



BROOKS AUTOMATION, INC.

Changes you need to know about

Northeast Product Safety Society & IEEE Product Safety Engineering Society

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Topics:

- EU Machinery Directive
- EU Low Voltage Directive
- EU WEEE and RoHS
- China RoHs
- JIG-101
- Japanese Green Initiatives
- EU REACH



EU Machinery Directive

Effective December 29, 2009

The Current Machinery Directive

98/37/EC

will be repealed

and

The NEW Machinery Directive

2006/42/EC

will be in force



EU Machinery Directive...

Significant changes:

- This is a New Approach Directive and also applies in the EEA (EU Member States plus Iceland, Norway, Liechtenstein)
- All Declaration of Conformity and Declaration of Incorporation documents must be changed to reflect the new Directive number
- There may be different standards to be referenced on the DoC or DoI
- Essential Health and Safety Requirements (EHSRs) will need to be referenced on the DoC or DoI
- EU is currently reviewing ~300 standards



But...

Do not destroy the old DoC or DoI

Products that were shipped into the EU prior to implementation of the new MD need to maintain their TCF as it was and that includes the DoC or DoI

*(TCFs must be kept for 10 years
from the date of last production)*



References and resources for New MD

- <http://www.machinebuilding.net/n/n0750.htm>
 - Free Guide to the New Machinery Directive 2006/42/EC
 - Risk Calculator

- http://ec.europa.eu/enterprise/mechan_equipment/machinery/nd_workshop/index.htm
 - From a Workshop held in May 2007 but there are links to the presentations

- <http://www.hs-compliance.com/Info/TechnicalInformation/Machinery.aspx>
 - Health and Safety Compliance Engineering with links to downloadable copies of the old and new Machinery Directives



EU Low Voltage Directive

- 2006/95/EC
- Effective January 16, 2007, the “new” Low Voltage Directive, came into force, and the “old” LVD was repealed
- The new LVD provides a single document covering the former LVD, 73/23/EC, and all of its amendments
- There have not been any changes in text, content, or intent from the old to the new –just a combining of documents and amendments into one document
- Article 14, 2nd Paragraph, indicates that “any references to the old Directive are taken to refer to the new Directive.”
 - No need to rewrite DoCs, as must be done with the new MD



EU WEEE and EU RoHS – Proposed Changes

- List of product categories currently in the scope of WEEE will be removed and put into RoHS
- WEEE will point to the RoHS scope for the list of products covered
- Now 2 categories of “monitoring and control instruments” and.
 - Monitoring and control instruments are within scope as of 1/1/2014
 - **Industrial** monitoring and control instruments - used only by professionals and industry - are within scope as of 1/1/2017
- Exemption for Large-Scale Stationary Industrial Tools (LSIT) will remain)
- RoHS will become a CE Marking Directive
 - When products comply the RoHS Directive is added to the Declaration of Conformity



Proposed RoHS Product Scope

- 1. Large household appliances
- 2. Small household appliances
- 3. IT and telecommunications equipment
- 4. Consumer equipment
- 5. Lighting equipment
- 6. Electrical and electronic tools (**with the exception of large-scale stationary industrial tools**)
- 7. Toys, leisure and sports equipment
- 8. Medical devices.
- 9. Monitoring and control instruments excluding **industrial monitoring and control instruments***
- 10. Automatic dispensers



Restricted and Banned Substances and MCL

- Restricted Substances, weight by Homogenous Material (no changes)
 - Lead (0,1%)
 - Mercury (0,1%)
 - Cadmium (0,01%)
 - Hexavalent chromium (0,1%)
 - Polybrominated biphenyls (PBB) (0,1%)
 - Polybrominated diphenyl ethers (PBDE) (0,1%)

- Banned Substances:
 - Hexabromocyclododecane (HBCDD)
 - Bis (2-ethylhexyl) phthalate (DEHP)
 - Butyl benzyl phthalate (BBP)
 - Dibutylphthalate (DBP)



Exemptions Allowed

- Lead in glass of cathode ray tubes, electronic components and fluorescent tubes.
- Lead as an alloying element in steel containing up to 0.35 % lead by weight, aluminum containing up to 0.4 % lead by weight and as a copper alloy containing up to 4 % lead by weight.
- Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead),
- Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signaling, transmission as well as network management for telecommunications,
- Lead in electronic ceramic parts (e.g. piezoelectronic devices)
- Hexavalent Chromium as an anti-corrosion of the carbon steel cooling in absorption refrigerators
- Cadmium and its compounds in electrical contacts and cadmium plating-



