

TESTING, CERTIFICATION AND WORLDWIDE MARKET ACCESS

# Environmental Requirements



HOW TO ENSURE THAT YOUR PRODUCTS

MEET ENVIRONMENTAL

REQUIREMENTS IN EUROPE



**Nemko**

# How to ensure that your products meet environmental requirements in Europe

This white paper is meant to give a short introduction to the different terms and regulations:

- ✓ The RoHS Directive
- ✓ The REACH Regulation
- ✓ The EuP Directive
- ✓ The WEEE Directive
- ✓ The New Batteries Directive

.... What is it really about?



With the now widely spreading RoHS, REACH, EuP and WEEE regulations, Europe has led the way for such measures to be adopted across the globe.

The development and implementation of environmental regulations and legislation within the environmental area are now superseding work in all other areas.

It is expected that the failure to meet Kyoto levels for CO<sup>2</sup> emission within the time-line 2012, will most likely lead to an even more rapid development within the environmental legislation. Our customers will have a hard time ahead to cope with all these new regulations and will need a reliable partner in this effort. It is our goal that Nemko shall be such a partner.



# The RoHS Directive

The European Union has adopted Directive 2002/95/EC on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE), also known as the RoHS Directive. The RoHS Directive's key provision bans the use of six substances in EEE.

- Lead
- Mercury
- Cadmium
- Hexavalent chromium
- Polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE)

The RoHS Directive, however, authorizes the European Commission to adopt maximum concentration limits for the six restricted substances. Pursuant to such maximum concentration limits, EEE may contain the six restricted substances in concentrations not exceeding the maximum limits. The Commission has adopted a limit of 0.1% by weight for all substances except cadmium, which is subject to a 0.01% limit. These limits are to be applied not to the whole EEE product, but to each homogeneous material separately.

There are some further exemptions from the RoHS substance restrictions. Importantly, an Annex to the RoHS Directive lists a series of exempted applications of restricted substances, which is regularly amended. There are limited exemptions for spare parts and reuse, and equipments that are part of other, non-EEE equipment or intended for military purposes. Categories of electrical and electronic equipment covered by this Directive:

- Large and small household appliances
- IT and telecommunications equipment

- Consumer equipment
- Lighting equipment
- Electrical and electronic tools (with the exception of large-scale stationary industrial tools)
- Toys, leisure and sports equipment
- Automatic dispensers

Since the 1st of July 2008 the original restriction of use of Deca-BDE in EEE applies again. In the present proposal, Deca-BDE remains included in the list of banned substances.

The RoHS Directive is currently being reviewed. The Commission is considering whether the following additional substances should be added to the list of six:

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

New proposed categories to be covered by this Directive:

- ✓ Medical devices
- ✓ Monitoring and control instruments - including industrial monitoring and control instruments



# The REACH Regulation

REACH, the European Community Regulation on the Registration, Evaluation, Authorization and Restriction of Chemical Substances, is one of the Community's most complex environmental regulations. Not only does it have huge implications for the producing chemical industry worldwide, but it also has important consequences for companies importing into the EU and professional downstream users. This regulation covers chemical products such as paints and varnishes, as well as substances found in children's toys, jeans and cosmetics, among other things. Although REACH came into force on 1 June 2007, few companies outside of the chemicals industry are fully aware of its implications.

No data, no market

REACH entails major changes in mindset and ways of working with regard to chemical substances. The regulation states that, in principle, companies must manage the risks of all chemical substances and preparations that they produce in quantities greater than 1 ton, and/or import, process, use or distribute these substances and preparations in the EU.



**BE AWARE!** The legal burden of proof has also shifted: whereas the government used to have to prove that a substance was damaging, that responsibility now lies with companies. If they fail to register a substance in good time, they may no longer market that substance or products containing it. No data, no market.

Annex XIV of the Directive outlines a list of substances of very high concern.

