Executive Summary

Eurima considers that it makes sense to provide the public authorities with clear and rigorous guidelines with the framework of GPP that allow them selecting products and product systems for a given application in a construction project that secure optimum contributions to sustainability. In this sense, we subscribe to the general principles on GPP, as established by the European Commission’s GPP Training Toolkit.

Nevertheless, Eurima strongly opposes the current technical specifications for thermal insulation products, as proposed by the “Thermal insulation background report” and “Thermal insulation product sheet”, subject to the present consultation as it is not in line with the GPP general principles.

Furthermore we believe that the proposed guidelines and criteria are unacceptable, as they lack the necessary scientific foundation and methodology, while failing to provide consistent and verifiable evidence of the described impacts and subsequent choices made, and that the approach in the background report does not take into consideration the broad and substantial environmental benefits of insulating buildings.

GPP is designed to steer markets in the direction of environmentally friendly or, more broadly, sustainable insulation products. In exercises such as these, where the Commission initiates processes aimed at making distinctions between competitive products for identified applications, it is extremely important to define the correct framework and boundaries and to start from sound science, facts and figures in order to be able to guarantee a trustworthy outcome which will not lead to market choices based on unjustified data.

In its responses and contributions to previous consultation processes from the European Commission, EURIMA has repeatedly made clear its position (see below). Full transparency and the choice of the right criteria are fundamental, and any criteria for steering EU-wide public purchase of thermal insulation material must be:

1- Based on an impact assessment of the complete building for new construction;
2 - Based on an impact assessment of the concerned building part for renovation
3- Based on the standards under development in CEN/TC 350 “Sustainability of Construction Works”;
4- Based on a full life-cycle assessment.

EURIMA will support GPP guidelines at EU level but only if they are based on acceptable indicators and applied at an appropriate level of assessment for selection and/or de-selection. The indicators and methodologies shall be taken from the CEN TC 350 and the applied selection criteria shall be in accordance with the assessment conditions defined in the CEN TC350 standards.
Regarding the environmental evaluation and/or the labelling of mineral wool insulation products:

- Only a limited number of evaluation criteria (i.e. indicators + methodology of measuring + performance level or class) shall be selected;

- The indicators –if any- shall only be selected out of the indicators developed by the CEN TC 350 (at least for the already existing environmental part – see prEN15804¹ and prEN15978²);

- The selected indicators should be integrated into the CPR thus automatically being included in CE marking of the products. As soon as appropriate the Commission should give a mandate to CEN so that the indicators will be integrated in the product standards (EN 13162 for mineral wool insulation products);

- Whatever the political instruments chosen by the European Commission to declare environmental or sustainability performance in a wider sense, EURIMA requires that they will be based on the European harmonised tools and standards developed in the CEN TC350.

Based on the large experience of its members, Eurima is most willing to bring a positive contribution to further discussions on the criteria for Green Public Procurement of thermal insulation products and proposes to meet relevant Commission officials.

1. Introduction: General considerations on GPP for construction products

Buildings and the built environment are increasingly acknowledged for their key contribution to energy efficiency and climate change mitigation. The qualification and quantification of the “environmental potential” of buildings and building products are more and more often subject to evaluation and labelling schemes based on sustainability criteria thus encouraging both sustainable production and consumption in the EU building sector.

Green Public Procurement (GPP) is designed to play an important catalyst role between the theoretical potential and practical results. However, two aspects need to be kept in mind:

- GPP is not an isolated instrument
- GPP is meant to steer purchasing behaviour

From this perspective the development of GPP guidelines should be coherent with the existing and future regulatory framework:

c. Mandated standardisation work in CEN/TC 88, Thermal insulation products for buildings
d. Standardisation work in horizontal TCs mandated through the CPD: CEN TC 351 on dangerous substances and CEN TC 350 on Sustainability of construction works
e. Eco-design directive (if applied to construction products or thermal insulation products)
f. Energy labelling directive (if applied to construction products or thermal insulation products)

¹ prEN15804: Sustainability of construction works — Environmental product declarations — Core product category rules

² prEN15978: Sustainability of construction works — Assessment of environmental performance of buildings – Calculation method
g. Eco-label for buildings and construction products (if applied to construction products or thermal insulation products)

The Commission’s DG Environment web site states that “By using Public Authorities’ market leverage to opt for goods and services that also respect the environment, they can have a major influence on suppliers and stimulate the production of more sustainable goods and services”.

Therefore, we consider that GPP is selection/de-selection oriented and therefore must be objectively justified, complete, factual, transparent, have a sound scientific basis and a clear methodology in order to avoid unjustified market intervention and possibly unjustified barriers to trade.

