REACH AND ROHS – OVERVIEW & UPCOMING CHANGES

AN ASSENT COMPLIANCE WEBINAR

KRYSTAL CAMERON
REGULATORY MANAGER – KEY ACCOUNTS
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AGENDA

- Brief recap of REACH and SVHCs
- Requirements for SVHCs
    - Communication
    - Notification
    - Authorization
- Latest Additions to the SVHC Candidate List
    - Industries affected by the Dec 2012 SVHCs
- Registry of Intentions and Authorization List
    - What are they and where can I find them?
    - Update
- REACh Declaration Requirements
- REACh and RoHS Specifications
- RoHS - Review of Requirements
    - RoHS
    - RoHS recast (RoHS II)
    - DoCs
    - Technical File
    - Expiring Exemptions
- Due Diligence and Testing
- Technical File Sample
- Standards associated with RoHS II
- Enforcement
- Documentation Update Reminder
- RoHS – Potential Substance Additions
- RoHS – Potential Exemption Consultations
- Q&A

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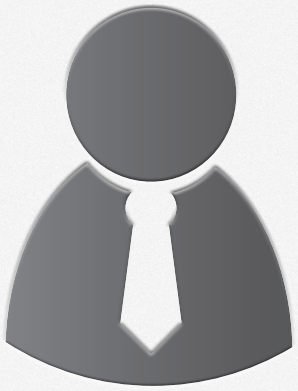
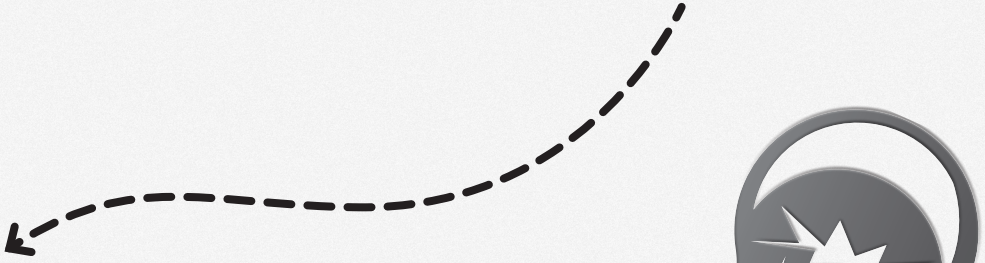
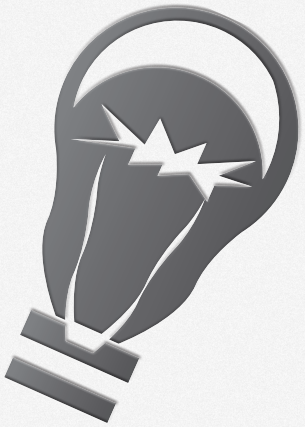


ABOUT ASSENT

Assent Compliance delivers SaaS Environmental Compliance Services to companies who must comply with local, national and global environmental regulations. Assent also supports its software division with a team of highly experienced industry consultants to provide our clients with turnkey compliance solutions. Industry experts at Tier 1 companies rank Assent Compliance amongst the top environmental compliance solutions in the world and one of the only global solution providers to offer a full service solution from end to end.





OUR MISSION

Is to help our clients comply with environmental regulations in the most efficient and cost effective manner possible. This is achieved through SaaS automation of processes and working with clients to build efficient internal compliance programs that meet global compliance requirements.

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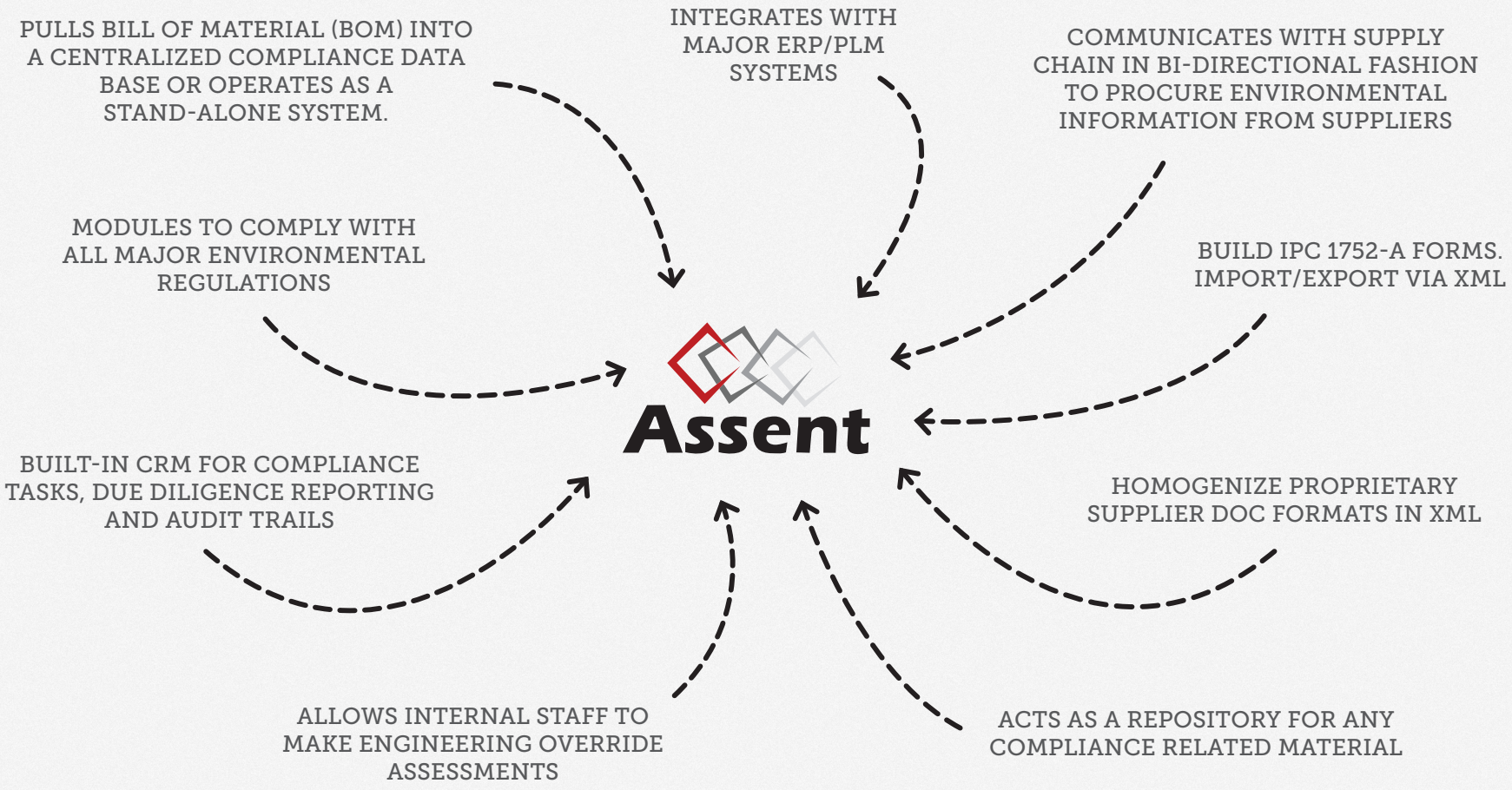
HOW THE ASSENT COMPLIANCE MANAGEMENT SYSTEM WORKS



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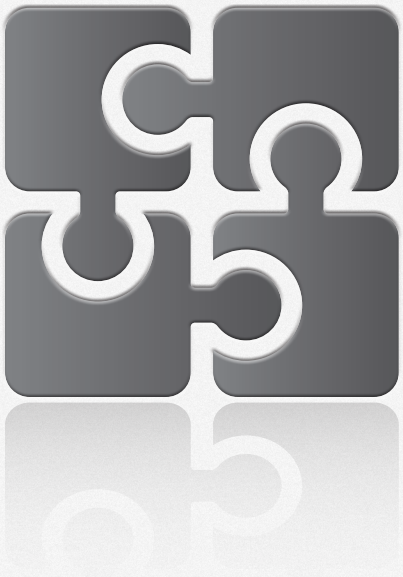

CONSULTING SERVICES

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OUR OFFICES

HOW DO SVHCS GET ADDED TO THE CANDIDATE LIST?

Review of the Authorisation Process – Annex 15 Dossiers:

1. **Registry of intentions –** Intention to submit dossier
    - 6 Registered: 5 from 2008, 1 from 2011
2. **Submission of Annex XV dossier** (SVHC Dossier) to ECHA for Compliance Check
3. **Publication of Annex XV dossier** (once it has passed compliance check)
    - Most Recent Consultations Just Ended – Oct 17. 2013
        - 7 Substances
4. **After Commenting periods – Candidate List (Article 33 Requirements kick in)**
    - 7 Possible to be added – Mid-December 2013
    - Last Addition – 6 substances – June 20th, 2013
5. **Prioritisation list – Order in which substances will be reviewed for Authorisation**
    - Currently 6 substances on list
6. **Authorisation List – Restrictions and Authorisations handed out**
    - Currently 22 substances on list

REQUIREMENTS

WHAT DO NEW SVHCS MEAN FOR YOUR COMPANY?

Companies will need to assess whether they have legal obligations resulting from the inclusion of the new substances in the Candidate List.

The legal obligations related to SVHCs include Communication and Notification.

COMMUNICATION

Any producers or importers of articles placed on the market[1] in the EU must declare the presence of any of these substances in an article in a concentration exceeding 0.1% w/w.

ARTICLE 33 – SOURCE OF COMPLIANCE REQUIREMENT:

Duty to communicate information on substances in articles:

1. *Any supplier of an article containing a substance meeting the criteria in Article 57 and identified in accordance with Article 59(1) in a concentration above 0,1 % weight by weight (w/w) shall provide the recipient of the article with sufficient information, available to the supplier, to allow safe use of the article including, as a minimum, the name of that substance.*

2. *On request by a consumer any supplier of an article containing a substance meeting the criteria in Article 57 and identified in accordance with Article 59(1) in a concentration above 0,1 % weight by weight (w/w) shall provide the consumer with sufficient information, available to the supplier, to allow safe use of the article including, as a minimum, the name of that substance.*

The relevant information shall be provided, free of charge, within 45 days of receipt of the request.

[1] ***Article 3.12 of the REACH Regulation specifies:***

- *Placing on the market: means supplying or making available, whether in return for payment or free of charge, to a third party. Import shall be deemed to be placing on the market;*

REQUIREMENTS

WHAT DO NEW SVHCS MEAN FOR YOUR COMPANY?

- **What does this mean?**
    - Once a substance has been added to the SVHC List, you must declare its presence to your down-stream users if the concentration is above 0.1% of your products weight.
    - *This is to be done upon immediately for professional customers and within 45 days from request for consumers.*

REQUIREMENTS (CONTINUED)

WHAT DO NEW SVHCS MEAN FOR YOUR COMPANY?

NOTIFICATION

Furthermore, these same producers and importers have six months from the date the new SVHCs were included (18 June 2012) to notify the ECHA if

a. *The (SVHC) is present in those articles in quantities totalling over 1 tonne per producer or importer per year (and)*

a. *The (SVHC) is present in those articles above a concentration of 0,1 % weight by weight (w/w)*

- A notification is created using the same software as a REACH registration – IUCLID.
- It is a much less intense dossier than a registration dossier.
    - To facilitate the task of notification, ECHA has made available pre-filled substance datasets, which can be downloaded from the Candidate List webpage.
    - These datasets contain:
        - » The identity (substance name, EC and/or CAS number)
        - » The classification and labelling of the substance.

