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Amphenol Industrial & Aerospace Operations
Products & Hazardous Materials Statement

Introduction

Amphenol Industrial & Aerospace Operations (AIAO), including both Military Aerospace and Industrial Operations, is committed to the reduction or elimination of hazardous and ozone-depleting substances via material substitutions and/or process changes to achieve full compliance with all environmental directives governing its interconnection products. The identification, evaluation and implementation of less hazardous materials and process alternatives/substitutes, has been and will continue to remain an ongoing company effort. Current products, if applicable and required, (military, aerospace, etc.) will continue to be offered without deviation. Compliant products shall be distinguished by part number changes, marking, labeling or other clear means of identification, as necessary.

This document provides disposition regarding the extent to which AIAO interconnection products may or may not contain lead (Pb), cadmium (Cd), mercury (Hg), hexavalent chromium (Cr^{+6}), brominated flame retardants (PBB & PBDE) and various other substances subject to existing or future legal constraints or those which have been specifically identified as 'substances of interest' by our valued customers.

The information disclosed in this statement is of generic scope and intended to encompass the 800,000+ products sold by AIAO on the global market. Due to perpetually changing customer specifications and product formulation dynamics, it is suggested to contact your applicable Amphenol representative in critical instances requiring detailed customer-specific data on a particular product or substance of interest.

Environmental Directive(s) Compliance

Following delineates the current compliance status of AIAO in regards to the environmental directives outlined below.

End-of-Life-Vehicles (ELV) 2000/53/EC

The ELV Regulations, (including Annex II as amended June 27, 2002) directly affect automobile manufacturers and their importers, suppliers, subcontractors and contract electrical & electronic manufacturers. The objective being the reduction heavy metal (Pb, Hg, Cd & Cr^{+6}) environmental contamination through material restrictions and mandated manufacturer-sponsored used vehicle recycling programs.

As a direct & tiered supplier to the automotive industry, AIAO offers a variety of electrical connection products, which meet or exceed compliance to specific material restriction provisions as established in the End-of-Life-Vehicle Regulations.

Dangerous Substances Marketing & Use (Octa & Penta-BDE) 2003/11/EC

The 2003/11/EC Directive, amending Council Directive 76/769/EEC, *relating to restrictions on the marketing and use of certain dangerous substances and preparations, (pentabromodiphenyl ether, octabromopdiphenyl ether),* more commonly referred to as the "Penta/Octa-BDE Ban", became effective August 15, 2004. The intent of which is to promote protection of human health and the environment via imposed material restrictions on Pentabromodiphenyl Ether (Penta-BDE) and Octabromodiphenyl Ether (Octa-BDE), by establishing a $\leq$ 0.1% by mass threshold limit for any product placed on the EU market.

AIAO **does not** produce or ship any products containing known amounts of Penta-BDE or Octa-BDE in concentrations greater than 0.1% by mass and is therefore deemed compliant with the 2003/11/EC Directive.

Montreal Protocol

The Montreal Protocol on Substances that Deplete the Ozone Layer was adopted September 1987 in effort to promote atmospheric ozone layer protection through phase-out and control measures of Ozone Depleting Substances (ODS) as listed in Annexes A – C of the treaty.

AIAO, **does not**, in the production of its electrical connectors, utilize any ODS, as listed in Annex A – C, which may come into direct contact with the finished product or its components.

Waste Electrical & Electronic Equipment (WEEE) 2002/96/EC

The WEEE Directive was established in response to the rapid growth of electronic waste and the hazardous components contained therein. It aims to minimize the environmental effects of EEE during product life-cycles through the mandate of Design for Environment (DfE) principles and manufacturer-sponsored product take-back & recycling programs for which WEEE target recovery rates have been assigned. Annex IA of the regulations provides a generic listing of ten (10) covered electrical & electronic equipment categories, whereas Annex IB delineates specific products falling under each category. In addition, the directive distinctly exempts, any EEE utilized specifically for military or national defense purposes – it does not however, apply to military specification products used for non-military applications.

AIAO offers a variety of compliant military and non-military connectors. Since AIAO military connectors may be integrated into non-exempt applications by contract manufacturers and OEMs, they assume WEEE Directive compliance responsibilities once their name and/or logo is placed on the final assembly or packaging. The decision to utilize compliant or non-compliant connectors is the responsibility of the customer. AIAO will not comment, nor certify end-use applications.

