Barco Product Environmental Requirements

Revision History

	Owned by	Par.	Reviewed by	Par.	Approved by	Par.
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Ver.	Name	Date	Reason for revision
00	Viviana Occhionorelli	23/10/2013	Initial release

Aim of this guidance

As Barco supplier you have the obligation to comply with worldwide environmental regulations on toxic substances, waste, energy efficiency etc. All products the supplier provides to Barco must be compliant with the Barco environmental requirements applicable to products and as supplier you must be able to prove compliance, unless otherwise explicitly required by Barco (e.g. in the Barco required specification, Barco documentation, Barco provided technical drawings).

This guidance aims at explaining the environmental requirements that Barco suppliers and OEMs/ODMs must comply with according to Barco Terms and Conditions of Purchase.

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The Compliance Engagement Form

All suppliers and OEMs/ODMs are requested to comply with the Compliance Engagement Form, to sign it and to send it back to the Barco reference person or to green.compliance@barco.com

The Compliance Engagement Form is available here:
http://www.barco.com/en/staticpages/~/media/C8376D007EFA401B827685003268C536.pdf

Barco REACH Requirements

What is REACH

REACH is a European legislation with the aim to improve human health and the environment by regulating the production and use of chemicals.

The official name of REACH is Regulation (EC) No. 1907/2006 of the European Parliament and the Council on REACH (**R**egistration, **E**valuation and **A**uthorization of **Ch**emicals). This law became effective in all European Union (EU) Countries on June 1, 2007. More REACH-like regulations are currently being adopted in other countries outside of Europe, for example in Japan, in China and Korea. Therefore, we encourage our suppliers to collect information about their products' chemical composition to ensure future worldwide compliance.

Scope

The Barco REACH requirement applies to all its suppliers and parts including:

- All purchased substances, materials, components, parts, subassemblies, assemblies, etc., that are incorporated into Barco products or combined with Barco products as part of a Barco end product
- All spare parts of field replacement units.
- All Suppliers and their sub-tier Suppliers involved in providing 'parts' to Barco
- All packaging materials for parts or products, including their labeling materials.

Suppliers are requested to demonstrate proof of their compliance because of the potential risk of loss of market access due to non – compliance with the REACH regulation.

REACH legal obligations

For articles (products) producers:

1. **Communication** of presence of substances included in the Candidate List of Substances of Very High Concern according to Article 33 of the REACH Regulation

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1.1. As soon as a new Substance of Very High Concern is included in the candidate list, producers need to inform immediately their customers of the presence of this substance in their products. The candidate list changes every 6 months with new additional substances, therefore producers need to ensure they have enough information about the chemical composition of their products. Failure to provide this information would lead to the breach of Article 33 of REACH.
1.2. According to the interpretation of this article by the European Chemicals Agency (ECHA), producers need to issue this communication only in case the substance is present in a concentration of 0.1% weight/weight in the part sold by the supplier. However, many European countries (including Belgium) offer a new interpretation and follow the rule "once an article, always an article", which means: the 0.1% threshold does not apply to an assembly but to its single parts separately.

2. **REACH Annex XIV** list of chemical substances that shall NOT be placed on the market unless specifically authorized by ECHA for the application (Authorization List).
   2.1. Every year the ECHA includes SVHCs into the Authorization List of Chemicals. Once included in this list, these chemicals will have a sunset date, i.e. a date after which they cannot anymore be placed on the EU market. If there are no alternatives, chemical producers will have to ask for an authorization to the ECHA to continue selling on the EU market. The authorization process has the aim to ensure that substances of very high concern (SVHCs) are progressively replaced by less dangerous substances or technologies where technically and economically feasible alternatives are available.
3. **REACH Annex XVII** Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and Articles.
   3.1. This annex lists all substances and applications banned from the EU market. The supplier shall not use any of these applications.

For chemicals producers:

1. Requirement to **register** chemical substances that are manufactured imported or contained in Articles (or parts) that are manufactured, or imported into the EU.
   1.1. To communicate relevant safety information further down the supply chain to their own customers. This information can be communicated in any of the following ways:
      1.1.1. Include the information in the main body of the safety data sheet provided to customers.
      1.1.2. Generate exposure scenarios for customer uses and attach these to the safety data sheet.
      1.1.3. Forward the exposure scenarios received from suppliers to the customers.
      1.1.4. **Important**: Downstream users must inform their customers without delay if they receive information identifying additional or more severe hazards, and/or additional or more stringent risk management measures than previously known.

   1.2. Manufacturers and importers of substances have a general obligation to submit a registration to the European Chemicals Agency for each substance manufactured or imported in quantities of 1 tonne or more per year per company (legal entity).

