

# **DEVELOPMENT OF THE VOLUNTARY ENVIRONMENTAL ASSESSMENT AND CERTIFICATION SCHEME FOR CONSTRUCTION PRODUCTS IN POLAND**

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## **Summary**

The paper presents the basic principles of the voluntary EKO-ITB certification scheme for construction and building related products. The labeling criteria cover both environmental and technical performance based requirements to provide an awarding system for eco-friendly products and manufacturers. Differently from ISO 14025 and EN 15804 based declarations, EKO-ITB sets threshold levels that have to be achieved by the component and its producer. After the extensive studies performed during 2010–2012 period, the EKO-ITB certificate may be issued for wooden, hard and textile coverings, heat pumps, paints and varnishes, wooden windows, household sewage treatment plants, autoclaved aerated concrete, insulation materials and air conditioners. When possible, criteria are harmonized with the EU Ecolabel or GPP documents, in the other cases requirements are developed in original and individual manner.

**Keywords:** EKO-ITB, ecolabel, product certification

## **1 Basics of the EKO-ITB scheme**

EKO-ITB, as the standardized ISO 14024 type I multi-parametric label for construction products, supports the identification of goods that have minimized negative environmental impacts in their key life – cycle stages (with precondition of conformity with relevant technical specification), in order to promote both conscious choices of the user and the ecological production patterns of the manufacturer [1]. According to the standard, it has to be fully voluntary, the transparency and credibility of the procedure shall be assured through the involvement of independent third party assessment.



*Fig. 1 EKO-ITB label*

The European SCP-SIP Action Plan [2] states that ecolabeling of products is one of the most important tools supporting the implementation of the sustainable consumption and production policy, with special regard given to rewarding system of the “Green” Public Procurement patterns. The European Commission indicates, that public authorities may set

in the procurement specifications additional environmental requirements on the performance of products, and the ecolabels shall be commonly referenced as a proof of evidence. In Poland, National Action Plan for Sustainable Public Procurement provides an increase of GPP share up to 20 % at the end of 2016 [3]. The European Commission indicates the EU Ecolabel as the most preferable environmental mark, but as long as it covers only a small range of construction or building products, a significant demand for the different national tools is still visible. Therefore, in 2010, the new research program aimed at the development of the technical and environmental criteria for certain groups of construction products and materials has been started in the Building Research Institute (ITB). Initially, the first group of criteria has been prepared on the basis of the existing European Commission Decisions establishing the ecological requirements to award the EU Eco-label for hard, wooden and textile coverings, heat pumps and paints and varnishes, with some adaptations to national regulatory requirements and practices. Second, innovative group of the criteria, established in accordance with the national provisions and outcome of the ITB research programs, covered the field of wooden windows and household sewage treatment plants. In 2012, extensive works have been carried out for the groups of aerated concrete, insulation materials and air conditioners.

## **2 Development of the EKO-ITB criteria**

The key characteristic of the EKO-ITB criteria in comparison to the European or the other national marks is the clear reference to Polish specific standards and regulations. The criteria have been developed in the framework of statutory research program by the group of ITB experts in the field of environmental protection, Life Cycle Assessment, product manufacturing processes, performance testing and technical regulations. The selection of product categories has been made as a result initial studies on the market size and demands, previous ITB research on key environmental performances and possibility of estimating threshold levels. Valuable information has been also gained from EU legislation (e.g. EC Directives, Regulations and Decisions, GPP criteria), research, national guidance and standards. So, as a result, apart from the final product (developed criteria), the Institute receives new framework of cooperation between staff members of differentiated expertise and skills.

As mentioned before, the first group of EKO-ITB criteria covering hard, wooden and textile coverings, heat pumps and paints and varnishes is harmonized with existing European Commission Decisions establishing the ecological requirements to award the EU Eco-label, with additional adaptations to national conditions concerning for example:

- Acts implementing EU directives and supporting introduction of EU regulations;
- Requirements on the content of declaration of the technical performance according to the Polish technical provisions;
- Use of the Polish Standards implementing EN (PN-EN) and original PNs, when PN-EN is not available;
- References to ITB accredited test methods.

The second group of criteria for wooden windows and household sewage treatment plants, autoclaved aerated concrete, insulation materials (Expanded Polystyrene – EPS) and air conditioners has been developed independently by ITB. Those criteria contain requirements concerning life cycle stages and processes being responsible for the most important environmental impacts.

As an example, criteria for autoclaved aerated concrete (AAC) masonry units are covering following stages and basic requirements [4]:

- Raw material acquisition;
  - Cement – sources and content of Cadmium;
  - Lime – sourcing;
  - Sand plants – impact on environment;
  - Fly ash – sources, emissions, natural radiation (according to [5]);
  - Pore-forming substances – sourcing, safety in transport and use in production;
  - Emission of dangerous substances;
- Production process;
  - Energy consumption (per m<sup>3</sup> of the final product);
  - CO<sub>2</sub> equivalent;
  - Use of materials;
  - Water consumption economy;
  - Emission of dangerous substances to the atmosphere (i.e. dust, SO<sub>2</sub>, NO<sub>x</sub>);
  - Waste – documentation of recycling procedures;
- Packaging – material from renewable source shall be recyclable and ready for re-use;
- Use stage;
  - Product conformity with PN-EN 771-4:2012 standard, additional requirement on freeze-thaw resistance, tested according to PN-EN 15304:2010;
  - Identification of the product – X-ray diffraction analysis, differential thermal analysis;
  - Natural radiation;
  - Emission of dangerous substances – i.e. leaching of heavy metals;

EKO-ITB criteria for AAC contain also set of definitions, explanatory notes, references to regulations, standards and guidance as well as technical annex containing calculation methodology.

The content of EKO-ITB criteria for all mentioned product groups should be publicly available after the end of formal adoption process.

### **3 Verification of conformity and certification procedure**

ITB provides an assessment of conformity with the criteria consisting mainly of the analysis of the documentation provided by the applicant. This documentation may include legal and authorisation documents, technical documents and reports, certificates (CE, EMAS or ISO 14001), catalogues, test and calculation results, according to the criteria. In exceptional cases, an additional audit may be required. As different documentation formats and test methods are not fully harmonised, its equivalence has to be accepted and confirmed „case by case“ by the Building Research Institute. The certification procedure is clearly described in a graphic form illustrating following steps, obligations and responsibilities. The whole process is designed in accordance to the main requirements of the EU Regulation 66/2010 [6]. Issued certificate (valid for 4 years) is supervised by the ITB Certification Department, in order to confirm the stability of the production process and technical or environmental performance of the product.

## 4 Conclusions

EKO-ITB scheme uses the EU Ecolabel philosophy to provide the system focused strictly on construction products and their performance, taking into account Polish specific regulatory and technical conditions. By the time being, the development of the criteria shall be threaten as a part of research activity, with no support or authorisation from the governmental bodies. However, EKO-ITB has been recognised by the Public Procurement Office as one of the ISO type I labels that will be referenced in tender specifications in the future. As a voluntary product certification scheme EKO-ITB may be an important and useful tool for product manufacturer to express his engagement in environmental protection. Recognized by the user (private customer or public body), shall also support sustainable choices and change consumption patterns. Future development of the criteria to cover new construction product groups will depend on demand from the industry, research potential and regulatory perspectives.

## References

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