

NUMBER <b>GS-47-0005</b>	CATEGORY <b>ENVIRONMENTAL PROCEDURES &amp; STANDARDS</b>	<b>Amphenol ICC</b>	
TITLE <b>Environmental Compliance Specification for Products and Packaging</b>		PAGE 1 of 23	REVISION J
		GUARDIAN (VERIFIED BY) Ravi RAMACHANDRAN	DATE 12/01/20
		APPROVED BY Martha COOPERSMITH GRAY	
		CLASSIFICATION : <b>UNRESTRICTED</b>	

## 1.0 OBJECTIVE

This specification establishes Amphenol ICC (AICC) requirements for banned, restricted or reportable chemical compounds or materials in our products and packaging. The document also provides guidance and requirements to meet with global environmental requirements.

AICC products must comply with numerous regional and country regulations along with industry standards and customer specific requirements relating to banned, restricted and reportable chemical compounds. Some of the more well-known regulations and standards are listed in Annex A.

Identifying the types and amounts of hazardous materials is necessary for recovery and recycling purposes and helps to target the design and production of electrical and electronic equipment which facilitates dismantling and recovery in the re-use and recycling of components and materials.

This document will be updated as necessary to reflect new and/or additional environmental regulatory requirements regarding content restrictions (i.e. material content, packaging materials, product labeling and marking requirements, chemical registration requirements, ozone depleting substance restrictions, and others). Strict conformance to these requirements is required of suppliers who design and/or manufacture in whole or part AICC products.

AICC requires that its suppliers, manufacturers and associates conduct business in an ethical manner and follow all applicable government laws and regulations (including but not limited to Environmental, Health & Safety, and Labor). Strict adherence to the requirements of this document is required as part of AICC due diligence efforts to ensure environmental regulatory compliance.

## 2.0 SCOPE

AICC Engineering, Manufacturing, Quality and Purchasing staff, as well as suppliers and manufacturers involved in designing and/or manufacturing products or components for AICC, must comply with this specification.

## 3.0 GENERAL

### 3.1 **Amphenol ICC (AICC) Responsibilities**

It is the responsibility of engineering personnel who prepare component and assembly specifications to ensure the appropriate reference to this specification appears on all prints for AICC items.

### 3.2 **Supplier Responsibilities**

3.2.1 Meet the objectives set out in Section 1 of this specification.

3.2.2 Comply with the reporting requirements listed in Section 5.2 of this specification for all parts and assemblies sold to AICC.

*i.e. Report Full Material Composition Declaration (FMD) using AICC's E-3467 form.*

*Report banned, restricted and reportable substances using the AICC supplied E-3702 form for products/components/raw materials and E-3742 form for packaging materials.*

*Third party analytical laboratory test report for the six banned substances in EU and China RoHS (lead, mercury, cadmium, chromium 6+, PBBs and PBDEs), Di-(2-ethylhexyl) phthalate (DEHP), Butylbenzylphthalate (BBP), Dibutylphthalate (DBP), Diisobutyl phthalate (DIBP), DINP, DNOP, DIDP, bromine and chlorine compounds, red phosphorous, tetrabromo-bisphenyl-A, perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA) compounds, Hexabromocyclododecane (HBCDD).*

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- 3.2.3 Certificate of Compliance (CoC) letter for RoHS, REACH/SVHC, Low Halogen / Halogen Free and Conflict Minerals.
- 3.2.4 Latest Conflict Mineral Reporting Template (CMRT), Cobalt Report Template (CRT) and Mica Reporting Template (MRT) completed for parts/materials supplied to AICC. Refer RMI website (<http://www.responsiblemineralsinitiative.org/>) for latest CMRT, CRT and MRT templates).
- 3.2.5 Safety Data Sheet (SDS) for all the raw materials used in the parts/components and materials supplied to AICC.
- 3.2.6 Cascade the requirements in this specification to their sub-tier suppliers. Sub-tier supplier data input is a must for complete material and substance data determination.

#### 4.0 **DEFINITIONS**

The **International Electro technical Commission (IEC)** has published a standard glossary of terms specifically related to environmental aspects of electrical and electronic products and systems. The title is: IEC 62542 ed. 1 - *Environmental standardization for electrical and electronic products and systems - Glossary of terms*. Other definitions for the time being are set out below.

- 4.1 Product: The item that the respondent is supplying and/or designing (e.g. assembly, subassembly, component, raw material).
- 4.2 Component: Is a combination of homogeneous materials that have been formed into a single manufactured part.
- 4.3 Subpart: A sub-unit of a product.
- 4.4 Material: A material is made up of one or more substances (e.g. an alloy is a material, which in turn is made up of a number of defined substances).
- 4.5 Substances: Chemical elements and their compounds (e.g., lead is a chemical element, lead oxide is a compound, polyvinyl chloride is a compound).
- 4.6 Homogeneous material: A material that cannot be mechanically disjointed into different materials. A substance or a mixture of substances with uniform composition (such as paints, alloys, solders, adhesives, plating, resins, coatings, etc.) that comprise a product.
- 4.7 RoHS: Restriction of the use of certain Hazardous Substances in electrical and electronic equipment.
- 4.8 CE Mark: The CE mark is the manufacturer's declaration that the product meets the requirements of the applicable EU directives.
- 4.9 Low Halogen: As per Joint JEDEC/ECA Standard JS709, for components other than printed board and substrate laminates, the plastic within the component shall contain <1000 ppm (0.1%) of bromine [if the bromine source is from a BFR] and <1000 ppm (0.1%) of chlorine [if the chlorine source is from a CFR, PVC or PVC copolymer].
- 4.10 Halogen Free: As per IEC 61249-2-21, Materials for printed boards and other interconnecting structures the plastic shall contain < 900ppm of Bromine or Chlorine and <1500ppm of Bromine and Chlorine combined from any source.
- 4.11 Due diligence: Proof of reasonable steps taken to ensure compliance with applicable regulations.
- 4.12 Intentionally added: The deliberate use in the formulation of a product or subpart where its continued presence is desired in the final product or subpart to provide a specific characteristic, appearance, or quality. Metal plating is an example of intentional addition. If a listed material or substance is contained in products or subparts purchased by the supplier and are incorporated,

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such materials/substances must be disclosed if the supplier has knowledge (or with reasonable inquiry should have knowledge) of the presence of such materials or substances. When the material/substance is intentionally added, then it needs to be reported regardless of its content level.