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Communication (for suppliers of products)

- All suppliers of Barco are required to actively communicate to Barco if any of their parts contain a Substance of Very High Concern.
- If this is the case, the supplier should inform Barco about: the name of the substance, the CAS number and its concentration weight/weight.
- The supplier is responsible for an ongoing REACH compliance program which includes monitoring for periodic additions to the SVHC list and to the Authorization list.
- The supplier should have a process for collecting data about the presence of SVHC which includes data from sub-tier suppliers.
- The supplier should keep this information collected in the supply chain for 10 years after the manufacturing of the part
- The supplier should be aware that it will be audited by Barco regarding its REACH performance and reporting.
- The supplier is responsible for incorporating the data obtained from sub-tier suppliers, for calculating the presence of SVHC in order to get the final net concentration weight/weight.
- Evidence obtained by sub-tier suppliers should be also available upon request of Barco.

Communication (for suppliers of chemicals)

- All suppliers of chemical agents are required to actively communicate to Barco if any of the substances and mixtures may be harmful to the health and safety of human beings or to the environment in general when exposed to these substances and mixtures.
- Suppliers need to provide a safety data sheet in the following cases:
  1. A substance (and from 1 June 2015 a mixture) is classified as *hazardous* according to the Regulation on classification, labelling and packaging of substances and mixtures (CLP).
  2. A mixture is classified as dangerous according to the Dangerous Preparations Directive (until 1 June 2015).
  3. A substance is considered as persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB), as defined in REACH (Annex XIII), or
  4. A substance is included in the candidate list of substances of very high concern (SVHC).
- Under certain conditions, described in Article 31(3), some mixtures, which do not meet the criteria for classification as dangerous or hazardous, also require a safety data sheet.
- Certain situations require the update and re-issue of the safety data sheet:
  1. as soon as new hazard information or information that may affect the risk management measures becomes available
  2. once an authorisation under REACH has been granted or refused
  3. once a restriction under REACH has been imposed
- When any of the above three situations apply, suppliers must provide updated safety data sheets to all the former recipients to whom they have supplied the substance or

mixture to within the preceding 12 months, free of charge.Safety Data Sheets (SDS) are the main tool ensuring that suppliers communicate enough information along the supply chain to allow safe use of their substances and mixtures.

- Safety data sheets (SDS) should include information about the properties of the substance (or mixture), its hazards and instruction for handling, safe and environmentally responsible disposal, transport but also first-aid, fire-fighting, and exposure control measures.
- The correct format and content of Safety Data Sheets should be according to REGULATION (EC) No 1907/2006 (REACH) Annex II.

Monitoring and self-auditing for REACH conformance

In case of changes to the part requested by Barco or by the supplier:

- The supplier is responsible for regularly verifying the conformance of its parts to REACH including in case of:
  - New part
  - Material change in existing part
  - Any changes by sub-tier suppliers
  - Updates of Barco environmental requirements

The supplier is also responsible for continuously monitoring the REACH regulation and its updates regarding the Candidate list of SVHCs and the Authorization List.

Information suppliers need to provide to Barco

In order to ensure compliance with the Barco REACH requirements, suppliers and OEMs must provide the following documentation:

- Full Material Declaration

or

- REACH Declaration or Certificate: If a full material declaration is difficult to provide in the short term. The certificate must include the name of any SVHCs contained in the supplied product according to the latest SVHC list.

If suppliers only provide a REACH Declaration to Barco, they are expected to renew the REACH certificate each time the SVHC list is updated (ca. every 6 months). Therefore Barco encourages its suppliers to provide Full Material Declarations.

All documentation will be requested by and must be provided to Greensoft Technology. Barco is working with Greensoft Technology since 2009 in collecting data for environmental compliance. As a supplier of Barco you will receive an email from Greensoft in which you will be asked to provide the documentation requested for compliance.
http://www.greensofttech.com/

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How to compile your compliance documentation

Many of our suppliers supply a very large number of products and make very complex products. Therefore it can be a challenge to find out in which products the SVHC are contained since the number of SVHCs is also large and tends to change over time.
First of all, to issue your compliance documentation you do not necessarily need to make a chemical analysis of the product at a testing laboratory. It will be sufficient to collect all information from your sub-tier suppliers and to aggregate this information together.
To make it easier, you can use a "probability based approach" to focus the work. The idea is to first collect information for those articles which are likely to contain SVHC. One example is plasticizers: many SVHCs are plasticizers and chemicals used in the production of plastic parts and electronic components. Therefore, if a part of your product is made of plastic, PVC or other similar materials, you can focus on these suppliers asking this information about their raw materials.

