

1.0 SCOPE

1.1 This specification limits the use and/or requires documentation of RoHS Restricted Substances contained in the homogeneous materials primarily intended for use in electrical and electronic products (EEE) and their components. This is a multiple variation specification (different levels of requirements). (See Article 3.0)

1.2 RoHS Restricted Substance management per EU Directive 2011/65/EU requirements allow for no deviation changes relative to material and/or manufacturing processes that directly or indirectly affect restricted substance declarations without product group engineering and compliance manager approvals.

2.0 DEFINITIONS

2.1 Data Collection Request - Caterpillar has developed a form which has been called "REACH Article and Preparation Information Disclosure" or "RAPID" and this form is used to import chemical substance declarations from the supply chain.

2.2 Declaration of Compliance - A signed document provided by the supplier to declare that material compositions are below the limit of the RoHS restricted substances.

2.3 Electrical and Electronic Equipment (EEE) - EU RoHS Recast Directive defines EEE as equipment which is dependent on electric currents or electromagnetic fields to fulfill at least one intended function and is designed for use with a voltage rating not exceeding 1000 volts for alternating current and 1500 volts for direct current. With this definition, most Caterpillar prime products are considered as EEE, such as engines, wheel loaders, track type tractors, etc.

2.4 Finished EEE - Finished EEE is defined as EEE placed on the market for direct use by an end user. For example, an electric panel board for use in a dwelling is a device upon which various modules (such as circuit breakers) are placed. Both the board in itself and the modules placed upon it are usually standard equipment sold to builders or home owners for direct use and so are finished EEE products. If a EEE product is sold for further production or integration into a finished EEE product, the product is not a finished product itself.

2.5 Homogeneous Material - A component or material that cannot be mechanically disjointed into different materials by unscrewing, cutting, crushing, grinding, abrasive processes, and similar procedures. Examples of "homogeneous materials" include plastics, ceramics, glass, metals, alloys, paper, board, resins, adhesive, paint and coatings. A bearing component can contain several homogeneous materials which include: lead-tin overlay, bonding material, aluminum alloy, steel backing, etc.

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2.6 IPC-1752A - Standard that was developed by Association Connecting Electronic Industries that defines a format for Material Composition Declaration. The Caterpillar Data Collection Request is designed to the IPC-1752A format. IPC-1752A is the preferred standard for submitting material declarations to Caterpillar. If the supplier has another means of generating an IPC-1752A xml file output for their material declaration, that is acceptable to Caterpillar for their data submission. For more information about Caterpillar Data Collection Requests to submit Material Composition Declarations, please access at this [link](#) or reference in Section 5.

2.7 Material Composition Declaration - A summary of any materials or chemicals contained in products supplied to Caterpillar that fall under RoHS.

2.8 PPAP - The Production Part Approval Process. Documentation used to ensure conformance to RoHS material requirements.

2.9 RoHS - European Union (EU) Recast Directive on the Restriction of the use of certain Hazardous Substances in Electrical and Electronic Equipment (2011/65/EU) including subsequent amendments.

2.10 RoHS Restricted Substance Limits - The limits for Substances of Concern shall apply to the homogeneous material level. The restriction limits for each substance are shown in Figure 1.

Restricted Substance	Maximum Concentration Value By Weight in Homogeneous Material
Lead	0.1%
Mercury	0.1%
Cadmium	0.01%
Hexavalent Chromium	0.1%
Polybrominated Biphenyls (PBB)	0.1%
Polybrominated Diphenyl Ethers (PBDE)	0.1%
Bis(2-Ethylhexyl) Phthalate (DEHP)	0.1%
Benzyl Butyl Phthalate (BBP)	0.1%
Dibutyl Phthalate (DBP)	0.1%
Diisobutyl Phthalate (DIBP)	0.1%

Figure 1 - Substance Restriction Limit in EU RoHS Recast Directive

Note: Figure 1 will be updated periodically to include amendments to the Directive or for any further additional substance additions.

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2.11 Consumable Material – A component or material that is a commodity and is intended to be used up relatively quickly and/or replaced after they have been used for a period of time, such as oil filters, engine oil, grease, or coolant and internal manufacturing related items which do not constitute an equipment constituent in or with the EEE product, such as, plugs/caps for interplant shipping protection use only.

2.12 Intangible Material – A component that does not have any material attributes, such as software. Intangible materials are typically indicated on their drawings with the 1E3035 specification.

3.0 DRAWING DESIGNATIONS

3.1 This 1E Specification, with variations, is specified based on the legal and/or customer/marketing needs for equipment to meet the RoHS Restricted Substances Limits.

3.2 RoHS Restricted Substance Limits - The limits of Maximum allowed concentration expressed by percent of weight.

3.3 1E4246 Without a Specification Variation - This variation is not for new design. Drawings that specify 1E4246 without a variation shall conform to the requirements of 1E4246A.