- 4.13 MCV: maximum concentration value.
- 4.14 PPM: parts per million.
- 4.15 ODS: Ozone Depleting Substance.
- 4.16 Registry numbers (RN) of the Chemical Abstracts System of the American Chemical Society (CAS numbers) are attributed to all chemical elements and most of their compounds and should be used for their identification.
- 4.17 The European Commission number (EC number) is the seven-digit code that is assigned to chemical substances that are commercially available within the European Union. This number is assigned by the Commission of the European Community; the EC number is the official number of a substance in the European Union.
- 4.18 Threshold level: Concentration level which defines the limit (equal to or) above which the presence of a substance or material in a product or subpart must be declared.
- 4.19 WEEE: Waste Electrical and Electronic Equipment.
- 4.20 Miscellaneous compounds (MISC): substance with no CAS number details.
- 4.21 China RoHS, formally known as China's Management Methods for Controlling Pollution by Electronic Information Products in China (Ministry of Information Industry Order #39). China's Management Methods (CMM) will restrict specified substances (the same 6 {Lead, Cadmium, Hexavalent Chromium, Mercury, Polybrominated biphenyls (PBB) and Polybrominated diphenyl ethers (PBDE)}) as EU RoHS2 at the same threshold levels from electronic information products (EIP) listed in a separate Catalogue. EIP listed in the Catalogue will be subject to pre-market testing and certification to confirm compliance with the substance restrictions. Additional requirements for labeling of product and packaging (i.e. toxic and hazardous substance or element disclosure, recycling disclosures and environmental protection use period mark) are required.
- 4.22 China RoHS - Catalogue A: publication of categories of electronic information products (EIP) that are regulated for toxic and hazardous substances. The catalogue will define which EIP's are subject to material restrictions, the extent of the material restrictions and the in-force date of restrictions. Products that appear in the catalogue: will be added to the existing CCC (China Compulsory Certification) mark system; be subject to examination and inspection at the entry port by authorities; and required to be tested by certified Chinese laboratories.
- 4.23 Environmental Protection Use Period (EPUP): China RoHS term provides the length of time in years during which toxic and hazardous substances or elements contained in EIP will not leak out or cause dangerous exposure to users of the equipment. The term defines the elimination of serious environmental pollution resulting from normal use as well as serious harm to person or property as a result of such use. It also provides the length of time that the product can be used before it will need to be collected for recycling.
- 4.24 Electronic information products (EIP) – Products and accessories thereof manufactured with electronic information technology, such as: electronic radar products, electronic communications products, broadcast television products, computer products, home-use electronic products, electronic measuring instrument products, electronic products for specific uses, electronic component products, electronic application products, and electronic material products. The official list of EIP will be identified in the China RoHS catalogue and/or China RoHS directive.

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## 5.0 PROCEDURE

### 5.1 General Compliance Requirements

Most AICC customers require three types of Environmental Compliance reporting:

- Supplier declaration of material composition (FMD using AICC E-3467 form well as IPC 1752 class 5/6 declaration would be an example of this level of reporting)
- Supplier declaration of banned, reportable and restricted substances (according to AICC form E-3702 for products or form E-3742 for packaging or AICC approved equivalent)
- Third party analytical laboratory test report. Typically, AICC has been requested to provide these reports for the six banned substances in EU and China RoHS (lead, mercury, cadmium, chromium 6+, PBBs, PBDEs), 7 phthalates (DEHP, DBP, BBP, DIBP, DINP, DNOP, DIDP), bromine and chlorine compounds, red phosphorous, tetrabromo-bisphenyl-A, perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA) compounds, Hexabromocyclododecane (HBCDD).

General compliance requirements are according to the chemical compound limits established in AICC form E-3702 & E-3742. Many specific chemical compound limits are stricter than regional or country regulations because AICC customers have requested these lower levels.

#### **NOTE: China RoHS marking/labeling**

For products that are shipped to AICC locations in China, the marking/labeling requirements per the China RoHS standards shall be met. Section 5.4 provides information, especially AICC "50 year" EPUP requirement.

### 5.2 Declaration of Compliance (Reporting)

#### 5.2.1 Material composition data reporting

In order for AICC and its suppliers to be able to comply with the obligations of the RoHS, REACH legislation and other like anticipated legislation, we require all our suppliers to submit Full Material Declaration (FMD) in our E-3467 form for all articles (e.g. materials, components, assemblies, finished products and packaging) currently supplied to AICC.

Note that when preparing Material Composition forms, the use of MISC > 5% is allowed only when the supplier has an Intellectual Property concern related to a particular substance and when ALL of the following conditions have been met:

- The actual CAS number / name is known but cannot be reported for Intellectual Property reasons; **and***
- The supplier has confirmed that none of the Banned, restricted and Reportable substances in table 2; and*
- The supplier includes the reason(s) for reporting greater than 5% MISC.*

It is not appropriate to raise an IP issue when the actual substance is not known. Non-IP substances within a material must still be reported; as noted above, the use of MISC. at the material level is not allowed. To satisfy condition a) above, the supplier must provide sufficient documentation to demonstrate that the substances are an Intellectual Property asset protected by intellectual property rights. To satisfy condition b) above, the supplier must provide evidence that every banned, restricted, and reportable substance has been considered and is not present. The declaration will be rejected if the supplementary document is not sufficient.

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Other forms for declarations of compliance (listed below) are discouraged from being used but may be acceptable at AICC discretion. Self declarations completed based on international (e.g. IEC 62474) or national standards (e.g. ASTM in the United States) and/or AICC approved test methods to assure compliance or supplier declarations meeting either one of the following criteria in the order of preference as follows:

- a) A material content data sheet in the manufacturer's format referencing the manufacturer's P/N or family of part numbers that includes the threshold value for each of the banned, reportable or restricted substances. In addition, a statement or other evidence is required affirming the part can withstand the effects of the lead-free manufacturing process consisting of 2 cycles of IR solder reflow at 260 degrees C Max (when applicable). It must be clearly stated if the manufacturer is claiming an exemption. Identify the exemption number(s) description(s) that apply to the part number of the Declaration of Compliance. This document must be signed by the manufacturer's environmental compliance representative.
- b) A declaration of compliance in the manufacturer's format referencing the manufacturer's P/N or family of part numbers and which specifically refers to the RoHS2 Directive 2011/65/EU and declares the threshold limits contained within that document are not exceeded. In addition, it must refer to the manufacturer's P/N or family of part numbers or SMD package types affected. In addition, a statement or other evidence is required affirming the part can withstand the effects of the lead-free manufacturing process consisting of 2 cycles of IR solder reflow at 260 degrees C Max (when applicable).

To ensure the accuracy of information provided in a supplier's declarations of compliance, AICC will take the necessary **due diligence** and may perform or request the following actions to confirm and/or clarify supplier information:

- 1) Test results and methodologies for homogeneous materials meeting threshold values for RoHS2 and/or other IEC 62474 declarable substances. Upon request by AICC, the supplier will verify, via analytical testing (performed in accordance with clause 5.2.3 below), compliance to the above specification. Any additional documentation and/or test data, including documentation and data from the supplier's supply chain, which demonstrates specific supplier actions to verify compliance must be retained and made available upon request.
- 2) Risk assessment of supplier/manufacturer. Visits to supplier/manufacturer facilities may be requested to review and confirm environmental compliance methods/information that pertains to parts provided to AICC.
- 3) Inspection of incoming parts to verify RoHS2 compliance.

#### 5.2.2 Presence or absence of specific chemical compounds

AICC customers frequently request information about specific chemical compounds. AICC can make self-declaration where no risk exists for the potential of regulated substances to be found in components/parts.

