



Alert - EU RoHS compliant does not mean “China RoHS” Compliant.

EU RoHS compliance does not equate to China RoHS Compliance for many, if not all products containing passive SMT resistors. This means it is highly unlikely that the green “e” label (Logo 1) can be used for any product using SMT components.

China RoHS differs from EU RoHS by allowing any component that is <math><4\text{mm}^3</math> to be treated as a homogeneous material. This covers most SMT passive components, allowing the limit of 1000ppm to be applied at component level, not homogeneous level. However, most EU RoHS Compliant SMT resistors contain well in excess of 1000ppm of lead by weight at component level. The lead (Pb) is contained in the lead oxide of the primary glass layer of the body of the resistor and in the resistive layer.

Even more misleading is the common substitution of the term “lead-free” for RoHS compliance. Any RoHS compliant component that claims an exemption for lead is essentially not lead-free and will need to be declared for China RoHS.

This is one of the main issue for using EU RoHS yes/no Certificates of Compliance for China RoHS. If EU RoHS CoCs have been used, they need to be assessed to determine if any exemptions have been claimed. Similarly if full materials disclosures have been used to form the basis of EU RoHS compliance, these need to be re-assessed for China RoHS. As an example, the Full Material Disclosures linked below all show that the SMT resistors contain >1000ppm of lead at component level. Hence the need to declare lead for China RoHS if you are using these components.

1. http://www.ttiinc.com/object/LF_yageo_mat_comp.html
2. http://www.venkel.com/FinalPDFs/Matl_composition.pdf#page=1
3. <http://www.ctscorp.com/components/RoHS/ResistorNetworks/74104Compliant.pdf>

It must be stressed that these companies listed above are not doing anything differently to any of the other manufacturers of SMT resistors. They have been chosen as being broadly representative of the major suppliers of SMT resistors. It is not technologically possible to produce SMT resistors without the use of lead in oxide form in various parts of the component. This is the reason why the exemption for lead in glass of electronic components and lead in electronic ceramic parts was approved after lengthy investigations by the EU.



Where else would EU Exemptions need to be disclosed for China RoHS?

There are many EU RoHS compliant components where lead is found in concentrations greater than 1000ppm. There is an exemption for lead in high melting type solders containing >85% lead, and for lead as an alloying element in steel to 0.35%, aluminum to 0.4% and copper alloys (including brass) to 4%.

High melting type solders are found in the internals of many ICs, and if the IC is >4mm³ then the 1000 ppm applies at homogeneous level (EIP-A). The exemption for lead as an alloying element is derived from a free machining alloy spec. Any steel, aluminum, copper or brass part that has been machined is likely to contain lead in this form.

Mercury can be in an EU compliant product in the back lights of LCD displays.

Cadmium could be in switch contacts as there is an EU exemption for cadmium in switches.

All of these will require an "X" in the box of the China RoHS Declaration Table for sub-assemblies containing these parts.

If a product is EU RoHS compliant for Hexavalent Chromium, then the product should not need any boxes "X"ed for Cr6 in the Declaration Table. The exception to this is category 3 products that are using the exemption for Cr6 in sheet metal and fasteners. This expires in July 2007.

If a product is EU RoHS compliant for PBB and PBDE, then the product should not need any boxes "X"ed for PBB or PBDE in the Declaration Table. Deca BDE is the only EU exemption for these substances and section 3.2 of the China RoHS Marking Standard SJ/T11364-2006 specifically excludes Deca BDE from the requirements.

So to recap. If your product is EU RoHS compliant, you should not have to declare any PBB, PBDE or Cr6. You may need to declare mercury and cadmium, and almost certainly will have to declare lead in PCAs and possibly mechanical sub-assemblies.

So how is your Declaration Table looking?

Now that we have established that just about any electrical or electronic "product" in scope will need the orange label, it follows that it will need a Declaration Table - which has to be in Chinese.