- The following information must be entered by the notifier:
  - » identity and contact details,
  - » registration number (if available),
  - » the tonnage range of the substance,
  - » a brief description of the uses of the substance in the article itself and the uses of the article.
- REACH-IT is the submission tool that must be used.

REQUIREMENTS (CONTINUED)

WHAT DO NEW SVHCS MEAN FOR YOUR COMPANY?

AUTHORISATION

Any chemicals placed on the Candidate List can also eventually be approved for an authorization list where they will then be banned from use unless an authorization is submitted and approved before the applicable sunset date.

- Most, if not all, substances on the current SVHC List will eventually move onto the Authorisation list and therefore require an Authorisation for their use.
- Authorisations are required on a per substance, per use, per supply chain (you or an actor up your supply chain must have been granted an authorisation) basis.

SVHC CANDIDATE LIST

JUNE 20TH 2013 ADDITION

- 6 Added, Total is 144 SVHCs

SUBSTANCE NAME	EC NUMBER	CAS NUMBER
Di-n-pentyl phthalate (DPP)	205-017-9	131-18-0
Perfluorooctanic acid (PFOA)	206-397-9	335-67-1
Cadmium oxide	215-146-2	1306-19-0
Ammoniumpentadecafluorootanoate (APFO)	223-320-4	3825-26-1
Cadmium	231-152-8	7440-43-9
4-Nonylphenol, branched and linear, ethoxylated [substances with a linear and/or branched alkyl chain with a carbon number of 9 covalently bound in position 4 to phenol, ethoxylated covering UVCB- and well-defined substances, polymers and homologues, which include any of the individual isomers and/or combinations thereof]	None Given in Candidate List, Research Provided: nonylphenol EC:246-672-0 Phenol, 4-nonyl- EC:284-325-5 ethoxylates EC: 500-024-6, 500-209-1, 500-315-8	None Given in Candidate List, Research Provided: nonylphenol CAS:25154-52-3 Phenol, 4-nonyl- CAS:84852-15-3 ethoxylates CAS: 9016-45-9, 68412-54-4, 127087-87-0

INDUSTRIES AFFECTED

HIGH-RISK MATERIALS

- The high risk materials have not changed drastically with each SVHC Candidate List expansion and this is no exception
- Some of the materials and products that are most likely to include SVHCs are listed below:
  - Resins
  - Adhesives
  - Inks, Coatings and Paints
  - Plastics, Rubbers, Silicones, Polyolefins, Polymers
  - Cables
  - High Impact Polystyrene (HIPS)
  - Polyvinyl Chloride (PVC)
  - Capacitors and Semiconductors
  - Printed circuit boards (PCBs)

REGISTRY OF INTENTIONS & AUTHORIZATION LIST
WHAT ARE THEY AND WHERE CAN I FIND THEM?

REGISTRY OF INTENTIONS

- In the authorization process, Member States and the ECHA must register their intention to submit SVHC dossiers (Annex XV) for review and comment
  - Once these dossiers are submitted and pass a compliance check, the substances are moved to the "consultation list" (Proposed SVHCs)
  - The substances and their dossiers then go through the comment period (with subsequent approval by the ECHA) before they are added to the SVHC Candidate List

Registry of Intentions Site:
http://echa.europa.eu/addressing-chemicals-of-concern/registry-of-intentions

AUTHORIZATION LIST

- Once a substance is on the SVHC Candidate List, the ECHA then must regularly submit recommendations of substances that should be subject to authorization
  - Once a substance is on the authorization list, it can now be considered, in layman's terms, a restricted or prohibited substance rather than simply a declarable substance
    - » Authorized substances cannot be used in the EC beyond the hazard thresholds established by the DSD/DPD/CLP
    - » Substances already an integral part of articles are not subject to authorization

- Therefore the ECHA prioritizes which substances should be on the Authorisation List
- Further information on these steps can be found at:
  http://echa.europa.eu/web/guest/addressing-chemicals-of-concern/authorisation/recommendation-for-inclusion-in-the-authorisation-list

The Authorization List itself can be found at:
http://echa.europa.eu/addressing-chemicals-of-concern/authorisation/recommendation-for-inclusion-in-the-authorisation-list/authorisation-list

AUTHORIZATION LIST

LATEST UPDATE

➤ At same time as SVHC Candidate List Update:

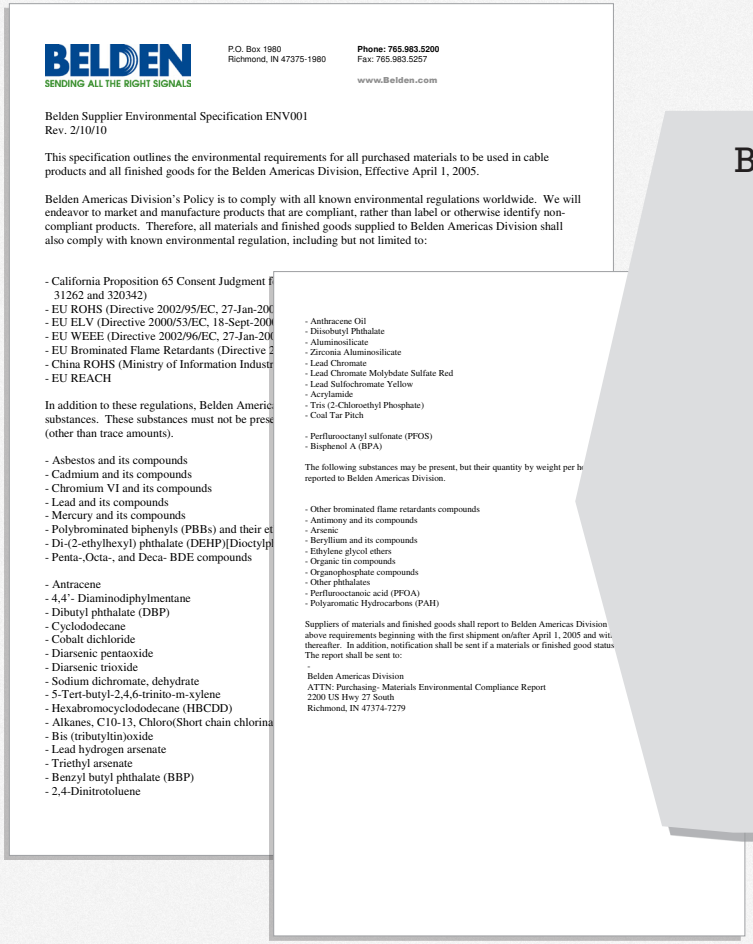
- 6 more SVHCs are moving to the next step in the Authorization process.
- The SVHCs below are being finalised for recommendation for inclusion to the Authorisation list. Should they be included in the recommendation to the European Commission and the Commission approve the recommendation, the substances will require an authorisation for continued use (above the hazard thresholds found in the DPD and CLP) in the EC:
  - » Diazene-1,2-dicarboxamide (C,C`-azodi(formamide)) (ADCA)
  - » Zirconia Aluminosilicate Refractory Ceramic Fibres (Zr-RCF)
  - » Aluminosilicate Refractory Ceramic Fibres (Al-RCF)
  - » N,N-dimethylformamide (DMF)
  - » 4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated (4-tert-OPnEO)
  - » Bis(pentabromophenyl) ether (decabromodiphenyl ether) (DecaBDE)

REACH DECLARATIONS

DECLARATION BASICS

- Company Letterhead (Company Logo, Address and Contact)
- Dated Letter (With the date of when the declaration was made)
- Appropriate Regulatory Reference (eg: REACh or RoHS)
- Clear Positional Statement (State that parts are compliant with REACh)
- Whether or not any Exemptions are used for RoHS
- Clear Product Indication (i.e. All products, particular product lines, all products sold to client, only specific products)
- For REACH in particular – Be sure compliance indicates the REACH SVHC Candidate List to which it is declaring (Date of List and Link OR inclusion of full list in Appendix)
- Appropriate Signatory (Someone that is in a position to confirm compliance, usually quality/engineering or a high level executive)

REACH SPECIFICATIONS



BELDEN
SENDING ALL THE RIGHT SIGNALS

P.O. Box 1980
Richmond, IN 47375-1980

Phone: 765.983.5200
Fax: 765.983.5257

www.Belden.com

Belden Supplier Environmental Specification ENV001
Rev. 2/10/10

This specification outlines the environmental requirements for all purchased materials to be used in cable products and all finished goods for the Belden Americas Division, Effective April 1, 2005.

Belden Americas Division's Policy is to comply with all known environmental regulations worldwide. We will endeavor to market and manufacture products that are compliant, rather than label or otherwise identify non-compliant products. Therefore, all materials and finished goods supplied to Belden Americas Division shall also comply with known environmental regulation, including but not limited to:

- California Proposition 65 Consent Judgment f
  31262 and 320342)
- EU ROHS (Directive 2002/95/EC, 27-Jan-200
- EU ELV (Directive 2000/53/EC, 18-Sept-200
- EU WEEE (Directive 2002/96/EC, 27-Jan-20
- EU Brominated Flame Retardants (Directive 2
- China ROHS (Ministry of Information Industr
- EU REACH

In addition to these regulations, Belden Americ
substances. These substances must not be pres
(other than trace amounts).

- Asbestos and its compounds
- Cadmium and its compounds
- Chromium VI and its compounds
- Lead and its compounds
- Mercury and its compounds
- Polybrominated biphenyls (PBBs) and their et
- Di-(2-ethylhexyl) phthalate (DEHP)[Dioctylph
- Penta-,Octa-, and Deca- BDE compounds

- Antracene
- 4,4'- Diaminodiphylmentane
- Dibutyl phthalate (DBP)
- Cyclododecane
- Cobalt dichloride
- Diarsenic pentaoxide
- Diarsenic trioxide
- Sodium dichromate, dehydrate
- 5-Tert-butyl-2,4,6-trinito-m-xylene
- Hexabromocyclododecane (HBCDD)
- Alkanes, C10-13, Chloro(Short chain chlorina
- Bis (tributyltin)oxide
- Lead hydrogen arsenate
- Triethyl arsenate
- Benzyl butyl phthalate (BBP)
- 2,4-Dinitrotoluene

- Anthracene Oil
- Diisobutyl Phthalate
- Aluminosilicate
- Zirconia Aluminosilicate
- Lead Chromate
- Lead Chromate Molybdate Sulfate Red
- Lead Sulfochromate Yellow
- Acrylamide
- Tris (2-Chloroethyl Phosphate)
- Coal Tar Pitch

- Perfluorooctanyl sulfonate (PFOS)
- Bisphenol A (BPA)

The following substances may be present, but their quantity by weight per h
reported to Belden Americas Division.

