



Comments of BING on the Technical Specifications for Green Public Procurement “Thermal Insulation Background Report Thermal Insulation” and “Procurement Product Sheet”

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

Introduction:

- The Commission has assigned AEA (Harwell) with the development of the technical specifications for thermal insulation.
- On 5 September 08, BING submitted detailed comments on the first draft report.
- On 24 March, AEA forwarded a comprehensive reaction to each of the points raised by BING. A number of BING comments were integrated in the revised draft text.

General comments on green public procurement requirements for thermal insulation products:

- BING fully supports efforts to harmonise green public procurement (GPP) requirements in order to overcome barriers caused by the different national systems. BING welcomes the publication of the toolkit for buildings which provides a holistic and comprehensive approach to the environmental performance.
- However, BING wishes to reiterate its opposition against the development of GPP for intermediary products such as thermal insulation products and **calls on the European Commission to withdraw the background report and product sheet for thermal insulation.**

Reasons:

The methodology is fundamentally flawed

- Whilst the final draft report emphasises the need to assess the product performance at the building (component) level, it provides no methodology as to how this assessment could be carried out. Rather, the reader is faced with a confusing comparison of product characteristics such as thermal conductivity, embodied energy, recycled content, dangerous substances, prices etc. which will leave him perplexed.
- Both core and comprehensive criteria are purely product-related and hence in clear contradiction to the authors' will to promote product assessment at the building level.
- CEN/TC350 is currently developing the standards which relate environmental product data to specific building designs. Our understanding very clearly is that GPP should use the standardised parameters as developed by TC350. This is the only way to enable specifiers and architects to make informed choices and guarantee sustainability over the whole life cycle of a building. The

task of the GPP scheme should consist in the development of a system that allows the setting of ambitious environmental thresholds for the building as a whole within the TC350 framework.

- Similarly, the standards developed by CEN/TC351 on the release of dangerous substances from construction products should be used to cover this part of GPP.
- As will be explained further down, the GPP criteria do not reflect the most relevant environmental impacts and include a number of serious inconsistencies and inaccuracies.
- The proposal is not compatible with the building toolkit. It remains unclear how contracting authorities would use these two toolkits (and those for all other construction products) in parallel in an effective way.
- The absence of a methodology to assess product performance at the building level may distort competition, confuse markets and have a negative effect on market transparency. Even worse, the GPP indicators as they stand do not provide a methodology to identify the most sustainable solution for a building over its whole life cycle.

The criteria exclude practically all insulation products

- The core GPP criteria include a zero release requirement for dangerous substances. As will be explained further down, this would exclude practically all common insulation materials be they organic, natural or fibrous. This makes the whole system pointless.
- The core GPP criteria require manufacturers to run an environmental management scheme. This is not affordable for major part of the industry and in particular SMEs. Hence, they would also be automatically excluded.
- What is then the purpose of the background report?

The papers include too many inconsistencies and inaccuracies

- The papers consistently confuse the content and scope of European type 1 eco-labels, third country labels, GPP and environmental management systems.
- The papers include incorrect and misleading statements on blowing agents.
- The background report includes incorrect information on hazardous materials (isocyanates).
- The comprehensive criteria include a 20 year warranty on workmanship, although in all countries, the contractor is liable for his work himself.
- The comprehensive criteria offer additional award points for the use of renewable insulation materials thus violating all principles of sustainable construction and life cycle analysis.

The following sections explain the above arguments in more detail.

Detailed comments of BING on the Technical Specifications for Green Public Procurement - Thermal Insulation Background Report -

Section 3.1.2 Solid wall

Building blocks (bricks, concrete) with an insulation core are a very common application in the Nordic countries.

Section 3.1.5 Roof insulation

This is a major part of the insulation market and includes insulation above, between or underneath the rafters or a combination of those.

Section 3.1.6 Insulation of pipe work and ducts

A small reference is made to sandwich and structural panels. They represent however a significant market for commercial and industrial buildings and, particularly in the Nordic countries, also for residential buildings.

Section 3.2.2 Organic oil/ coal derived

Polyurethane foam (PU): Use PUR instead of PU in accordance with the draft revised EN13165.

Section 4.2.1 Manufacturing Impacts - Energy Use

There are inconsistencies in the data used in tables 2 and 3 regarding the embodied energy per kilogramme. The values in MJ/kg are significantly lower in table 2.

- **We would recommend that the values of table 2 are used to calculate the total embodied energy in MJ (column 5) in table 3.**

Section 4.2.3 Hazardous materials

As already pointed out in our position of September 2008, references to CFCs and HCFCs are useless, as their use as blowing agents has been banned in the European Union since 2003. Many countries introduced this ban years ahead of this deadline.

The reference to the Montreal Protocol should be deleted as the information given relates exclusively to obligations for refrigerants (virgin and recycled HCFCs) and their specific phase-out deadlines 2010 and 2015.