Barco can also provide a list of SVHCs which are most likely to be present in electronic equipment. Please find this list in Annex II.

General instructions

Full Material Declaration

What is a FMD?
It lists all substances contained in the article along with the substance mass or concentration. The substance masses need to sum up to 100% of the article's mass.

How to establish a Full Material Declaration?

- Request material and substance information from Sub-Tier suppliers
- Explode the BOM for each part requested and include the Sub-Tier supplier BOM information build-up in the BOM so it contains only substances with their respective weight
- Clean-up the BOM by excluding all tools, packaging, process materials and all other materials that are not present in the final delivered product
- If there are proprietary substances, include the total weight of proprietary substances (maximum 5% of the total product weight). Make sure that these proprietary substances don't contain any SVHC substances!
- Check if the sum of all the weights is equal to the total product weight
- Follow-up requests to collect updated material and substance information from Sub-Tier suppliers.

Note: Barco doesn't expect its suppliers to perform a chemical analysis test of the product. The information from sub-tier suppliers should be sufficient to compile a Full Material Declaration.

REACH Declaration

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How to provide a REACH Declaration?

- Request information on SVHC substances from Sub-Tier suppliers
- Collect all the information and explore if any of the parts of the product contains SVHC substances
- If none of the parts of your product contains any SHVC substance, you can provide Barco a REACH Declaration stating that the product does not contain any SVHC substance.
- If any of the parts contain one or more SVHC substances: collect all the gathered information and calculate for every SVHC substance its total concentration in the whole product (divide the weight of the SVHC substance by the weight of the total product). Please provide the following information to Barco in a declaration or certificate: the list of SVHC substances present in the product with their respective CAS-numbers and concentration.
  It is important to provide information even if substances are present in concentrations below 0,1% since all SVHC substances eventually will be included in the Authorization list (Annex XIV). Substances in the Authorization list cannot be placed on the market at all after their respective sunset date unless their use is authorized.
- Follow-up regulations and request SVHC information to your Sub-Tier suppliers again when the SVHC list is updated.

Instructions for specific product categories

Printed Circuit Board Assemblies

- An investigation is requested for the assembly process only, which means materials and substances used during the assembly process (e.g. solder, solder paste) and any new parts which are added to the PCBA by the supplier. No need to provide information about the parts (electronic parts, PCB's, etc.) that are specified by Barco since Barco requests information for these parts directly to the suppliers of these parts.
- Please provide us also information (PCB type and supplier) of the printed circuit boards you are using for the different PCB assemblies. This information will be requested to you by your Barco contact on a regular basis.

Printed Circuit Boards

- A full material declaration of the printed circuit board needs to be provided together with compliance certificates. This information will be requested to you with the help of the EMS (Electronics Manufacturer Services) using the PCB.

Metal Parts

- If the part is treated and/or painted, focus on the treatment and/or paint to check for any SVHC substances

Plastic Parts

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- Ask information to your supplier of raw material. Plastic typically contains plasticizers, flame retardants, etc. which are likely to be SVHC substances (Annex II). Especially PVC is likely to contain SVHC substances.
- If the part is painted and/or treated, ask the supplier of the treatment and/or paint for information on SVHC substances

Packaging

- Cardboard and paper are unlikely to contain SVHC substances
- Plastic bags, metal pins, other materials must be investigated for SVHC-substances
- The labels and inks that are used on the packaging are also critical for REACH

Resources

Substances of Very High Concern
http://echa.europa.eu/candidate-list-table
REACH Authorization List
http://echa.europa.eu/web/guest/addressing-chemicals-of-concern/authorisation/recommendation-for-inclusion-in-the-authorisation-list/authorisation-list
ECHA website
http://echa.europa.eu/web/guest
Guidance for Suppliers of Articles
http://www.kemi.se/Documents/Forfattningar/Reach/Guidance_for_suppliers_of_articles_EN.pdf

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Barco RoHS Requirements

What is RoHS

The RoHS Directive 2011/65/EU on the "restriction of the use of certain hazardous substances in electrical and electronic equipment" requires heavy metals such as lead, mercury, cadmium, and hexavalent chromium and flame retardants such as polybrominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE) to be substituted by safer alternatives.
RoHS-like regulations are now enforced in many countries outside of Europe. For example in China, Korea, Vietnam, California, Japan etc. Most of these regulations are aligned with the European Directive, which means that if your product is compliant with these substance restrictions it will comply also worldwide.