- Other brominated flame retardants compounds
- Antimony and its compounds
- Arsenic
- Beryllium and its compounds
- Ethylene glycol ethers
- Organic tin compounds
- Organophosphate compounds
- Other phthalates
- Perfluorooctanoic acid (PFOA)
- Polyaromatic Hydrocarbons (PAH)

Suppliers of materials and finished goods shall report to Belden Americas Division above requirements beginning with the first shipment on/after April 1, 2005 and wit thereafter. In addition, notification shall be sent if a materials or finished good status The report shall be sent to:

Belden Americas Division
ATTN: Purchasing- Materials Environmental Compliance Report
2200 US Hwy 27 South
Richmond, IN 47374-7279

BELDEN SPEC ENV001

- Insert appropriate regulatory reference for REACH – Regulation EC No 1907/2006
- This is also outdated at this point, the chemical requirements (based solely on the REACH SVHC list) is not current
  - Insert the link to the current SVHC Candidate List along with wording ensuring the supplier is given the responsibility to stay aware and compliant to the most current list
  - Can continue to also list the SVHC Candidate List, this is added clarification to suppliers
- CAS Numbers should be included
- Trace amounts should be defined
- Advise to create and send-out a reporting tool to record the information requested
- As a separate note, the RoHS recast (Directive 2011/65/EU) should be added to the list of regulations

REACH SPECIFICATIONS

Company X requires suppliers to identify any Substances of Very High Concern (SVHC) present in an Article (or Deliverable*) at or above the 0.1% weight by weight (w/w) concentration and report the name and CAS number of the SVHC candidate and the weight of the deliverable.

The current candidate list of SVHCs, as published by the European Chemicals Agency (ECHA), is located at: **http://echa.europa.eu/web/guest/candidate-list-table**. This list is subject to change at any time and changes at least twice per year.

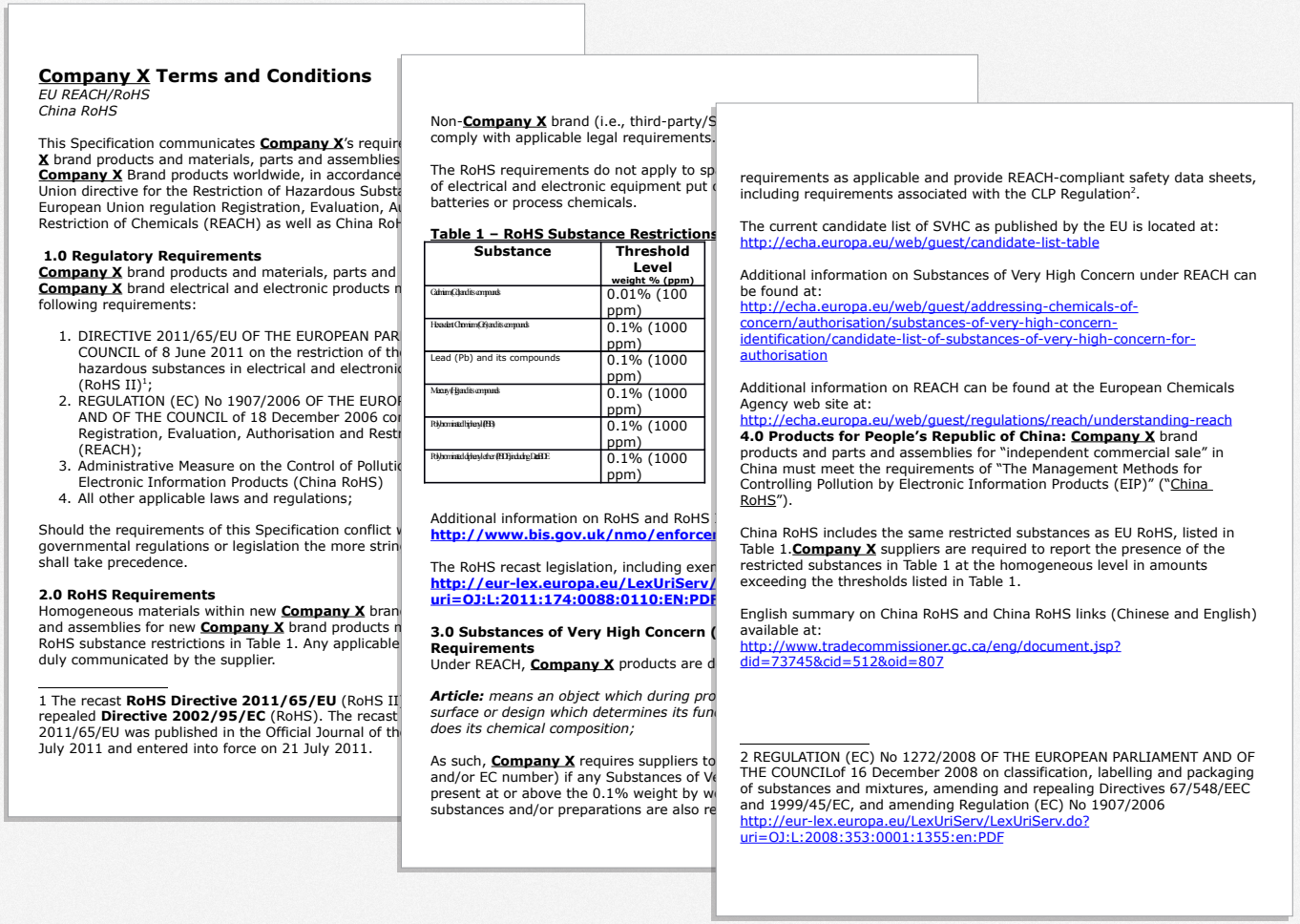
Suppliers must provide a dated declaration to Company X concerning the SVHC content of their Deliverables upon receipt of the Deliverables by Company X. This SVHC information is to be updated to the best of the supplier's ability as SVHCs are added to the SVHC Candidate list. These updates will include Deliverables already shipped to Company X.

The declarations and updates above shall be submitted via Assent's web portal as part of Company X's REACH compliance program.

If an SVHC is present in a Deliverable at or above the reporting concentrations, the Supplier must provide a communication to Company X meeting the requirements of Article 33 of the EU REACH Regulation.

**Deliverables include any tangible item(s) delivered by or for a Supplier to COMPANY X in accordance with a purchase contract or other agreement with COMPANY X. Deliverables include, but are not limited to, components, materials, parts, and products.*

REACH SPECIFICATIONS



Company X Terms and Conditions
EU REACH/RoHS
China RoHS

This Specification communicates **Company X**'s requir
X brand products and materials, parts and assemblies
Company X Brand products worldwide, in accordance
Union directive for the Restriction of Hazardous Substa
European Union regulation Registration, Evaluation, A
Restriction of Chemicals (REACH) as well as China RoH

1.0 Regulatory Requirements
Company X brand products and materials, parts and
Company X brand electrical and electronic products n
following requirements:

1. DIRECTIVE 2011/65/EU OF THE EUROPEAN PAR
COUNCIL of 8 June 2011 on the restriction of th
hazardous substances in electrical and electronic
(RoHS II)[1];
2. REGULATION (EC) No 1907/2006 OF THE EUROP
AND OF THE COUNCIL of 18 December 2006 co
Registration, Evaluation, Authorisation and Restr
(REACH);
3. Administrative Measure on the Control of Pollutio
Electronic Information Products (China RoHS)
4. All other applicable laws and regulations;

Should the requirements of this Specification conflict w
governmental regulations or legislation the more strin
shall take precedence.

2.0 RoHS Requirements
Homogeneous materials within new **Company X** bran
and assemblies for new **Company X** brand products n
RoHS substance restrictions in Table 1. Any applicable
duly communicated by the supplier.

1 The recast **RoHS Directive 2011/65/EU** (RoHS II
repealed **Directive 2002/95/EC** (RoHS). The recast
2011/65/EU was published in the Official Journal of th
July 2011 and entered into force on 21 July 2011.

Non-**Company X** brand (i.e., third-party/S
comply with applicable legal requirements.

The RoHS requirements do not apply to sp
of electrical and electronic equipment put
batteries or process chemicals.

Table 1 – RoHS Substance Restrictions

Substance	Threshold Level weight % (ppm)
Cadmium (Cd) and its compounds	0.01% (100 ppm)
Hexavalent Chromium (Cr) and its compounds	0.1% (1000 ppm)
Lead (Pb) and its compounds	0.1% (1000 ppm)
Mercury (Hg) and its compounds	0.1% (1000 ppm)
Polybrominated biphenyls (PBB)	0.1% (1000 ppm)
Polybrominated diphenyl ethers (PBDE) including DecaBDE	0.1% (1000 ppm)

Additional information on RoHS and RoHS
http://www.bis.gov.uk/nmo/enforcer

The RoHS recast legislation, including exen
http://eur-lex.europa.eu/LexUriServ/
uri=OJ:L:2011:174:0088:0110:EN:PDF

3.0 Substances of Very High Concern (
Requirements
Under REACH, **Company X** products are d

Article: *means an object which during pro*
surface or design which determines its fun
does its chemical composition;

As such, **Company X** requires suppliers to
and/or EC number) if any Substances of Ve
present at or above the 0.1% weight by w
substances and/or preparations are also re

requirements as applicable and provide REACH-compliant safety data sheets, including requirements associated with the CLP Regulation[2].

The current candidate list of SVHC as published by the EU is located at:
http://echa.europa.eu/web/guest/candidate-list-table

Additional information on Substances of Very High Concern under REACH can be found at:
http://echa.europa.eu/web/guest/addressing-chemicals-of-concern/authorisation/substances-of-very-high-concern-identification/candidate-list-of-substances-of-very-high-concern-for-authorisation

Additional information on REACH can be found at the European Chemicals Agency web site at:
http://echa.europa.eu/web/guest/regulations/reach/understanding-reach

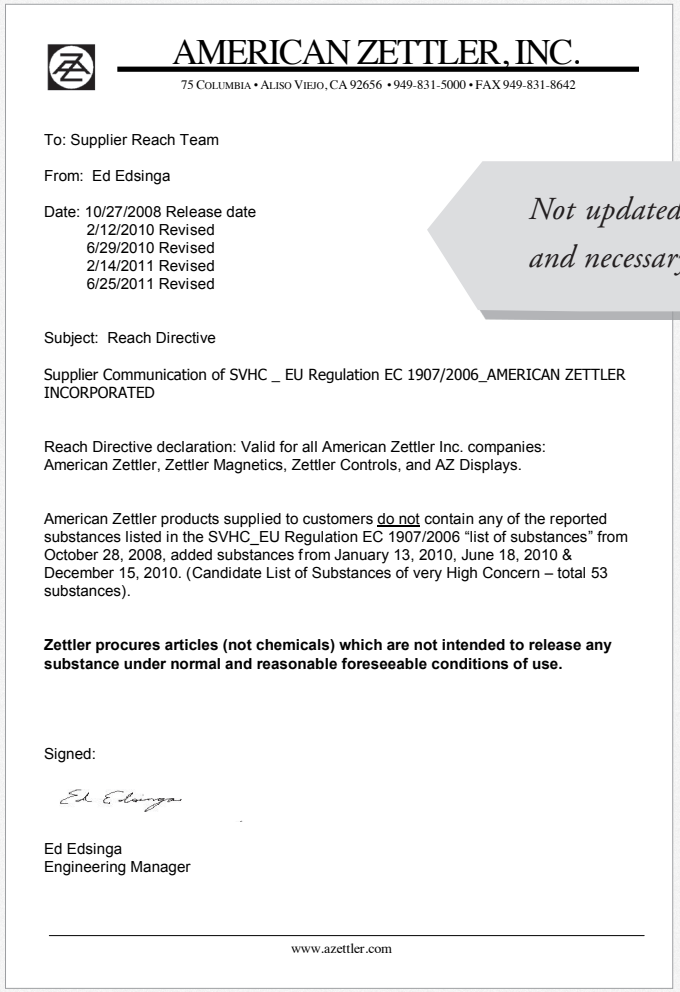
4.0 Products for People's Republic of China: Company X brand products and parts and assemblies for "independent commercial sale" in China must meet the requirements of "The Management Methods for Controlling Pollution by Electronic Information Products (EIP)" ("China RoHS").