- **The paragraph should clearly state that all blowing agents in use today have a zero ODP potential.**

Table 1 - Hazardous substances within insulation products

According to the table, isocyanate is contained in expanded polyurethane (PUR). This statement is not correct. Independent studies¹, including the REACH risk assessment², demonstrate that the

¹ Danish Ministry of Environment: Survey and health assessment of selected respiratory sensitizers in consumer products (report 82/2007)

² Risk Assessment Methylendiphenyl diisocyanate (CAS-No.: 26447-40-5) EINECS-No.: 247-714-0 (Final Human Health version of 2-08-2004) EINECS-No.: 247-714-0

isocyanates are fully reacted in the polyurethane production process and cannot be detected in the end product. Consequently, there is no release to the environment.

- **Isocyanates should therefore be removed from the table.**

Section 4 Cost considerations

Although costs are usually the major selection criteria in public procurement, BING doubts that this chapter can provide useful information to the reader. The prices for insulation materials depend on numerous product features (including the facing, VAT policy etc.), differ significantly between Member States and are subject to fluctuations. The report will therefore never be able to provide accurate information and should therefore refrain from giving any guidance in this area.

Tools such Life Cycle Costing (LCC), which take into account the building life cycle (construction, use and end-of-life) are more adequate as they will compare the increased cost related to insulation and the cost savings achieved thanks to improved thermal performance of the building and reduced heating/cooling/hot water bills.

- **The chapter should be removed.**

Section 8 Conclusions and summary

The phrasing of the first paragraph is misleading as it implies that blowing agents are carcinogenic, irritant to those with breathing disorders or making products unsuitable for landfill in non-hazardous sites. This is not correct.

Furthermore, PUR/PIR is a closed-cell product and most of the blowing agent (which has a zero ODP potential) remains trapped in these cells.

- **The reference to blowing agents should be removed from this paragraph.**

GPP and eco-label

The third paragraph states that GPP should be based on eco-label criteria. This is not acceptable. The eco-label is a voluntary scheme targeting the best 10-20% of the market whilst GPP indicators would become compulsory in their application. If GPP was put at the same level as a type 1 eco-label, then the procedures of the eco-label regulation should be applied including a life cycle analysis for each indicator.

- **The reference to eco-labels should be removed and the document adjusted accordingly.**

Section 9 Proposal for core and comprehensive criteria

The table in this chapter demonstrates why this report is not acceptable and does not provide a method to assess the product performance at the building level. Using these criteria, it would be impossible to quantify the environmental performance of an insulation product over its life cycle in a given end-use design.

- **The table should be removed.**

Fifth paragraph: HCFCs

This reference to HCFCs is incorrect (see our comments on 4.2.3)

- **The mentioning of HCFCs should be removed.**

Sixth paragraph: CEN/TC 351

This paragraph proposes the use of eco-label requirements until the TC351 standards are adopted. First of all, there is no European eco-label for insulation products and we do not know whether the environmental labels for Australia or New Zealand satisfy the requirements of the European eco-label regulation.

Moreover, the two systems are not compatible and it would be impossible to switch from one to the other. The TC 351 standards are based on the requirement that buildings must not pose health

threats to the occupants or the environment. CEN/TC351 hence develops methods to measure the release of dangerous substances to indoor air and ground water or soil, considering end-use applications and exposure risks. The substances to be considered are included in a list of regulated dangerous substances based on notifications from Member States.

The reference to release was chosen, as the presence of a substance in a construction product does not automatically lead to exposure risks or health / environmental concerns.

Based on these release scenarios, Member States can restrict certain uses or impose emission limits.

- **GPP should clearly refer to the TC351 standards and the regulatory requirements of Member States. Until their availability as harmonised standards, reference should be made to the ISO 16000-6 standard, which is used in a number of Member States today.**

Seventh paragraph: Packaging

Whilst BING recognises the need to reduce the environmental impact of packaging, a sensitivity analysis will show that the impact of packaging on the environmental performance of a product over its life cycle is marginal. Thermal performance and durability have a far more significant impact.

- **AEA should provide evidence that the environmental impact of packaging on the product's life cycle performance justifies its inclusion in the core criteria.**

Eighth paragraph: Environmental policies

BING is strongly opposed to the requirement to have an environmental management system in place. The overwhelming majority of manufacturers, and in particular SMEs, are not certified and many of them could not afford it.



Detailed comments of BING on Thermal Insulation – Green Public Procurement Product Sheet

Section 1 Definition and Scope

This section again refers to eco-labels. As outlined above, it is not the task of GPP to develop eco-labels. The eco-label regulation includes specific requirements for the selection of indicators which were not complied with in this report. Referring to eco-labels outside Europe is misleading, as their compliance with European eco-label requirements has not been verified.