- a) *The probability of restricted substances being present in materials, parts or sub-assemblies, and*
- b) *The trustworthiness of the supplier"*

*When undertaking the assessment described in point a), the manufacturer may apply technical judgement, as some substances are unlikely to be contained in certain materials*

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(e.g. organic substances in metals). Such technical judgement could be based on technical information available via the electrical/electronic industry, or a literature investigation of the Materials / parts used in electrical/electronic products.” These compounds may or may not be included in the material composition data.

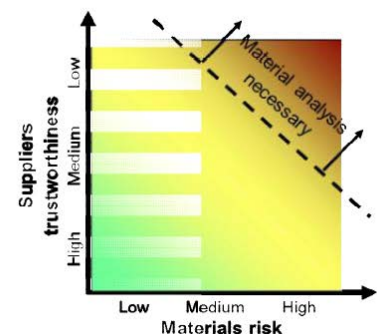
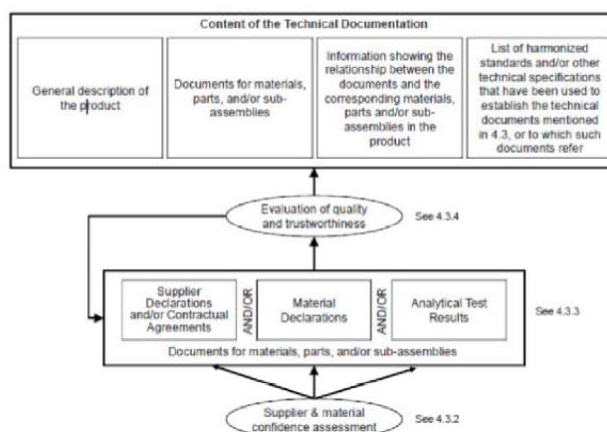
IEC 63000:2018 is a European Standard that has been provided by CENENEC which covers “all relevant essential requirements as given in Article 7 of Directive 2011/65/EU. Compliance with this standard provides one means of conformity with the specified essential requirements of the Directive concerned.”

The aim of this IEC 63000:2018 is to specify the technical documentation that the manufacturer needs to compile in order to declare compliance with the Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS2).

**Table 4.3.3-1: Matrix in line with EN 63001, Trustworthiness approach**

Supplier Trust-worthiness	Product Substance Risk		Option	Evidence 1: Supplier- or Self-declaration <sup>1)</sup>	Evidence 2: Testing
	Low	High			
A (high)	1	1A	1	in BOMCheck or other approved tool	No testing
B (med)	1	2	1A	in BOMCheck or other approved tool	Random testing <sup>2)</sup>
C (low)	1	3	2	in BOMCheck or other approved tool	Recent analysis report <sup>3)</sup> required from a certified lab
			3	in BOMCheck or other approved tool	Recent analysis report <sup>3)</sup> required & regular inspection <sup>4)</sup>

- 1) **Self Declaration:** when fully or partly responsible for the design or when trustful components information(s) or when product substance risk is low
- 2) **Random Testing:** On full product, or on all high risk components of product
- 3) **Recent:** max. 12 months (or longer - in case evidence of no change is available)
- 4) **Regular inspection:** Risk based, either at manufacturer site or at incoming inspection minimal



To provide accurate information to customers, AICC has prepared a list of the most commonly requested chemical compound information, see form E-3702 & E-3742. This list includes the banned, reportable and restricted substances in the IEC 62474 standard along with many others. Suppliers will be contacted to provide this information.

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### 5.2.3 Third party analytical laboratory test reports

Typically, AICC has been requested to provide independent 3<sup>rd</sup> party test laboratory (non-AICC test and non-supplier) reports for the following:

- Six banned substances (Pb, Hg, Cd, Cr6+, PBBs & PBDEs) in EU RoHS2 / China RoHS
- Di-(2-ethylhexyl) phthalate (DEHP), Butylbenzylphthalate (BBP), Dibutylphthalate (DBP), Diisobutyl phthalate (DIBP), DINP, DNOP, DIDP
- Bromine compounds
- Chlorine compounds
- Red phosphorous
- Perfluorooctane sulfonate (PFOS) compounds
- Perfluorooctanoic acid (PFOA) compounds
- PVC compounds
- tetrabromo-bisphenyl-A
- Hexabromocyclododecane (HBCDD)

Suppliers will be notified when such reports are required. Typically they must be provided on a yearly basis.

Where the measurement of materials content is indicated to verify compliance, or specifically requested by AICC the supplier will use a qualified lab to perform any required testing. The laboratory shall be accredited to ISO 17025 for the analytical methods required for testing. AICC may also require that the laboratory be certified by the Chinese Government for purposes of satisfying China RoHS testing.

For testing, the materials must be in a homogeneous state or a component processed into a homogeneous state. For example, in the case of a screw whose plating contains hexavalent chromium, the RoHS concentration is the weight of hexavalent chromium in the plating divided by the weight of the plating. It is not the weight of hexavalent chromium divided by the weight of the screw.

In most cases, the most practical approach is to test the materials that are used to make a part or component (such as solders, resins or coatings, etc.). This approach is recommended as material suppliers often conduct analytical testing as a means of quality control to ensure consistency from batch to batch. The testing of manufactured parts and components is not the optimal approach, as it requires that parts or components be processed into a homogeneous state by destructive means to prepare them for testing. The level of processing required by this approach can be extremely costly and time consuming.

### 5.3 Test Methodologies

Test methodologies for RoHS2 banned substances lead, mercury and cadmium shall be performed according to IEC 62321-X-Y series Edition 1.0:2013 standards, for PBBs and PBDEs as per IEC 62321-6 Edition 1.0:2015 standard, for chromium 6+ as per IEC 62321-7-1/2 Edition 1.0:2015/2017 standards and phthalates as per IEC 62321-8 Edition 1.0:2017 standard. For other banned, restricted or reportable compounds, industry recognized sample preparations and test standards shall be used with approval of AICC. Test reports must be kept on file and made available on request.

### 5.4 CE Mark

Since our connectors are 'components' and come under the classification of spare parts they will not have a CE mark applied. But our Cable assembly parts may be issued with a CE mark along with an EU Declaration of Conformity (DoC).

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## 5.5 China RoHS Packaging and Labeling information

China RoHS currently has the same threshold limits for the same 6 substances (lead, mercury, cadmium, hexavalent chrome, PBB, and PBDE) as in the European RoHS2 directive. However, there are several differences between the two regulations that will affect our current data collection processes. Data received from suppliers must provide details on any EU RoHS2 exemptions. We are implementing China RoHS compliance in two phases to match the Chinese government's implementation program.

The first phase requires marking of packaging and product. Disclosure of the presence of RoHS substances above the MCV's is also mandated. As of March 1, 2007 all AICC products and packaging used with the products placed on the market in China will need to comply with the labeling and information disclosure provisions of the China RoHS directive. All products will be required to be appropriately marked and written disclosure must be made of the components within the product that contain any substances that can be considered to fall under any of the six RoHS substance classes. Please note that China will initially allow products that exceed the threshold limits to continue to be sold as long as the label provides the required information. It is required that the product to be labeled with either a compliant (e) with chasing arrows – figure 1) logo or non-compliant (EPUP number with chasing arrows – figure 2) logo. The relevant logo shall be placed on the product label. If there is insufficient room on the packaging label to accommodate the required marking it is allowed to place the relevant environmental mark on a second label placed next to the packaging label. Please note any labels placed on the product shall be constructed to ensure that they last for the duration of the product life cycle (including EPUP). AICC will review and approve samples received from the supplier. Labeling in China has to be in Chinese and AICC requirement is to have both English and Chinese language on a single label.