3.4 1E4246A - Material that exceeds the restricted substance limits. Documentation requirements per Figure 2 shall apply.

3.5 1E4246B - This variation is not for new design. Drawings that specify 1E4246B indicates that the component/part shall meet the original RoHS substance restrictions as follows: 0.1% lead, 0.1% mercury, 0.01% cadmium, 0.1% hexavalent chromium, 0.1% PBB, and 0.1% PBDE.

3.6 1E4246C - Material that exceeds the restricted substance limits in Figure 1, but is below the limits stated in the exemptions listed in ANNEX III or ANNEX IV of the RoHS directive. The exemption(s) being used shall be clearly stated in the Material Composition Declaration. The list of exemptions and maximum validity date are available in ANNEX III and ANNEX IV of the EU RoHS Recast Directive and [the official RoHS FAQ](#) 9.1, reference in Section 5. Documentation requirements per Figure 2 shall apply.

3.7 1E4246D - Material that conforms to the restricted substance limits without relying on the exemptions allowed in ANNEX III or ANNEX IV of the RoHS directive. Documentation requirements per Figure 2 shall apply.

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3.8 1E4246E - This variation is not for new design. No RoHS requirements apply. The supplier shall inform their Caterpillar Purchasing contact about any assembly, design, or manufacturing problems that may prevent the supplier from meeting the RoHS Restricted Substance limits.

3.9 1E4246F – Material that is classified as consumables or intangible and not in the scope of RoHS. As indicated in [the official RoHS FAQ](#) 7.4, reference in Section 5, only consumables with an equipment constituent meeting the now more specific definition of EEE found in the RoHS Directive Article 3(1) and 3(2) (such as printer cartridges) are EEE and in the scope of RoHS. Consumables that do not meet the definition of EEE, such as oil filters, engine oil, grease, coolant and plugs/caps for interplant shipping protection use only, are consumable items which do not have an equipment constituent that meets the definition of EEE and are therefore not in the scope of RoHS.

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4.0 DOCUMENTATION

4.1 Suppliers shall provide the documentation listed in Figure 2, based on Specification variation, for all EEE that specify 1E4246:

REQUIRED DOCUMENTATION	SPECIFICATION VARIATION					
	1E4246A	1E4246B	1E4246C	1E4246D	1E4246E	1E4246F
Suppliers Name and Address		See Paragraph 3.5			No Requirements Apply	No Requirements Apply
Material Composition Declaration						
Declaration of Compliance	Not Applicable					
Exemptions Applicable	Not Applicable		Identify Exemption Being Relied Upon	Not Applicable		
An Authorized Contact with Title						
In limited cases, where product is categorized as high risk based on the likelihood of a hazardous substance being contained in a product, a test report may be required. Caterpillar may also test the product independently to confirm compliance when necessary.						

Figure 2 – Required Documentation

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4.2 Suppliers will be provided with a Caterpillar Data Collection Request for parts needing a chemical substance declaration. Guidance on how to complete and submit the required documentation is available at this [link](#) or reference in Section 5. If a chemical substance declaration is required for a product/part number and a Caterpillar Data Collection Request has not been received, please contact your Caterpillar SDE or buyer for assistance.

4.3 The Material Composition Declaration shall be based on homogeneous material levels.

4.4 The Material Composition Declaration or the Declaration of Compliance shall be provided to Caterpillar prior to final PPAP approval (see Figure 2). If this documentation is not provided with the PPAP at interim approval, a reason must be documented and approved by both the product group engineering manager and compliance manager. The supplier shall maintain this record for a period of 10 years after the final sale to Caterpillar. The supplier shall inform Caterpillar and submit new records if the compliance status changes.

5.0 REFERENCES

Abbreviations 1E0011

Caterpillar Specification 1E4467

EU RoHS Directive 2011/65/EU

Link to EU Commission official RoHS directive FAQ document:

http://ec.europa.eu/environment/waste/rohs_eee/pdf/faq.pdf

Link to Caterpillar Data Collection Request details and guidance on how to complete and submit the required documentation:

https://supplierconnect.cat.com/wps/myportal/catconnect/!ut/p/z1/nY_LDolwEEW_hS-YacujXRY1TQMBbFLB2RBWhETRhfH7dWmJQeLsbnLOzR0g6IDm4TmNw2O6zcPInc-U9vsT9ypnGo0zGeq6sYk9MpQNhzyE5K6SaMvKHQqdCeQx0BYfg9OYO54LRFPzf_zPpm3-CkDr9S3QFyT84FcHhSOxsClaoYyTohSYxEtgMVIxuF-99x1OdoiyF7r6gbQ!/dz/d5/L2dJQSEvUUt3QS80TmxFL1o2X0RWMIU5QjFBME9PUklwQUMwSjE1UUYyMEMy/

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