- **Any reference to eco-labels should be removed.**

Section 2 Key environmental impacts

The phrasing of the first paragraph is misleading as it implies that blowing agents are carcinogenic, irritant to those with breathing disorders or making products unsuitable for landfill in non-hazardous sites. This is not correct.

Furthermore, PUR/PIR is a closed-cell product and most of the blowing agent (which has a zero ODP potential) remains trapped in these cells.

- **The reference to blowing agents should be removed from this paragraph.**

Core criteria:

The way the criteria are phrased in the table does not allow the life cycle assessment of insulation products at the building level. They do not enable specifiers to compare the environmental and health benefits and burdens of the various materials in a given end-use application and hence they will not necessarily lead to environmentally better performing buildings.

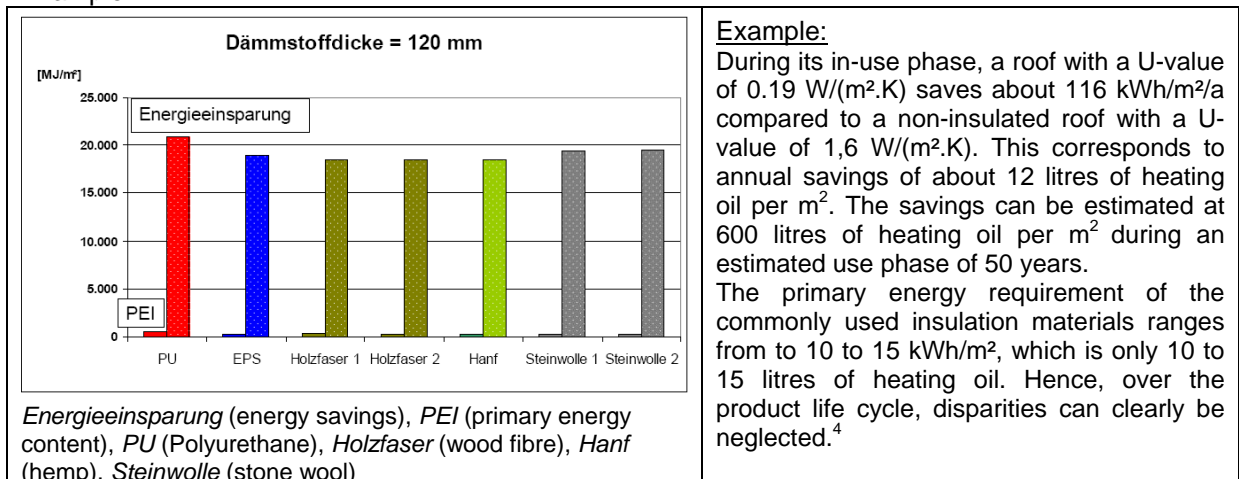
The selection of core criteria should start from a weighing of the environmental impact of each indicator over the whole product life cycle.

EU supported research shows that the use phase accounts for 98 % of the environmental impacts of buildings in the case of existing buildings and about 80 % in the case of new buildings³. The focus must therefore be placed on the product use phase. Hence, thermal performance and durability must play a key role.

As the following example shows, primary energy demand is not a sensible indicator as differences over the product life cycle are very small.

³ Environmental Improvement Potentials of Residential Buildings (IMPRO-Building), JRC 2008

Example:



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 m². The savings can be estimated at 600 litres of heating oil per m² during an estimated use phase of 50 years.

The primary energy requirement of the commonly used insulation materials ranges from 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.⁴

BING can support a requirement regarding dangerous substances. As outlined above, this should refer to the TC351 / ISO 16000-6 standards and to regulatory classes / thresholds introduced at Member State level. These thresholds ensure that buildings do not cause health or environmental problems through the use of specific construction products. GPP should be able to subscribe to these objectives.

Section 3.1 Core GPP Criteria for Thermal Insulation

The core criteria formulated in this chapter are completely unrealistic and will not enable contracting authorities to make the best environmental choice. They confuse environmental management systems (production process-related per production site) and type 1 eco-labels (product-related). One does not necessarily provide the same information as the other and they can therefore not be interchanged.

Selection criteria: environmental management systems

As outlined above, the major environmental impacts of construction products stem from their use phase. This requirement would however automatically exclude the vast majority of insulation manufacturers from GPP whatever the environmental benefits of their products. In particular small and medium-sized enterprises will not be able to make the necessary investment in certification.

- **This criterion should be removed as it does not permit the assessment of the product performance at the building level and clearly discriminates against smaller manufacturers.**

Technical specifications – thermal conductivity

BING believes that the criteria should not focus on the product's thermal conductivity but on setting ambitious U-values for the building envelop, leaving the design details and material choices to the architect/designer. If the Commission wants to maintain thermal conductivity, then a more ambitious threshold should be set, as this is the key indicator for thermal insulation products.