China RoHS

- Phase 1 content labels remain as a requirement for now
- Work has begun on the Catalog for Phase 2
 - SEMI has representation on the Catalog Committee
- China has said that they will focus on consumer products (computers, printers, monitors, cell phones, etc.) and household appliances for the initial Catalog
- Industrial products and semiconductor equipment are not anticipated to be in the Catalog for at least 3-5 years, if at all. China understands the importance of these products to their infrastructure and business development



JIG-101

- Edition 2 scheduled for release in March, 2009
- Will have 3 lists:
 - Criteria 1 – R (Regulated)

Substances that are subject to enacted legislation that (a) prohibits their use; or (b) restricts their use; or (c) requires reporting or result in other regulatory effects (e.g. labeling) and where the substance-specific effective date is currently in effect or scheduled to go into effect within the next 24 months.
 - Criteria 2 – A (For Assessment Only)

Substances that are likely to be subject to enacted legislation where the substance-specific effective dates of the regulatory requirements are uncertain.
 - Criteria 3 – I (For Information Only)

Substances that are not currently regulated and where there is a recognized market requirement for reporting their content in electronic products to facilitate company assessment to widely adopted industry environmental agreements or standards.



JIG-101 2nd Ed: Criteria 1 - Regulated

- 4,4'- Diaminodiphenylmethane (4,4 – MDA)
- Diarsenic pentoxide/ Diarsenic trioxide
- Asbestos
- Certain azocolourants and azodyes
- Cadmium/Cadmium compounds
- Fluorinated greenhouse gases (HFC, PFC, SF6)
- Formaldehyde
- Hexavalent Chromium
- Sodium Dichromate Only
- Hexabromocyclododecane (HBCDD) and all major diastereoisomers
- Lead/Lead Compounds
- Mercury/Mercury Compounds
- Nickel
- Ozone Depleting Substances (CFCs, Halon)
- PerchloratesPerfluorooctane sulfonate (PFOS)
- Phenol,2-(2H-benzotriazol-2-yl)-4,6-bis(1,1-dimethylethyl)
- Phthalates DEHP, DBP, BBP
- Phthalates DINP, DIDP, DNOP
- Polybrominated Biphenyls (PBBs)
- Polybrominated Diphenylethers (PBDEs)
- Deca-BDE (dBDE)
- Polychlorinated Biphenyls (PCBs) and specific substitutes
- Polychlorinated Terphenyls (PCT's)
- Polychlorinated Naphthalenes (more than 3 chlorine atoms)
- Radioactive Substances
- Certain Shortchain Chlorinated Paraffin's (C10 – C13)
- Certain Tributyl Tin (TBT) and Triphenyl Tin (TPT)
- Tributyl Tin Oxide (TBTO)



JIG-101 2nd Ed: Criteria 2 – For Assessment

- Tris (2-chloroethyl) phosphate(TCEP)



JIG-101 2nd Ed: Criteria 3 – For Information

- Brominated Flame Retardants (other than PBBs or PBDEs)
- Polyvinyl Chloride (PVC)



Japanese Green Initiatives

- This is voluntary in Japan – no legal requirement

- Japanese customers are requiring compliance as a business requirement

- Requirements are:
 - Compliance to JIG-101
 - ISO 14001



EU REACH

- REACH – **R**egistration, **E**valuation, **A**uthorization of **C**hemicals
- Primary impact is on chemical and substance manufacturers and importers
- May impact you through your supply chain
- You should begin work on getting a list of all chemicals and substances used by your company to make sure that the manufacturer has registered them in the EU and that the application(s) we have are part of that registration
- Contains a list of **S**ubstances of **V**ery **H**igh **C**oncern (SVHC) which are banned from being used



EU REACH SVHC List

- Anthracene
- 4,4'-Diaminodiphenylmethane
- Dibutyl phthalate
- Cyclododecane
- Cobalt dichloride
- Diarsenic pentaoxide
- Diarsenic trioxide
- Sodium dichromate, dihydrate
- 5-tert-butyl-2,4,6-trinitro-m-xylene (muskxylene)
- Bis (2-ethyl(hexyl)phthalate) (DEHP)
- Hexabromocyclododecane (HBCDD)
- Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins)
- Bis(tributyltin)oxide
- Lead hydrogen arsenate
- Triethyl arsenate
- Benzyl butyl phthalate



And last but not least...

*Thanks for your time and
attention!*

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