



Premier Farnell



China RoHS - an overview

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- Packaging
- Differences to EU RoHS
- FAQs

Web: www.global-legislation.com

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REACH Regulations

A Premier Farnell Company



Farnell

Design with the best

RoHS in China

- Measures for the Administration of the Control of Pollution (caused) by Electronic Information Products... "China RoHS"
- Deadline: Products manufactured from 1st March 2007
- Applies to products imported into China for sale in China and -
- Products manufactured in China and sold in China but **excludes:**
 - Imported into China for re-export or manufacturing of products for export
 - Will usually exclude components sold to an OEM who use in their own products
 - Hong Kong and Taiwan
- China RoHS has some provisions not found in EU RoHS
 - Wider product scope
 - Priority products catalogue
 - Variable enforcement dates by product
 - Labelling (including packaging)
 - Compulsory testing and certification for catalogue products

China RoHS - Stage 1: Declaration

- All "Electronic Information Products" (EIP)
- Over 1800 listed
- "Put On The Market": All products manufactured on, or after 1st March 2007:
 - 6 restricted substances are still permitted at this stage
 - Must be labelled with "Pollution (recycling) Control Symbols"
 - Symbol 1. **No restricted substances** symbol (above permitted levels)
 - Symbol 2. **Restricted substances** symbol (above permitted levels) plus other information:
 - Environmentally Friendly (safe use) Period (number of years)
 - Disclosure table highlighting toxic and hazardous substances and their location (aids recycling)

Note: Marking on packaging required in both cases

China RoHS - Stage 2: Restriction

- Products included in "The China RoHS Catalogue"
- The Catalogue (reviewed annually) will define:
 - Substance restrictions (some, all, or even more than the current 6 EU restricted substances)
 - Define exemptions by product
 - Determine when each category has to comply allowing time for:
 - Testing via an authorised Chinese lab
 - Accreditation of China Compulsory Certificate (CCC)
- If product is not specifically listed in catalogue
 - No testing or certificate required
 - No substance restrictions
- Not known, at this stage, which products will be included in the catalogue

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Scope

- 10 Categories:
 1. **electronic radar products - includes airborne and shipborne radar**
 2. **electronic communication products - e.g. transmitters, navigation, telephones, base stations**
 3. **Broadcast television equipment industry products - transmitters, camcorders, antennas**
 4. **computer products - all types of computers, network equipment, printers, power supplies, CDs, toner cartridges, etc.**
 5. **household electronic products - TV, DVD, video tapes, CDs, etc**
 6. **electronic measuring instrument products - test equipment, meters, etc.**
 7. **electronic industry professional equipment products - includes production equipment for EIPs, soldering tools, electric and air tools**
 8. **electronic component products - passives, PCBs, sensors, connectors, switches, loudspeakers,**
 - 8a. **electronic device industry - vacuum tubes, diodes, semiconductors, ICs, electronic circuits, wire and cables, lamps and batteries**
 9. **Electronic application products - household equipment (games, microwave ovens), medical devices**
 10. **Electronic professional use material products - materials used in components, solder, laminates, etc.**

*Orange text indicates products not currently within scope of EU RoHS

Substance use restriction

- All EIPs - marking requirements apply to:
 - Lead
 - Cadmium
 - Mercury
 - Hexavalent chromium
 - Polybrominated biphenyls (PBB)
 - Polybrominated diphenyl ethers (PBDE) but not Deca-BDE
- Equipment listed in catalogue - substance restrictions will include some or all of these six, this will be specified - plus it is possible that other substances will be announced by State

Note: medical devices and monitoring and control instruments are proposed new categories as part of the revised EU RoHS ("RoHS") Directive

Classification of materials/maximum permitted values

Type	Definition
EIP - A	Each homogeneous material in EIPs - All 0.1% by weight except cadmium at 0.01% (as EU RoHS)
EIP - B	Metal plated materials in each part of EIPs - The restricted substances shall not be added intentionally
EIP - C	Small components that cannot be separated (standard states <4mm ³) - All 0.1% except cadmium at 0.01%