China RoHS includes the same restricted substances as EU RoHS, listed in Table 1.**Company X** suppliers are required to report the presence of the restricted substances in Table 1 at the homogeneous level in amounts exceeding the thresholds listed in Table 1.

English summary on China RoHS and China RoHS links (Chinese and English) available at:
http://www.tradecommissioner.gc.ca/eng/document.jsp?did=73745&cid=512&oid=807

2 REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCILof 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:353:0001:1355:en:PDF

REACH SPECIFICATIONS



AMERICAN ZETTLER, INC.
75 COLUMBIA • ALISO VIEJO, CA 92656 • 949-831-5000 • FAX 949-831-8642

To: Supplier Reach Team

From: Ed Edsinga

Date: 10/27/2008 Release date
2/12/2010 Revised
6/29/2010 Revised
2/14/2011 Revised
6/25/2011 Revised

Subject: Reach Directive

Supplier Communication of SVHC _ EU Regulation EC 1907/2006_AMERICAN ZETTLER INCORPORATED

Reach Directive declaration: Valid for all American Zettler Inc. companies: American Zettler, Zettler Magnetics, Zettler Controls, and AZ Displays.

American Zettler products supplied to customers do not contain any of the reported substances listed in the SVHC_EU Regulation EC 1907/2006 "list of substances" from October 28, 2008, added substances from January 13, 2010, June 18, 2010 & December 15, 2010. (Candidate List of Substances of very High Concern – total 53 substances).

Zettler procures articles (not chemicals) which are not intended to release any substance under normal and reasonable foreseeable conditions of use.

Signed:

Ed Edsinga
Engineering Manager

www.azettler.com

Not updated to the most recent SVHC list but the format and necessary elements are otherwise present

ROHS/REACH SPECIFICATIONS

SPECIFICATION NOTE EXAMPLE

SCOPE

The purpose of this document is to provide requirements for RoHS II Directive and all applicable amendments as well as the REACH Regulation.

SUPPLIER RESPONSIBILITIES

The supplier shall maintain adequate RoHS/REACH documentation on-hand as proof of compliance for all materials and finishes used in the fabrication of CLIENT products. This includes any components/materials not specifically dictated by CLIENT or its Approved Vendor List (AVL), but selected by the supplier and used in the fabrication.

ROHS

The manufacturer shall be prepared to state that the processes, materials, and finishes (within their control) utilized in producing this product are in conformity with 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: (RoHS II). Exemptions should be noted with prior approval from Client.

Client previously approved Exemptions:

5b) Lead in glass of fluorescent tubes not exceeding 0,2 % by weight

6a) Lead as an alloying element in steel for machining purposes and in galvanised steel containing up to 0,35 % lead by weight

6b) Lead as an alloying element in aluminium containing up to 0,4 % lead by weight

6c) Copper alloy containing up to 4 % lead by weight

7a) Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead)

7b) Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signalling, transmission, and network management for telecommunications

7cI) Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or in a glass or ceramic matrix compound

13a) Lead in white glasses used for optical applications

15) Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit flip chip packages

REACH

The manufacturer shall be prepared to state that the processes, materials, and finishes (within their control) utilized in producing this product do not result in Parts/assembly in containing more that 0.1% w/w of SVHCs present within the product. Supplier should be prepared to state which issue of the declaration in question they. (example: June 2013, 144 SVHCs). If the parts/assemblies do contain more than 0.1% of SVHCs, the supplier must identify the SVHC by name and, at a minimum, CAS number.

REVIEW OF REQUIREMENTS

MAJOR DIFFERENCES BETWEEN ROHS RECAST AND ROHS

- Size and Comprehensiveness
    - RoHS Recast – Twenty-three (23) pages
    - RoHS – Five (5) pages
- CE Marking
- RoHS II is part of the Free Movement of Goods – Regulation 765/2008/EC
    - Conformity assessment procedures are affected
- Scope
    - Further details given later in the presentation

REVIEW OF REQUIREMENTS

MAJOR DIFFERENCES BETWEEN ROHS AND ROHS II – KEY DEFINITION CHANGE

Homogeneous materials and coatings:

- Never mentioned in RoHS
- **RoHS II states:**
  - » ***Article 4.2:*** *For the purposes of this Directive, no more than the maximum concentration value by weight in homogeneous materials as specified in Annex II shall be tolerated.*
  - » Annex II of course details the restricted substances which have not changed:
    - Lead (0,1 %)
    - Mercury (0,1 %)
    - Cadmium (0,01 %)
    - Hexavalent chromium (0,1 %)
    - Polybrominated biphenyls (PBB) (0,1 %)
    - Polybrominated diphenyl ethers (PBDE) (0,1 %)

NOTE: Article 4.2 goes on to state that the Commission is responsible for creating detailed rules for complying with the maximum concentration values for surface coatings

REVIEW OF REQUIREMENTS

ROHS II OVERVIEW

- DIRECTIVE 2011/65/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 8 June on the restriction of the use of certain hazardous substances in electrical and electronic equipment (recast)

- Published in the Official Journal of the European Union: **July 2011**
    - In Effect: **July 21, 2011**

- Into Member State law: **January 2, 2013**
    - Previous RoHS Directive (2002/95/EC) repealed: **January 3, 2013**

REVIEW OF REQUIREMENTS

ROHS II – CATEGORIES

1. Large household appliances.
2. Small household appliances.
3. IT and telecommunications equipment.
4. Consumer equipment.
5. Lighting equipment.
6. Electrical and electronic tools.
7. Toys, leisure and sports equipment.
8. Medical devices.
9. Monitoring and control instruments including industrial monitoring and control instruments.
10. Automatic dispensers.
11. Other EEE not covered by any of the categories above.

REVIEW OF REQUIREMENTS

ROHS II – SCOPE

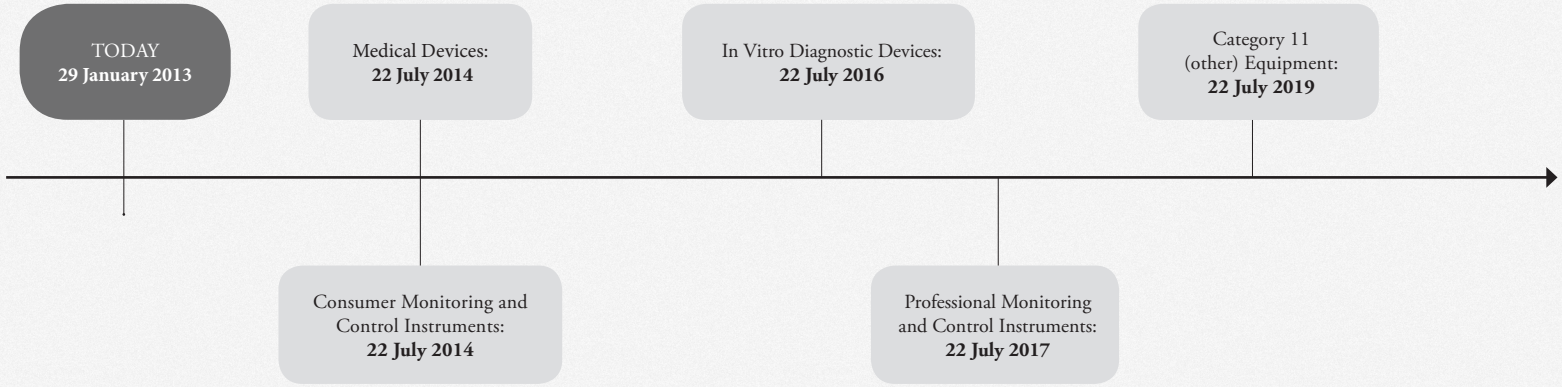
- Medical devices
- Control and monitoring instruments
- Category 11
  - ➔ Now all part of RoHS Recast
- Directive does not apply to:
  - *Equipment which is necessary for the protection of the essential interests of the security of Member States, including arms, munitions and war material intended for specifically military purposes*
    - » Defense
  - *Equipment to be sent into space*
  - *Equipment which is specifically designed, and is to be installed, as part of another type of equipment that is excluded or does not fall within the scope of this Directive, which can fulfil its function only if it is part of that equipment, and which can be replaced only by the same specifically designed equipment*
  - *Large-scale stationary industrial tools*
  - *Large-scale fixed installations*

- *Means of transport for persons or goods, excluding electric two-wheel vehicles which are not type-approved*
- *Non-road mobile machinery made available exclusively for professional use*
- *Active implantable medical devices*
- *Photovoltaic panels intended to be used in a system that is designed, assembled and installed by professionals for permanent use at a defined location to produce energy from solar light for public, commercial, industrial and residential applications*
- *Equipment specifically designed solely for the purposes of research and development only made available on a business-to-business basis.*

» R&D B2B

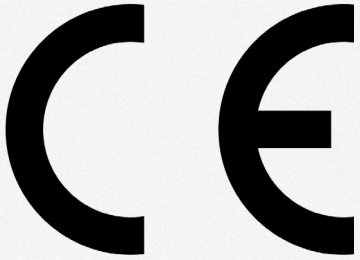
REVIEW OF REQUIREMENTS

ROHS II – NEW PRODUCTS IN SCOPE



REVIEW OF REQUIREMENTS

ROHS II AND THE CE MARK



- CE Marking Directive
  - DoC, Technical File, CE Mark
    - » **Declaration of Conformity:**
      - Decision No 768/2008/EC
      - Format in the RoHS recast, Annex VI
    - » **Technical file:**
      - Module A of Decision No 768/2008/EC
    - » **CE Mark:**
      - Directive 93/68/EEC of 22 July 1993
      - Subject to Article 30 of Regulation (EC) No 765/2008.
  - Applicable to:
    - » Finished products in scope of RoHS recast
    - » Placed on the market after January 2, 2013
      - For those products already under scope of RoHS
      - For the new products under scope, the previous slide provides the dates

REVIEW OF REQUIREMENTS
ROHS II RESPONSIBILITIES

MANUFACTURER	IMPORTER
EU Declaration of Conformity	EU Declaration of Conformity from manufacturer on record
Technical File	Ensure manufacturer has completed the technical file
CE Marking	Ensure CE Mark is affixed to the product
Product marking (brand name, serial number, contact information)	Ensure manufacturer has completed required product marking

Note: *Article 7(h) states: manufacturers (shall) indicate their name, registered trade name or registered trade mark and the address at which they can be contacted on the EEE or, where that is not possible, on its packaging or in a document accompanying the EEE.*

Article 7(d) states: importers indicate their name, registered trade name or registered trade mark and the address at which they can be contacted on the EEE or, where that is not possible, on its packaging or in a document accompanying the EEE.

