

**Comments of BING**  
on the proposal for a  
**Directive on the indication by labelling and standard product information of the consumption of energy and other resources by energy-related products**

**BING is the European association representing the rigid polyurethane insulation industry. Rigid polyurethane foam is the premium insulation material used in a wide variety of applications in buildings, district heating, cooling and refrigeration, and industrial systems.**

BING notes the publication of the Commission proposal regarding the extension of the so-called energy labelling directive to include “energy-related” products. According to the explanatory memorandum (point 1), this extension could cover “windows” and is hence likely to include other construction materials, too.

BING is strongly opposed to the inclusion of non energy using construction products in the definition of energy related products and urges the European Parliament to modify article 1 as follows:

<b>Commission proposal</b>	<b>BING proposal</b>
<i>Article 1</i> <b>Scope</b>	<i>Article 1</i> <b>Scope</b>
<p>1. This Directive establishes a framework for the harmonization of national measures on end-user information, particularly by means of labeling and of product information on the consumption of energy and of other essential resources, and supplementary information concerning energy-related products, thereby allowing end-users to choose more efficient products.</p> <p>2. This Directive shall apply to energy-related products which have a significant impact on the consumption of energy and, where relevant, on other essential resources during use.</p> <p>3. This Directive shall not apply to</p> <ul style="list-style-type: none"> <li>(a) second-hand products;</li> <li>(b) any means of transport for persons or goods;</li> <li>(c) the rating plate or its equivalent affixed for safety purposes to products.</li> </ul>	<p>1. This Directive establishes a framework for the harmonization of national measures on end-user information, particularly by means of labeling and of product information on the consumption of energy and of other essential resources, and supplementary information concerning energy-related products, thereby allowing end-users to choose more efficient products.</p> <p>2. This Directive shall apply to energy-related products which have a significant impact on the consumption of energy and, where relevant, on other essential resources during use.</p> <p>3. This Directive shall not apply to</p> <ul style="list-style-type: none"> <li>(a) second-hand products;</li> <li>(b) any <b>non energy using construction products and</b> means of transport for persons or goods;</li> <li>(c) the rating plate or its equivalent affixed for safety purposes to products.</li> </ul>

## Formal reasons

**Article 11 (Implementing measures), paragraph 2** states that implementing measures shall only be developed for a product if the following criteria are met:

- (b) products with equivalent functionality available on the market shall have a wide disparity in the relevant performance levels;
- (c) the Commission shall take into account relevant Community legislation ...

### Article 11, paragraph 2 (b)

- BING believes the only objective parameter to estimate the energy savings potential for thermal insulation products is thermal conductivity ( $\lambda$ )<sup>1</sup>. As the following table illustrates, insulation materials show indeed significant differences in performance.

Insulation material	Thermal conductivity ( $\lambda$ )	A lower $\lambda$ stands for a higher efficiency. The values show that, in order to achieve the same level of thermal insulation, the cork layer must be twice as thick and the stone wool layer more than 50 % thicker than the polyurethane layer.
Polyurethane (PUR/PIR)	0.024	
EPS	0.035	
Stone wool	0.037	
Glass wool	0.038	
Wood fibre	0.040	
Cork	0.050	

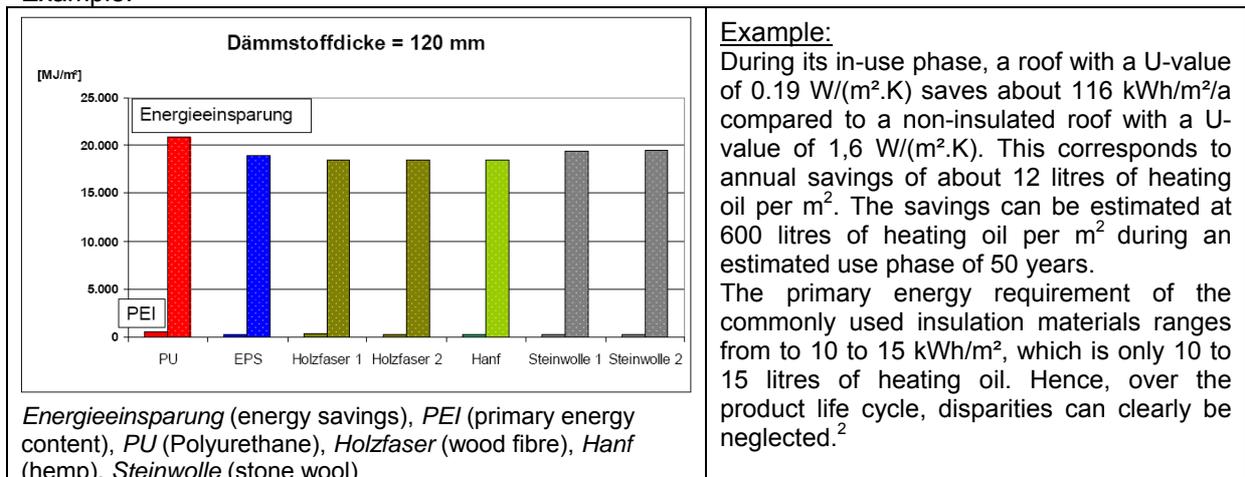
As will be explained further down, the  $\lambda$  value may be able to provide information on the efficiency of insulation materials, it is however **not** an indicator of the real energy savings achieved in their use phase. These strongly depend on the design of the building which the insulation material is integrated in.