- Very similar to EU RoHS - split into 3 to recognise some of the difficulties in analysing metal coatings (B) and very small parts such as Passive components (C)

Marking/recycling requirements

- Pollution control symbols



- Symbol 1 - use if none of the restricted substances are present above permitted levels
 - Compulsory label



“Environmentally friendly use period”

- Symbol 2 - use if any restricted substances are present above permitted levels
 - Must also provide a table of hazardous materials indicating location in product (recycling aid) and an environmentally friendly (safe use) period (in years)

Pollution control symbols

- Must be on product if regular 5000mm² space available.
 - If insufficient space, or irregular shape, or the function prevents this then print in user manual
- Clear, visible, hard to fade or remove
 - In a prominent location
- Colour
 - Symbol 1 - green preferred, symbol 2 - orange preferred
 - But any prominent (bright) colour if not green / orange
 - Marking may be moulded on to the EIP

Environmentally Friendly Use Period (EFUP)

- Period of time that it is safe to use the equipment before hazardous substances could leak out into the environment
 - Normally be determined by manufacturers
 - Print date of manufacture on product or packaging will indicate EFUP start date
 - Labels are every year up to 10 years, then multiple of 5 to 95
 - Draft standards published:
Some examples of the methods:
 - Experimental method
 - Based on accelerated aging tests
 - Safe use period method
 - If the product has a published safe use period
 - Techno-life method
 - Projected service life + time between production and putting into service + additional time if repairs and refurbishment are possible
 - (Two) comparative methods
 - One is the comparison with similar products and technologies and the other simply adopting defined EFUPs given in Annex A of the standard
 - Mobile phone = 10 years, Notebook PC = 8 years etc (from 3rd draft)
 - Several substances present
 - shortest EFUP will prevail
 - Excludes short lived consumables used as part of normal maintenance



Table listing restricted substances - example

Part name	Toxic and hazardous substances and elements					
	Pb	Hg	Cd	Cr(VI)	PBB	PBDE
PCB	X	0	0	0	0	0
Enclosure	X	0	X	X	0	X
Cable	X	0	0	0	0	0

- Must be X (yes) or O (no) in every box
- Informs recycler which substances are present, and where
- Must be in paper form with product, ideally located in instruction manual, or on a CD (can be on web providing all users are advised where to locate it)
- Table must be in Chinese, and explain meaning of "X" and "O"
- "Part" means PCB's, sub assemblies etc
- Self declaration - no obligation to analyse

Packaging labels

- Applies to, and must specify:

- Plastics
- Paper
- Metals
- Aluminium
- Glass
- Wood



● Reusable



Recyclable



● Includes Recyclable Materials

高密度聚乙烯 HDPE
紙板 PB

- Apply label to packaging unless insufficient space (then in instruction manual)
- Should include Chinese letters plus codes for "major materials"

Summary

"China RoHS" applied from 1st March 2007 and covers a wide variety of products

Initially it requires marking of products (EIPs) only



- Symbol 1: No restricted substances
- Symbol 2: Restricted substances
 - + EFUP
 - + Disclosure of substances

Packaging information in both cases

During 2009 the first specific products will be listed in the "Catalogue"

- Substance restrictions will apply (some, or all, of 6 EU substances)
- Other substances maybe defined
- Exemptions
- Testing required
- CCC required

EU RoHS and China RoHS legislation have a number of similarities and differences. These are summarised in the following table:

Characteristic	EU RoHS	China RoHS
Legislation adopted	13th February 2003	26th February 2006
Entry into force	1st July 2006	1st March 2007
Scope	Eight broad categories of finished products. Individual product types are not specified and legislation leaves interpretation to producer (10 categories under "RoHS2")	All Electronic Information Products (EIP). Extensive list published which includes many products not covered by EU RoHS such as radar attached to aircraft or ships, medical equipment, measurement instruments, some production equipment, batteries and most types of components
Main requirements	Six RoHS substances must not be present in homogeneous materials, at above the maximum concentration values, unless covered by an exemption	Two levels of requirements: All EIPs must be marked to indicate whether any of the six substances are present. Products that will be listed in a catalogue - substance restrictions will be specified and these may be some or all of the current six EU-RoHS substances plus possible others
Restricted substances	Lead, cadmium, mercury, hexavalent chromium, PBB and PBDE	As for EU RoHS, with the possibility of others being added
Marking requirements	None. Related WEEE Directive requires use of the crossed wheelie bin symbol to indicate to users that product should be correctly recycled at end of life.	Pollution control mark. If no RoHS substances present above permitted levels (same six as EU RoHS except Deca-BDE), use:  If a RoHS substance present in at least one material, use:  The number within the label is the Environment Friendly (safe use) Period (in years). Table is also required if a RoHS substance is present showing its location in the product.
Maximum concentration values	Products in scope must contain less than: 0.1% for all except Cd which is 0.01%. All are by weight in homogeneous materials (unless covered by exemptions)	Marking with a table and the orange logo if concentrations of Pb, Hg, Cr(6), PBB or PBDE are >0.1 % or >0.01 % of Cd by weight in homogeneous materials, except for metal coatings where RoHS substances must not be intentionally added and parts of 4 mm ³ or less regarded as single homogeneous materials
Exemptions	32 at present (Subject to change)	Will be specified in catalogue of products with substance restrictions
Approach to compliance	Self declaration, third party testing not required	Self declaration for marking of all EIPs Testing by authorised laboratories in China of catalogue listed products
Packaging	Not included as covered by the Packaging Directive	Must be marked to show materials content, not contain toxic substances and be recyclable
Batteries	Not included as covered by the New Batteries Directive	Included as these are EIPs
Non-electrical products	Excluded if the finished product sold to user does not depend on electricity for its main function	Included if listed as EIPs. Includes CDs and DVDs
Military and national security use only	Excluded from scope	Excluded from scope
"Put onto the market"	Products must be fully compliant from 1 July 2006	Applies to production on or after 1 March 2007.

“CHINA-RoHS” - Frequently Asked Questions

Q 1. Which products are in scope of China-RoHS?

Answer: The scope of China-RoHS is much broader than EU-RoHS and includes all “Electronic Information Products” (EIPs). These include radar equipment, IT, telecom, production equipment used for making EIPs, some types of test instruments, medical devices, electronic components such as resistors and ICs, batteries, PCBs, materials and certain household appliances. The Chinese government has published guidance which lists well over 1800 EIPs.

Q 2. What substance restrictions apply?

Answer: At present there are no substance restrictions. However, there will be restrictions for certain specified products that will be listed in a “catalogue” when published. It is likely that the current six EU-RoHS substances – lead, cadmium, mercury, hexavalent chromium, PBB and PBDE will be restricted although the legislation states that other, additional, substances may also be included in the catalogue.

Q 3. What are the maximum concentration values for China-RoHS?

Answer: The Chinese Government has published a standard that defines the maximum concentration values (MCV). These are essentially the same as EU-RoHS but with subtle differences. For most parts, the limits are 0.1% of Pb, Hg, Cr(6), PBB and PBDE (except Deca-BDE) and 0.01% Cd in homogeneous materials. Metal plating is different however and hazardous substances should not be deliberately added. However, if the substance can be detected by analysis, it will be presumed to have been added intentionally. Very small parts of <4 mm³ are regarded as single homogeneous materials with the same concentration limits as individual homogeneous materials in larger parts.

Q 4. My products are EU-RoHS compliant, so will they comply with China-RoHS?

Answer: To be compliant with China-RoHS all EIPs must be marked. At present no substance restrictions apply but if RoHS substances are present this must be indicated by the relevant symbols. One difference between EU and China RoHS is that the China-RoHS marking requirements do not have exemptions; the substance is either present or not and so if a product is EU-RoHS compliant by exemption, RoHS substances may be present at levels above the MCV, and therefore not China-RoHS compliant.

Exemptions maybe included in the “catalogue” when published.

Q 5. What Pollution Control symbols do I need?