REVIEW OF REQUIREMENTS (CONTINUED)

ROHS II RESPONSIBILITIES

Article 8a allows for an authorized representative to be appointed by written mandate by a manufacturer. Should an authorized representative be appointed they can deal with all manufacturer's obligations except for being responsible for the RoHS compliant design and manufacture and the drawing up of the technical documentation.

Practical Application: Non-EU manufacturers can assign an authorized representative and that address would be present OR the importer's information must be on the product or on its packaging or in an accompanying document. Having the manufacturer information as well as the importer's is not an issue but the point is to have a member state entity's information with the EEE.

REVIEW OF REQUIREMENTS

DECLARATION OF CONFORMITY

General Requirements:

1. No… (unique identification of the EEE):
2. Name and address of the manufacturer or his authorised representative:
3. This declaration of conformity is issued under the sole responsibility of the manufacturer (or installer):
4. Object of the declaration (identification of EEE allowing traceability. It may include a photograph, where appropriate):
5. The object of the declaration described above is in conformity with 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)

6. Where applicable, references to the relevant harmonised standards used or references to the technical specifications in relation to which conformity is declared:

7. Additional information:

SIGNATURE:

- **Signed for and on behalf of:** .....
- **(place and date of issue):** .....
- **(name, function) (signature):** .....

NOTE:

Declaration must be translated into the language or languages required by the Member State of the market on which the product is placed or made available AND safety instructions must be in a language that can be easily understood in every country in the EU in which the product is sold.

REVIEW OF REQUIREMENTS

TECHNICAL FILE

- Based on Module A of DECISION No 768/2008/EC
  - **Has to contain at least the following elements:**
    - a general d*escription of the product,*
    - *conceptual design and manufacturing drawings and schemes of components, sub-assemblies, circuits, etc.*
    - *descriptions and explanations necessary for the understanding of those drawings and schemes and the operation of the product,*
    - *a list of the harmonised standards and/or other relevant technical specifications the references of which have been published in the Official Journal of the European Union, applied in full or in part, and descriptions of the solutions adopted to meet the essential requirements of the legislative instrument where those harmonised*
    - *standards have not been applied. In the event of partly applied harmonised standards, the technical documentation shall specify the parts which have been applied,*
    - *results of design calculations made, examinations carried out, etc., and*
    - *test rep*orts.
- ***The documentation shall make it possible to assess the product's conformity to the relevant requirements, and shall include an adequate analysis and assessment of the risk***
- N 50581 – Standard for EU Technical Files – Published Sept 2012

REVIEW OF REQUIREMENTS

TECHNICAL FILE – EN 50581

Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

- **Combination of:**
  - RoHS Recast (Directive 2011/65/EU)
  - Module A of Decision 768/2008
  - IEC 62476 – Guidance for evaluation of products with respect to substance-use restrictions in electrical and electronic products [Existed Previous to RoHS Recast]

REVIEW OF REQUIREMENTS

TECHNICAL FILE – EN 50581

Beyond EN 50581, it should not be expected that there will be significantly more detail from the EU Commission. Official statement by the EU Commission regarding RoHS recast:

> *…as a general rule and in the interests of legal certainty, it is inappropriate for the Commission to make interpretative statements on legislative texts, which should be comprehensible in themselves.*

> *…note that it is in any event for the Court of Justice alone to provide authoritative interpretations as to the meaning of Union law.*

REVIEW OF REQUIREMENTS
TECHNICAL FILE – EN 50581

FOUR MAJOR TASKS:

- Determine the information needed
- Collect the information
- **Evaluate the information for:**
  - quality and trustworthiness
  - whether to include the documentation in the technical file
- Ensure that the technical documentation remains valid

REVIEW OF REQUIREMENTS

ROHS II – EXEMPTIONS

RoHS recast has two (2) groups of Exemptions:

- Annex III – Applications exempted from the restriction in Article 4(1)
- Annex IV – Applications exempted from the restriction in Article 4(1) specific to medical devices and monitoring and control instruments

Validity Date

- Annex III:
    - For the exemptions listed in Annex III as at 21 July 2011, the maximum validity period, which may be renewed, shall, for categories 1 to 7 and 10 of Annex I, be 5 years from 21 July 2011 and, for categories 8 and 9 of Annex I, 7 years from the relevant dates laid down in Article 4(3), unless a shorter period is specified.
- Annex IV:
    - For the exemptions listed in Annex IV as at 21 July 2011, the maximum validity period, which may be renewed, shall be 7 years from the relevant dates laid down in Article 4(3), unless a shorter period is specified.

- Unless otherwise specified
    - Thirty-eight (38) Annex III exemptions currently have a specified sunset date

If an exemption is not renewed, it would proceed to a revocation process

- Applications for renewal are required to be submitted at least eighteen (18) months before the expiry date of an exemption
    - Similar to the Authorisation Process under REACH
- If a decision is made to revoke an exemption, the exemption will expire twelve (12) to eighteen (18) months from the date of the decision

REVIEW OF REQUIREMENTS

ROHS II – EXEMPTIONS

NO.	EXEMPTION	SCOPE AND DATES OF APPLICABILITY
1	Mercury in single capped (compact) fluorescent lamps not exceeding (per burner):	
1a	For general lighting purposes < 30 W: 5 mg	Expired on 31 December 2011; 3,5 mg may be used per burner after 31 December 2011 until 31 December 2012; 2,5 mg shall be used per burner after 31 December 2012
1b	For general lighting purposes ≥ 30 W and < 50 W: 5 mg	Expired on 31 December 2011; 3,5 mg may be used per burner after 31 December 2011
1c	For general lighting purposes ≥ 50 W and < 150 W: 5 mg	
1d	For general lighting purposes ≥ 150 W: 15 mg	
1e	For general lighting purposes with circular or square structural shape and tube diameter ≤ 17 mm	No limitation of use until 31 December 2011; 7 mg may be used per burner after 31 December 2011
1f	For special purposes: 5 mg	

REVIEW OF REQUIREMENTS

ROHS II – EXEMPTIONS

NO.	EXEMPTION	SCOPE AND DATES OF APPLICABILITY
2a	Mercury in double-capped linear fluorescent lamps for general lighting purposes not exceeding (per lamp):	
2a1	Tri-band phosphor with normal lifetime and a tube diameter < 9 mm (e.g. T2): 5 mg	Expired on 31 December 2011; 4 mg may be used per lamp after 31 December 2011
2a2	Tri-band phosphor with normal lifetime and a tube diameter ≥ 9 mm and ≤ 17 mm (e.g. T5): 5 mg	Expired on 31 December 2011; 3 mg may be used per lamp after 31 December 2011
2a3	Tri-band phosphor with normal lifetime and a tube diameter > 17 mm and ≤ 28 mm (e.g. T8): 5 mg	Expired on 31 December 2011; 3,5 mg may be used per lamp after 31 December 2011
2a4	Tri-band phosphor with normal lifetime and a tube diameter > 28 mm (e.g. T12): 5 mg	Expired on 31 December 2012; 3,5 mg may be used per lamp after 31 December 2012
2a5	Tri-band phosphor with long lifetime (≥ 25 000 h): 8 mg	Expired on 31 December 2011; 5 mg may be used per lamp after 31 December 2011

REVIEW OF REQUIREMENTS

ROHS II – EXEMPTIONS

NO.	EXEMPTION	SCOPE AND DATES OF APPLICABILITY
2b	Mercury in other fluorescent lamps not exceeding (per lamp):	
2b1	Linear halophosphate lamps with tube > 28 mm (e.g. T10 and T12): 10 mg	Expired on 13 April 2012
2b2	Non-linear halophosphate lamps (all diameters): 15 mg	Expires on 13 April 2016
2b3	Non-linear tri-band phosphor lamps with tube diameter > 17 mm (e.g. T9)	No limitation of use until 31 December 2011; 15 mg may be used per lamp after 31 December 2011
2b4	Lamps for other general lighting and special purposes (e.g. induction lamps)	No limitation of use until 31 December 2011; 15 mg may be used per lamp after 31 December 2011

REVIEW OF REQUIREMENTS

ROHS II – EXEMPTIONS

NO.	EXEMPTION	SCOPE AND DATES OF APPLICABILITY
3	Mercury in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) for special purposes not exceeding (per lamp):	
3a	Short length (≤ 500 mm)	No limitation of use until 31 December 2011; 3,5 mg may be used per lamp after 31 December 2011
3b	Medium length (> 500 mm and ≤ 1 500 mm)	No limitation of use until 31 December 2011; 5 mg may be used per lamp after 31 December 2011
3c	Long length (> 1 500 mm)	No limitation of use until 31 December 2011; 13 mg may be used per lamp after 31 December 2011

REVIEW OF REQUIREMENTS
ROHS II – EXEMPTIONS

NO.	EXEMPTION	SCOPE AND DATES OF APPLICABILITY
4a	Mercury in other low pressure discharge lamps (per lamp)	No limitation of use until 31 December 2011; 15 mg may be used per lamp after 31 December 2011
4b	Mercury in High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner) in lamps with improved colour rendering index Ra > 60:	
4b-I	P ≤ 155 W	No limitation of use until 31 December 2011; 30 mg may be used per burner after 31 December 2011
4b-II	155 W < P ≤ 405 W	No limitation of use until 31 December 2011; 40 mg may be used per burner after 31 December 2011
4b-III	P > 405 W	No limitation of use until 31 December 2011; 40 mg may be used per burner after 31 December 2011

REVIEW OF REQUIREMENTS

ROHS II – EXEMPTIONS

NO.	EXEMPTION	SCOPE AND DATES OF APPLICABILITY
4c	Mercury in other High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner):	
4c-I	P ≤ 155 W	No limitation of use until 31 December 2011; 25 mg may be used per burner after 31 December 2011
4c-II	155 W < P ≤ 405 W	No limitation of use until 31 December 2011; 30 mg may be used per burner after 31 December 2011
4c-III	P > 405 W	No limitation of use until 31 December 2011; 40 mg may be used per burner after 31 December 2011
4d	Mercury in High Pressure Mercury (vapour) lamps (HPMV)	Expires on 13 April 2015
4e	Mercury in metal halide lamps (MH)	
4f	Mercury in other discharge lamps for special purposes not specifically mentioned in this Annex	

REVIEW OF REQUIREMENTS

ROHS II – EXEMPTIONS

NO.	EXEMPTION	SCOPE AND DATES OF APPLICABILITY
5a	Lead in glass of cathode ray tubes	
5b	Lead in glass of fluorescent tubes not exceeding 0,2 % by weight	
6a	Lead as an alloying element in steel for machining purposes and in galvanised steel containing up to 0,35 % lead by weight	
6b	Lead as an alloying element in aluminium containing up to 0,4 % lead by weight	
6c	Copper alloy containing up to 4 % lead by weight	

REVIEW OF REQUIREMENTS

ROHS II – EXEMPTIONS

NO.	EXEMPTION	SCOPE AND DATES OF APPLICABILITY
7a	Lead in high melting temperature type solders (i.e. lead- based alloys containing 85 % by weight or more lead)	
7b	Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signalling, transmission, and network management for telecommunications	
7c-I	Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or in a glass or ceramic matrix compound	
7c-II	Lead in dielectric ceramic in capacitors for a rated voltage of 125 V AC or 250 V DC or higher	
7c-III	Lead in dielectric ceramic in capacitors for a rated voltage of less than 125 V AC or 250 V DC	Expired on 1 January 2013 and after that date may be used in spare parts for EEE placed on the market before 1 January 2013
7c-IV	Lead in PZT based dielectric ceramic materials for capacitors which are part of integrated circuits or discrete semiconductors (*Amendment on 18/12/2012)	Expires on 21 July 2016