In the earlier stages of this consultation procedure Eurima has already indicated that on both subjects, policy coherence and sound science the background report and product sheet are deficient.

We have analysed the proposed technical specifications for Green Public Procurement also from this perspective.

2. EURIMA’s position on the technical specifications for thermal insulation products

A) Eurima’s position in previous contributions on GPP

As stated in our proposals to the Commission in previous consultation stages (see attached our letter to the Commission from 29 September and our reply to GPP technical specifications from 31 October 2008), EURIMA believes that development of criteria (be it aspects, impacts, indicators or methodologies) shall NOT be developed where they already exist or where they are already mandated in regulations, directives or standards.

The multiplication of criteria is unacceptable, and does not respond to the aim of achieving consistency and coherence. Therefore, clarification is needed on the fact that most of the criteria proposed are already specified in existing or future rules and regulations.

The work carried out in CEN/TC 350 allows addressing most of the criteria proposed in the Green Public Procurement consultation documents. Eurima, which heavily participates in the work of CEN/TC 350, insists to have criteria and methods of assessment based on the work of this CEN/TC.

CEN TC350 (in particular in the standards prEN15804 and prEN15978) underlines that direct comparison of construction products on their declared product performances can be done only when precise conditions are fulfilled.

Like all construction products, also thermal insulation, is not the end product. The building is the end product. The selection/deselection of a product on one or more indicators thus has to be done within the building or application assessment.

The use of very sustainable building products does not necessarily lead to a sustainable building and it requires much more considerations than just the use of sustainable construction products to make a building sustainable: functional fitness for use over the life time, orientation, energy efficiency, maintenance, etc.

From the perspective of energy performance, many different parameters need to be taken into consideration to come to acceptable judgements on performance levels. Buildings are not located in the same countries with the same climate conditions and the same building traditions. Orientation and situation play an important role. Therefore, according to where you are located, there might well be different requirements for your building systems and products.
On top of that, due to the continuous strengthening of the energy performance requirements to buildings, insulation products are more and more applied in more and different layers of thickness.

Furthermore, in the case of insulation products, we can distinguish many different applications (roof, wall, floor etc.) with different performance requirements (not limited to the energy performance) that can be delivered by materials that have diverging characteristics.

Installation also plays a critical role as a given product used in different applications will not have the same environmental impact (mounting and fixations, use of glues...). Consequently it might be advisable to consider the system or application as intermediate between the product and the building.

In general, Eurima recommends that any product involved in the GPP scheme should as a minimum possess the CE mark to indicate compliance with the current Construction Products Directive and the future Construction Products Regulation.

B) General comments to current technical specifications

In coherence with what Eurima has stated in the previous consultation procedures on GPP, we have the following comments to the current technical specifications proposed by the background report and product sheet:

1. Eurima finds that the current guidelines do not respect the general GPP principles established by the Commission in its Green Public Procurement Training Toolkit.

2. The guidelines need a very strong scientific background: Eurima questions the robustness and scientific solidity of the proposed Guidelines for Green Public Procurement of Thermal Insulation products.

3. The proposed Guidelines clearly lack the necessary “depth” in order to uphold such a “heavy” market instrument as GPP even if it is “voluntary”. On many issues it only “scratches the surface” and refrains from giving details on parameters, methodology and scientific reasoning behind choices made and conclusions drawn.

4. Any guideline aimed to steer purchase behaviour must be clear, easy to understand and non misleading: knowing that the guidelines are targeted at local/regional procurement officers who are not necessarily environmental nor construction engineers and therefore will use the proposed guidelines literally as described, it is surprising to notice that the report indicates on several occasions that it is not exhaustive in its coverage of insulation materials and that examples are used of which the report itself states that they should not be considered. How can a procurement officer make an educated choice on the basis of something that is not complete and distorted?

For example, in the paragraph on hazardous materials a table is presented (table 5) with “hazardous substances within insulation products”. However in the text just above this table it is indicated that: “The information in the table should not be used for comparison purposes as no figures are provided on the quantities of the components and in some cases the substances are only trace amounts and therefore result in very low levels of emissions”.

Conclusion: It is not acceptable to have such an incomplete and incorrect table which will lead to misinterpretations.

5. The report takes existing GPP systems, mainly from non-EU countries, in different legal frameworks as benchmark. The report has insufficient eye for existing initiatives within the EU.
C) Comments on criteria

General remark:

The criteria – indicator, methodology and performance requirement – shall be based on and applied in accordance with the EN-standards prEN15978 and prEN15804. The manufacturers declaration of the sustainability performance of an insulation product shall be based on an EPD (Environmental Product Declaration) fulfilling the requirements of prEN15804.

