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## KEYSIGHT TECHNOLOGIES SUPPLEMENTAL SPECIFICATION FOR PURCHASED DIRECT MATERIALS SPECIAL INSTRUCTIONS FOR RoHS

### 1. Purpose

- 1.1. This specification is in addition to the Keysight Technologies, Inc. ("Keysight") [General Specification for the Environment](#) ("GSE"). This specification establishes additional chemical content restrictions for purchased parts, components, materials and products that are incorporated into (become part of) physical products sold by Keysight or under the Keysight brand names ("direct materials").

### 2. Use

- 2.1. This specification is to be used when it is provided as a specification for an item, referenced on or in the Keysight specification drawings, and/or in the purchase contract for direct materials.
- 2.2. This specification should be applied with full consideration and compliance to other applicable standards and specifications, including but not limited to workmanship, quality, electromagnetic compatibility, and safety standards.

### 3. Additional Product Content Restrictions

- 3.1. In addition to the general and application-specific restrictions of Keysight's GSE, direct materials shall meet the additional restrictions per requirements detailed in the following sub-sections.
  - 3.1.1. Directive 2002/95/EC of the European Union, restriction of the use of certain hazardous substances in electrical and electronic equipment (EU RoHS), as amended and published in the Official Journal of the European Union up to and including Commission Decision 2010/122/EU of 25 February 2010, was replaced by Directive 2011/65/EU.
  - 3.1.2. [Directive 2011/65/EU](#) of the European Union, restriction of the use of certain hazardous substances in electrical and electronic equipment (EU RoHS Recast), as published in the Official Journal of the European Union as of 8 June 2011, defines the maximum concentration values (MCVs) for hazardous substances and provides for specific exemptions in Annex III and Annex IV. Further amendments to this legislation shall apply to this sub-section unless specifically called out in a subsequent sub-section. EN IEC 63000:2018 is the RoHS harmonized standard, superceding EN 50581:2012, and describes how to prove compliance to chemical restrictions. These requirements are outlined in section 3.3.
  - 3.1.3. [Commission Delegated Directive EU 2015/863](#) of 31 March 2015 amending Annex II to Directive 2011/65/EU, defines the MCVs for phthalates Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP). RoHS-compliant Keysight products are compliant with the phthalates restrictions. Direct materials that do not meet this directive are not accepted.

- 3.1.4. [UK RoHS regulation 2012 No. 3032](#) (as amended), the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment. This regulation closely aligns with EU RoHS.

- 3.2. Keysight Technologies products comply with EU RoHS substance restrictions as per Table 1, with exemptions as applicable for Category 9 Industrial.

Table 1.

<b>Substance</b>	<b>Maximum concentration value in homogeneous material</b>
Cadmium, Cd	0.01%
Lead, Pb	0.1%
Mercury, Hg	0.1%
Hexavalent Chromium, Cr+6	0.1%
Polybrominated biphenyls, PBB	0.1%
Polybrominated diphenyl ethers, PBDE	0.1%
Bis(2-ethylhexyl) phthalate, BEHP	0.1%
Benzyl butyl phthalate, BBP	0.1%
Dibutyl phthalate, DBP	0.1%
Diisobutyl phthalate, DIBP	0.1%

- 3.3. Suppliers are also expected to comply with due diligence and process requirements in the RoHS directives.

- 3.3.1. Suppliers should have a RoHS compliance policy or statement regarding the EU RoHS directive 2011/65/EU and all amendments including Directive EU 2015/863.
- 3.3.2. Suppliers should obtain, maintain and review materials compliance data from sub-tier suppliers periodically to ensure the materials are RoHS compliant.
- 3.3.3. Manufacturing and inventory processes shall prevent cross-contamination between RoHS compliant and non-RoHS compliant materials.

- 3.3.4. If any changes take place in the manufacturing process, raw materials, supplier, part specification or design, regulations and company acquisition, suppliers shall review if the changes affect the part compliance status.
- 3.3.5. Changes to RoHS compliance shall be communicated to Keysight. All component changes, including those related to RoHS compliance must be submitted to [PCN@keysight.com](mailto:PCN@keysight.com) for Keysight approval. All product/component changes must be documented and reported per the requirements of [EIA/JEDEC JESD46-C](#) (Product Change Notification). All product/component discontinuances must be documented and reported per [EIA/JEDEC JESD48-B](#) (Product Discontinuance). Any changes related to RoHS should be considered major changes. A different manufacturers part number (MPN) is expected. Include technical details regarding the change, including reliability testing data and failure mitigation information that will assist Keysight with approving the change. Include a timeframe for the change and the availability of legacy items. Please provide a copy of your [PCN@keysight.com](mailto:PCN@keysight.com) submittal to the contact that manages the procurement of material from you on behalf of Keysight.
- 3.3.6. Suppliers shall communicate these expectations and requirements to their sub-tier suppliers and external providers.
- 3.4. If a conflict exists between the requirements of this specification, the GSE, and any other requirements in the purchase contract, including the item specifications, the more stringent materials restriction limit will govern, unless an exception is agreed to in writing by Keysight.
- 3.5. Keysight's GSE is available online at URL: <https://www.keysight.com/us/en/assets/9922-01232/exhibits/General-Specification-for-the-Environment.pdf>
- 3.6. Please contact your Keysight Buyer if you have questions about the special instructions.

