China Echo-design Standards and The Labeling for Eco-design Product

1. Eco-design Standards: General principle and requirements of eco-design for products

Background:
For some time now, considerable attention has been paid to the development of environmentally friendly products by industries and consumers around the world. Manufacturers in the supply chain are being tied more closely to the success of their "Green" efforts in environment performance and eco-products. A so called “green supply chain” has come in to form.

The aim of the standard:
This national standard has provided a methodology background in indicator selection and LCA for the development of specific eco-design assessment standards. Based on this standard, numbers of eco-design assessment standards for product closely related to human life and environment are formulated. The development of eco-design assessment system for products is making progress.

On the supply-side aspects, this standard, which provides an integrated information on the environment effect produced in the whole life circle of products, can help manufacturers to identify elements and product life stages that have big influences to the environment. Thus it can help the productive use of natural resources and reduce wastes emissions and finally improve the image and presence of the manufactures through echoing the common concern on environment of consumers.

On the international trade aspects, an assessment method correspondent to the Product Environmental Footprint (PEF) and a harmonized eco-product standard system, which covers energy-saving, environment protection, water-saving, low carbon, recycling and remanufacturing can make a big help in avoiding negative impact of the green product regulations of the European single market to Chinese trade.

The content of the standard:

The standard prescribes the formal terms, definition, assessment principle and method, assessment requirement and the normative form of the eco-design assessment reports. Eco-design, which also called green design, environment conscious design, following the philosophy of the life cycle analysis (LCA) focuses on the environment and resource consequences of a product through all phases of its life, i.e. selecting raw materials, production, sale, use, recycling and final disposal, during the design stage of the products. And eco-design expects to minimize the waste of resources, reduce or avoid the use of hazardous raw materials, and reduce the pollution and emission. Eco-design products (simplified as eco-products), also called green design products, is the result of eco-design philosophy and assessment requirements.

The combination of periodical assessment indicator system and LCA assessment are used in the development of this standard, with both Chinese LCA data base and the Product Environmental Footprint (PEF) considered. Focusing on the full life circle of products, this standard take into account the selecting of raw materials, energy consumption, environment impact and product safety while it concerns the energy-saving, environment protection, recycling and remanufacturing of the products.

Typical indicators, which have great impact on the people's health and the safety of natural environment, can be considered as a scale to evaluate and compare identified eco-products made by different manufacturers. These typical indicators will contribute to a unified, integrated eco-product standard system. Manufacturers shall be required to fully understand the concept of life circle, assess how the product will affect the environment throughout its life stages, and determine how to improve the products according to the assessment result.

2. The labeling for eco-design product

Background:

Eco-design, which has grabbed lots of eyes in these years, is a philosophy raised to improve the environment performance of products in its full life circle. Eco-design take into account the environment impact of the products from the very first stage. Take full account of the environment impact of the products in its manufacturing, sale, use, recycling, re-use and disposal from the design stage. Main developed countries have by now made great contributions to the eco-design philosophy, such as "Eco-label", "Blauer Engel", "Nordic Swan", "ECO-Mark", etc. And it is to popularize the concept of eco-design that the Chinese national standard the Labeling for Eco-design Product was formulated.

The aim of the standard:

As a major producer, exporter and consumer of the world, China has built up a modern industry system with a diverse range of products. Together with the great development of industry production, there comes huge resource consumption and worrying environmental pollution, making it urgent to launch a major push of the eco-design concept.

Eco-design product labeling makes the green effort of the manufacturer well perceived and helps to popularize the concept of eco-design among consumers. The implementation of this standard will contribute to the upgrading of the design, manufacture, use and disposal of the products, and finally improve the competence of Chinses industry.

Main content of the standard:

The essential principles and general requirements of eco-product labeling set by this standard are applicable in the design, manufacture, trade, use and recycling stages of the eco-products. Eco-design labels are required by all eco-products made in China or imported from the abroad.

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The eco-design label is patterned by blade and earth, which means the final aim of eco-design is the environment protection. The labeling of domestic eco-products falls into the manufacturers, while importers shall take the responsibilities of manufactures when referred to imported eco-products.
Requirements that the labeling of eco-products shall follow to:

1. The appropriate size of the label shall be determined according to the size of the product, and if there is a need to downsize or increase the size of the eco-label, a ratio requirement shall be followed.
2. The eco-design label can be separately indicated or indicated together with other product labels, and the labeling shall be referred in the Product Manual.
3. The eco-design label shall be obvious or be clearly identified on the exterior of the items, and this would be justified where the size and/or the nature of the product makes the indication impossible. In such cases, the eco-design label can be affixed in the Product Manual.
4. The eco-design label can be posted, sprayed or printed on the products.

3. The first group of Eco-design assessment specifications for products

Background:

It's an urgent need to establish a resource-efficient and environment-friendly production mechanism and consumption trend in the process of ecological construction.
Eco-design assessment specification for products is developed to ensure the effective utilization of resource and energy, improve the degradability and biological safety of the waste, and promote low emission the disposal of hazardous substances and wastes.