Restriction of Hazardous Substances (RoHS) EU 2002/95/EC

The RoHS Directive, as amended per 2005/618/EC, 2005/717/EC and 2005/747/EC, complements the WEEE legislation through recognition that mandated recycling of EEE alone is insufficient to significantly minimize environmental & public health risks and that source-level reduction of hazardous substances is also necessary.

This EU Directive requires the restriction of certain heavy metals and flame retardants. Effective July 1, 2006, new electrical and electronic equipment included within categories 1, 2, 3, 4, 5, 6, 7 and 10 as set forth in Annex 1A of the WEEE Directive may not contain Lead (Pb), Mercury (Hg), Cadmium (Cd), Hexavalent Chromium (Cr^{+6}) Polybrominated Biphenyls (PBB) or Polybrominated Diphenyl Ethers (PDBE) in excess of their allowable maximum concentration values (MCV) unless specifically exempted in the RoHS Directive Annex.

As allowed per *Article 5(1)(b)* of the directive, the stakeholder consultation process continues to evoke industry comments and additional requests for exemptions, which shall be reviewed by the Technical Adaptation Committee (TAC) or third-party consultants. Until completion of the TACs review and investigation of the proposed exemption(s), the 2002/95/EC Annex delineating exemptions for certain hazardous substances remains incomplete.

The following provides AIAO's disposition of the six (6) hazardous substances, based on present language and exemptions listed in the RoHS Directive:

Mercury

AIAO does not use mercury or mercury compounds in the manufacture of its products.

Polybrominated Biphenyls (PBB)

AIAO does not use PBBs in the manufacture of its products.

Polybrominated Diphenyl Ethers (PDBE)

AIAO does not use penta-BDE or octa-BDEs, as banned per 2003/11/EC, in the manufacture of its products. Deca-BDE, which is currently exempted per 2005/717/EC, is contained in select products, however the exemption may be rescinded should pending litigation by an EU member state prove successful.

Amphenol is working aggressively with its material suppliers for a targeted Deca-BDE phase-out by May 2006.

Lead

The use of lead within AIAO is generally limited to applications listed in paragraphs 6 & 7 of EU 2002/95/EC Annex. Other applications not governed by the aforementioned include pre-filled solder contacts, solder plated or dipped contacts, high-temperature specialty resins and lubricants, PVC jacketed cable assemblies, etc.

Due to stringent customer and Mil-Spec requirements, AIAO will not pursue 100% transition to Pb-free products, however when feasible, RoHS compliant alternatives will be offered. The lead-free alternatives of choice are:

- Non-filled (pretinned) solder cups [customer supplies own solder]
- Tin (96.5%) / Silver (3.5%) solder alloy
- Tin (96.5%) / Silver (3.0%) / Copper (0.5%) [SAC305] solder alloy
- Matte Tin plate

MS and other mil-specification part-numbers requiring leaded solder will not be made available in lead-free or RoHS compliant versions until the applicable Mil-Spec is revised to incorporate this change.

Cadmium

AIAO anticipates the ability to offer RoHS compliant versions of its current cadmium-plated products by July 2006, however there are no immediate plans to eliminate cadmium it its entirety. Paragraph 8 of the 2002/95/EC Annex specifically exempts ***cadmium plating*** from RoHS regulations, unless the application is banned per 91/338/EEC *Restrictions on the Marketing & Use of Certain Dangerous Substances & Preparations,* amending Directive 76/769/EEC.

It shall be the customer's responsibility to ensure that cadmium-plated components purchased from AIAO are not used in contravention to 2002/95/EC or 91/338/EEC Directives.

Alternative plating finishes to Cadmium have been available from AIAO for a number of years and additional ones are expected in the near future. Please consult product catalogs or the factory for further details

Hexavalent Chromium

AIAO, in addition to other manufacturers performing metal finishing, currently utilizes Hexavalent Chromium (Cr^{+6}) as a passivate for certain surface finishes. This application is presently under review by the TAC for an exemption as part of the stakeholder consultation process under *Article 5(2)* of the 2002/95/EC Directive. We support this request for exemption, but during the interim, have been actively pursuing/evaluating trivalent chromium (Cr^{+3}) and alternate plating finishes. Current success is limited, however research and development is ongoing. Regardless of TAC decision(s), AIAO will continue to offer hexavalent chromium passivated products per customer requirements and shall also provide alternate finishes on a customer-specific basis.

Please note that considerable changes may be necessitated in event that further exemptions are added or rescinded in the future.