Scope

The RoHS requirement applies to the homogenous material of the product. Therefore if your product is an assembly of different materials, the 0,1 % threshold applies to the single materials.

- All purchased substances, materials, components, parts, subassemblies, assemblies, etc., that are incorporated into Barco products or combined with Barco products as part of a Barco end product
- All spare parts of field replacement units.
- All Suppliers and their sub-tier Suppliers involved in providing 'parts' to Barco

The RoHS substances to be restricted:

Substance	Threshold mass % or weight %, measured at the homogenous material level
Cadmium (Cd) / Cadmium compounds	0.01%
Lead (Pb) / Lead compounds	0.1%
Mercury (Hg) / Mercury compounds	0.1%
Hexavalent Chromium (Cr^{+6}) / Hexavalent Chromium compounds	0.1%
Polybrominated Biphenyl (PBB)	0.1%
Polybrominated Diphenyl Ethers (PBDE)	0.1%

Non-compliance with RoHS requirements

Parts supplied to Barco which contain these substances in their homogenous material level beyond the limits defined above, will be considered as non-compliant.

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An assembly of parts, where one or more parts contain restricted substances in their homogenous material level beyond the limits defined above, is considered as non-compliant

Exemptions

There are a number of exempted applications which are allowed by the RoHS Directive. These exemptions are listed in the Appendix.
Please be aware, that some of these exemptions have an upcoming expiry date.
Also, all exemptions will expire in July 2016, unless a request for authorization is sent to the European Commission.
For medical devices, the final expiry data of all exemptions is July 2021.

CE mark

Since the RoHS Directive has been recasted, RoHS compliance is under the CE mark, therefore, suppliers must ensure their CE declaration of conformity includes a reference to the RoHS Directive.
If the product is not compliant with the RoHS restrictions, it should not bear the CE mark.

Presumption of conformity

The standard EN50581 establishes the criteria of presumption of conformity with the RoHS Directive by describing what suppliers should provide in their technical documentation for the assessment of electronic equipment with respect to the restriction of hazardous substances.
Barco requires its suppliers and OEM to comply with this standard by:

- Establishing a compliance program which involves sub-tier suppliers
- Collecting RoHS data in the supply chain
- Establishing contractual agreements with sub-tier suppliers that ensure compliance
- Auditing and monitoring the supply chain for compliance

Monitoring and self-auditing for RoHS conformance

In case of changes to the part requested by Barco or by the supplier:

- The supplier is responsible for regularly verifying the conformance of its parts to RoHS including in case of:
    - New part
    - Material change in existing part
    - Any changes by sub-tier suppliers
    - Updates of Barco environmental requirements

The supplier is responsible for keeping records of compliance for at least 10 years from the date of manufacturing and for keeping ongoing process and production controls to ensure conformance with RoHS.

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Information suppliers need to provide to Barco

In order to ensure compliance with the Barco RoHS requirements, suppliers and OEMs must provide the following documentation:

- Test report: provided by a laboratory accredited for RoHS testing

or

- RoHS certificate of compliance in case a test report is not available

All documentation will be requested and must be provided to Greensoft Technology.
Barco is working with Greensoft Technology since 2009 in collecting data for environmental compliance. As a supplier of Barco you will receive an email from Greensoft where you will be asked to provide the documentation requested for compliance. http://www.greensofttech.com/

How to compile your compliance documentation

Test reports should normally be provided by your raw material suppliers. In case you do not have this documentation, please contact your sub-tier suppliers in order to ask for RoHS information. Since RoHS is becoming a worldwide requirement, suppliers are used to share information on this topic.
For certain suppliers, Barco specifically asks for the use of non-RoHS components and parts. This can be the case for equipment which will be part of military equipment (excluded from the scope of RoHS) or part of a means of transport (e.g. aerospace products). If this is the case, the supplier should follow the Barco specifications and provide the information for the remaining products which are not covered by this request.

General instructions

If the product consists of more than 1 part:

- Ask RoHS information for all the parts of the product to your sub-tier suppliers
- If every part of the product is RoHS-compliant, then your product is RoHS-compliant. Otherwise the product is non-RoHS-compliant.

If the product consists of only 1 part:

- Determine the composition of the part including the treatments and paints to check if it contains any RoHS-substances.
- By calculating the concentration of eventual RoHS-substances, you can check whether the part is RoHS-compliant or not

Keep in mind that RoHS-regulation includes exemptions, but that they all have an expiration date. Please provide a RoHS certificate of compliance to Barco including the used exemptions if applicable if the product is RoHS compliant.
If the product is non-RoHS-compliant, provide a RoHS certificate of non-compliance to Barco including the name and concentration of the substances which are the reason for non-compliance.