The second phase implements the ban on hazardous substances above threshold concentrations and will include product testing requirements. The Catalogue as described in article 18 of the law will define which products are restricted, the timeline of the restriction and the substances to be restricted. Additional details regarding China RoHS will be added to this specification as more information is published. AICC requirements for meeting the marking and labeling requirements are described below:

RoHS Marking and Labeling Requirements: There are two marking requirements that need to be completed:

- EPUP marking/label – Environmental mark/label per 5.5.1.
- Packaging Materials recycling mark/label per 5.5.2.

### 5.5.1 EPUP marking/label – Environmental mark/label

All EIP for sale in China shall be marked with the EIP pollution control symbol (Figure 1 or Figure 2) on the product label. Note: the minimum size of the label (Figure 1 or 2) is 5mm x 5mm. If there is insufficient room on the packaging label to accommodate the required marking it is allowed to place the relevant environmental mark on a second label placed next to the packaging label. All product labels shall be able to demonstrate that they will be able to last through the product life cycle.

**Figure 1** shall be green in color and will be used for products that meet the threshold limits for homogeneous materials.



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**Figure 1**  
**Pollution Control Marking; "e" symbol**

**Figure 2** shall be orange in color (or any eye-catching color in order to be clearly visible on the product) and will be used to label product that contains toxic and hazardous substances above the threshold levels. When Figure 2 is used it will also be required to provide a Table (Table 1 is an example) that includes the names and contents of the toxic and hazardous substances in the AICC product. The "tic-tac-toe" table is required to be completed by suppliers for all independent sellable items (i.e. whole unit accessories, cables, power supplies, etc.) that exceed the China RoHS threshold values including those parts/products with current EU RoHS2 exemptions. A number within the arrows shall be used to designate the number of years of the EPUP. The determination of this period is made by individual companies, using broad principles enunciated by the Chinese government. AICC will review all EPUP numbers submitted by suppliers. In most cases AICC program and/or product managers will work with suppliers to develop EPUP numbers. AICC has adopted an EPUP of 50 years for standard products that are not compliant. If your material, component or assembly cannot meet 50 years, AICC Purchasing and Engineering shall be notified.



**Figure 2**  
**Pollution Control Marking**

Product or component which contains one or more of the six China RoHS substances

It is required that the EPUP mark shall be placed on the product label. If there is insufficient room on the packaging label to accommodate the required marking it is allowed to place the relevant environmental mark on a second label placed next to the packaging label. The EPUP label shall be clear for recognition, easily visible, resistant to color fading, and difficult to remove.

The table and marking/labeling will be required to be written in Chinese and English language.

**Table 1**

Part Name	Hazardous Substance					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (Cr 6)	Polybrominated biphenyl (PBB)	Polybrominated diphenylether (PBDE)
Part A	X	O	O	O	O	O
Part B	O	O	O	O	O	O

This table is prepared according to SJ/T 11364.  
O: Indicates that this hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in GB/T 26572.  
X: Indicates that this hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in GB/T 26572.

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#### 5.5.2 Packaging Materials recycling mark/label

Packaging material must not contain any of the hazardous substances and must be marked for recycling status. The markings on the packaging must comply with Chinese regulation GB/T 18455-2010 "Packaging Recycling Marking" (unofficial English translation AeA China RoHS Steering Committee) and AICC Packaging specification number GS-14-1114 available through AICC purchasing department.

### 6.0 REFERENCE DOCUMENTS

See Annex A & B

### 7.0 NOTES

Refer GS-47-0007 for AICC Volatile Organic Compound (VOC) Specification

### 8.0 RECORD RETENTION

All documentation and reports shall be maintained for the life of the product and at least 10 years beyond unless otherwise approved by AICC Legal department.

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**Table 2 – Banned, restricted and reportable substances**

Substance	CAS # (EC #)	Maximum Concentration Value	Regulation
Cadmium/ cadmium compounds in products	See IEC 62474 <sup>1</sup>	100ppm 5 ppm	EU directive 2011/65/EU (RoHS2) Customer imposed limits
Hexavalent-chromium / Hexavalent- chromium compounds in products	See IEC 62474 <sup>1</sup>	1000ppm Not detectable	EU directive 2011/65/EU (RoHS2) Customer imposed limits
Lead/lead compounds in products	See IEC 62474 <sup>1</sup>	1000ppm (Note: usage of lead 0.35% in steel, 0.40% in aluminium and 4.0% in copper alloys is exempted) 50 ppm	EU directive 2011/65/EU (RoHS2) Customer imposed limits
Mercury/mercury compounds in products	See IEC 62474 <sup>1</sup>	1000ppm Not detectable	EU directive 2011/65/EU (RoHS2) Customer imposed limits
Polybrominated Biphenyl (PBB) and Polybrominated diphenyl ether (PBDE) compounds, including Deca-BDE.	See IEC 62474 <sup>1</sup>	1000ppm each for PBB & PBDE 100 ppm total PBBs and PBDEs, 10 ppm for any individual group	EU directive 2011/65/EU (RoHS2) Customer imposed limits
Lead/lead compounds in cable assemblies	See IEC 62474 <sup>1</sup>	20 ppm	Customer prohibited, restricted and / or reportable
Sum of Cadmium, Chromium VI, Lead and Mercury compounds in packaging	See IEC 62474 <sup>1</sup>	100 ppm total	EU directive 94/62/EC and Customer prohibited, restricted and / or reportable
Antimony/antimony compounds	See IEC 62474 <sup>1</sup>	Unrestricted, reportable over 1000 ppm (except antimony trioxide)	Customer prohibited, restricted and / or reportable
Antimony Trioxide	1309-64-4	1000 ppm	Customer prohibited, restricted and / or reportable
Arsenic/arsenic compounds in products	See IEC 62474 <sup>1</sup>	50 ppm	Norway regulation
Arsenic/arsenic compounds Solder & Solder paste	See IEC 62474 <sup>1</sup>	300 ppm	EU directive 76/769/CE
Asbestos in products and packaging	See IEC 62474 <sup>1</sup>	Not detectable	EU directive 76/769/CE
(certain) Azo-colorants and azo-dyes in products & packaging	See IEC 62474 <sup>1</sup>	Not detectable	Customer prohibited, restricted and / or reportable
Beryllium/Beryllium Compounds	See IEC 62474 <sup>1</sup>	Unrestricted, reportable over 1000 ppm	Customer prohibited, restricted and / or reportable
Beryllium acetate, Beryllium carbonate, Beryllium nitrate, Beryllium oxide	15191-85-2 543-81-7; 13106-47-3; 13597-99-4	Not detectable	Customer prohibited, restricted and / or reportable
Bismuth/bismuth compounds	See IEC 62474 <sup>1</sup>	Unrestricted, reportable over 1000 ppm	Customer prohibited, restricted and / or reportable