There has been much discussion about at what level disclosure needs to be. This was clarified in December by the Standards FAQs. It can be at component or sub-assembly level but needs to be “consistent with industry practices”. Intel has posted their China RoHS declarations on their website and declare their servers at only 3 levels: Chassis Subassembly, Power Supply and Printed Board Assembly.

ftp://download.intel.com/support/motherboards/server/sb/declarationtable_dec6_2006_server.pdf . Industry practice for a complex product (not a component) appears to be disclosure at sub-assembly level. For most products disclosure at component level would be impractical.

To start the exercise of developing the declaration table a company needs to split the product into logical sub-assemblies. A good place to start is the Bill of Materials. At the top level of the BOM the product should be split into sub-assemblies and these can be used as the basis of the building the declaration table. If there are multiple similar sub-assemblies, such as PCAs, these can be grouped together. However if you have one PCA that contains a notifiable substance, such as mercury in a back light on a display PCA, then it is advisable to declare this PCA separately.

Once the basic structure of the Declaration Table has been established the BOM needs to be scrubbed for any component that contains one of the notifiable substances. Assuming that the product is EU RoHS compliant then this process can be as simple as performing a risk assessment of the BOM, or physical product using the information in the beginning of this article.

If the product is not EU RoHS compliant, then the material composition data or EU RoHS declaration with declared exemptions, or China RoHS Declarations for each component need to be sourced.

When populating the Declaration Table, once the first component in a sub-assembly has been found with a notifiable substance, then the appropriate box can be “X”ed and you move on to the next box. There is no requirement to disclose the actual amount of substance in a subassembly.

A typical China RoHS Declaration Table for a smaller EU RoHS compliant product is shown below.



China RoHS Declaration Table Template.

| 零件项目(名称) (Component Name) | 有害物质清单(表)(Hazardous Substances or Elements) | | | | | |
|--|---|----------------------|----------------------|---|---|--|
| | 铅 Lead (Pb) | 汞 Mercury (Hg) | 镉 Cadmium (Cd) | 六价铬 Chromium VI Compound (Cr6+) | 多氯联苯 Poly- brominated Biphenyls (PBB) | 多氯二苯醚 Poly- brominated Diphenyl Ether (PBDE) |
| 印刷电路板零件 (Printed Circuit Assembly) | X | O | O | O | O | O |
| 内部焊接 (Internal wiring) | O | O | O | O | O | O |
| 散热片(器) (Heat sink) | X | O | O | O | O | O |
| 磁芯 (Core) | X | O | O | O | O | O |
| 塑料外壳 (Plastic Enclosure) | O | O | O | O | O | O |
| 橡胶零件(如:橡胶衬垫, 衬垫, 垫圈, 螺栓, 垫圈, 垫圈, 垫圈, 垫圈) (Rubber parts (such as: rubber gaskets, washers, fasteners)) | X | O | O | O | O | O |
| 电源供应器 (Power Supply Unit) | X | O | O | O | O | O |
| 显示器(器) (Display) | O | X | O | O | O | O |
| 电池(器) (Battery) | O | O | X | O | O | O |
| 文件说明书 (Paper Manual) | O | O | O | O | O | O |

O: 表示所有有害物质或在零件所有构成材料中的含量均在 SJ/T 11363-2006 标准规定的限量要求以下。
 O: Indicates that the toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in SJ/T11363-2006.

X: 表示所有有害物质或在零件的某一构成材料中的含量超出 SJ/T 11363-2006 标准规定的限量要求。
 X: Indicates that the toxic or hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in SJ/T11363-2006.

To assist companies in building their declaration tables RoHS-International has developed a template in MS Word. This template contains 26 of the most used assembly names in both English and Chinese. The Declaration Table pictured above was developed from this template. The template comes fully configured in the format stipulated by SJ/T11364-2006 including the explanations of the meaning of the "X" and "O". Both English and Chinese characters are included for ease of use and ongoing maintenance. A full [Sample Declaration Table template](#) is available free of charge, which contains a complete list of the assembly names.

The China RoHS Declaration Table Template is available for download from www.rohs-international.com for a small charge.

The 26 page RoHS International, China RoHS Informational Guidance Notes are also available for download from www.rohs-international.com for a small charge. The Guidance notes contain all the essential information needed for China RoHS Compliance.

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