

### Suppliers

As part of the global electronic supply chain, TTM is required to provide detailed information on the products it manufactures from the raw materials it purchases from you. The information and data requirements below summarize most of the data exchange that TTM must provide to its customers. Accordingly, these requirements must be provided by TTM suppliers.

#### 1. Required of All Suppliers

**1.1 Environmental Responsibility** All suppliers are required to comply with all applicable environmental laws, rules and regulations. Suppliers are encouraged to embrace pollution prevention, natural resource conservation and environmental sustainability. Failure to abide by these requirements and/or applicable law will result in disqualification as a supplier and responsibility for all costs and expenses incurred by TTM resulting from the non-compliance.

**1.2. Environmental Management System (EMS)** All suppliers are encouraged to implement and adopt an EMS that is consistent with the requirements of ISO 14001. In addition, supplier input that facilitates reduction of TTM energy usage, waste generation, and/or water usage is encouraged. TTM's Environmental Policy can be found at [https://www.ttmtech.com/products/documents/TTM\\_Environmental\\_Policy.pdf](https://www.ttmtech.com/products/documents/TTM_Environmental_Policy.pdf).

#### 2. Required of Suppliers whose Products Become Incorporated into TTM Products

Parts manufactured by TTM are incorporated into products that are distributed globally. As a result, TTM customers must comply with numerous rules and jurisdictions, and TTM must support our customers' related product environmental data requirements. Consequently, suppliers must be prepared to disclose information related to environmental requirements when requested. While a listing of all global environmental requirements would be unwieldy, a summary list that includes the substances of concern for most TTM customers can be found in GADSL (the Global Automotive Declarable Substance List), available upon request.

Communication on the regulatory status related to the following listed requirements are mandatory for all supplied raw materials used for making unpopulated printed circuit boards (bare boards) and printed circuit board assemblies (PCBAs). Should Seller have any questions regarding whether its products become incorporated into TTM products, please contact TTM purchasing for written confirmation. All notice requirements herein should be provided prior to supplying any affected material or component to TTM or immediately upon discovery.

##### **2.1 EU RoHS (European Union Directive on Restriction on the use of Hazardous Substances) Compliance**

The original EU RoHS Directive restricted the use of four metals (cadmium (Cd), hexavalent chromium (Cr<sup>+6</sup>), lead (Pb) and mercury (Hg)) and two families of brominated flame retardants ((BFRs) (polybrominated biphenyls (PBBs) and polybrominated biphenyl ether (PBDEs)) in

electrical and electronic equipment (EEE) to 0.1% (1000 ppm) on a homogeneous material basis except for cadmium which has a 0.01% (100 ppm) limit.

The directive was subsequently amended to add four additional substances with 0.01% (1000 ppm) homogeneous material limits: Bis (2-ethylhexyl) phthalate (DEHP)), Butyl benzyl phthalate (BBP), Dibutylphthalate (DBP), and Diisobutyl Phthalate (DIBP), effective in July of 2019.

Formal disclosure/certification document(s) stating the RoHS regulatory status and covering all 10 substances for all supplier provided materials is required. Suppliers should also anticipate that similar disclosure will be required covering any other substances formally added to EU RoHS well in advance of their effective date.

### **2.2 China RoHS and Other RoHS Laws Compliance**

The Chinese law governing material content in EEE generally follows the EU list of substances, as do other laws in different legal entities around the world. Therefore, declaration on the material content of the EU RoHS substance list will also address the other similar RoHS laws.

### **2.3 EU REACH (Registration, Evaluation, Authorization (and Restriction) of Chemicals)**

Suppliers must notify TTM if any provided materials contain chemicals listed on the EU Candidate List of substances of very high concern (SVHCs) for Authorization in excess of 0.1% by weight (1000 ppm) within any supplied article. Notification is also required if the supplied material might become reportable from reasonably anticipated TTM manufacturing operations when used as intended (e.g. etching, curing). Likewise, disclosure is required if/when supplied materials containing SVHCs in excess of reportable limits might become non-reportable when used as intended.

Suppliers must notify TTM if any provided materials contain chemicals whose intended use is restricted in Annex XVII or Annex XIV to REACH.

And because REACH, including the SVHC Candidate List and Annexes XVII and XIV are periodically amended, suppliers must promptly notify TTM if any supplied material becomes subject to regulation under REACH when used as intended or reasonably anticipated.

The Supplier must also submit safe use information on any product in which the SVHC content is above 0.1% or 1000 ppm.

### **2.4 California Proposition 65**

California's Proposition 65, officially known as the Safe Drinking Water & Toxic Enforcement Act of 1986 contains a list of chemicals and exposure thresholds which the State of California has determined present a risk of cancer, birth defects or other reproductive harm. The entire list

of chemical substances can be found on the State of California website. Product content of supplied products containing Proposition 65 chemicals must be disclosed to TTM in writing.

### **2.5 Prohibited Process Chemical Contact**

Certain chemicals are subject to restrictions on their usage in manufacturing irrespective of whether or not they become an ingredient in the finished product. Two such examples are for ozone depleting compounds (ODC, aka ozone depleting substances or ODSs) and perfluorooctane sulfonates (PFOS). Direct contact of the substances with products or materials supplied to TTM is prohibited.

### **2.6 Material Content Declarations**

Supplier certification to the absence or presence of EU RoHS, China RoHS, EU REACH SVHC, California Proposition 65 or Prohibited Process Chemical Contact is preferred in an industry standard format, but may be provided in alternate formats as long as they are in English and not subject to misinterpretation.

Material content declaration reports may be required. If requested, they should be provided in an industry standard format (e.g. IPC-1752, IMDS, IEC 62474, etc. although others may be accepted). Reports are subject to approval by TTM and will generally require 100% disclosure of substances within the product.

Some TTM customers require submission of third party laboratory analysis at the appropriate regulatory level (homogeneous substance, article, etc.) using the applicable IEC test method to demonstrate compliance to various banned and restricted substance limits. When required, suppliers will be required to provide such analysis reports. Suppliers who have internal lab analysis showing compliance of such substances can provide a copy of that analysis as an alternative and TTM will make reasonable efforts to meet customer requirements with such.

### **2.7 Packaging Suppliers**

More and more legal entities are adopting legislation regarding material content in packaging. Since 1994, the EU Packaging directive has restricted the combined heavy metal content of cadmium, hexavalent chromium, lead and mercury to 100 ppm. The EU also adopted a directive banning the use of dimethylfumurate (DMF) in desiccants, and one EU member (Italy) requires that shippers of packaging containing desiccants maintain an analysis on file that confirms no DMF is present in the desiccants shipped.

Packaging is also considered a product under REACH, and therefore, certification that packaging materials do not contain any REACH SVHCs above the 0.1% (1000 ppm) concentration is required of TTM packaging material suppliers.

Further, wood pallets and other wood packaging materials must conform to the International Standards for Phytosanitary Measures No. 15 (ISPM 15) standard that over 60 countries have adopted. This includes marking all pallets and wood packaging material with the ISPM logo,

country of origin code and disinfectant method used to sanitize the wood. Lastly, any wood packaging material greater than 6 mm (1/4”) thickness must be debarked. Certification of all these packaging requirements is required of TTM packaging material suppliers.

### **3. Documentation Submittal**

Required documentation should be emailed to [environmentalcompliance@ttmtech.com](mailto:environmentalcompliance@ttmtech.com) and your TTM purchasing contact. Submitted documentation must have a signature (electronic is acceptable), point of contact information with title, and the date. Electronic copies of required certifications must contain an electronic signature.