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Bromine (Any Bromine and Brominated Compounds) in the form of flame retardants for components other than printed board and substrate laminates	See IEC 62474 <sup>1</sup>	1000 ppm (for products designated as low halogen/Halogen free) Reportable in all products	JEDEC/ECA Standard JS709, Customer prohibited, restricted and / or reportable
Chlorine (Any Chlorine and Chlorinated Compounds) in the form of flame retardants or PVC for components other than printed board and substrate laminates	See IEC 62474 <sup>1</sup>	1000 ppm (for products designated as low halogen/halogen free) Reportable in all products	JEDEC/ECA Standard JS709, Customer prohibited, restricted and / or reportable
Brominated Compounds in printed circuit boards and substrate laminates <sup>4</sup>	See IEC 62474 <sup>1</sup>	900 ppm (for products designated as low halogen/halogen free) Reportable in all products	IEC 61249-2-21, Customer prohibited, restricted and / or reportable
Chlorinated Compounds in printed circuit boards and substrate laminates <sup>4</sup>	See IEC 62474 <sup>1</sup>	900 ppm (for products designated as low halogen/halogen free) Reportable in all products	IEC 61249-2-21, Customer prohibited, restricted and / or reportable
Bromine and Chlorine compounds (total) in printed circuit boards and substrate laminates <sup>4</sup>	See IEC 62474 <sup>1</sup>	1500 ppm (for products designated as halogen/halogen free) Reportable in all products	IEC 61249-2-21, Customer prohibited, restricted and / or reportable
Certain phthalates	See IEC 62474 <sup>1</sup>	1000 ppm	Customer prohibited, restricted and / or reportable
Selenium/selenium compounds	See IEC 62474 <sup>1</sup>	Unrestricted, reportable over 1000 ppm	Customer prohibited, restricted and / or reportable
Polyvinyl chloride (PVC)	See IEC 62474 <sup>1</sup>	Not detectable	Customer prohibited, restricted and / or reportable
4-Nitrobiphenyl	92-93-3	1000 ppm	Customer prohibited, restricted and / or reportable
Aliphatic Chlorinated Hydrocarbons (CHCs)	630-20-6, 79-34-5, 79-00-5, 75-35-4, 76-01-07, 67-66-3, 79-01-06	1000 ppm	Customer prohibited, restricted and / or reportable
Anthracene oil	90640-80-5	Not detectable	Customer prohibited, restricted and / or reportable
Amines [diethylamine, dimethylamine (DMA), N, N-dimethyl-acetamide N, N-dimethylformamide (DMF), nitrosamide, nitrosamine (NMA), N methylformamide (NMF), O-anisidine, 4-aminoazobenzene]	127-19-5, 68-12-2, 355756-91-1, 614-00-6, 123-39-7	Not detectable	Customer prohibited, restricted and / or reportable
Di-(2-ethylhexyl) phthalate (DEHP), Butylbenzylphthalate (BBP), Dibutylphthalate (DBP), Diisobutyl phthalate (DIBP)	117-81-7, 85-68-7, 84-74-2, 84-69-5	Not detectable  1000 ppm	California Proposition 65, Denmark, Customer prohibited, restricted and / or reportable EU directive 2015/863 (Amending Annex II of EU

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			RoHS2 directive 2011/65/EU)
Diisononyl phthalate (DINP)	28553-12-0, 68515-48-0	Not detectable	California Proposition 65
Diisodecyl phthalate (DIDP)	26761-40-0	Not detectable	California Proposition 65 Customer prohibited, restricted and / or reportable
Di-N-Octylphthalate (DNOP)	117-84-0	Not detectable	Customer prohibited, restricted and / or reportable
Butyl bromoacetate (as total Br)	5292-43-3	Not detectable	Customer prohibited, restricted and / or reportable
Carbon tetrachloride	56-23-5	Not detectable	EU regulation 2037/2000
Chlorinated paraffins in products and packaging	See IEC 62474 <sup>1</sup> and 61788-76-9, 85422-92-0, 97553-43-0, 8029-39-8, 85535-84-8, 85535-85-9, 85535-86-0, 63449-39-8	Zero of chain length C10-13 or chlorine content >50%	Norway regulation
Chloroethylene, vinyl chloride	75-01-4	Not detectable	Customer prohibited, restricted and / or reportable
Dibutyltin hydrogen borate (DBB)	75113-37-0	100 ppm	Customer prohibited, restricted and / or reportable
Ethyl bromoacetate (as total Br)	105-36-2	Not detectable	Customer prohibited, restricted and / or reportable
Formaldehyde in products	50-00-0	1000 ppm	Customer prohibited, restricted and / or reportable
Formaldehyde in packaging	50-00-0	1000 ppm	Customer prohibited, restricted and / or reportable
Halogenated dioxins and furans	1746-01-6, 3268-87-9, 40321-76-4, 67562-39-4, 51207-31-9, 55673-89-7, 57117-31-4, 39001-02-0, 39227-28-6, 50585-81-6, 19408-74-3, 109333-34-8, 57653-85-7, 67733-57-7, 57117-41-6, 131166-92-2, 70648-26-9, 110999-44-5, 72918-21-9, 110999-46-7, 57117-44-9, 110999-45-6, 60851-34-5, 109333-34-8, 35822-46-9	Not detectable	Customer prohibited, restricted and / or reportable
Mirex (dodecachloropentacyclodecane)	2385-85-5	Not detectable	Customer prohibited, restricted and / or reportable

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Polychlorinated Naphthalenes (Cl =2)	-	Not detectable	Customer prohibited
Perchlorate Compounds	-	0.006ppm	Customer prohibited
Methyl bromoacetate (as total Br)	96-32-2	Not detectable	Customer prohibited, restricted and / or reportable
Nickel and compounds	3333-67-3, 13463-39-3, 12054-48-7, 1313-99-1, 12035-72-2; See IEC 62474 <sup>1</sup>	Reportable over 1000 ppm where prolonged skin contact may occur.	Customer prohibited, restricted and / or reportable
o-Nitrobenzaldehyde (2-nitrobenzaldehyde)	552-89-6	Not detectable	Customer prohibited, restricted and / or reportable
Ozone-depleting substances (CFCs, HCFCs, HBFCs, carbon tetrachloride, etc.)	See IEC 62474 <sup>1</sup> , EU regulation 2037-2000 & Montreal Protocol list of ozone depleting substances	Not detectable	EU regulation 2037/2000
Tributyl Tin (TBT) and Triphenyl Tin (TPT) compounds	See IEC 62474 <sup>1</sup>	Not detectable	EU directive 76/769/CE
Tributyl Tin Oxide (TBTO)	See IEC 62474 <sup>1</sup>	Not detectable	EU directive 76/769/CE
Dibutyltin (DBT) compounds	See IEC 62474 <sup>1</sup>	Not detectable	
Phosphorus based flame retardants in products	7723-14-0, 61840-22-0, 68333-79-9, 2781-11-5, 78-51-3, 264544-49-5, 115-86-6, 115-88-8, 756-79-6, 78-42-2, 78-38-6, 1806-54-8, 57583-54-7, 78-40-0	1000 ppm	Customer prohibited, restricted and / or reportable
Red Phosphorus	7723-14-0 15185-10-3	1000ppm	Customer prohibited, restricted and / or reportable
Polycyclic Aromatic Hydrocarbons (PAH)	Customer prohibited, restricted and / or reportable	10 ppm	Customer prohibited, restricted and / or reportable
Polychlorinated biphenyls (PCB, Aroclor) Polychlorinated terphenyls (PCT)	See IEC 62474 <sup>1</sup>	Not detectable	EU directive 76/769/CE
Polychlorinated phenols	USA DOT 1065	Not detectable	Customer prohibited, restricted and / or reportable
Polychlorinated Naphthalenes (PCN) (more than 3 chlorine atoms)	See IEC 62474 <sup>1</sup>	Not detectable	Customer prohibited, restricted and / or reportable
Pentachlorophenol (PCP) and its salts and compounds	87-8-6-5; 131-52-2	Not detectable	Customer prohibited, restricted and / or reportable
Perchlorobenzene (hexachlorobenzene)	118-74-1	Not detectable	Customer prohibited, restricted and / or reportable