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Instructions for specific product categories

Printed Circuit Board Assemblies

- An investigation is requested for the assembly process only, which means materials and substances used during the assembly process (e.g. solder, solder paste) and any new parts which are added to the PCBA by the supplier. No need to provide information about the parts (electronic parts, PCB's, etc.) that are specified by Barco since Barco requests information for these parts directly to the suppliers of these parts.
- Focus especially on the following eventual critical components:
  - Solder, soldering paste (Pb)
  - Contact surface (Pb)

Printed Circuit Boards

- Focus on the following critical components:
  - Finish (e.g. SnPb)
- Composition of the board

Metal Parts

- Focus especially on the following eventual critical components:
  - alloy (Pb)
  - surface treatment, e.g. corrosion protection (Cr^{6+})

Plastic Parts

- Focus especially on the following eventual critical components:
  - Flame-protected plastics (PBB and/or PBDE)

Packaging

- Packaging is not likely to be non-RoHS compliant. Check especially for metal parts and plastics

Optical components

- Focus especially on the following eventual critical components:
  - Glass and lenses (Pb in leadoxide)

Cables

- Focus especially on the following eventual critical components:
  - Plug (Pb in soldering and contact surface)
  - Cable insulation (Cd in pigments, PVC stabilizers / Pb in leadoxide)

Resources

RoHS Directive
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:174:0088:0110:en:PDF
Orgalime guidance on RoHS Directive
http://www.orgalime.org/publication/september-2012-update-orgalime-guide-recast-rohs-directive-july-2011

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Barco Conflict Minerals Requirements

The Dodd-Frank Act

Metals like **tin, tungsten, gold and tantalum** are very common in electronics. However, a considerable amount of those minerals originate from conflict areas, where mining activities finance regional conflicts. One of these areas is the **Democratic Republic of Congo (DRC)** and its adjoining countries. The metals originating from these countries are called 'conflict minerals'.
In recent years, there has been an increasing international focus on 'conflict minerals'. Therefore a new U.S. legislation (Dodd-Frank Act – section 1502) was introduced in 2010. The final rules of the legislation were issued on 22 August 2012.
Issuers, including electronic companies need to check if they use conflict minerals in their products and whether or not the minerals originate from the covered countries. If an issuer knows or believes that there are conflict minerals from the covered countries, due diligence needs to be performed to determine whether the issuer's minerals are 'DRC conflict free' or not, in other words, whether they directly or indirectly financed or benefited armed groups in the covered countries.

Supplier obligations

As a supplier of Barco, you will be required to collect information about the use of "conflict minerals" in your supply chain and to report this information back to Barco.
This data collection is done by using the template elaborated by the Electronic Industry Citizenship Coalition (EICC) and the Global e-Sustainability Initiative (GeSI).
EICC and GeSI established a working group which aims at enabling companies around the world to source conflict-free minerals and to implement conflict free and due diligence programs within their supply chain.

Information suppliers need to provide to Barco

Barco is in the process of establishing a conflict-free program which requires you to:

- Fill in the information requested in the EICC Due Diligence Request template
- Ensuring you do not knowingly source products or materials containing conflict minerals. We recognize that tracing conflict minerals information is a challenging task and we understand that our suppliers can have difficulties in tracing back the smelters in the supply chain, therefore we encourage you to ask the same request to your sub-tier suppliers and we are available for all the support you might need in this exercise.

All documentation will be requested and must be provided to Greensoft Technology.
Barco is working with Greensoft Technology since 2009 in collecting data for environmental compliance. As a supplier of Barco you will receive an email from Greensoft where you will be asked to provide the documentation requested for compliance. http://www.greensofttech.com/

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How to compile your compliance documentation

- Determine which of your products supplied to Barco contain tin, tungsten, tantalum and/or gold.
- Identify all the smelters in your supply chain that supply the abovementioned metals. If you don't source directly from smelters, please pass on this request to your Sub-Tier suppliers (and they may have to pass it on to their suppliers) and ask them to inform you about the smelters in your supply chain.
- Complete the requested EICC Due Diligence Request template

Resources

Barco position on conflict minerals
http://www.barco.com/en/aboutbarco/Corporate%20Sustainability/Compliance/Conflict%20Minerals%20Rule
EICC template
http://www.conflictfreesmelter.org/ConflictMineralsReportingTemplateDashboard.htm
EICC-GeSI approach
http://www.eicc.info/documents/EICC-GeSI_ConflictMineral_Overview_30May2011FINAL.pdf
EICC resources on conflict minerals
http://www.eicc.info/extractives.shtml

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Barco requirements for Batteries

Directive 2006/66/EC

The Directive 2006/66/EC on batteries and accumulators and waste batteries and accumulators aims at minimizing the negative impacts of batteries and accumulators on the environment and also harmonizing requirements for the smooth functioning of the internal market. To achieve these objectives, the Directive introduces measures to prohibit the marketing of some batteries containing hazardous substances. It contains measures for establishing schemes aiming at high level of collection and recycling of batteries with quantified collection and recycling targets. The Directive sets out minimum rules for producer responsibility and provisions with regard to labeling of batteries and their removability from equipment.