REVIEW OF REQUIREMENTS

ROHS II – EXEMPTIONS

NO.	EXEMPTION	SCOPE AND DATES OF APPLICABILITY
8a	Cadmium and its compounds in one shot pellet type thermal cut-offs	Expired on 1 January 2012 and after that date may be used in spare parts for EEE placed on the market before 1 January 2012
8b	Cadmium and its compounds in electrical contacts	
9	Hexavalent chromium as an anticorrosion agent of the carbon steel cooling system in absorption refrigerators up to 0,75 % by weight in the cooling solution	
9b	Lead in bearing shells and bushes for refrigerant-containing compressors for heating, ventilation, air conditioning and refrigeration (HVACR) applications	
11a	Lead used in C-press compliant pin connector systems	May be used in spare parts for EEE placed on the market before 24 September 2010
11b	Lead used in other than C-press compliant pin connector systems	Expired on 1 January 2013 and after that date may be used in spare parts for EEE placed on the market before 1 January 2013

REVIEW OF REQUIREMENTS
ROHS II – EXEMPTIONS

NO.	EXEMPTION	SCOPE AND DATES OF APPLICABILITY
12	Lead as a coating material for the thermal conduction module C-ring	May be used in spare parts for EEE placed on the market before 24 September 2010
13a	Lead in white glasses used for optical applications	
13b	Cadmium and lead in filter glasses and glasses used for reflectance standards	
14	Lead in solders consisting of more than two elements for the connection between the pins and the package of microprocessors with a lead content of more than 80 % and less than 85 % by weight	Expired on 1 January 2011 and after that date may be used in spare parts for EEE placed on the market before 1 January 2011
15	Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit flip chip packages	
16	Lead in linear incandescent lamps with silicate coated tubes	Expires on 1 September 2013
17	Lead halide as radiant agent in high intensity discharge (HID) lamps used for professional reprography applications	

REVIEW OF REQUIREMENTS

ROHS II – EXEMPTIONS

NO.	EXEMPTION	SCOPE AND DATES OF APPLICABILITY
18a	Lead as activator in the fluorescent powder (1 % lead by weight or less) of discharge lamps when used as speciality lamps for diazoprinting reprography, lithography, insect traps, photochemical and curing processes containing phosphors such as SMS ((Sr,Ba) 2 MgSi 2 O 7 :Pb)	Expired on 1 January 2011
18b	Lead as activator in the fluorescent powder (1 % lead by weight or less) of discharge lamps when used as sun tanning lamps containing phosphors such as BSP (BaSi 2 O 5 :Pb)	
19	Lead with PbBiSn-Hg and PbInSn-Hg in specific compositions as main amalgam and with PbSn-Hg as auxiliary amalgam in very compact energy saving lamps (ESL)	Expired on 1 June 2011
20	Lead oxide in glass used for bonding front and rear substrates of flat fluorescent lamps used for Liquid Crystal Displays (LCDs)	Expired on 1 June 2011
21	Lead and cadmium in printing inks for the application of enamels on glasses, such as borosilicate and soda lime glasses	
23	Lead in finishes of fine pitch components other than connectors with a pitch of 0,65 mm and less	May be used in spare parts for EEE placed on the market before 24 September 2010
24	Lead in solders for the soldering to machined through hole discoidal and planar array ceramic multilayer capacitors	

REVIEW OF REQUIREMENTS
ROHS II – EXEMPTIONS

NO.	EXEMPTION	SCOPE AND DATES OF APPLICABILITY
25	Lead oxide in surface conduction electron emitter displays (SED) used in structural elements, notably in the seal frit and frit ring	
26	Lead oxide in the glass envelope of black light blue lamps	Expired on 1 June 2011
27	Lead alloys as solder for transducers used in high-powered (designated to operate for several hours at acoustic power levels of 125 dB SPL and above) loudspeakers	Expired on 24 September 2010
29	Lead bound in crystal glass as defined in Annex I (Categories 1, 2, 3 and 4) of Council Directive 69/493/ EEC (1)	
30	Cadmium alloys as electrical/mechanical solder joints to electrical conductors located directly on the voice coil in transducers used in high-powered loudspeakers with sound pressure levels of 100 dB (A) and more	
31	Lead in soldering materials in mercury free flat fluorescent lamps (which, e.g. are used for liquid crystal displays, de-sign or industrial lighting)	
32	Lead oxide in seal frit used for making window assemblies for Argon and Krypton laser tubes	

REVIEW OF REQUIREMENTS

ROHS II – EXEMPTIONS

NO.	EXEMPTION	SCOPE AND DATES OF APPLICABILITY
33	Lead in solders for the soldering of thin copper wires of 100 µm diameter and less in power transformers	
34	Lead in cermet-based trimmer potentiometer elements	
36	Mercury used as a cathode sputtering inhibitor in DC plasma displays with a content up to 30 mg per display	Expired on 1 July 2010
37	Lead in the plating layer of high voltage diodes on the basis of a zinc borate glass body	
38	Cadmium and cadmium oxide in thick film pastes used on aluminium bonded beryllium oxide	
39	Cadmium in colour converting II-VI LEDs (< 10 µg Cd per mm 2 of light-emitting area) for use in solid state illumination or display systems	Expires on 1 July 2014
40	Cadmium in photoresistors for analogue optocouplers applied in professional audio equipment (*Amendment on 10/10/2012)	Expires on 31 Dec 2013

DUE DILIGENCE AND TESTING

WHAT IS THEIR ROLE IN ROHS II COMPLIANCE – SPECIFICALLY THE TECHNICAL FILE?

Determination of Necessary Information

- Assess what types of documents are required based on substance presence risk and supplier risk
- Technical judgement allowed

Collection of Information

- Types of allowed documentation
  - » Supplier declarations
  - » Material Declarations
  - » Analytical test results

DUE DILIGENCE AND TESTING

WHAT IS THEIR ROLE IN ROHS II COMPLIANCE – SPECIFICALLY THE TECHNICAL FILE?

Evaluation of Data

- **Mandatory for Manufacturers**
- Requirements include:
    - Establish procedures for evaluating collected information / documentation
    - Evaluate whether each part, component, or material meets the materials restriction requirements of RoHS Recast
    - Evaluate whether the document is of sufficient quality to include in the technical documentation
        - » Criteria met = Included
        - » Criteria not met = further corrective actions or analysis

Ensuring Validity of Data

- Requirements:
    - periodic review of the documents contained in the technical documentation to ensure that they are still valid;
    - technical documentation must reflect any changes to materials, parts or sub-assemblies

DUE DILIGENCE AND TESTING

WHAT IS THEIR ROLE IN ROHS II COMPLIANCE – SPECIFICALLY THE TECHNICAL FILE?

STANDARD PRACTICE:

- Annual Updates – with the Annual Audit!
- Significant Product Changes = Update File
- Completeness in the Technical File:
    - Consumables
    - Out of Scope Parts
    - Not part of the RoHS Compliance THEREFORE not required to be included
        - » Recommended that the out of scope and consumable parts are footnoted

DUE DILIGENCE AND TESTING – EN 62321

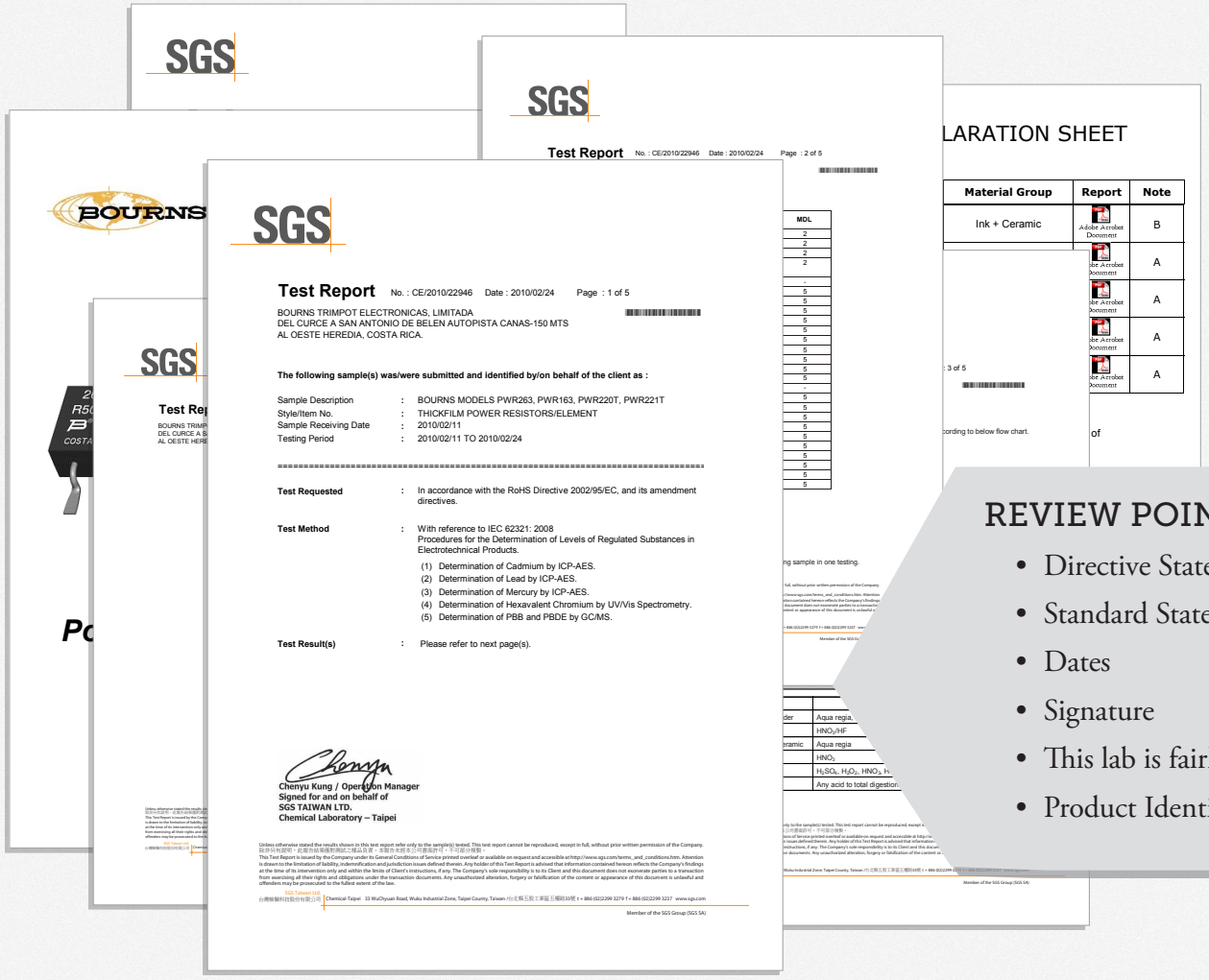
WHAT IS THEIR ROLE IN ROHS II COMPLIANCE – SPECIFICALLY THE TECHNICAL FILE?