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Ugilec and DBBT (PCB substitutes)	99688-47-8, 76253-60-6	Not detectable	Customer prohibited, restricted and / or reportable
PFOS (perfluorooctane sulfonate) / PFOA (Perfluorooctanoic acid) compounds	EU directive 76/769/CE and Norway PoHS Directive	1000 ppm	EU directive 76/769/CE
Radioactive substances	See IEC 62474 <sup>1</sup>	Not detectable	Customer prohibited, restricted and / or reportable
Aldrin	309-00-2	1000 ppm	Customer prohibited, restricted and / or reportable
Dieldrin	60-57-1	1000 ppm	Customer prohibited, restricted and / or reportable
Endrin	72-20-8	1000 ppm	Customer prohibited, restricted and / or reportable
DDT Chlorophenothane	50-29-3	1000 ppm	Customer prohibited, restricted and / or reportable
Chlordanes	57-74-9	1000 ppm	Customer prohibited, restricted and / or reportable
N, N1-ditoyl-p-phenylenediamine	27417-40-9	1000 ppm	Customer prohibited, restricted and / or reportable
N-toyl-N1-xylyl-p-phenylenediamine	28726-30-9	1000 ppm	Customer prohibited, restricted and / or reportable
2, 4, 6 tri-tert-butylphenol	732-26-3	1000 ppm	Customer prohibited, restricted and / or reportable
Nonylphenol / Nonylphenol ethoxylates	25154-52-3, 9016-45-9	1000 ppm	Customer prohibited, restricted and / or reportable
Tetrabromo bisphenol A (TBBP-A) monomer	79-94-7	10 ppm	Norway regulation
Tetrabromo bisphenol A (TBBP-A) oligomers and polymers	-	10 ppm	Norway regulation
Toxaphene	8001-35-2	1000 ppm	Customer prohibited, restricted and / or reportable
Kelthane	115-32-2	1000 ppm	Customer prohibited, restricted and / or reportable
Hexabromocyclododecane (HBCDD)	25637-99-4	1000 ppm	Norway regulation, EU Regulation 850/2010 (POPs) Customer prohibited, restricted and / or reportable
Hexachlorobutadiene	87-68-3	1000 ppm	Customer prohibited, restricted and / or reportable
EU REACH - Candidate List of Substances of Very High Concern for Authorisation	Refer ECHA site: <a href="https://echa.europa.eu/candidate-list-table">https://echa.europa.eu/candidate-list-table</a>	0.1 % by weight	EU REACH Regulation (1907/2006/EC)

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EU REACH - List of substances included in Annex XIV of REACH (Authorisation List)	Refer ECHA site: <a href="https://echa.europa.eu/addressing-chemicals-of-concern/authorisation/recommendation-for-inclusion-in-the-authorisation-list/authorisation-list">https://echa.europa.eu/addressing-chemicals-of-concern/authorisation/recommendation-for-inclusion-in-the-authorisation-list/authorisation-list</a>	0.1 % by weight	EU REACH Regulation (1907/2006/EC)
EU REACH - List of substances included in Annex XVII of REACH (Restricted List)	Refer ECHA site: <a href="https://echa.europa.eu/addressing-chemicals-of-concern/restrictions/substances-restricted-under-reach">https://echa.europa.eu/addressing-chemicals-of-concern/restrictions/substances-restricted-under-reach</a>	0.1 % by weight	EU REACH Regulation (1907/2006/EC)
Gold (Au), which originates from the DRC (Democratic Republic of the Congo) or an adjoining country	-	Intentionally Added	Dodd–Frank Wall Street Reform and Consumer Protection Act
Tin (Sn), which originates from the DRC (Democratic Republic of the Congo) or an adjoining country	-	Intentionally Added	Dodd–Frank Wall Street Reform and Consumer Protection Act
Tantalum (Ta), which originates from the DRC (Democratic Republic of the Congo) or an adjoining Country	-	Intentionally Added	Dodd–Frank Wall Street Reform and Consumer Protection Act
Tungsten (W), which originates from the DRC (Democratic Republic of the Congo) or an adjoining country	-	Intentionally Added	Dodd–Frank Wall Street Reform and Consumer Protection Act
Benzenamine, N-phenyl-, Reaction Products with Styrene and 2,4,4-Trimethylpentene (BNST)	68921-45-9	Intentionally Added	Canadian Environmental Protection Act, 1999: Prohibition of Certain Toxic Substances Regulations, 2012
California Proposition 65 List of Chemicals	<a href="http://oehha.ca.gov/prop65/prop65_list/Newlist.html">http://oehha.ca.gov/prop65/prop65_list/Newlist.html</a>	Intentionally Added	California Proposition 65, the Safe Drinking Water and Toxic Enforcement Act of 1986
Dibutyltin (DBT) compounds Dibutyltin oxide Dibutyltin diacetate Dibutyltin dilaurate Dibutyltin dichloride (DBTC)	818-08-6 1067-33-0 77-58-7 683-18-1	1000 ppm	Customer prohibited, restricted and / or reportable (In products and packaging)
Diocetyl tin (DOT) compounds Diocetyl tin oxide Diocetyl tin dilaurate	870-08-6 3648-18-8	1000 ppm	Customer prohibited, restricted and / or reportable



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Fluorinated greenhouse gases (PFC, SF6, HFC)	75-73-0, 76-16-4, 76-19-7, 355-25-9, 678-26-2, 355-42-0, 115-25-3, 2551-62-4, 75-46-7, 75-10-5, 593-53-3, 138495-42-8, 354-33-6, 359-35-3, 811-97-2, 624-72-6, 75-37-6, 430-66-0, 420-46-2, 353-36-6, 431-89-0, 677-56-5, 431-63-0, 690-39-1, 679-86-7, 460-73-1, 406-58-6	Intentionally Added	Customer prohibited, restricted and / or reportable
Methyl bromide	74-83-9	Intentionally Added	Customer prohibited, restricted and / or reportable (in packaging)
Brominated compounds, chlorinated compounds, Poly vinyl chloride (PVC), fluorine contained resin, fluorine compounds, etc.	-	Intentionally Added	Customer prohibited, restricted and / or reportable (in packaging)

