Extended comments of BING
on the proposal for a
Directive establishing a framework for the setting of ecodesign requirements for 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 eco-design directive to include "energy-related" products such as construction products and, in particular, insulation materials.

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:

Commission proposal	BING proposal
Article 1 **Subject matter and scope** 1. ... 2. ... 3. This Directive shall not apply to means of transport for persons or goods.	*Article 1* **Subject matter and scope** 1.... 2.... 3. This Directive shall not apply to ***non-energy using construction products and to*** means of transport for persons or goods.

Formal reasons

Article 15 (Implementing measures) states that implementing measures shall only be developed for a product if it ... *"presents significant potential for improvement in terms of its environmental impact without entailing excessive costs, taking into account in particular:*

- *the **absence of other relevant Community legislation or failure of market forces** to address the issue properly;*
- *a wide **disparity in the environmental performance** of ~~EuPs~~ products i available on the market with equivalent functionality."*

However, construction products are already covered by **various pieces of EU legislation**:

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CONSTRUCTION PRODUCTS DIRECTIVE & FUTURE REGULATION

The CPR - Construction Products Regulation proposal[1] will replace the present Construction Products Directive (CPD) and fixes the rules for the CE-Marking of construction products based on the following basic works requirements:

1. Mechanical resistance and stability
2. Safety in case of fire
3. **Hygiene, health and the environment**
4. Safety in use
5. Protection against noise
6. Energy economy and heat retention
7. **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^2. 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 drastic lowering of the 1000 m^2 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.

WASTE FRAMEWORK DIRECTIVE

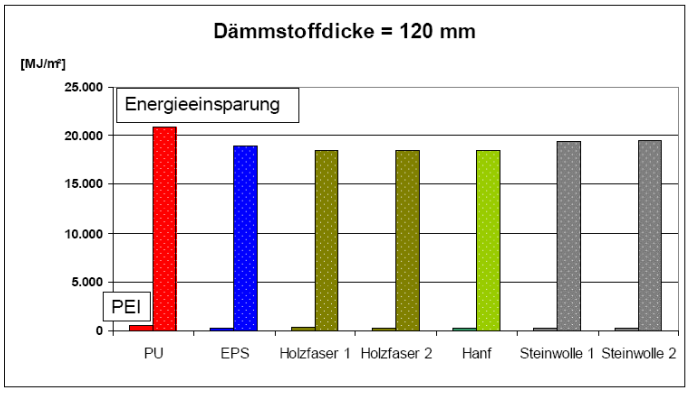
The revised Waste framework Directive has just been adopted.

Regarding re-use and recycling, the Parliament stated that Member States shall take the necessary measures designed to achieve that the following target is achieved:

"by 2020 the preparing for re-use, recycling and other material recovery… of non-hazardous construction and demolition waste … shall be increased to a minimum of 70% by weight."

This will be a very important incentive for end-of-life-friendly design of building products, and it should not be duplicated by requirements coming from the Eco-design Directive.

Also the second requirement stated in article 15, the **wide disparity in the environmental performance**, cannot be applied to construction products, and in particular not to insulation products.



Energieeinsparung (energy savings), PEI (primary energy content), PU (Polyurethane), Holzfaser (wood fibre), Hanf (hemp), Steinwolle (stone wool)

Example:

During its in-use phase, a roof with a U-value of 0,19 W/(m².K) saves about 116 kWh/m²/a compared to a non-insulated roof with a U-value of 1,6 W/(m².K). This corresponds to annual savings of about 12 litres of heating oil per m^2. The savings can be estimated at 600 litres of heating oil per m^2 during an estimated use phase of 50 years.

The primary energy requirement of the commonly used insulation materials ranges from to 10 to 15 kWh/m², which is only 10 to 15 litres of heating oil. Hence, over the product life cycle, disparities can clearly be neglected.[2]

[1] see 2008/0098 (COD)

[2] IBW an der Universität Wuppertal: Vergleichende Studie Aufsparrendämmstoffe

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Commission impact assessment is misleading

The Commission impact assessment[3] (pages 20 and 54ff) is based on studies conducted by Labouze et al which explicitly refer to the building structure and not to construction products. The Commission has turned this around and applied the conclusions to construction products. From a scientific point of view, this is not acceptable.

The impact assessment also justifies this inclusion of construction products / insulation materials by the 1000 m^2 threshold for refurbishment in the Energy performance of buildings directive (EPBD). However, the draft recast directive proposes the complete abolishment of this threshold.

Furthermore, the impact assessment stresses the savings potential of insulating buildings. Whilst this is certainly correct, the reference to the U-value is wrong. U-values are exclusively used in the context of buildings / major building elements (roofs, walls). The insulating performance of insulation products is measured in thermal conductivity (ʎ) or thermal resistance (R). BING fully supports ambitious U-values for roofs, walls etc. However, the U-values are determined by national building codes and hence covered by **subsidiarity**. This is recognized by both the EPBD and the construction products directive / regulation. It will therefore not be possible to fix minimum U-values in the implementing measures relating to an extended ecodesign directive.

In conclusion, the ecodesign directive is not the right European legislative instrument to address this issue. The insulation of buildings must be addressed in the EPBD.

Practical reasons

Apart from these formal concerns, the application of eco-design 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 eco-design criteria for an extended CE mark, which would run in parallel to existing similar requirements, may turn impracticable.

Insulation materials are not stand-alone 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 efficient and sustainable buildings. Fixing additional requirements at component level is counterproductive, costly and confusing.

[3] Impact assessment accompanying the Proposal for a directive establishing a framework for the setting of ecodesign requirements for energy related products (SEC(2008) 2115/2)

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How to define meaningful eco-design 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 eco-design parameters for the whole product group. The thermal conductivity value (which defines the thermal performance of insulation materials) would certainly be the most logical parameter, but an ambitious value would automatically exclude certain insulants (and their manufacturers) which display a much lower performance in this respect. Is this the intention?
- Other typical eco-design criteria could potentially include the choice of materials or embodied energy, but this would not say anything about 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 them. What would the eco-design directive add to it?
- 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 resistance. 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^2 roof is to be insulated guaranteeing a thermal resistance of 3.33 m^2K/W. What is the embodied energy of the insulation materials for this application?[4]

	Thermal conductivity	Thickness (mm)	Weight (kg)	Embodied energy (kg)	Total embodied energy (MJ/100 m^2)
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 criteria, establish the link between product characteristics and overall building performance and will help architects and

[4] ANPE (www.poliuretano.it) Poliuretano & Ambiente – Life Cycle Assessment (page 15)

designers to make informed choices on the building design and its material constituents and propose buildings with 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 face with yet another set of non-compatible sustainability criteria.
- DG Environment has also developed Green Public Procurement criteria for buildings and is currently working on criteria for construction products. Again, the criteria are not compatible with existing initiatives and fail to establish a link between products and buildings.
- Health aspects of building components are covered by the future Construction Products Regulation and Commission mandate M/366 to CEN/TC351 on dangerous substances in construction products.
- 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 compliance costs for manufacturers increase drastically without any visible benefit for the environment.

How to promote eco-efficient innovation in 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 (A, DK, FIN, F, D, NL, UK) have already adopted such policies. This means, that the legislator should fix maximum energy consumption levels per sqm/a for the whole building and similar requirements (for ex. U values) for major components / systems (not the individual product) such as roofs, walls, HVAC etc.
- This approach is far more reality-based, as it looks at the end result, 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, construction products should be excluded from the extended eco-design directive.

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