Specific requirements cover following substances

- Triethyl arsenate - 427-700-2
- Anthracene - 204-371-1
- Diaminodiphenylmethane (MDA) - 202-974-4
- Dibutyl phthalate (DBP) - 201-557-4
- Cobalt dichloride - 231-589-4
- Diarsenic pentaoxide - 215-116-9
- Diarsenic trioxide - 215-481-4
- Sodium dichromate - 234-190-3
- 5-tert-butyl-2,4,6-trinitro-m-xylene (musk xylene) - 201-329-4
- Bis (2-ethylhexyl)phthalate (DEHP) - 204-211-0
- Hexabromocyclododecane (HBCDD) and all major diastereoisomers - 247-148-4 and 221-695-9
  - (Alpha-hexabromocyclododecane – 134237-50-6)
  - (Beta-hexabromocyclododecane - 134237-51-7)
  - (Gamma-hexabromocyclododecane 134237-52-8)
- Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins) 287-476-5
- Bis(tributyltin)oxide (TBTO) - 200-268-0
- Lead hydrogen arsenate - 232-064-2
- Benzyl butyl phthalate (BBP) - 201-622-7



# The EuP Directive / Eco-Design

The 2005 Directive on Energy-Using Products establishes a framework for the setting of eco-design requirements for all products dependent on energy input (electricity, fossil fuels and renewable energy sources) to work as intended i.e. all Electric and Electrical Equipment. The directive entered into force on 11 August 2007.



The EuP Directive is based on the “Common Framework for the marketing of products” to harmonization of technical standards and is the first piece of legislation implementing the Commission’s Integrated Product Policy (IPP) strategy. The EuP Directive is regarded as a crucial factor in the EU’s IPP because it constitutes a preventive approach, “designed to optimize the environmental performance of products, while maintaining their functional qualities”.

The Directive constitutes a framework directive; products are not to be subject to eco-design or energy efficiency requirements until implementing measures (set out as “Commission Regulations”) have been issued. The directive itself does not create legal obligations for manufacturers. Under an implementing measure, manufacturers are required to perform an assessment of the environmental aspects of their products throughout their life cycle. They must use this assessment to evaluate alternative design solutions, with the aim of improving the environmental performance of their products.

Under the EuP Directive, the Commission drew up a working plan of implementing measures setting specific standards for priority products.

## **The Commission has adopted implementing measures for the following product groups:**

- Water heaters (gas/oil/electric)
- Standby and off-mode losses of EuPs
- Battery chargers and external power supplies
- Office lighting
- (Public) street lighting
- Domestic refrigerators and freezers
- Simple set top boxes
- Domestic lighting

## **New proposed products to be adapted:**

- Boilers and kombi-boilers (gas/oil/electric)
- Personal Computers (desktops & laptops) and computer monitors
- Imaging equipment: copiers, faxes, printers, scanners, multifunctional devices
- Consumer electronics: televisions
- Residential room conditioning appliances (air-conditioning and ventilation)
- Electric motors 1-150 kW, water pumps (commercial buildings, drinking water, food, agriculture), circulators in buildings, ventilation fans (nonresidential)
- Commercial refrigerators and freezers, including chillers, display cabinets and vending machines
- Domestic dishwashers and washing machines
- Solid Fuel Small Combustion Installations
- Laundry driers
- Vacuum cleaners

## **The draft 2009-2011 working plan sets forth the following indicative list of product groups, which exclude products already covered during the transitional period:**

- Air-conditioning and ventilation systems
- Electric and fossil-fuelled heating equipment
- Food-preparing equipment
- Industrial and laboratory furnaces and ovens
- Machine tools
- Network, data processing and data storing equipment
- Refrigerating and freezing equipment
- Sound and imaging equipment
- Transformers
- Water-using equipment

# The WEEE Directive



Directive 2002/96/EC of the European Parliament and of the Council of 27 January 2003 on waste electrical and electronic equipment (the “WEEE Directive”) imposes on producers and distributors “take-back” and recycling obligations, and related obligations in respect of waste of electronic and electrical equipment (WEEE) and electrical and electronic equipment (EEE).