Scope

- All suppliers of batteries and button cells
- All suppliers of products containing batteries and button cells

The batteries included in the scope of this requirement are:
Portable Batteries

- Non-rechargeable batteries (e.g., zinc carbon and alkaline manganese)
- button cells
- lithium oxide batteries
- Rechargeable batteries (e.g., nickel-cadmium, nickel metal hydride, lithium ion, and lead-acid batteries)
- Lead-acid batteries
- NiCd batteries

Obligations for suppliers

<u>Substance Restrictions</u>
All batteries sold to Barco or contained in equipment sold to Barco must comply with the following substance restrictions:

Battery Content	Portable Batteries				Industrial Batteries	
% by weight	Rechargeable*	Button cell	Lithium ion	Non-recharge**	Lead-acid	Ni-Cd
Hg Content >0.0005	Prohibited	Allowed up to 2%	Prohibited	Prohibited	Prohibited	Prohibited
Cd Content >0.002	Article 4.3 Exemption***	Article 4.3 Exemption***	Article 4.3 Exemption***	Article 4.3 Exemption***	Allowed	Allowed

* Rechargeable batteries (e.g., nickel-cadmium, nickel metal hydride, lithium ion, and lead-acid batteries)
** Non-rechargeable batteries (e.g., zinc carbon and alkaline manganese)

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***Cadmium containing batteries in medical equipment are excluded from prohibition in accordance with 2006/66/EC Article 4.

Labeling of batteries

All batteries sold to Barco or contained in equipment sold to Barco must comply with the following labeling requirements:

Hg, Cd, Pb
Capacity

Batteries and button cells containing more than 0.0005% mercury, more than 0.002% cadmium or more than 0.004% lead shall be marked with the chemical symbol for the metal concerned: Hg, Cd, or Pb.

Design requirements

All suppliers which provide to Barco equipment containing batteries shall design this equipment in such a way that batteries can be readily removed and shall provide instructions on how to safely remove the battery.

Information requirements

If the product contains a battery, you need to provide to GreenSoft Technology the following information:

- Number of batteries in the product
- Type of batteries

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Information suppliers need to provide to Barco

To be able to report to the concerned authorities, Barco needs information on the batteries included in a product. Therefore as a supplier you are required to provide

- Number of batteries in the product
- Specifications of the batteries (type, weight, capacity, etc.)

All documentation will be requested and must be provided to Greensoft Technology.
Barco is working with Greensoft Technology since 2009 in collecting data for environmental compliance. As a supplier of Barco you will receive an email from Greensoft where you will be asked to provide the documentation requested for compliance. http://www.greensofttech.com/

How to compile your compliance documentation

- Determine which and how many batteries are in the delivered part
- Collect all requested information of each battery type. If you don't have this information, please ask your Sub-Tier suppliers.

Resources

Battery Directive
http://ec.europa.eu/environment/waste/batteries/

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Barco Requirements for Packaging

All suppliers of packaging materials should comply with the following regulations:

- RoHS restrictions
- REACH obligations

RoHS requirements

Although packaging material is not under the scope of the RoHS Directive, the EU Packaging Directive 94/62/EG sets material requirements similar to RoHS.
Therefore, suppliers must supply packaging free from the following RoHS substances:

1. Lead
2. Mercury
3. Cadmium
4. Hexavalent chromium (Chromium VI or Cr6+)
5. Polybrominated biphenyls (PBB)
6. Polybrominated diphenyl ether (PBDE)

REACH Requirements

Packaging is under the scope of the REACH Regulation and it is considered as an "article" (or part).
All packaging materials supplied to Barco must comply with the Barco REACH requirements (present in this document).
Note that paper and board are unlikely to contain Substances of Very High Concern under REACH. Only when the paper is coated or printed, then you should contact your sub-tier supplier to find out which substances and preparations have been used for that part which has been coated or use adhesives or inks.

