

RESTRICTED SUBSTANCES  
GREEN TECHNOLOGIES



# RESTRICTION OF HAZARDOUS SUBSTANCES GREEN TECHNOLOGIES





# EU-RoHS DIRECTIVE & LAW

## ■ LEGAL FOUNDATION

The Directive 2002/95/EC Restriction of Hazardous Substances (RoHS) took effect on 1 July 2006, and is required to be enforced and become law in each EU member state.

This directive restricts the use of six hazardous materials in the manufacture of various types of electronic and electrical equipment.

It is closely linked with the Waste Electrical and Electronic Equipment Directive (WEEE) 2002/96/EC which sets collection, recycling and recovery targets for electrical goods.

## ■ THE "NOTORIOUS SIX" SUBSTANCES

RoHS is often referred to as the lead-free directive, but it restricts the use of these six substances:

- Lead
- Mercury
- Cadmium
- Hexavalent chromium
- Polybrominated biphenyls (PBB)
- Polybrominated diphenyl ether (PBDE)

PBB and PBDE are flame retardants used in several plastics.

The maximum permitted concentrations are 0.1% or 1000 ppm (except for cadmium, which is limited to 0.01% or 100 ppm) by weight of homogeneous material.

The limits do not apply to the weight of the finished product, or even to a component, but to any single homogenous material - for example, the sheath on a cable or the tinning on a component lead.

## ■ A GLANCE INTO THE FUTURE

The proposed revised RoHS directive would cover medical devices as well as monitoring and control instruments. A list of "priority" substances posing particular environmental concerns when used in electrical and electronic equipment will be assessed in line with REACH with a view to a possible ban in the future.

Moreover, four new chemicals would be reviewed for possible inclusion on a list of six substances already banned from use in electrical goods under RoHS. These are the brominated flame retardants HBCDD and the phthalates DEHP, BBP and DBP.

Finally, complying with the requirements of the directive will also be made easier with the introduction of the CE label for electrical and electronic equipment. The EU RoHS update is expected during the course of 2009 with a conformity due date no later than 2014. It is recommendable to keep an eye on its development and on the progress of REACH especially of the list of Substances of Very High Concern (SVHC).



# RoHS IN OTHER REGIONS

## ■ CHINA

In the China RoHS there will be a list of included products which will be a subset of the total scope of Electronic Information Products (EIP), to which the regulations apply.

On 12 December 2007 SGS - CSTC and Zhuhai CIQ signed a cooperation agreement for setting up a RoHS lab. Zhuhai CIQ is the authoritative China RoHS test lab in Guangdong province.

Through this cooperation, SGS and Zhuhai CIQ will leverage technology expertise, qualifications and market resources on European and China RoHS. [www.sgs.com/cn/rohs](http://www.sgs.com/cn/rohs)

## ■ JAPAN

There are no direct legislations dealing with the RoHS substances, but its recycling laws have spurred Japanese manufacturers to move to a lead-free process in accordance with RoHS

guidelines. The Japanese industrial standard for the Marking Of Specific Chemical Substances (J-MOSS), effective from 1 July 2006, directs that some electronic products exceeding a

specified amount of the nominated toxic substances must carry a warning label. [www.sgs.com/jp/rohs](http://www.sgs.com/jp/rohs)

## ■ SOUTH KOREA

The Government promulgated the Act for Resource Recycling of EEE and Vehicles on 2 April 2007, with aspects of RoHS, WEEE, and ELV.

The Korean RoHS bans the samehazardous substances as the EU RoHS and also includes the same exceptions.

It's based on a self-declaration system, with no special mark needed and does not apply to parts manufactured before 2008 and Research & Development samples. [www.sgs.com/kr/rohs](http://www.sgs.com/kr/rohs)

## ■ USA

California has passed the Electronic Waste Recycling Act (EWRA). This law prohibits the sale of electronic devices after 1 January 2007, that are prohibited from being sold under the EU RoHS

directive, but across a much narrower scope that includes LCDs, CRTs, and other similar products and only covers the four heavy metals restricted by RoHS.

EWRA also has a restricted material disclosure requirement. Other US states are debating whether to adopt similar laws. [www.sgs.com/us/rohs](http://www.sgs.com/us/rohs)

## ■ NORWAY

The Norwegian Pollution Control Authority (SFT) proposes stricter laws on the content levels of hazardous substances. [www.sgs.com/no/rohs](http://www.sgs.com/no/rohs)

## ■ TURKEY

The new Turkish National Regulation on hazardous substances is similar to the EU RoHS. It entered into force in June 2009. [www.sgs.com/tr/rohs](http://www.sgs.com/tr/rohs)



# ACCEPTANCE AROUND THE WORLD

## ■ RoHS CERTIFICATION PROGRAMME FOR MANUFACTURERS

SGS-ROHS CERTIFICATION MARK IS A VISIBLE SIGN OF

- RoHS compliance
- Quality
- Consistent production
- Independent certification
- Technical documentation
- Confidence

WHAT IS THE PROCESS REQUIRED FOR RoHS CERTIFICATION?

- Verification of the existing technical documents
- Product testing
- Factory assessment (biannual)
- Result: **RoHS Certification** (Valid for 5 years)

SGS E&E EXPERTS

- help you meet the strict requirements
- help to take corrective actions
- help to minimise the financial and administrative burden
- offer you an extra web page to download applications and forms



[WWW.SGS.COM/ROHS](http://WWW.SGS.COM/ROHS)

## ■ RoHS CERTIFICATION PROGRAMME FOR RETAILERS/IMPORTERS

The modular RoHS concept consists of three modules, each of them dealing with specific items (risks) within the whole manufacturing process.