Another potential indicator could be the thermal resistance (K) of insulation materials. However, practically all insulation materials could achieve the same K value although with very different insulation thicknesses. Hence, there would be no disparities at all.

Embodied energy (primary energy requirement) could be proposed as an indicator. However, a comparison of embodied energy with the energy savings in the product use phase shows that

- the amount of energy saved is at least 50 times higher than the embodied energy;
- the disparities between the different insulation materials are small and do not justify implementation measures.

Example:



<sup>1</sup>  $\lambda$  is the amount of heat per unit of time per unit area that is conducted through a slab of unit thickness of a material if the difference in temperature between opposite faces is one degree of temperature

<sup>2</sup> IBW an der Universität Wuppertal: Vergleichende Studie Aufsparrendämmstoffe

### **Article 11, paragraph 2 (c)**

- BING wishes to emphasise that construction products are already covered by other EU legislation, which is more adapted to the specific characteristics of these products and pushes markets in the same direction as intended by the ELD.

#### **CONSTRUCTION PRODUCTS DIRECTIVE & FUTURE REGULATION**

The CPR - Construction Products Regulation proposal<sup>3</sup> will replace the present Construction Products Directive (CPD) and fixes the rules for the CE-Marking of construction products based on basic requirements for construction works including the following:

- Hygiene, health and the environment
- Energy economy and heat retention
- Sustainable use of natural resources
  - recyclability of the construction works, their materials and parts after demolition;
  - durability of the construction works;
  - use of environmentally compatible raw and secondary materials in the construction works.

#### **ENERGY PERFORMANCE OF BUILDINGS DIRECTIVE**

The EPBD – Energy Performance of Buildings Directive - requires Member States to set minimum energy performance requirements for all new buildings and for refurbishing of existing buildings above 1000 m<sup>2</sup>. Energy Performance Certificates must be provided to owners, tenants and users to raise awareness whenever a building is built, sold or newly rented out.

The EPBD is presently under recast and the main expected change is a abolishment of the 1000 m<sup>2</sup> threshold. Under the EPBD, the energy performance requirements are defined at the level of building works, as the end-use product is the whole building.

**Article 11, paragraph 4 (d)** states that implementing measures shall specify in particular *“the design and content of the label referred to in Article 4, which as far as possible shall have **uniform design characteristics** across product groups.”*

- BING believes that thermal insulation products belong to a product group covering an extremely heterogeneous range of materials including plastic foams (polyurethane, EPS, XPS), stone wool, glass wool, glass foam, hemp, cellulose, cork, wood fibre and many others. Hence, this criterion is clearly impossible to meet.

**Article 4 (Information requirements), paragraph 1**, states that the fiche and label must inform end-users about *“the consumption of electric energy, other forms of energy and other essential resources”*.

- Obviously, insulation materials do not consume any kind of energy or other resources during their in use phase. They have a “negative” energy use, which means they save far more energy during their in use phase than is required for their production. It is however impossible to quantify these energy savings during the use phase as they depend on the design of the building they are integrated in. Also the use of “other essential resources” cannot be assessed without knowing the end-use application. For example, the use of a low efficiency insulant will lead to thicker walls. For a small detached house (three bedrooms), this will lead to as much as 2.8 m<sup>2</sup> of additional land use and also additional material use for the building structure.  
It would be impossible to show such complex interrelations in a simple energy label.

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<sup>3</sup> see 2008/0098 (COD)

## Practical reasons

Apart from these formal concerns, the application of energy labelling criteria for construction products (and in particular thermal insulation materials) would cause a number of very practical problems.

- The European Commission should be committed to keeping administrative burdens to the lowest possible levels. New initiatives should only be launched if there is evidence that the benefits of the initiative significantly outweigh the burdens it causes.
- Most of the BING members are small and medium-sized enterprises. They are particularly vulnerable to the effects of new administrative requirements and testing procedures. They already comply with the comprehensive requirements of the Construction Products Directive and its CE marking criteria. Additional energy labelling and eco-design criteria for an extended CE mark, which would run in parallel to existing similar requirements, would add significant costs and may turn impracticable.

### Insulation materials are intermediary products

- Insulation materials are not stand-alone materials. They are used in combination with other construction materials (bricks, wood, metal etc.) in order to build walls, roofs and floor elements to a desired overall technical and thermal performance.
- The level to which an insulation material contributes to the overall building sustainability and energy performance highly depends on the building design and orientation, the quality of the works and the local climatic constraints. The insulation material of choice should first of all be fit for purpose, capable of fitting the building design details and ensure the desired level of thermal insulation during the entire use-period of the building.
- This corresponds to the interests of owners, users and society in general who want energy efficient and sustainable buildings. Requiring the labelling of construction products is counterproductive, costly and confusing.