Steps to ensure compliance of your packaging:

1. Identify the packaging materials you sell to Barco
2. Check if any of these materials use inks, coatings or adhesives (materials which are at risk of containing SVHCs)
3. Check if sub-tier suppliers have information about these risky parts and about the substances used.
4. Ask to sub-tier suppliers: name of chemical, quantity used, check if they are SVHC

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Barco Requirements for OEMs/ODMs

Original Equipment Manufacturers (OEMs) which work with Barco, need to comply with all the requirements which are applicable to suppliers. However, other requirements might apply depending on whether the OEM is also responsible for the product label and product documentation.

Important: for the requirements, please refer to your products specifications document provided to you by your Barco contact. Please use this guidance only to better understand the actions you need to take should you have these requirements into your product specifications. This guidance is not meant to overrule the specifications documents you received from your Barco contact.

Requirements for Product Labeling

If you are responsible for the final product label, please be aware of the environmental requirements which apply to the product label worldwide:

- CE mark
  - The CE mark and declaration of conformity need to cover the following environmental requirements: EU RoHS Directive 2011/65/EU, ErP Directive 2009/125/EC (when applicable)
- Environmentally Friendly Use Period label
  - This label is part of your obligations under China RoHS. The standard period for Barco products is 10 years.
- The WEEE label
  - The WEEE label is a crossed-out wheeled bin which indicates compliance with the EU WEEE Directive 2012/19/EU (Waste from Electrical and Electronic Equipment).
- The Hg (mercury) label
  - This label indicates the presence of mercury lamps (e.g. CCFLs)
- The Korea e-standby Power Warning Label
  - The yellow label for Korea e-standby should be placed on the product in case it does not comply with the e-standby requirements. The label applies to displays only.

Requirements for Product User Manuals

If you are responsible for the final product user manual and documentation, please be aware of the environmental requirements which apply to this documentation:

- WEEE statement about the product disposal
- Batteries statement about disposal of eventual batteries contained in the product
- Mercury notice explaining the presence of mercury lamps
- Turkey RoHS compliance statement in Turkish
- China RoHS substances table
- WEEE recycling passport

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Requirements for product design

In case your product is required to comply with energy efficiency requirements, please be aware of the following regulations:

- Korea e-standby regulations applicable to displays
- China Energy Label applicable to displays and computers
- Energy-Related Products Directive (2009/125/EC) whenever applicable

Please contact your reference person for Barco to know the details about the requirements applying to your product.

Barco weight Requirements

Information suppliers need to provide to Barco

Barco needs the exact net weight for every supplied part, because of certain regulations (e.g. REACH) focusing on product level instead of part level. To be able to calculate the concentration of substances on product level, the exact weight of every individual part is needed.

If the supplier doesn't have the weight of the part in a database, Barco requires the supplier to weigh the part with an accurate balance. The packaging of the part has to be excluded from the weight since this packaging does not end up in the final product.

How to provide the weight?

The preferred unit of measure for weights is grams (g). Please convert other units of measure into grams. For cables and wires only, the preferred unit of measure is grams per meter (g/m).

All documentation will be requested and must be provided to Greensoft Technology.
Barco is working with Greensoft Technology since 2009 in collecting data for environmental compliance. As a supplier of Barco you will receive an email from Greensoft where you will be asked to provide the documentation requested for compliance including the weight.
http://www.greensofttech.com/

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Summary

As supplier of Barco you must comply with worldwide environmental regulations applicable to products. Therefore as supplier of Barco you need to make sure you:

- Sign the Terms and Conditions of Purchase
- Sign the Compliance Engagement Form
- Provide on request proof of compliance with the aforementioned requirements

Contacts

Should you have any question about environmental compliance, please do not hesitate to contact our Environmental Compliance Office at green.compliance@barco.com

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Annex I - Glossary

BOM	Bill of Material
CAS-number	Unique numerical identifiers assigned to every chemical by the Chemical Abstracts Service
CCFL	Cold Cathode Fluorescent Lamp
CE-marking	A mandatory conformity marking for certain products sold within the European Economic Area (EEA) since 1993
DRC	Democratic Republic of the Congo
ECHA	European Chemicals Agency
EICC	Electronic Industry Citizenship Coalition
EMS	Electronics Manufacturing Services
EU	European Union
FMD	Full Material Declaration/Disclosure
GeSI	Global e-Sustainability Initiative
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization for air shipment
IMO	International Maritime Organization for ocean shipment
OEM	Original equipment manufacturer
PBB	Polybrominated biphenyl
PBDE	Polybrominated diphenyl ether
PCB	Printed Circuit Board
PCBA	Printed Circuit Board Assembly
PVC	Polyvinyl chloride