As thermal insulation products are no end-use products in a building, their (environmental) performance is highly depending on the lifetime and scenarios of the building. Selection of thermal insulation products therefore shall take into account their functional performance in contributing to the basic work requirements of the building over the entire building life cycle.

6. FITNESS FOR PURPOSE: the first criterion for selection of a thermal insulation is fitness for purpose, as defined in the CPD and the CEN TC 88 standards and their ZA annexes for CE marking. This criterion, the most fundamental one, is not mentioned in the draft guidelines.

7. A full life cycle approach as defined in EN and ISO-standards is mandatory: although it is obvious that insulation materials, as such, have a positive impact on the environment, this positive environmental contribution of insulation materials in the use-phase is hardly addressed in the report. Although it is acknowledged in the first paragraphs of Chapter 4: “In this respect, any insulation material can be deemed as preferable to no insulation”, it is underlined several times in the report that the main environmental impact is energy consumption and thus the report creates a distorted image of the total life cycle performance of insulation products and materials.

8. Release of Dangerous Substances: This is defined by ER 3 of the Construction Products Directive. The detailed rules will be defined in the two concerned CEN Technical Committees 88 and 351. The current Green Public Procurement Guidelines are presented as being complementary to the work in CEN TC 351 by proposing targets. At present stage it is not possible to set targets as methodologies and/or classes have not been defined and validated yet by CEN TC351 respectively CEN TC 88. Apart from that, there is no such thing as “no release”.

9. Recycling: Using recycled material/secondary raw materials in production processes can be an excellent approach in order to avoid use of natural resources. In all cases however a full LCA should be made to justify the environmental benefit while the fitness for use remains guaranteed.

10. Packaging is part of the product system and has to be evaluated as such. The function of the packaging will be taken into account in the full life cycle analysis of the product system. Like for many other products and goods packaging of thermal insulation has several functions in the product chain. Some of these functions are extremely positive for the environment from a life cycle point of view, for instance protection of the products from damages during transport and storage and therefore preservation of the product characteristics and avoidance of waste. Another example, technically limited to certain mineral wool insulation products, is to reduce the transport volume by compression and therefore allowing transporting larger quantities in a given volume.

With respect to the recycling of packaging, we refer to what was said in the previous paragraph that a full LCA should be made including the impacts of packaging. In addition it has to be stated that packaging material is not specific for thermal insulation products. Any specific request in this respect to packaging materials has to be organised on a sectoral basis (packaging industry).

11. Warranty: Insulation manufacturers are responsible for the product “as placed on the market”. They will provide installation instructions for the general application in the...
intended use, but they cannot be held responsible for the installation when it is not done by them. The declared performance of the thermal insulation product in the intended use and in accordance with the application instructions normally holds the entire lifecycle of the building, and TC 88 performances are based on a 50 year mean lifetime of the building. The warranty period depends on national legal systems.

12. The present guidelines do not take into account their possibly enormous market impact. Eurima considers that the Commission should proceed with a sound evaluation in order to consider if the end result of these measures will provoke a positive effect for the environment.

An earlier attempt to come to an Ecolabel scheme for thermal insulation products was made in the 90s (lead by the Danish Government), and the Commission recognised that the great environmental benefits from insulation products outweighs by far any other environmental criteria in their production. In times that energy efficiency and insulation of buildings is at the forefront of climate and economic policy, the Commission should be consistent with this approach.

13. In view of its shortcomings pointed in brief here above, the proposed GPP criteria are neither appropriate nor necessary for really assuring a ‘greener’ purchasing behaviour from public authorities, and could go against the broader EU policy goal for the protection of the environment, since they disregard the environmental benefits of using insulation. In addition to the lack of environmental coherence, it could be also argued that the guidelines provoke some legal inconsistencies. Indeed, the proposed GPP criteria would create a difference of treatment between various manufacturers of insulating material which -as it has been previously pointed out in this document- cannot be justified on scientific grounds. This discrimination would breach the guiding principles of EU Directives on Public procurement (article 2 -‘Principles of awarding contracts’- of Directive 2004/18/EC mandates that “Contracting authorities shall treat economic operators equally and non-discriminatorily”) and would go against the equal treatment and proportionality principles recognised in EU Treaty.

Eurima's judgement is based on the experts of the Eurima members and on one independent peer review carried out by a competent Notified Body.