- Module A (Component/Material Test, Chemical RoHS Analysis)
- Module B (Technical Inspection & XRF Screening)
- Module C (RoHS Factory Inspection)

The modules provide an effective and sufficient control mechanism and make sure that the products meet the specifications and all necessary RoHS regulations.

## ■ SGS RoHS CERTIFICATE OF CONFORMITY

SGS is the market leader in RoHS testing and our test reports have an excellent reputation in industry and trade worldwide. However, in rare cases some local authorities might refuse test reports due to political reasons.

SGS has now come up with a secure solution:

THE SGS RoHS CERTIFICATE OF CONFORMITY (CoC).

It takes the SGS Global network of laboratories, quality assurance experts and European based CBs (Certification Bodies), and links them into a single database to ensure that RoHS test reports established in one part of the world are accepted everywhere.

[WWW.SGS.COM/COC](http://WWW.SGS.COM/COC)



# EASY HANDLING

## ■ TESTING METHODS

### NONDESTRUCTIVE ANALYSIS

In order to raise the level of service in our chemical laboratory, we have added several XRF nondestructive analytic methods:

- X-ray Diffraction (XRD)
- WD-XRF
- Quantum X-ray ( $\mu$ -EDXRF)
- Scanning Electron Microscope (SEM-EDX)
- XRF Mapping

X-ray tests have multiple analysis functions, high reliability and are fast.

## ■ RELATED GREEN PRODUCT SERVICES

### EUP SERVICES

Starting early with EuP and EcoDesign preparation could give you a competitive advantage. SGS has the required capability to test different EuP sectors.

### WEEE SERVICES

SGS provides an individual service that helps adapt to each country's WEEE regulations. SGS assists you in analysing your market sales and determining a proper WEEE take-back system. This includes collection, transportation, inspection and verification arrangements.

### VERIFICATION SERVICES

We verify documents, to provide proof of RoHS conformity in the supply chain.

### WET CHEMICAL ANALYSIS

The whole analysis is completely chemically addressed. This method provides the highest security, from sample preparation through to absolute accuracy of the testing results. The Wet Chemical Analysis also verifies anomalies in the XRF screening process.

### XRF SCREENING

Provides indications as to whether and where hazardous substances may exist in the product according to RoHS. It is especially suited, for instance, to gaining a quick overview of the end-product.

### GREEN INSPECTION

SGS offers an on-site screening analysis of regulated substances with portable XRF - X-ray fluorescence - spectrometer. This allows nondestructive measuring of the finished product.

### RELATED CHEMICAL TESTS

SGS offers a comprehensive chemical testing package for plastics in E&E products. SGS not only helps you meet strict RoHS requirements in the different countries, but we also ensure that consumers are not exposed to PAH, Phthalat, Arsenic, Short Chained Chlorinated Paraffins (SCCP), Halogen-free, Bromine, Chlorine, Fluorine etc.

### IECEE HS REPORTING SERVICES

This service for Hazardous Substances (HS) can determine and report the level of Hazardous Substances in materials and components used in electrical equipment (not meant for end-products). It is based on IEC 62321.

### SVHC

Substances of Very High Concern are under the regulation of REACH. SGS offers cost-effective SVHC solutions in consulting, screening for identification and target quantification of identified substances.



# LOCALLY AVAILABLE - WORLD-WIDE

## ■ ENSURING COMPLIANCE, QUALITY & RELIABILITY

SGS is the world's leading INSPECTION, VERIFICATION, TESTING and CERTIFICATION company. SGS is recognised as the global benchmark for quality and integrity.

With 59'000 employees, SGS operates a network of over 1'000 offices and laboratories around the world.

As a result, our expertise provides a single consolidated source to reduce your risk, improve efficiency and quality, and ensure compliance.

## ■ OUR WORLDWIDE EXPERTISE

Our services are divided into eleven business lines. One of these is CTS - CONSUMER TESTING SERVICES ([www.sgs.com/cts](http://www.sgs.com/cts)), which includes product testing and certification for

automobile parts, hardware, toys, furniture, textiles, footwear, food, beverages and electrical & electronic equipment.

SGS ELECTRICAL & ELECTRONICS ([www.sgs.com/ee](http://www.sgs.com/ee)) as part of CTS, offers you in addition to the solar business many more services. Please find them detailed below.

## ■ SGS ELECTRICAL & ELECTRONICS

Besides product inspection, verification, testing and certification services our complete service portfolio also includes TECHNICAL ASSISTANCE, PROCESS ASSESSMENT and CONSULTING.

We offer these services in the fields of:

- REACH
- RoHS & WEEE & EuP
- Product Safety & EMC
- Product Inspection
- Wireless Telecommunications
- Performance/Reliability
- Micro- & Nanotechnology

For the following Industries:

- Household Appliances
- Information Technology
- Machinery
- Telecommunications
- Automotive
- Chemicals
- Medical Devices and more

[WWW.SGS.COM/ROHS](http://WWW.SGS.COM/ROHS)

[WWW.SGS.COM/CTS](http://WWW.SGS.COM/CTS)

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# GET IN TOUCH

## ■ WITH OUR RoHS EXPERTS WORLD-WIDE

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WHEN YOU NEED TO BE SURE

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