## The key aims of the WEEE Directive are to:

Reduce WEEE disposal to landfill;

- Provide for a free producer take-back scheme for consumers of end-of-life equipment
- Improve product design with a view to both preventing WEEE and to increasing its recoverability, reusability and/or recyclability
- Achieve targets for recovery, reuse and recycling of different classes of WEEE
- Provide for the establishment of collection facilities and separate collection systems of WEEE from private households
- Provide for the establishment and financing of systems for the recovery and treatment of WEEE, by producers including provisions for placing financial guarantees on new products placed on the market
- 

**The Directive distinguishes WEEE from households and other sources and deals with take-back obligations and financial responsibility separately. In summary, it imposes requirements with respect to:**

1. Product design
2. Separate collection
3. Treatment
4. Recovery
5. Financing
6. Marking, information, and reporting

## Annex 1A sets forth the following list of categories of “electrical and electronic equipment” that are subject to the WEEE Directive:

- Large household appliances
- Small household appliances
- IT & Telecommunication equipment
- Consumer equipment
- Lighting equipment
- Electrical and electronic tools, excluding large-scale stationary industrial tools
- Toys, leisure, and sports equipment
- Medical devices, excluding all implanted and infected products
- Monitoring and control instruments
- Automatic dispensers

In the European Union, electro-scrap is the fastest growing waste stream, growing at 3-5 % per year, which is three times faster than average waste. About 90 % of this waste is still land filled, incinerated or recovered without any pretreatment too few products collected and recycled. The EU 27 forecast now the growth of EEE waste to increase from 9,1 Million Tonnes in 2005 to 12,3 Million Tonnes in 2020 if not more strict requirements are being opposed.

More than five years after the Directive was set in force, only about a third of electrical and electronic waste is reported to be treated in line with these laws and the other two thirds is going to landfill and potentially to sub-standard treatment sites in or out-

side the European Union. Apart from losing out on valuable secondary raw materials, this is especially worrisome since inadequately treated products pose major environmental and health risks. The illegal trade to non-EU countries also continues to be widespread. Moreover many electrical and electronic products not complying with the substance restrictions have been found in the EU.

Legislation on electrical and electronic equipment has proved difficult to implement and enforce by market actors and public authorities. The Commission proposes measures to address these difficulties and reduce the cost of putting into effect the revised directives.

## New collection and recycling targets and greater coherence

The objective of the proposed directive is to develop a better regulatory environment, one that is simple, understandable, effective and enforceable. Under the new WEEE directive registration and reporting obligations for producers would be harmonized and national registers would be made interoperable. It is estimated that savings under the proposed revised directives would amount to some 66 million Euro. The directives also seek to better control the illegal trade of electrical and electronic equipment.

The proposed revised WEEE directive sets a new binding target for the collection of electrical and electronic equipment. The current collection target of 4 kg per person per year does not

properly reflect the situation in individual Member States. Some Member States where the consumption of electrical and electronic equipment is widespread would have more ambitious targets under the new directive while others with smaller markets will have less ambitious targets. The Commission proposes to differentiate the targets by setting mandatory collection targets equal to 65% of the average weight of electrical and electronic equipment placed on the market over the two previous years in each Member State. The recycling and recovery targets of such equipment now include the re-use of whole appliances, and weight-base targets will increase by 5%. It is also proposed to set targets for the recovery of medical devices.



# The New Batteries Directive

The new EU Battery Directive 2006/66 replaced as from 26 September 2008 the previous Directive 91/157/EEC.

Several hundred thousand tonnes of industrial and portable batteries and accumulators are placed on the EU Market every year. A wide range of metals are used, from mercury, lead and cadmium to nickel, copper, zinc, manganese and lithium.

Disposing of the waste from these products pollutes the atmosphere (in the case of incineration) and contaminates ground-cover and water (in the case of landfill or burial). Through appropriate rules it will be possible to reduce the environmental pollution from this waste. In addition, recycling the waste enables the recovery of thousands of tonnes of metals, including precious metals like nickel, cobalt and silver.