Answer: If there are no RoHS substances in any of the homogeneous materials at concentrations above the maximum permitted values (MCV) within the EIP, then the green, environment friendly, “e” symbol is put on the product and no “disclosure” table is required. Green is preferred but any prominent colour may be used.

If there is at least one RoHS substance in a homogeneous material at a level above the MCV then the orange symbol with a number at the centre is attached to the product. A table of hazardous substances and their location will also need to be printed in the manual. The number is the Environmentally Friendly (safe use) Period or EFUP, denoting the number of years before any substance is likely to leak out into the environment. Orange is preferred but any prominent colour may be used.

Q 6. Do I need to label spare parts or components?



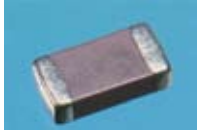


Answer: This is not yet clear. The Chinese standard states that the marking of components is not necessary if they are sold to OEMs for use in products that will be marked. However, information on any RoHS substances that are present will need to be provided to the OEM. Components including spare parts which are sold individually to end-users should however be marked as these are EIPs.

Q 7. How do I label the packaging?

Answer: The China-RoHS legislation states that a label with the “codes” for the main packaging materials will be compulsory for EIPs. The packaging of EIPs must be marked to indicate which materials are used. Apply a label to, or print on, the outside of the packaging the material codes from Chinese Standard GB 18455-2001 that indicate which materials are present.

Q 8. How do I produce the table of hazardous substances and what format should be used?

Answer: The first step is to determine which RoHS substances are present in each of the main parts of the equipment. Some will be known but for most it is best to ask the supplier. Remember that there are no exemptions and so EU-RoHS compliant products may contain China-RoHS substances above the MCV. The following example is for a hypothetical mobile phone (note this example is not a real modern mobile phone as most use plastic LCDs with no lead).

Components identified with RoHS substances	LCD - lead in glass binder to bond layers 	Chip resistor - lead in glass 	MLCC - lead in ceramic 	Plastic - PBDE 	Lead in solder for battery connections 
Used in which part?	LCD module	PCB	PCB	Case	Battery pack

Parts containing at least one RoHS substance	
PCB	
Case	
Battery pack	

Once this information has been determined, print the table in the manual.

Part	Lead	Cadmium	Mercury	Hexavalent chromium	PBB	PBDE
PCB	X	0	0	0	0	0
Case	0	0	0	0	0	X
LCD module	X	0	0	0	0	0
Battery pack	X	0	0	0	0	0

The table must be in Chinese as shown in the standard and include definitions of the meanings of X and 0.

Q9. How do I find out if a component contains a RoHS substance?

Answer: The easiest method is to ask the supplier. If you are told that the part is EU-RoHS compliant beware, as this does not necessarily mean that there are no RoHS substances present, as they may be used in exempt forms. It is increasingly important for electrical equipment manufacturers to know where hazardous substances are used, some examples are:

RoHS Substance	Where used
Lead	Solder, termination coatings, inks, PVC, ceramics, some types of glass (e.g. chip resistor glaze), leaded brass, etc.
Cadmium	Pigments, PVC, plating, switch contacts, thick film materials, NiCd batteries
Mercury	Various lamps, alkali button cells
Hexavalent chromium	Passivation coatings, bright yellow pigment (usually with lead)
PBB	Very unlikely. Possibly only in high voltage cables
PBDE	Common flame retardant in many plastics

Q 10. What will I need to do if my product is included in the catalogue?

Answer: Products specified in the catalogue cannot be imported into or sold in China after the specified date until an authorised Chinese laboratory has tested them for "China Compulsory Certification". If it meets the requirements, the product can be labelled with the CCC mark and sold in China. It will be necessary to provide a sample unit to the laboratory for destructive analysis although as yet, no guidance has been published which describes the procedure that the laboratory will use.

Please note:

The information contained in this document is of a general nature and is not intended to address the circumstances of any individual or entity.

Although we endeavour to provide accurate and timely information, there is no guarantee that such information is accurate as of the date it is received or that it will continue to be accurate in the future. No one should act on such information without appropriate professional advice after a thorough examination of the particular situation.