<sup>1</sup> refer <http://std.iec.ch/iec62474> for IEC 62474 - Declarable substance groups and declarable substances

## Annex A References

### A.1 European Union

- A.1.1 EU Commission **Directive 2002/95/EC** of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment. Official Journal of the European Union 13.2.2003  
<http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32002L0095&from=EN>
- A.1.2 **Directive 2011/65/EU** of the European parliament and of the council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (recast)  
<http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32011L0065&from=EN>
- A.1.3 EU commission delegated **Directive 2015/863** of 31 March 2015 amending Annex II to Directive 2011/65/EU of the European Parliament and of the Council as regards the list of restricted substances  
<http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32015L0863&from=EN>
- A.1.4 European Union Directive of "Restrictions on use of pentabromodiphenyl ether CAS-number 32534-81-9 and octobromodiphenyl ether CAS-number 32536-52-0", (**Directive 2003/11/EC**).  
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:042:0045:0046:EN:PDF>
- A.1.5 EU **PFOS Directive 2006/122/EC** of the European Parliament and of the Council of 12 December 2006 amending for the 30th time Council Directive 76/769/EEC on the approximation of the laws, regulations and administrative provisions of the Member States relating to restrictions on the marketing and use of certain dangerous substances and preparations (perfluorooctane sulfonates) (Text with EEA relevance)  
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:372:0032:0034:en:PDF>

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A.1.6 **EU DMF (dimethylfumarate) Directive 2009/251/EC**: Commission Decision of 17 March 2009 requiring Member States to ensure that products containing the biocide dimethylfumarate are not placed or made available on the market (notified under document number C(2009) 1723) (Text with EEA relevance)

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:074:0032:0034:EN:PDF>

A.1.7 **EU REACH Regulation (1907/2006/EC)**: Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:396:0001:0849:EN:PDF>

**Candidate List of Substances of Very High Concern (SVHC) for authorisation**

<https://echa.europa.eu/candidate-list-table>

**List of substances included in Annex XIV of REACH (Authorisation List)**

<https://echa.europa.eu/addressing-chemicals-of-concern/authorisation/recommendation-for-inclusion-in-the-authorisation-list/authorisation-list>

**List of substances included in Annex XVII of REACH (Restricted List)**

<https://echa.europa.eu/addressing-chemicals-of-concern/restrictions/substances-restricted-under-reach>

A.1.8 European Parliament and Council **Directive 94/62/EC** of 20 December 1994 on **packaging and packaging waste**

<http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31994L0062&from=EN>

A.1.9 **Directive 2012/19/EU** of the European Parliament and of the Council of 4 July 2012 on **waste electrical and electronic equipment (WEEE)** (recast)

<http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32012L0019&from=EN>

A.1.10 **Directive 2008/98/EC** of the European Parliament and of the Council of 19 November 2008 on **waste** and repealing certain directives (**Waste Framework Directive - WFD**)

<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32008L0098&from=EN>

A.1.11 Directive 2018/851/EU of the European Parliament and of the Council of 30 May 2018 amending Directive 2008/98/EC on waste (**Amendment on the SCIP database**)

<https://eur-lex.europa.eu/legal-content/en/TXT/PDF/?uri=CELEX:32018L0851&from=EN>

**A.2 People's Republic of China**

A.2.1 Official China RoHS website

<http://www.miit.gov.cn/>

A.2.2 **Management Methods for Controlling Pollution by Electronic Information Products** (Ministry of Information Industry Order #39) Jointly promulgated by Ministry of Information Industry, National Development and Reform Commission, Ministry of commerce, General Administration of Customs, General Administration of Quality Supervision, Inspection and Quarantine, and State Environmental Protection Administration on February 28, 2006 and effective on March 1, 2007. Annotated Unofficial English Translation – for reference purposes only. R. Ferris ([tad.ferris@hklaw.com](mailto:tad.ferris@hklaw.com)) and H. Zhang ([hongjun.zhang@hklaw.com](mailto:hongjun.zhang@hklaw.com))

A.2.3 People's Republic of China – **Management Methods for Controlling Pollution by Electronic Information Products**

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- A.2.4 People's Republic of China – Ministry of Information Industry – **Electronic Information Products Classification and Explanation**
- A.2.5 People's Republic of China – **GB/T 26572-2011 Requirements of Concentration Limits for Certain Restricted Substances in Electrical and Electronic Products** (Replaces SJ/T 11363-2006)
- A.2.6 People's Republic of China - **SJ/T 11364-2014 Marking for the Restricted Use of Hazardous Substance in Electronic and Electric Products** (Replaces SJ/T 11364-2006)
- A.2.7 People's Republic of China – **GB/T 26125–2011 Testing standard for Electrical and Electronics products – Determination of six regulated substances** (Replaces SJ/T 11365-2006)
- A.2.8 People's Republic of China - **SJ/Z 11388-2009 General Guidelines of Environment-friendly Use Period of Electronic Information Products**
- A.2.9 People's Republic of China - **GB/T 18455-2010 “Package Recycling Marking”** (Replaces GB 18455-2001)
- A.2.10 People's Republic of China – **GB/T 31274-2014 Restricted Substances Management Systems of Electrical and Electronic Products**

### A.3 Low Halogen / Halogen free

- A.3.1 **Low Halogen: Joint JEDEC/ECA Standard - JS709**, Definition of “Low-Halogen” for Electronic Products  
<http://www.jedec.org/>
- A.3.2 **Halogen Free: International Standard - IEC 61249-2-21**, Materials for printed boards and other interconnecting structures  
<https://webstore.iec.ch/home>

### A.4 US

- A.4.1 **The Dodd–Frank Wall Street Reform and Consumer Protection Act on Conflict Minerals**  
<https://www.sec.gov/about/laws/wallstreetreform-cpa.pdf>
- A.4.2 **California Proposition 65**, the Safe Drinking Water and Toxic Enforcement Act of 1986  
<http://oehha.ca.gov/prop65.html>
- A.4.3 **Conflict Minerals Reporting Template (CMRT)**  
<http://www.responsiblemineralsinitiative.org/reporting-templates/cmrt/>
- A.4.4 **Cobalt Reporting Template (CRT)**  
<http://www.responsiblemineralsinitiative.org/reporting-templates/cobalt-reporting-template/>
- A.4.5 **Mica Reporting Template (MRT)**  
<http://www.responsiblemineralsinitiative.org/reporting-templates/mica-reporting-template/>

### A.5 Norway

- A.5.1 Norwegian list of Priority Substances  
<http://www.environment.no/Topics/Hazardous-chemicals/Hazardous-chemical-lists/List-of-Priority-Substances/>

### A.6 India

- A.6.1 India **e-waste** (Management and Handling) Rules, 2011  
<http://deity.gov.in/esdm/e-waste>