## The Directive prohibits:

- batteries and accumulators, whether or not incorporated in appliances, containing more than 0.0005% by weight of mercury (except for button cells, which must have a mercury content of less than 2% by weight);
- portable batteries and accumulators, including those incorporated in appliances, with a cadmium content by weight of more than 0.002% (except for portable batteries and accumulators for use in emergency and alarm systems, medical equipment or cordless power tools).

## Recycling symbol for batteries:

This recycling symbol is the same as the electrical items recycling symbol, but does not have a bar at the bottom of the crossed out wheelie bin.

Targets for Collection from end-users:

Collection rates of at least 25% and 45% have to be reached by 26 September 2012 and 26 September 2016 respectively.

## Targets for Recycling:

The recycling of battery and accumulator content to produce similar products or for other purposes has to reach the following levels by 26 September 2011:



at least 65% by average weight of lead-acid batteries and accumulators, including the recycling of the lead content to the highest degree that is technically feasible;

75% by average weight of nickel-cadmium batteries and accumulators, including the recycling of the lead content to the highest degree that is technically feasible; at least 50% by average weight of other battery and accumulator waste.

The Member States must send the Commission reports on the implementation of the Directive and the measures they are taking to encourage developments affecting the impact of batteries and accumulators on the environment (including new recycling and treatment techniques) - the first report will cover the period until 26 September 2012; subsequent reports are to be produced every three years.

Requirements to distribution channels and manufacturers:

directly inform the end customer that they can discard waste batteries and accumulators at sales points;

manufacturers or distributors shall visible, legible and indelible marking the batteries, accumulators and battery packs with the following information: the symbol of the crossed-out wheeled bin (in Annex II to the Directive); the capacity of the accumulator or the portable battery; the chemical symbols Hg, Cd and Pb if the batteries, accumulators or button cells contain over 0.0005% mercury, over 0.002% cadmium or over 0.004% lead. If the battery, accumulator or battery pack are too small, this information appears on the packaging.

# Nemko's main asset is our global network



- 23 locations in 4 continents
- Offering market access service in over 150 countries worldwide
- 5300 customers located in 61 countries worldwide
- More than 21,000 orders for certificates and tests (2008)
- Continuous focus on expanding the number of locations and updating laboratory equipment
- Rapid expansion of the number of authorized partner labs worldwide

## Nemko's local testing expertise

Do you have a product that requires testing before it can be certified and put on the market? Nemko can help you with the required tests. With state of the art equipment you can be assured that your product will have the best testing available. Nemko provides a variety of testing services from product safety testing and EMC testing to telecom and environmental testing.

Depending on your market and your needs we can help!



Country	Product safety	EMC	Telecom	Environmental
Norway, (Oslo and Kjeller)	✓	✓	✓	✓
Finland, (Helsinki)	✓	✓	✓	✓
Italy, (Milano)	✓	✓	✓	✓
Germany, (Karlsruhe)	✓	✓		
Canada, (Ottawa)	✓	✓	✓	
USA, (San Diego)	✓	✓	✓	
USA, (Dallas)	✓	✓	✓	
China, (Shanghai)	✓	✓	✓	✓
Hong Kong	✓			
Korea (Seoul)	✓	✓	✓	✓
Taipei	✓			✓

*Nemko has, in addition, more than 100 partner labs throughout the world.*

## NEMKOS MISSION

Nemko contributes to a safer world by sharing knowledge and safeguarding products, environment, people and systems. Nemko creates value for the customer by providing fast and reliable global market access.

### NEMKO'S MAIN ASSET IS OUR GLOBAL NETWORK

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### ..... and our experienced people running it

- Loyal staff with long experience
- Local staff with local knowledge in each location
- Strong sense of customer orientation and shared values throughout the company

**Contact your local Nemko office today !**

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