"China RoHS"

The Chinese government has recently notified for comment, its **A**dministrative **M**easures on the **C**ontrol of **P**ollution **C**aused by **E**lectronic **I**nformation **P**roducts (AMCPCEIP)**,** more commonly referred to as **China RoHS**. It shares the same general focus as the EU 2002/95/EC Directive – source reduction of hazardous substances, however the tentative effective date is March 2007. The regulation encompasses the same six (6), hazardous substances as the RoHS Directive, with additional requirements for *other toxic and harmful substances or elements provided by the state*. Additionally, the regulation mandates manufacturers to disclose the names/contents of toxic/harmful substances in their products and also provide a 'safe-use-period' (i.e. – expiration date) for them as well. Contrasting the EU RoHS legislation, the absence of maximum concentration values (MCVs) and specific exemptions warrants attention due to the lack of uniformity between the two.

China's Ministry of Information Industry (MII) is responsible for administration of this policy and once promulgated, the development of a "covered products" list (a.k.a – "The Catalog"). Currently, the MII has not openly disseminated new information regarding the 'China RoHS' directive, and English translations are not readily available.

California SB50

Senate Bill 50 prohibits an *electronic device* from being sold or offered for sale in the state of California if it is also prohibited from being sold or offered for sale in the European Union to the extent that Directive 2002/95/EC prohibits the sale due to the presence of certain hazardous substances. The regulations shall become effective January 1, 2007 or on or after the date Directive 2002/95/EC takes effect, whichever is later. A *covered electronic device* includes a video display device with a screen greater than four (4), inches measured diagonally.

AIAO does not manufacture nor sell, under its brand, video display devices meeting the definition of a *covered electronic device* in SB50, however we are committed to providing compliant products for our customers governed by this initiative.

Specific Substance(s) Information

Following provides a hybrid list of materials & substances per the *JIG Material Composition Declaration Guide* and customer-specific restricted materials requirements.

4-Aminobiphenyl

AIAO products do not contain 4-Aminobiphenyl.

Aluminum

The vast majority of AIAO products are made from aluminum alloys.

Amines (Aliphatic)

AIAO utilizes aliphatic amines in the manufacture of its products, however through various manufacturing processes, they are not believed to be present in the final product in the reportable state.

Amines (Aromatic)

AIAO utilizes aromatic amines in the manufacture of its products, however through various manufacturing processes, they are not believed to be present in the final product in the reportable state.

Aniline Salts

AIAO utilizes minute amounts of aniline salts in the manufacture of its products.

Anthracene

AIAO products do not contain anthracene.

Antimony

Antimony compounds may be used in some flame retardant plastic materials to meet customer non-flammability requirements.

Arsenic
Trace quantities (<100 mg/kg) of Arsenic may be present in commercially available grades of base metals (bronze, copper, brass, etc.).

Asbestos
AIAO products do not contain asbestos

Azo Dyes
AIAO products do not contain azo dyes, which through reductive cleavage, may form aliphatic or aromatic amines. Azo dyes which are utilized for pigmentation however, are allowed so without restriction.

Barium
Trace quantities (<100 mg/kg) of Barium may be present in commercially available grades of base metals

Beryllium
Select AIAO products may contain beryllium copper alloys, however non-alloyed 'free' beryllium is not used in any product lines.

Bismuth
Trace quantities (<100 mg/kg) of Bismuth may be present in commercially available grades of base metals. It is also be a desired constituent in low-temperature solders.

Cadmium
Cadmium plating is used on numerous AIAO products requiring a high-level of corrosion resistance and electrical conductivity. Cadmium may also be present in trace quantities in electroless nickel plating and as a pigment in polymers.

Chromium
A number of AIAO products consist of aluminum, stainless steel or copper alloys which may contain chromium metal (Cr^0).

Hexavalent Chromium (Cr^{+6})
Select AIAO plating finishes may contain Cr^{+6}. Trace concentrations may also be found as a colorant in polymers.

Cobalt
A select number of AIAO products may be produced from cobalt-containing beryllium copper alloys. Cobalt may also be found as a colorant in polymers and in zinc-cobalt plated finishes.

Copper
Copper & copper compounds are present in many AIAO products, including base metals and underplates.

Ethylene Glycol Monoethyl Ether & Its Acetate
AIAO finished products are not anticipated to contain these materials

Ethylene Glycol Monomethyl Ether & Its Acetate
AIAO finished products are not anticipated to contain these materials

Gold
Gold is present as a final surface finish in select AIAO products.