### How to define meaningful energy related parameters?

- Due to the above, and the large variety of very different insulation products (polyurethane, glass fibres, sheep wool etc.), it would be extremely difficult to define sensible energy related parameters for the whole product group. The thermal conductivity value ( $\lambda$ ) would certainly be the most logical parameter, but an ambitious value would automatically exclude certain insulants (and their manufacturers) which display a low performance in this respect. As outlined above, thermal resistance (R) could also be chosen as the main parameter. However, this would cause significant costs as a different label would be required for each product thickness. Furthermore, it would still be impossible to assess the energy savings during product use without knowing the functional unit the insulation product is to be fitted in.
- Energy related criteria might include embodied energy, but this would not provide any information on the whole live performance of the product and the amount of energy it will save over its useful lifetime in a specific end-use application (building, roof, wall etc.). It is estimated that, during its service life, polyurethane insulation allows savings of at least 50 times and up to more than 100 times the quantity of fossil fuels necessary to produce it. However, this cannot be expressed on a product label, as the value depends on the end-use.
- BING warns against the use of a parameter calculating the embodied energy per kilogramme. This causes confusion as insulation materials vary substantially in weight, density and thermal conductivity. Sensible environmental information can only be

obtained when looking at the embodied energy of insulation materials in a given end-use application (see example below).

Example:

A 100 m<sup>2</sup> flat roof is to be insulated guaranteeing a thermal resistance of 3.33 m<sup>2</sup>K/W. What is the embodied energy of the insulation materials for this application?<sup>4</sup>

	Thermal conductivity	Thickness (mm)	Weight (kg)	Embodied energy (kg)	Total embodied energy (MJ/100 m <sup>2</sup> )
Cork	0.040	133	1,733.33	7.1	12,220
PUR/PIR	0.024	80	264.00	91.7	27,328
EPS	0.035	117	291.67	99.2	28,933
Stone wool	0.038	127	1,520.00	22.1	33,622
Glass wool	0.037	123	1,295.00	34.6	44,807
XPS	0.036	120	420.00	110.2	46,284
Wood fibre	0.050	167	4,000.00	17.0	68,000

This overview does not take account of additional fixing devices and materials used for the building structure when heavy insulation products are used.

## Do we need yet another sustainability initiative?

- The Energy performance of buildings directive has introduced the energy performance certificate, which is a very useful, market-driven instrument to promote energy efficient buildings. End-users, investors and the construction industry are gradually increasing their awareness and the system is beginning to work. The certificates push the construction industry to build increasingly energy efficient buildings, using the most adequate materials combinations and system designs.
- DG Enterprise and Industry has mandated standardisation work to CEN/TC 350 to measure the environmental, economic and social sustainability of construction works and develop environmental product declarations (EPDs). Whilst voluntary in principle, the EPDs are expected to be very widely used. It is not unlikely that they will be linked to the basic work requirement 7 of the future Construction Products Regulation and hence become mandatory in their application.

The standards will include a number of sustainability (including energy performance) criteria, establish the link between product characteristics and the overall building performance and will help architects and designers to make informed choices on the building design and its material constituents and propose energy efficient buildings with a low environmental impact.

- DG Environment has mandated Italy to develop an eco-label for buildings. BING tries to bring this work in line with CEN/TC 350, as otherwise, industry and end-users would be faced with yet another set of non-compatible energy related and sustainability criteria.
- DG Environment has also developed Green Public Procurement criteria for buildings and is currently working on such criteria for construction products. Again, the criteria are not compatible with existing initiatives and fail to establish a link between products and buildings.
- The draft revised eco-design directive has been tabled which also proposes the inclusion of “energy related” construction products in its scope. The ELD would probably use some but not all eco-design parameters for the energy label. BING has published a critical view on the draft eco-design directive ([available here](#)).
- The proliferation of labels and systems becomes confusing for both manufacturers and end-users and, hence, jeopardizes the credibility of the whole idea. Furthermore, the

<sup>4</sup> ANPE ([www.poliuretano.it](http://www.poliuretano.it)) Poliuretano & Ambiente – Life Cycle Assessment (page 15)

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compliance costs for manufacturers increase drastically without any visible benefit for the environment.

### **How to promote energy efficient buildings?**

- BING supports the Energy performance certificate in connection with national roadmaps towards very low energy houses as proposed by the draft recast Energy Performance of Buildings Directive. National minimum efficiency requirements should be tightened regularly to achieve very low energy house levels for new buildings by 2015.
- A number of countries (Austria, Denmark, Finland, France, Germany, Netherlands, UK) have already adopted such policies. This means, that the legislator fixes maximum energy consumption levels per m<sup>2</sup>/a for the whole building and similar requirements (for ex. U values) for major components / systems such as roofs, walls etc. The system does not need requirements for individual non energy using construction products.
- This approach is far more reality-based, as it looks at the whole building, includes a life cycle approach, is technology neutral and, hence, stimulates innovative solutions from a large pool of material options.
- All sustainability initiatives for construction products and buildings should clearly refer to the set of standards drafted by CEN/TC 350. With a view to avoiding disproportionate burdens on industry and confusion at the consumer end, non energy using construction products should be excluded from the extended energy labelling directive.

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