toxic Substances Control Act

U.S. Securities & Exchange Commission
Section 1502 of Dodd-Frank Wall Street Reform and Consumer Protection Act
<http://www.sec.gov/News/PressRelease/Detail/PressRelease/1365171484002>

Rule for Disclosing Use of Conflict Materials

42. Revision History

Rev.	Description	Related Section(s)	Release Date	Author	Approval
H	Updated Terms & Conditions web location	14	9/23/2020	J. Dempsey	A. Jones
	Clarified CoC requirements	20			
	Added notification for merger/ acquisition	27			
G	Changed EICC to RBA	4,41	8/22/2019	J. Dempsey	F. Torres
	Added requirement for QMS certification status notification	15,27			
	Changed Conditional status to 1 year	16			
	Added 1.5 AQL C=0 chart	21			
	Removed defunct SAE weblink for Anti-Counterfeiting	12			
	Added clarification for further detail	4,5,10,11,15,16,20,23,24,29			
	Updated GT Supply Chain locations	40			
	Updated Glossary content	Glossary			
F	Added specifics to modern slavery/human trafficking clause to Ethics section	4	11/22/2017	J. Dempsey	K. Wagner
	Added statement on supplier awareness of contribution to product conformity & safety	9, 29			
	Added detail on C of C requirements	20			
	Grammar correction	12			

Rev.	Description	Related Section(s)	Release Date	Author	Approval
E	Added Routing Requirements	19	08/10/2016	J. Dempsey	K. Wagner
	Added Acceptance Authority Media detail	23,29			
	Added Country of Origin Requirement	20			
	Added Signature Requirement for Certificates	20			
	Added No Weld Repair Allowed Requirement	24			
	Added clarification for further detail	17,19,20,26			
	Renamed Section	19, 23			
	Updated Glossary content	Glossary			
D	Added section on Confidentiality	5	05/26/2015	J. Dempsey	K. Wagner
	Updated detail on Conflict Materials	11			
	Added section on Counterfeit & Fraudulent Material Prevention	12			
	Sample Material Policy	38			
	Added clarification for further detail	13,20,23,35,37			
	Updated Glossary content	Glossary			
C	Removed Supplier Acknowledgment Form	Appendix	10/21/2014	J. Dempsey	V. Moskal
	Added section for Regulatory Compliance	10			
	Added section for Payment of Invoices	11			
	Added section for GT Owned Material (Subcontract & Consignment)	34			
	Added section for GT Supply Chain locations	37			
	Added clarification or further detail	5,13,14,15,17,18,19,24,32,33			
	Updated form & procedure #'s	13,20,			
	Renamed section	5,33,36			
	Added Regulatory Standards links	Industry Standards			
	Updated Glossary content	Glossary			

Rev.	Description	Related Section(s)	Release Date	Author	Approval
B	Updated website detail	Cover, 1, 10, 24 Appendix A	08/02/2013	J. Dempsey	S. Schleifman
	Added clarification for further detail	1,4,8,9,11,13, 14,16,17,20,21, 22,24,25,26,28, 29,30			
	Updated Ethics to include EICC Code of Conduct	3			
	Added form & procedure #'s	11,14,18,26			
	Added capability assessment & recertification detail	11			
	Updated supplier scoring	13			
	Renamed section	14,20,21,24			
	Added section for Supplier Request for Engineering Change	27			
	Added REACH SVHC contact info and EICC code of conduct	Industry Standards			
	Updated Glossary content	Glossary			
A	Initial Release	All	11/29/2011	J. Dempsey	C. Steptoe