### A.7 General

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- A.7.1 AICC Electronics Division form **E-3702**: Environmental Compliance Engineering reporting of banned, restricted and reportable compounds in Products, Components and Raw Materials.
- A.7.2 AICC Electronics Division form **E-3742**: Environmental Compliance Engineering reporting of banned, restricted and reportable compounds in Packaging Materials.
- A.7.3 AICC Electronics Division procedure **GS-14-1114**: Labeling procedure for recycling marks.
- A.7.4 AICC Volatile Organic Compound (VOC) Specification GS-47-0007
- A.7.5 **IEC 62321** – Electrotechnical products – Determination of levels of six regulated substances (lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyl, polybrominated diphenyl ethers). (See IEC Webstore at <http://webstore.iec.ch/>)
- A.7.6 **IEC 62474** - Material declaration for products of and for the electrotechnical industry (See IEC Webstore at <http://webstore.iec.ch/>)
- A.7.7 **IEC 62542** – Environmental standardization for electrical and electronic products and systems – Standardization of environmental aspects – Glossary of terms.  
[http://www.iec.ch/cgi-bin/restricted/getfile.pl/111\\_183e\\_CDV.pdf?dir=111&format=pdf&type=CDV&file=183e.pdf](http://www.iec.ch/cgi-bin/restricted/getfile.pl/111_183e_CDV.pdf?dir=111&format=pdf&type=CDV&file=183e.pdf)
- A.7.8 **IEC 63000-2018** - Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances (See IEC Webstore at <http://webstore.iec.ch/>)
- A.7.9 BOMcheck  
<http://www.bomcheck.net/>
- A.7.10 **IPC-1751A** Generic Requirements for Declaration Process Management.  
<http://www.ipc.org/1751>
- A.7.11 **IPC-1752A** Materials Declaration Management.  
<http://www.ipc.org/1752>
- A.7.12 **IEC 62474** - Declarable substance groups and declarable substances  
<http://std.iec.ch/iec62474>


### Annex B Region/Country Regulations and Industry standards

AICC Electronics division's products must comply with numerous regional & country regulations along with industry standards & customer specific requirements relating to banned, restricted and reportable chemical compounds. Some of the more well known regulations and standards are listed below. Some of these documents are referenced in clause 3.

- B1 Region / Country: Europe.  
Directive: The Restrictions of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment – 2002/95/EC (EU RoHS).  
Effective date: July 1, 2006
- B2 Region / Country: Europe.  
Directive: The Restrictions of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment – 2011/65/EU (EU RoHS2).  
Effective date: Jan 3, 2013
- B3 Region / Country: Europe.  
Directive: The Restrictions of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Directive 2011/65/EU Annex II Amendment - 2015/863/EU  
Effective date: July 22, 2019

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- B4 Region / Country: Europe  
Directive: Energy using Products - 2005/32/EC (EuP)  
Effective date: Aug 11, 2007
- B5 Region / Country: Europe  
Directive: End-of-life vehicles Directive – 2000/53/EC (ELV)  
Effective date: The ELV directive took effect on July 1, 2002, but vehicles put on the EU market before July 1, 2002 weren't covered until January 1, 2007
- B6 Region / Country: Europe  
Regulation: Registration, Evaluation and Authorization of Chemicals – EC 1907/2006 (REACH)  
Effective date: June 1, 2007
- B7 Region / Country: Europe  
Directive: Amendments on the SCIP database (Waste Framework Directive) — EU 2018/851  
Effective date: January 5, 2021
- B8 Region / Country: China  
Regulation: Management Methods for Controlling Pollution by Electronic Information Products –7/2006 (China RoHS)  
Effective date: March 1, 2007
- B9 Region / Country: China  
Regulation: Management Measures for the Control of Environmental Pollution by Electronic Waste (China WEEE)  
Effective date: Feb 1, 2008
- B10 Region / Country: Norway  
Regulation: Prohibition on Certain Hazardous Substances in Consumer Products (PoHS)  
Effective date: 2008
- B11 Region / Country: Korea  
Regulation/Directive: The Act for Resource Recycling of Electrical/Electronic Products and Automobiles (Korea RoHS)  
Effective date: Jan 1, 2008
- B12 Region / Country: Japan  
Regulation/Directive: Law for the Promotion of Effective Utilization of Resources (Japan RoHS)  
Effective date: July 1, 2006
- B13 Region / Country: Japan  
Regulation/Directive: Japan Green Procurement Survey Standardization Initiative (JGPSSI)  
Effective date: May 25, 2005
- B14 Region / Country: California / USA  
Regulation/Directive: The Electronic Waste Recycling Act - SB 20/50 (California RoHS)  
Effective date: Jan 1, 2007
- B15 Region/Country: California/USA  
Regulation/Directive: Safe Drinking Water and Toxic Enforcement Act of 1986 – California Proposition 65  
Effective: November 1986
- B16 Region / Country: Europe  
Directive: The Waste Electrical and Electronic Equipment – 2002/96/EC (WEEE)  
Effective date: Aug 13, 2005
- B17 Region / Country: Europe  
Directive: The Waste Electrical and Electronic Equipment – 2012/19/EU (WEEE new)  
Effective date: Feb 14, 2014

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- B18 Region / Country: Europe  
 Directive: European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste  
 Effective date: Dec 20, 1994
- B19 Region / Country: India  
 Directive/Regulation: e-waste (Management and Handling) Rules, 2011  
 Effective date: May 1, 2012 (WEEE) and May 1, 2014 (RoHS)

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REV	PAGES	DESCRIPTION	EC #	DATE
A	All	Released new procedure (supersedes GS-22-022)	Initial release	06/05/12
B	All	Updated new EU RoHS Directive 2011/65/EU reference, Table 2 and section 3.2. Added CE mark definition and section	ECR-ELX-I-14325	03/22/13
C	10	Session 4 – definitions Session 5.2 - Declaration of Compliance (Reporting) Session 5.3 – Test methodologies Table 2 - Banned, restricted and reportable substances Annex A	ECR-ELX-I-18342	07/18/14
D	9, 16	Updated new China RoHS references in Table 1 and Annex A	ECR-ELX-I-19788	12/19/14
E	2, 7, 11-18	Updated low halogen / halogen free definitions, Table 2, Annex A & B	ECR-ELX-I-21379	07/10/15
F	6, 10-15, 17	Replaced reference JIG 101 with IEC 62474	ECR-ELX-I-21444	07/17/15
G	All	New company name Amphenol FCI (AFCI) and logo Included “The Dodd–Frank Wall Street Reform and Consumer Protection Act on Conflict Minerals” reference under Annex A. Added additional substances to Table 2	ECR-ELX-I-23202	02/02/16
H	All	New name and logo (Amphenol ICC – AICC) Included new substances in Table 2 Removed BOMCheck reference and FMD in E-3467 is made mandatory Changed document retention period from 6 to 10 years Test report is made mandatory	ECR-ELX-I-27632	08/08/17
J	All	Replaced MSDS with Safety Data Sheet (SDS) Replaced EN 50581:2012 with IEC 63000:2018 Added conflict minerals reporting, cobalt reporting and mica reporting templates Added China VOC Added SCIP database reference	ECR-ELX-I-39170	12/01/20