Electrotechnical products – Determination of levels of six regulated substances (lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls, and polybrominated diphenyl ethers)

- EU Standard for RoHS testing
- Not Mandatory…HOWEVER:
  - » Most effective method of risk management
  - » Usually less costly than alternative (further/increased) supplier data gathering and/or corrective action methods
  - » Testing to an established standard allows you to quote it in the file = lends credibility
    - **If you have done it right, others don't have to!**
- Recommended to have at least scan testing to EN 62321:2009 in technical file
  - » XRF

DUE DILIGENCE AND TESTING – EN 62321

DECLARATION AND TEST REPORT SAMPLE REVIEW

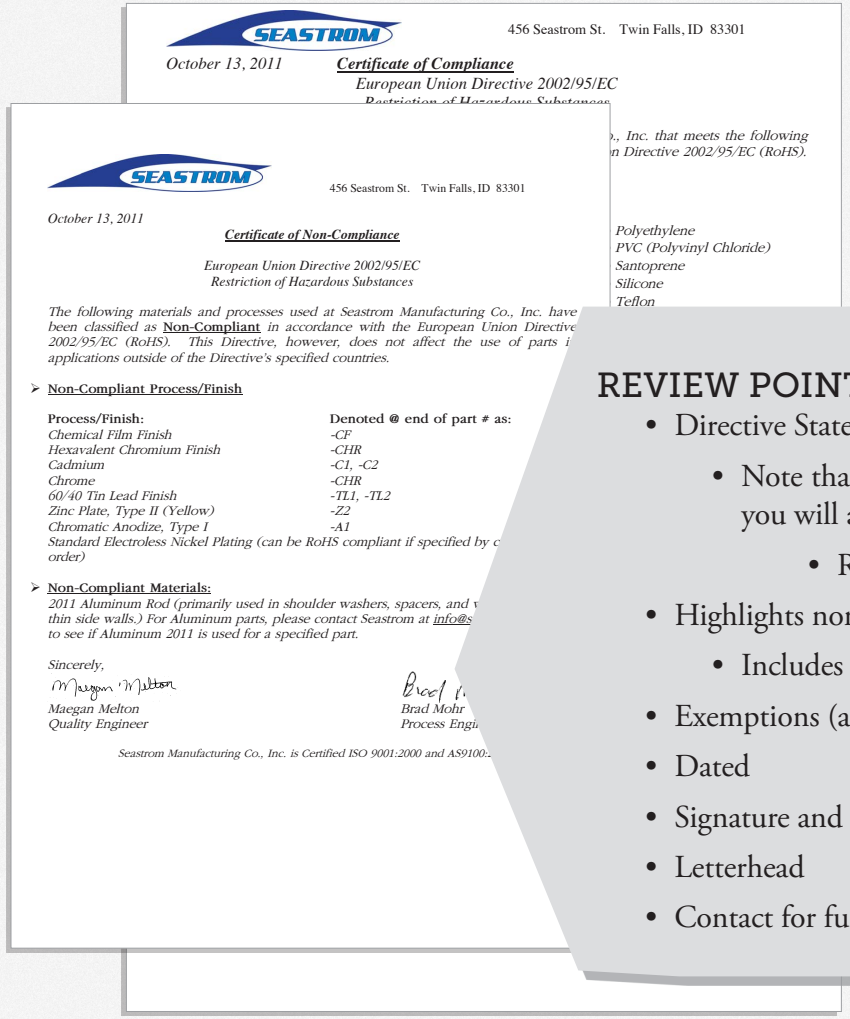


REVIEW POINTS

- Directive Stated
- Standard Stated
- Dates
- Signature
- This lab is fairly well known
- Product Identification is very clear

DUE DILIGENCE AND TESTING – EN 62321

DECLARATION AND TEST REPORT SAMPLE REVIEW



SEASTROM

456 Seastrom St. Twin Falls, ID 83301

October 13, 2011

Certificate of Compliance

European Union Directive 2002/95/EC
Restriction of Hazardous Substances

..., Inc. that meets the following
...n Directive 2002/95/EC (RoHS).

Polyethylene
PVC (Polyvinyl Chloride)
Santoprene
Silicone
Teflon

SEASTROM

456 Seastrom St. Twin Falls, ID 83301

October 13, 2011

Certificate of Non-Compliance

European Union Directive 2002/95/EC
Restriction of Hazardous Substances

The following materials and processes used at Seastrom Manufacturing Co., Inc. have been classified as Non-Compliant in accordance with the European Union Directive 2002/95/EC (RoHS). This Directive, however, does not affect the use of parts i... applications outside of the Directive's specified countries.

➢ Non-Compliant Process/Finish

Process/Finish:	Denoted @ end of part # as:
Chemical Film Finish	-CF
Hexavalent Chromium Finish	-CHR
Cadmium	-C1, -C2
Chrome	-CHR
60/40 Tin Lead Finish	-TL1, -TL2
Zinc Plate, Type II (Yellow)	-Z2
Chromatic Anodize, Type I	-A1

Standard Electroless Nickel Plating (can be RoHS compliant if specified by c... order)

➢ Non-Compliant Materials:

2011 Aluminum Rod (primarily used in shoulder washers, spacers, and v... thin side walls.) For Aluminum parts, please contact Seastrom at info@s... to see if Aluminum 2011 is used for a specified part.

Sincerely,

Maegan Melton
Quality Engineer

Brad Mohr
Process Engi...

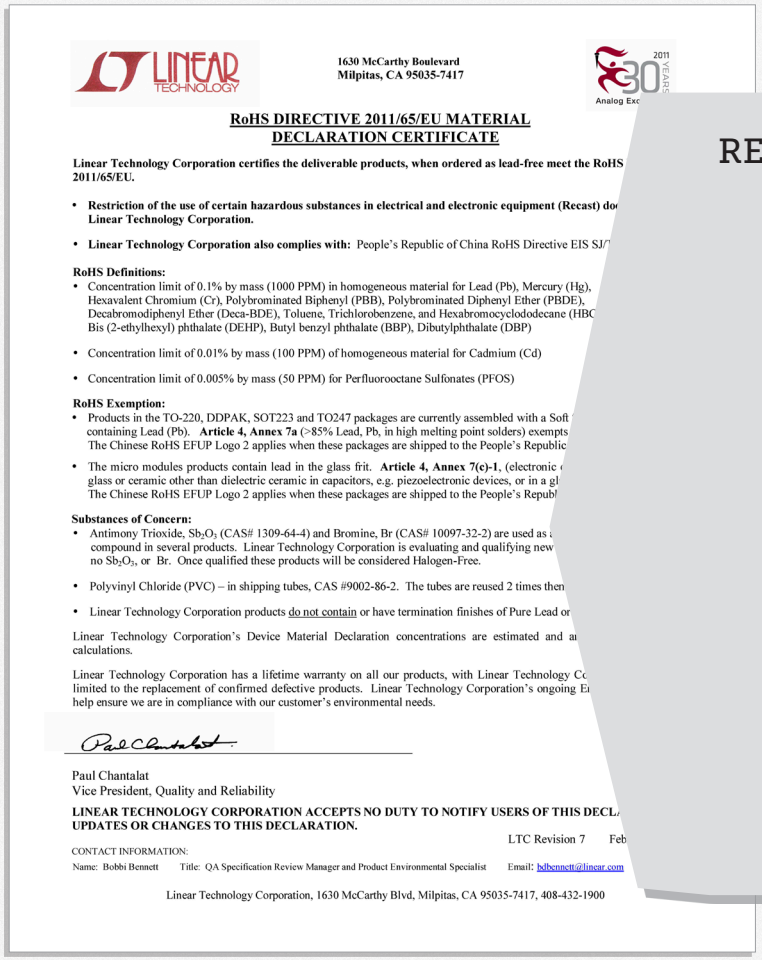
Seastrom Manufacturing Co., Inc. is Certified ISO 9001:2000 and AS9100:...

REVIEW POINTS

- Directive Stated
  - Note that this is in accordance with the "original" RoHS and not the recast however you will also note that most of the important elements are included
    - Regulatory wording may be slightly different but the declaration speaks to it!
- Highlights non-compliant and compliant parts/processes/finishes
  - Includes part # denotations
- Exemptions (as applicable)
- Dated
- Signature and Function
- Letterhead
- Contact for further information

DUE DILIGENCE AND TESTING – EN 62321

DECLARATION AND TEST REPORT SAMPLE REVIEW



LINEAR TECHNOLOGY

1630 McCarthy Boulevard
Milpitas, CA 95035-7417

RoHS DIRECTIVE 2011/65/EU MATERIAL DECLARATION CERTIFICATE

Linear Technology Corporation certifies the deliverable products, when ordered as lead-free meet the RoHS 2011/65/EU.

- **Restriction of the use of certain hazardous substances in electrical and electronic equipment (Recast) do Linear Technology Corporation.**
- **Linear Technology Corporation also complies with:** People's Republic of China RoHS Directive EIS SJ/

RoHS Definitions:

- Concentration limit of 0.1% by mass (1000 PPM) in homogeneous material for Lead (Pb), Mercury (Hg), Hexavalent Chromium (Cr), Polybrominated Biphenyl (PBB), Polybrominated Diphenyl Ether (PBDE), Decabromodiphenyl Ether (Deca-BDE), Toluene, Trichlorobenzene, and Hexabromocyclododecane (HBC Bis (2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutylphthalate (DBP)
- Concentration limit of 0.01% by mass (100 PPM) of homogeneous material for Cadmium (Cd)
- Concentration limit of 0.005% by mass (50 PPM) for Perfluorooctane Sulfonates (PFOS)

RoHS Exemption:

- Products in the TO-220, DDPAK, SOT223 and TO247 packages are currently assembled with a Soft containing Lead (Pb). **Article 4, Annex 7a** (>85% Lead, Pb, in high melting point solders) exempts The Chinese RoHS EFUP Logo 2 applies when these packages are shipped to the People's Republic
- The micro modules products contain lead in the glass frit. **Article 4, Annex 7(c)-1**, (electronic glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or in a gl The Chinese RoHS EFUP Logo 2 applies when these packages are shipped to the People's Republ

Substances of Concern:

- Antimony Trioxide, Sb_2O_3 (CAS# 1309-64-4) and Bromine, Br (CAS# 10097-32-2) are used as compound in several products. Linear Technology Corporation is evaluating and qualifying new no Sb_2O_3, or Br. Once qualified these products will be considered Halogen-Free.
- Polyvinyl Chloride (PVC) – in shipping tubes, CAS #9002-86-2. The tubes are reused 2 times then
- Linear Technology Corporation products do not contain or have termination finishes of Pure Lead or

Linear Technology Corporation's Device Material Declaration concentrations are estimated and a calculations.

Linear Technology Corporation has a lifetime warranty on all our products, with Linear Technology Co limited to the replacement of confirmed defective products. Linear Technology Corporation's ongoing E help ensure we are in compliance with our customer's environmental needs.

Paul Chantalat
Vice President, Quality and Reliability

LINEAR TECHNOLOGY CORPORATION ACCEPTS NO DUTY TO NOTIFY USERS OF THIS DECL UPDATES OR CHANGES TO THIS DECLARATION.