- **BING suggests that the threshold be lowered to 0.035 W/mK.**

Technical specifications – release of dangerous substances

As outlined in section 4.2.3 of the background report, practically all insulation materials contain substances covered by this core requirement. If a substance is contained in a product, there will be a release. Hence, to the best of our knowledge, all commonly available insulation materials would be excluded from GPP, be they organic, natural or mineral.

The requirement is therefore completely unrealistic and not linked to any real risks for the human health or the environment:

⁴ IBW an der Universität Wuppertal: Vergleichende Studie Aufsparrendämmstoffe

1. Insulation materials are usually not in direct contact with the indoor air or the outside environment. They are often covered by facings, many of which are air-tight (aluminium). Furthermore, insulation is installed in cavity walls (between concrete or brick layers), on the outer walls behind rendering, internally behind plaster boards etc.
 2. This proposal is in contradiction with the EU chemicals legislation. With REACH, the EU adopted the most stringent and comprehensive chemicals policy instrument in the world. With its entry into force, the chemical safety assessment procedure initiated by the ESR⁵ will become the rule for practically all substances including those used in construction products. REACH clearly recognises that a risk is related to a use or an application. The safe use of a substance is documented via the exposure scenarios in the extended Safety Data Sheet which is passed down the supply chain.
 REACH includes the obligation to inform customers of the presence in an article of substances on the candidate list for substances for authorization (substances of very high concern) if the concentration in the article exceeds 0.1%. This must be accompanied by recommendations for the safe use.
 This risk-based approach is the common ground of the EU chemicals regulation. Requiring a zero release not linked to risks is inappropriate, disproportionate and in conflict with REACH.
 3. The requirement is also in contradiction with the provisions of the Construction products directive / regulation. They rightly require that buildings must not pose threats to the health of occupants or to the environment. To this end, DG ENTR mandated CEN/TC351 to develop methods to measure release to indoor air and ground water or soil, considering end-use applications and exposure risks. The substances to be considered are included in a list of regulated dangerous substances based on notifications from Member States. Based on these release scenarios, Member States can restrict certain uses or impose emission limits.
 4. The requirement will lead to legal problems as nobody would be able to guarantee the absence of any emission. New test methods may find traces that were not detectable before.
 5. We doubt that there are eco-labels providing evidence for compliance with this requirement.
- **Considering its impracticality, the fact that it is not linked to risks to the health or environment and the fact that it would exclude practically all insulation materials, BING calls on the European Commission to remove this requirement. It should be re-developed in co-operation with DG Enterprise and Industry and based on Essential Requirement / Basic Works Requirement 3 of the Construction products directive / regulation and the related TC351 standards.**

Contract performance clauses:

It is difficult to see the link between the type 1 eco-label and the information requirements. AEA should explain this in more detail.

Introducing labelling requirements next to the CE mark and the related declaration of performance would lead to significantly increased administrative burdens for companies, as they would have to run several labelling procedures in parallel.

- **All information not already contained in the declaration of conformity should be transmitted in a separate document or electronically.**

Section 3.2 Comprehensive GPP Criteria for Thermal Insulation

Selection criteria:

See above.

Technical specifications:

See above.

⁵ Existing Substances Regulation - No 793/93 on the evaluation and control of the risks of existing substances.

Award criteria: point 3 - Warranty:

The manufacturer usually sells his product to a wholesaler who passes it on to the contractor. It is unclear how the manufacturer could provide a minimum of 20-year warranty against defects in workmanship. He does not even know where and by whom the product is installed. This requirement contradicts all legal principles in the chain of custody.

Moreover, the reference to the type 1 eco-label is again very questionable.

➤ **The requirement should be removed.**

Award criteria: point 6 – Renewable materials:

This criterion is in contradiction to the principles of sustainable construction and life cycle analysis. A product should not be selected because of a certain origin, but because it offers a better overall environmental life cycle performance in a given building design.

As such, the criterion is also in conflict with chapter 4.1 of the Background report (summary of life cycle phases).

➤ **This criterion should be removed, as GPP should not influence material choices but provide objective indicators against which all materials should be assessed for a given end-use application.**

Section 4 Cost considerations

Although costs are usually the major selection criteria in public procurement, BING doubts that this chapter can provide useful information to the reader. The prices for insulation materials depend on numerous product features (including the facing, VAT policy etc.), differ significantly between Member States and are subject to fluctuations. The report will therefore never be able to provide accurate information and should therefore refrain from giving any guidance in this area.

Tools such Life Cycle Costing (LCC), which take into account the building life cycle (construction, use and end-of-life) are more adequate as they will compare the increased cost related to insulation and the cost savings achieved thanks to improved thermal performance of the building and reduced heating/cooling/hot water bills.

➤ **The chapter should be removed.**

Brussels, 31 July 2009