



Eight Simple Steps for Converting from EU RoHS to China RoHS Compliance.

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This article is intended to compliment the China RoHS Guidance Notes available from www.rohs-international.com

Overview

China RoHS is significantly different from EU RoHS, however there is great leverage that can be gained. The 6 hazardous substances are the same, as are the Maximum Concentration values in most cases. This means that there is a good deal of leverage that be gained from the EU RoHS Certificates of compliance, but there are still traps for the unwary regarding some EU exemptions.

Whilst China RoHS does not require removal of the hazardous substances it does require:

1. Labeling of the product.
2. A table in the users guide disclosing the locations of any hazardous substances over the Chinese versions of the MCVs .
3. Calculation of the Environmentally Friendly Use Period.
4. Labeling of the packaging.

All these are different from the EU RoHS. There are 8 basic steps in converting from EU RoHS to China RoHS.

Step 1 - Analysing the product into logical sub-assemblies

The first step in complying with China RoHS is to divide up the product into logical sub-assemblies. For a complex product these will typically be individual Printed Circuit Assemblies (PCAs), mechanical chassis, display (if any) and outer enclosure. All parts need to be accounted for in a logical and easily understood manner. These groupings will form the “Components” of the disclosure table. Grouping of parts into “miscellaneous” or “other” is not allowed.

Key Point #1- Disclosure is at sub-assembly level not at component level.

Step 2 - Assessing Certificates of Compliance.

Once the “Component” (sub-assembly) names have been populated in the table, the components that make up those sub-assemblies need to be analysed to see if they contain any of the hazardous substances. This may sound onerous but in fact is much simpler than the EU requirements. Once any component in the sub-assembly has been discovered with the hazardous substance in it above the



Maximum Concentration Value (MCV) then the box can be crossed for that substance. It is not necessary to list all components in the sub-assembly that contain the hazardous substance. A cross in the table indicates that the sub-assembly contains one or more homogeneous materials with a concentration greater than the MCV.

Existing certificates of compliance for EU RoHS can be used to some degree for assessing the requirement for disclosure for China RoHS. There are two reasons why they will not fulfill all of the needs for China RoHS. Firstly there are some differences in the definition of Homogeneous Materials and the relative MCVs, and secondly not all CoCs list the exemptions that have been claimed for EU RoHS. There are no exemptions for China RoHS Disclosure except Deca BDE. The basic definition of Maximum Concentration Value is the same as the EU and is called category EIP-A.

However China RoHS has created 2 new categories.

- 1) Category EIP- B. The limit value for the hazardous substances when used as a coating or treatment layer is “not intentionally added”. This category was created to counter the arguments on EU RoHS with the use of hexavalent chromium chromate process and the trivalent chromite process. This may have some implications for disclosure for certain colors of paint where the hazardous substances are intentionally used in concentrations of less than 1000ppm (100ppm for Cadmium) in the pigment.

Key Point #2 - *the hexavalent chromium based chromate process requires disclosure, but the trivalent chromium based chromite process does not need to be disclosed. Any hexavalent chromium generated in the trivalent process has not been added intentionally.*

- 2) Category EIP-C. Any component of mass smaller than 4mm³ can be treated as a homogeneous material. This will cover most SMT passives.

Key Point #3 - *Be wary of the exemption for Lead in glass of electronic components for the EU. Many RoHS declarations for EU RoHS do not state if an exemption has been claimed. Many, if not most, SMT passive components, even if RoHS compliant, may still have concentrations of lead in excess of 1000ppm at component level due to lead oxide in the resistive layer, or capacitive substrate, conductive layer and coating layer. As a result of this we expect most PCAs to need to disclose lead.*



3 - Populating the table

After assessing each sub-assembly for the presence of each hazardous substance in concentrations above the MCV, the table needs to be populated. An “x” indicates the presence of a hazardous substance and a “o” indicates the absence, or presence at concentrations below the MCVs. The table needs to be written in (or translated into) Chinese, but the “x” and “o” can be in Western fonts.

Part Name	Toxic or Hazardous Substances and Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (Cr6)	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)
Main PCA	X	O	O	O	O	O
PSU PSA	X	O	O	O	O	O
Display PCA	X	X	X	O	O	O
Keypad	O	O	O	O	O	X
Chassis Metalwork	O	O	O	X	O	O
All fasteners	O	O	O	X	O	O
Enclosure	X	O	O	X	O	X

O: Indicates that this toxic or hazardous substance contained in all the homogeneous materials for this part, according to EIP-A, EIP-B, EIP-C is below the limit requirement in SJ/T11363-2006.

X: Indicates that this toxic or hazardous substance contained in all the homogeneous materials for this part, according to EIP-A, EIP-B, EIP-C is above the limit requirement in SJ/T11363-2006.

The cable assembly from the display to the Main PCA is included in the Display PCA declaration.

Key Point #4 - The disclosure is a binary yes/no disclosure that indicates that one homogeneous material within the subassembly according to the EIP-A, B and C definitions exceeds the MCVS. The actual concentration does not need to be disclosed.

Key Point #5 - If no hazardous substances at all are contained at concentrations above the MCV in any part of the product then the disclosure table is not needed. This would probably only apply to simple components, not to complex products.

4 - Determining the Environmentally Friendly Use Period

The debate and discussion surrounding the calculation of the EFUP is beyond the scope of this article. There is continuing debate as to whether the EFUP is based only on the components that contain the hazardous substances or whether it includes all components as indicated by the technical life method which appears to be based on the MTBF calculation. For details of the methods that can

be used, please see the China RoHS Guidance Notes available from www.rohs-international.com

5 - Document the EFUP

Detail the method used, and any assumptions for determining the EFUP in the users manual. Detailing the method used is not a legal requirement but it is considered prudent considering the fluidity of the methods for calculation.

6 - Label and Date the product

The product needs to be labeled with either Logo 1 or Logo 2.



Logo 1

Logo 1 is used where there are no hazardous substances present at concentrations above the MCVS.



Logo 2

Logo 2 is used where there are hazardous substances present at concentrations above the MCVS. The number in the Logo is the EFUP.

The label needs to be in a location visible to the user and can be molded, painted, stuck or printed on the product.

The date of manufacture is also needed to be printed on the product. The format must be Year/Month/Day. Characters/Numerals can be western font.

7 - Label the Packaging

Packaging must be labeled according to GB-18450-2001. This is a pre-existing standard which has been grandfathered into the China RoHS Legislation. It appears to be very similar, but not identical to the EU Packaging Directive.

8 - Translate into Chinese

If not already done, the declaration table and the operating parameters for the EFUP must be translated into Chinese.

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For further information please see our China RoHS Guidance Notes available from www.rohs-international.com

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