LTC Revision 7 Feb

CONTACT INFORMATION:
Name: Bobbi Bennett Title: QA Specification Review Manager and Product Environmental Specialist Email: bdbennett@linear.com

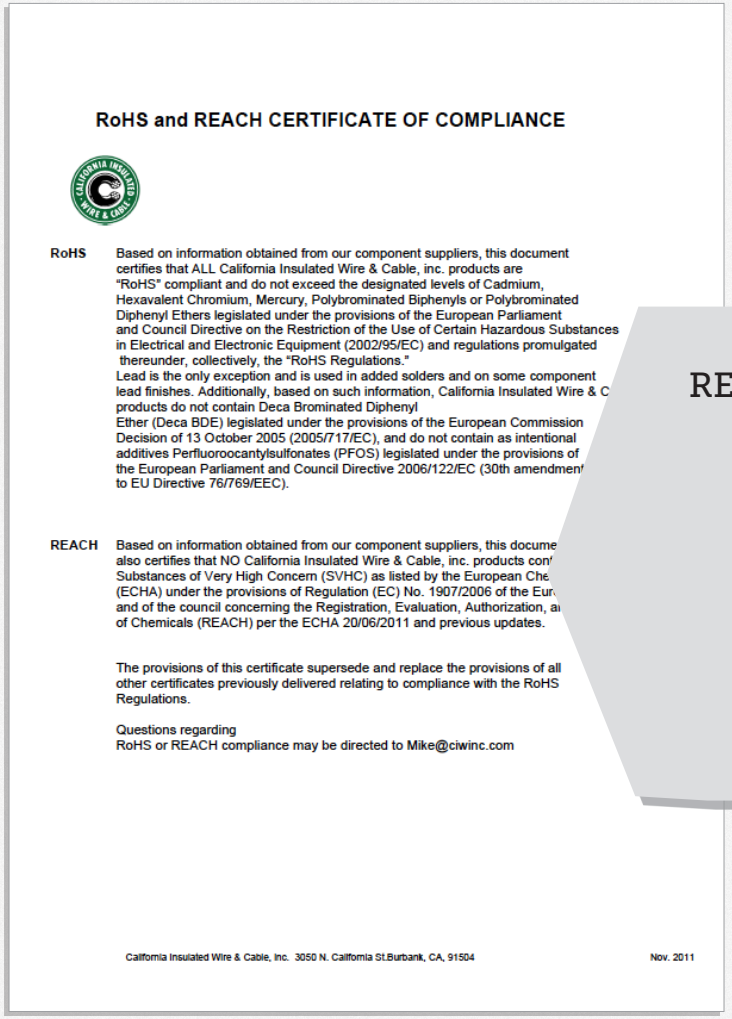
Linear Technology Corporation, 1630 McCarthy Blvd, Milpitas, CA 95035-7417, 408-432-1900

REVIEW POINTS

- Directive Stated
- RoHS recast
  - » Does not include the specific regulatory wording (as indicated in the earlier slide)
- Confusing wording
  - Certifies that it meets the directive HOWEVER
    - » *Restriction of the use of certain hazardous substances in electrical and electronic equipment (Recast) does not pertain to Linear Technology Corporation.*
- Exemptions (as applicable)
- Dated
- Signature and Function
- Letterhead
- Contact for further information
- The final statement does not provide confidence in the long-term compliance

DUE DILIGENCE AND TESTING – EN 62321

DECLARATION AND TEST REPORT SAMPLE REVIEW



RoHS and REACH CERTIFICATE OF COMPLIANCE

RoHS Based on information obtained from our component suppliers, this document certifies that ALL California Insulated Wire & Cable, inc. products are "RoHS" compliant and do not exceed the designated levels of Cadmium, Hexavalent Chromium, Mercury, Polybrominated Biphenyls or Polybrominated Diphenyl Ethers legislated under the provisions of the European Parliament and Council Directive on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (2002/95/EC) and regulations promulgated thereunder, collectively, the "RoHS Regulations."
Lead is the only exception and is used in added solders and on some component lead finishes. Additionally, based on such information, California Insulated Wire & C products do not contain Deca Brominated Diphenyl
Ether (Deca BDE) legislated under the provisions of the European Commission Decision of 13 October 2005 (2005/717/EC), and do not contain as intentional additives Perfluorocantylsulfonates (PFOS) legislated under the provisions of the European Parliament and Council Directive 2006/122/EC (30th amendment to EU Directive 76/769/EEC).

REACH Based on information obtained from our component suppliers, this docume also certifies that NO California Insulated Wire & Cable, inc. products con Substances of Very High Concern (SVHC) as listed by the European Che (ECHA) under the provisions of Regulation (EC) No. 1907/2006 of the Eur and of the council concerning the Registration, Evaluation, Authorization, a of Chemicals (REACH) per the ECHA 20/06/2011 and previous updates.

The provisions of this certificate supersede and replace the provisions of all other certificates previously delivered relating to compliance with the RoHS Regulations.

Questions regarding
RoHS or REACH compliance may be directed to Mike@ciwinc.com

California Insulated Wire & Cable, Inc. 3050 N. California St.Burbank, CA, 91504 Nov. 2011

REVIEW POINTS

- Directive Stated
  - Note that this is in accordance with the "original" RoHS
- Exemption is simply stated as exception with no detail
- Dated
- No Signature or Function
- Letterhead
- Contact for further information

ENFORCEMENT

- Declaration of Conformity
    - Easy diagnosis of compliance
- Technical File
    - Member State Enforcement Agency's – first line of defense
- RoHS material restrictions are MUCH easier and less destructive to test for than REACH
    - Be AWARE
- Fines – member state by member state
- Stuck at Customs
- Rejected at Customs

ROHS/REACH DOCUMENTATION UPDATES

Do Not Forget to Update:

- All Specifications and Drawings
    - Whether on each specification/drawing OR one overarching specification to be referred to
- Supplier Agreements
- Terms and Conditions

ROHS POTENTIAL SUBSTANCE ADDITIONS

Under Article 6 of RoHS Recast, additional substances can be added to the list of RoHS restricted materials. The EU commission is required to review the following four (4) substances for inclusion in RoHS recast by 22 July 2014:

- HBCDD (Hexabromocyclododecane)
- DEHP (Bis(2-ethylhexyl) phthalate)
- BBP (Benzyl butyl phthalate)
- DBP (Di-n-butyl phthalate)

Among other changes, RoHS Recast has different requirements to prove RoHS conformity for finished products.

TSI finished products under scope of the RoHS directive will require CE marking, an EC declara¬tion of conformity, and an EC technical file. These requirements will go into effect at the same time as the RoHS recast substance restrictions – July 22nd, 2017. Further information on RoHS and RoHS II as well as the details supporting this determination are covered as this session contin¬ues and are included in the RoHS Requirements document.

ROHS POTENTIAL EXEMPTION ADDITIONS

OEKO Institute – Evaluation of Requests and Existing Exemptions - News:
http://rohs.exemptions.oeko.info/index.php?id=127

OEKO Institute – Evaluation of Requests and Existing Exemptions – Previous Consultations:
http://rohs.exemptions.oeko.info/index.php?id=76

A few examples are included in the following slides:

This **stakeholder consultation** ran from **26.06.2012 to 04.09.2012** and covered eleven exemption requests:

Exemption request 1 "Hexavalent chromium in alkali dispensers for in-situ production of photocathodes"

Exemption request 2 "Reuse of parts [containing lead, cadmium and hexavalent chromium] from medical devices including X-ray tube components in new X-ray tube assemblies"

Exemption request 3 "Lead in solders for Positron Emission Tomography detectors and data acquisition units installed in Magnetic Resonance Imaging equipment"

Exemption request 4 "Lead in solders used in Directive 93/42/EEC class IIa and IIb portable and mobile medical equipment"

Exemption request 5 "Decorative ceramic lamp bases or other ceramic components of luminaires containing lead and/or cadmium in the glaze/colouring"

ROHS POTENTIAL EXEMPTION ADDITIONS

Exemption request 6 "Decorative lamp shades and bases (luminaires) containing lead in the solder used to join/coat the copper foil mounting strips for the glass/shell/other material used in tiffany (like stained glass windows), capiz shell and similar products"

Exemption request 7 "3,5 mg mercury per lamp in single capped compact fluorescent lamps for general lighting purposes < 30 W with a lifetime > 15 000 hrs ("long-life")"

Exemption request 8 "Mercury in cold cathode fluorescent lamps for general lighting purposes"

Exemption request 9 "Mercury in cold cathode fluorescent lamps for luminous sign for advertising or decorative purposes"

Exemption request 10 "Lead in micro-channel plate for medical devices and monitoring and control instruments"

Exemption request 11 "Lead as an activator in the fluorescent powder of discharge lamps when used as photophoresis lamps containing phosphors such as BSP (BaSi2O5:Pb)"

ROHS POTENTIAL EXEMPTION ADDITIONS

This **stakeholder consultation** ran for twelve weeks from **09.11.2012 to 01.02.2013** and covered four exemption requests:

Exemption request 12 "Leaded solder utilized in stacked, area array electronics packaging within ionizing radiation detectors including CT and X-ray"

Exemption request 13 "Lead in platinized platinum electrodes for measurement instruments"

Exemption request 14 "Lead in solders for the ignition module and other electronic engine controls mounted directly on or close to the cylinder of hand-held engines (classes SH: 1, SH: 2, SH: 3 of 2002/88/EC)"

Exemption request 15 "Hand crafted luminous discharge tubes (HLDT) used for signs, decorative or general lighting and light-artwork"

ROHS POTENTIAL EXEMPTION ADDITIONS

This **stakeholder consultation** ran for eight weeks from **21.12.2012 to 15.02.201**3 and covered three exemption requests:

Exemption request 17a "Lead in glass of electronic components and fluorescent tubes, or in electronic ceramic parts (including dielectric ceramic capacitors) used in industrial monitoring & control instruments (only sub-category 9 industrial)", exemption to expire in 2024

Exemption request 18a "Lead used in compliant pin connector systems for use in industrial monitoring and control instruments (only sub-category 9 industrial)", exemption to expire in 2024

Exemption request 20a "Mercury in cold cathode fluorescent lamps (CCFL) for back-lighting liquid crystal displays not exceeding 5 mg per lamp used in industrial monitoring and control instruments (only sub-category 9 industrial)"

ROHS POTENTIAL EXEMPTION ADDITIONS

This **stakeholder consultation ran** for twelve weeks from **19.08.2013 to 11.11.2013** and covered five exemption requests:

Exemption request 2013-1 "Lead as thermal stabilizer in Polyvinyl Chloride (PVC) used as base for substrates in amperometric, potentiometric and conductometric electrochemical sensors"

Exemption request 2013-2 "Cadmium in color converting II-VI LEDs (< 10 µg Cd per mm2 of light-emitting area) for use in solid state illumination or display systems" (Request for renewal of Exemption 39 of Annex III of Directive 2011/65/EU)

Exemption request 2013-3 "Lead in solders used in boards of heart-lung machines" exemption to expire in 2017

Exemption request 2013-4 "Mercury used in high speed rotating electrical connectors (slip ring) with electrical conduction paths that have sealed liquid mercury, molecularly bonded to the contacts"

Exemption request 2013-5 "Cadmium in light control materials used for display devices"

These requests are assessed and then a full report is submitted to the European Commission for final decisions.

QUESTIONS?