Halogenated Dioxins & Furans
AIAO products do not contain Halogenated Dioxins or Furans

Iron
AIAO produces some products containing iron and iron nickel alloys. Additional products may be made from aluminum and steel, both of which contain iron as an alloying and base element.

Lead
AIAO products which may contain lead or lead compounds include pre-filled solder contacts, leads & assemblies, solder plated or dipped contacts, base metal alloys and PVC jacketed cable

Magnesium
Magnesium & magnesium compounds are present in many AIAO aluminum base metals.

Mercury
AIAO does not use mercury or mercury compounds in the manufacture of its products.

Nickel
AIAO products which may contain nickel or nickel compounds include nickel plated products, palladium-nickel plated products and any surface finish with nickel underplates. In addition, iron-nickel and other base metal alloys may contain trace concentrations as well.

Ozone Depleting Substances
AIAO products do not contain any ODS', nor are they utilized in any direct manufacturing processes.

Palladium
Palladium is used as a "seed" material to initiate the electroless plating process and is found in any plated composites below the actual electroless deposition layer.

Phosphorus
Phosphorus based flame retardants may sometimes be used in the formulation of non-halogenated flame retardants. Certain base metals may also contain phosphorus as an alloying element.

Phthalates
Select AIAO products may contain phthalates in the compound formulation used for inserts

Polybrominated Biphenyls (PBBs)
AIAO products do not contain PBBs

Polybrominated DiphenylEthers (PBDEs)
AIAO products do contain deca-BDEs, but not penta-BDEs or octa-BDEs. A deca-BDE phase-out date of May 2006 has been identified.

Polychlorinated Biphenyls (PCBs)
AIAO products do not contain PCBs

Polychlorinated Naphthalenes (PCNs)
AIAO products do not contain PCNs

Radioactive Substances
A very select class of AIAO connectors may contain trace concentrations of a radioactive gas housed in the connector shell.

Selenium
AIAO products may contain selenium, which is present in commercially available grades of base metals (copper, brass, bronze, etc.) and some adhesives.

Shortchain Chlorinated Paraffins
AIAO products do not contain Shortchain Chlorinated Paraffins

Silver
Silver is present as a final surface finish and a component in lead-free solders contained in certain AIAO products.

Tantalum
AIAO products may contain tantalum in the base metal alloy.

Tellurium
AIAO products may contain tellurium in the base metal alloy.

Thallium
AIAO products may contain thallium in the base metal alloy.

Tributyl Tin (TBT) & Triphenyl Tin (TPT)
AIAO products do not contain Tributyl or Triphenyl Tin.

Tributyl Tin Oxide (TBTO)
AIAO products do not contain Tributyl Tin Oxides (TBTOs).

Vinyl Chlorides (PVC)
PVC may be present in cable & cable assemblies for select AIAO products. However, they are not believed to exist in the monomer state

Zinc
AIAO products which may contain zinc include, zinc plated products and many base metal alloys.

Product Markings

AIAO has finalized its RoHS compliant marking – see below. It will be applied to the smallest feasible package level. Compliance of components & assemblies will be identified by unique part numbers.

Mil-Spec (MS) Products

AIAO will continue to manufacture existing MS parts in conformance to the Qualified Product List (QPL) requirement for the Mil-Specs. Cadmium plated and/or tin-lead solder product will remain viable customer choices. In event the Mil-Spec is revised to allow for RoHS compliant alternatives, options will be provided. New mil-part numbers will be designated to allow for differentiation.

Due to the inherent nature of the actual materials of construction and production processes, some MS parts may be RoHS compliant today. However due to the numerous finishes and specialty arrangements provided for each product line, AIAO cannot issue blanket RoHS compliance (or non-compliance) statements for MS Series PNs – they shall be reviewed on a PN-specific basis per customer request.

AIAO has issued this statement to promote its policies and implementation approach towards compliance with current and future environmental regulatory initiatives. The broad scope is intended to answer the majority of customer inquiries for the bulk of our products. We intend to provide comprehensive responses in a timely manner, however in some cases the complexity of the configuration may require additional response time. In the event detailed product information is required, please contact us to establish the most efficient and least cumbersome means to address your specific data requirements.

Should you have any questions, comments or concerns regarding this document, please do not hesitate to contact your AIAO account representative in order to address your issue(s).

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