## 4. Indicator Marking or Labeling – Optional unless specified

### 4.1. Indicator

For each of the Section 3.1 sub-sections, Table 2 contains an Indicator Code referred to as "Indicator". Each Indicator is associated with one or more of the sub-sections in Section 3.1. The Indicators in the table can be used to identify direct materials that meet the additional restrictions per the requirements detailed in the Section 3.1 sub-sections.

Table 2

Sequence Number	Indicator	Required 3.1. sub-sections
1	REU01	3.1.2. EU RoHS Recast Directive 2011/65/EU
2	REU02	3.1.2. EU RoHS Recast Directive 2011/65/EU, EN IEC 63000:2018 3.1.3. EU RoHS Commission Delegated Directive 2015/863 3.1.4 UK RoHS 2012 No. 3032

If marking or labeling of an item using the Indicator is specifically called out on the item drawing or in purchase documents, then the Indicator shall be placed on the item to designate compliance to the requirements of Section 3.1 of this document.

**NOTE: The use of the Indicator is optional. It must be used if specifically required via a drawing or in purchase documents. For other applications, it is not required. Where labeling is desired, we prefer the use of this code rather than the use of “RoHS” or other labels that may have implied liabilities.**

#### 4.2. Content

The content of the Indicator shall be the characters or symbol listed in Table 1 in the column marked “Indicator” as per the requirements of Section 3.1.

#### 4.3. Readability

The Indicator font type and size shall be as specified on the item drawing. If not so specified, it shall be of a font type and size that is clearly legible and readable by the unaided eye.

#### 4.4. Placement

The location of the Indicator shall be as specified on the item drawing. If not so specified, it may be added to an existing label such as the part number label or may be separate mark or label. The location of the Indicator shall not interfere with the use or function of the item and be acceptable to Keysight.

#### 4.5. Durability

The Indicator shall be clearly legible. Adhesive labels shall not have worked loose or become curled at the edges during the follow-on manufacturing processes, normal use, or after the following treatments:

- Rubbed by hand without undue pressure for 30 seconds
- Rubbed for 30 seconds with each of the following using a cloth soaked with the substance:
  - Specified cleaning agent if so identified
  - Isopropyl alcohol
  - Water

#### 4.6. Additional Notes

The RoHS Indicator code (i.e. REU02) will only be changed when there is a regulatory update going into effect that significantly affects Keysight parts. Examples include the addition of a substance to EU ROHS, a change in allowable concentrations of existing substances, or the addition of a new regulation. Changes that will not lead to an update include changes in applicable exemptions or changes in EU RoHS that do not have implementable impacts on Keysight (i.e. the EU RoHS Recast a.k.a ‘RoHS II’). This document will be updated with a new version of the RoHS Indicator code when appropriate.

#### Specification Revision History

Revision	Changes	Approval	Date
1	Initial release	MFC	03/01/09

2	Addition of ISO document control and approval information	MFC	03/04/09
A	<ol style="list-style-type: none"> <li>1. Drawing number prefix removed.</li> <li>2. Drawing revision code changed from numeric to alpha.</li> <li>3. Added Section 3; Table 1 and Section 4 to facilitate item marking.</li> <li>4. Master document moves to MatrixOne.</li> </ol>	MFC	04/30/09
B	<ol style="list-style-type: none"> <li>1. Moved all indicator code information into section 4.</li> <li>2. Added section 4.6 Additional Notes.</li> <li>3. Added EU RoHS recast reference.</li> <li>4. Revision by Julie Silk and Amy Polzin</li> </ol>	Robert Tait	22 July 2011
C	<ol style="list-style-type: none"> <li>1. Revised 2.1 to include that this spec may be a provided spec, which accommodates items with no drawings.</li> <li>2. Revised 3.1.1 to include Commission Decision date and link.</li> </ol>	Robert Tait	23 Aug 2012
D	Initial Release of Keysight Document, revised from Agilent Technologies document revision C	Robert Tait	1 Aug 2014
E	Link corrections	Robert Tait	4 Aug 2014
F	Added EU/2015/863, with allowance for non-compliance of existing items until January 2020. Noted replacement of 2002/95/EC. Added REU02 indicator code to record compliance to directive 2015/863.	Robert Tait	13 Dec 2018
G	Included statement in 3.1.2 regarding requirements for supply chain and manufacturing controls. This will negate the requirement for RoHS language in individual supplier contracts.	Robert Tait	16 January 2020
H	Compliance to EU/2015/863 revised to indicate completion of transition	Robert Tait	2 March 2021
I	Additional expectations for supplier material management, inventory and process controls added. UK RoHS and harmonized standard EN IEC 63000:2018 added	Robert Tait	31 January 2023

**For Keysight users only, document control and approval:** The Master document resides in the engineering data management system, document 5951-1745-2. Any printed copy of this document is an uncontrolled document. A copy of the current version is at <https://www.keysight.com/zz/en/assets/9922-02379/exhibits/Supplemental-Specification-for-Purchased-Direct-Materials.pdf>