Products like household detergents, plastics, pesticides and inorganic light construction planks are closely related to people's production and life, and has much more of an impact on the environment and human health. And the low market share of green detergents, the long-lasting contamination of non- degradable plastics, the acute toxicity of pesticides and the huge resource consumption of inorganic light construction planks make it urgent to develop standards of the eco-design assessment specifications for products.

The aim of this standard:

The release and implementation of the first group of eco-design assessment specifications for products, which performs as the foundation of the eco-design assessment system, make it possible for the quantitative assessment of the product life circle.

The significant work of the eco-design assessment specifications for products:

1. Make a full demonstration of the energy and resource consumption of products and the impact on the environment and human health in the full life stages of the products.
2. Promulgate green consumption concept by encouraging consumer's choice of pollution-free and health-friendly products which conforms to the eco-design assessment standards.
3. Help enterprises to diagnose the cause of why they failed to meet the requirements of the eco-design assessment and to determine how to improve the products according to the

assessment result.

4. Trace the environmental compliance information of the products for consumers, government and other stakeholders, and help to build a green supply chain.

Main content of the standards:

4 national standards for the eco-design assessment specification for products have been released by now, including the *Eco-design assessment specification for products Part 1: household detergents, Eco-design assessment specification for products Part 2: biodegradable plastic, Eco-design assessment specification for products Part 3: pesticides, and the Eco-design assessment specification for products Part 4: inorganic light construction planks.* Combining the LCA and indicator assessment system, this group of standards is based on the *General principle and requirements of eco-design for products*.

The indicator assessment system of this group of standards incorporates two levels of indicators. The first level indicators includes the resource indicator, energy indicator, environment indicator and product indicator. The second level includes all specific indicators divided according to the purpose of the assessment.

The main processes of the eco-design assessment for product are: first, make sure the purpose the assessment and identify the coverage of the assessment based on the characteristics of the product and the assessment purpose. Second, collect data of necessary and analyze the quality of these data following the LCA and indicator assessment system. Third, launch indicator assessment for products to identify eco-products. Forth, the manufacturers of the eco-products shall submit a LCA report.

The national standard *Eco-design assessment specification for products Part 1: household detergents* can be applied in the assessment of household detergents such as laundry powders, liquid detergent and tablets. The specific assessment indicators include the raw material utilization, degradation condition of the surfactants, package materials, energy consumption of per unit, the emission of anionic surfactants, the repeated utilization rate of return water, the repeated utilization of product package, the of volume of phosphate, and alkylphenolethoxylates.

The national standard *Eco-design assessment specification for products - Part 2: degradable plastics*, which focuses on the life cycle process of 6 types of degradable plastics including polylactic acid (PLA), polyhydroxyalkanoates (PHA), starch-based plastic, polybutylene succinate (PBS), polyethylene terephthalate adipic acid polybutylene terephthalate (PBAT), and poly (propylene carbonate) (PPC), prescribes the eco-design assessment indicator requirements, assessment methods and reporting requirements for degradable plastic products. Specific assessment indicators included in this standard: biodegradation rate, heavy metal content, volume of water abstracted per unit of product, energy consumption of per unit of product, the repeated utilization rate of return water and product package, the degradation of product packages, etc.

The national standard *Eco-design assessment specification for products - Part 3: pesticides* is applicable to the environmental friendly assessment and eco-design assessment of agricultural pesticides and insecticides. This standard specifies assessment indicator requirements for agricultural pesticide, including the drug toxicity, hazardous waste disposal, soil degra-

dation half-life, soil organic carbon adsorption coefficient, toxic agents, the effective utilization of pesticides, EC benzene, xylene, toluene, methanol, dimethyl formamide mass fraction, botanical pesticides original drug active ingredients, packaging and labeling; assessment indicator requirements for pesticides include original drug toxicity, hazardous waste disposal rate, aerosol BTEX content, aerosol VOC content, packaging and labeling.

The national standard *Eco-design assessment for product - Part 4: inorganic light construction planks*, divides building planks into three categories, including building envelope planks, thermal-insulating planks for building and decoration planks for building.

Specific assessment indicators included in this standard: solid waste blending rate, wastewater emissions per unit of product , the amount of exhaust gases per unit of product, the installation of dust recovery, foaming types (if used), product quality, radioactive, etc.

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Introduction of SESEC Project

The Seconded European Standardization Expert in China (SESEC) is a visibility project co-financed by the European Commission (EC), the European Free Trade Association (EFTA) secretariat and the three European Standardization Organizations (CEN, CENELEC and ETSI).

Since 2006, there has been two SESEC projects in China, SESEC I (2006-2009) and SESEC II (2009-2012). In Dec 2014, SESEC III was officially launched in Beijing, China. Dr. Betty XU was nominated as the SESEC expert and will spend the next 36 months on promoting EU-China standardization information exchange and EU-China standardization cooperation.

The SESEC project supports the strategic objectives of the European Union, EFTA and the European Standardization Organizations (ESOs). The purpose of SESEC project is to

- Promote European and international standards in China;
- Improve contacts with different levels of the Chinese administration, industry and standardization bodies;
- Improve the visibility and understanding of the European Standardization System (ESS) in China;
- Gather regulatory and standardization intelligence.