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REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RoHS	Restriction of Hazardous Substances
SVHC	Substances of Very High Concern
WEEE	Waste Electrical and Electronic Equipment

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Annex II - List of hazardous substances mentioned in this guideline

Bis(2-methoxyethyl) phthalate , also known as DMEP	DMEP, is used as a plasticizer in the production of nitrocellulose, acetyl cellulose, polyvinyl acetate, polyvinyl chloride (PVC) and polyvinylidene chloride
Bis(2-methoxyethyl) phthalate , also known as DMEP	DMEP, is used as a plasticizer in the production of nitrocellulose, acetyl cellulose, polyvinyl acetate, polyvinyl chloride (PVC) and polyvinylidene chloride
BBP (Benzylbutyl phthalate)	BBP is one of the most expensive phthalates and so other phthalates are generally used when possible. However, BBP is used as a plasticiser in polymer products, mainly PVC. In flexible PVC the typical phthalate content ranges from 30 to 45% w/w. BBP is also used in certain sealants, adhesives, paints, inks and lacquers.
DBP (Dibutyl phthalate)	DBP is often used, in combination with other phthalates, in flexible PVC. Typical phthalate content in PVC ranges from 30 to 45% w/w, of which DBP is a major component at up to 15%. DBP is also used in neoprene and nitrile rubber, PVA adhesives, nitrocellulose lacquers, printing inks, sealants and coatings.
DEHP (Di(2-ethylhexyl) phthalate)	DEHP is widely used as a plasticizer in polymer products, mainly PVC. In flexible PVC the typical phthalate content ranges from 30 to 45% w/w. DEHP is also used in other vinyl resins, cellulose ester plastics, dielectric fluid in capacitors, adhesives, sealants, lacquers and paints
DHNUP (1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters)	DHNUP is used as a plasticizer in PVC and other plastic polymers.
DIBP (Disobutyl Phthalate)	DIBP is used, in combination with other phthalate plasticizers, in cellulose resin, vinyl resin, acrylonitrile-butadiene rubber, chlorinated rubber and PVC. It has similar properties to DBP and may be used as a substitute for DBP in most applications.
DIHP (1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich)	DIHP is used as a plasticizer in PVC and other plastic polymers.

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HBCDD (Hexabromocyclododecane)	HBCDD is used as an additive flame retardant in high impact polystyrene (HIPS) which is found in electrical equipment including housings and distribution boxes. The HBCDD content in HIPS ranges from 5% to 7%. HBCDD is also used in expandable polystyrene (EPS) and extrudable polystyrene (XPS).
SCCP (Short-chained chlorinated paraffins)	SCCP is currently used as a flame retardant in textiles and rubber, in paint and in sealants.
TCEP (Tris (2-chloroethyl) Phosphate)	TCEP is used as an additive flame retardant and plasticizer for types of poly-urethane and polyisocyanurate foam, with a typical addition rate of up to 10%. TCEP can also be found in PVC (up to 20%), acetyl cellulose (10% - 70%) and polystyrole which is used in adhesives for polyurethane foam.
Lead chromate	Lead chromate based paints are used in maritime and industrial applications which require anti-corrosion protection or bright colors with good resistance. It is often used as a primary coating because of its excellent anti-corrosion properties.
Lead chromate molybdate sulfate red (C.I. Pigment Red 104)	C.I. Pigment Red 104 can be used in the manufacture of colored plastics including PVC, polyolefins and nylon. It is also used in high visibility paints (e.g. for safety identification) and for paints for automotive, industrial and agricultural equipment.
Lead sulfochromate yellow (C.I. Pigment Yellow 34)	C.I. Pigment Yellow 34 can be used in the manufacture of colored plastics including PVC, polyolefins and nylon. It is also used in high visibility paints (e.g. for safety identification) and for paints for automotive, industrial and agricultural equipment.
Beryllium and Beryllium compounds	0.1% if feasible technical alternatives exist
Antimony compounds in glass	0.1% w/w in glass in lamps
Arsenic compounds in glass	0.1% w/w in glass in lamps
Antimony trioxide in plastic materials	Declare if > 0.1% w/w in plastic parts
PVC and PVC copolymers	Declare if > 0.1% w/w total chlorine content from PVC
Phthalates	Declare if > 0.1% w/w
Brominated flame retardants (other than PBBs,	Declare if > 0.1% w/w total bromine content from BFRs

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PBDEs or HBCDD) **Chlorinated flame retardants**	
Brominated flame retardants (other than PBBs, **PBDEs or HBCDD)** **Chlorinated flame retardants**	Declare if > 0.09% total bromine content from BFRs in printed wiring board laminate

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