In conclusion, the project appears to have been based on an understanding of the impact of insulation within building which is very limited. Additionally, the approach taken of cherry picking criteria from existing ecolabelling schemes, and the failure to provide accurate factual evidence of the importance of the impacts and the differences between products leads EURIMA to confirm the peer reviewer's conclusion and to consider that the existing work to provide Green Public Procurement Criteria for insulation is fundamentally flawed.
A Peer Review and Analysis on the Reporting of the European Commission Consultation Documents on the Green Public Procurement (GPP) of Thermal Insulation

Prepared for: Jan te Bos, Director General, Eurima

31 July 2009

Client report number 254353
Executive Summary

BRE have grave concerns about the approach taken in this project.

1. The approach does not recognise the massive benefits of using insulation and BRE believe that the authors have completely misunderstood the relationship between the impact of manufacturing insulation, and the savings in energy use it can provide. As such, BRE consider that the entire approach to the project is not valid and that the resulting criteria are therefore flawed and need to be reconsidered.

2. In setting criteria, the project team appears to have reviewed existing Type 1 Ecolabel schemes which cover insulation, and then to have chosen the environmental criteria from amongst them rather than following the approach of EN ISO 14024:2000 Environmental labels and declarations — Type I environmental labelling — Principles and procedures.
   • There is limited agreement within the small number of ecolabelling schemes that do cover insulation in terms of the criteria covered and the levels set. In view of the lack of coherence between the existing schemes, the identification of particular criteria and the levels set for this particular project should have made far greater reference to an evidential base, but this is absence and the criteria appear entirely arbitrary.

3. The approach has not considered in detail why many ecolabelling schemes have decided not to cover insulation. The European Commission abandoned work on developing ecolabelling criteria for insulation in the 1990’s because it became evident that the benefit from use of insulation products overwhelmed the deficit created during their manufacture. The report does not provide any developed argument to counter this reasoning.

4. Where technical arguments have been provided by the report, many are technically incorrect.

5. The understanding of the impact of hazardous materials in relation to insulation appears to be extremely limited. The risks associated within hazardous materials are also not considered – no differentiation between the amount of substances emitted and the potential harm they can cause is provided and the evidence provided relating to hazardous materials in relation to insulation has many inaccuracies and technical errors. The choice of criteria relating to hazardous materials is therefore unsubstantiated.

In conclusion, the project appears to have been based on an understanding of the impact of insulation within building which is very limited. Additionally, the approach taken of cherry picking criteria from existing ecolabelling schemes, and the failure to provide accurate factual evidence of the importance of the impacts and the differences between products leads BRE to consider that the existing work to provide Green Public Procurement Criteria for insulation is fundamentally flawed.
BRE believe the requirement for GPP criteria should therefore be reviewed, and if still felt to be necessary, the approach of ISO 14024: 2000 should be used to develop criteria on a sound scientific basis, in consultation with all relevant stakeholders.
Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>5</td>
</tr>
<tr>
<td>Description of the project</td>
<td>6</td>
</tr>
<tr>
<td>General View of the Approach</td>
<td>7</td>
</tr>
<tr>
<td>Top Ten Criticisms</td>
<td>9</td>
</tr>
<tr>
<td>Comment on Technical Arguments</td>
<td>10</td>
</tr>
</tbody>
</table>
Introduction

BREEAM Materials have been approached by Eurima to undertake a peer review and analysis on the European Commission (EC) revised consultation documents,

- Thermal Insulation – Green Public Procurement Product Sheet and
- Technical Specifications for Green Public Procurement: Thermal Insulation Background Report

produced by AEA on behalf of the EC Environmental Directorate as part of the EC’s Green Public Procurement (GPP) programme and released for a second round of consultation in May 2009.

Eurima wish BRE Global to peer review and analyse two documents released by the EC in May 2009 for consultation, namely,

- Thermal Insulation – Green Public Procurement Product Sheet and
- Technical Specifications for Green Public Procurement: Thermal Insulation Background Report

Eurima has formulated 4 deliverables for such a peer review:

- To write a peer review of the report;
- To give a general view on the approach (is the system approach suitable for GPP);
- To list the “top-10” criticisms;
- To comment on technical arguments.
Description of the project

The peer review and analysis was undertaken by members of the BREEAM Materials team, including Jane Anderson and Jo Mundy. The report was reviewed by David Crowhurst of BRE Global.

The approach taken comprised a number of tasks.

The first was to review the two documents in detail, identifying any technical issues arising from the text. Where necessary, the authors sought advice from experts within BRE, for example on toxicity, hazardous materials and forestry certification schemes.

The second task was to consider the approach taken, and its appropriateness for Green Public Procurement, particularly in the context of the other initiatives with regard to the environmental impact of buildings and materials.

The project team was particularly concerned to consider whether the approach was technically valid, took into account the impact insulation has at the building level, and used a life cycle approach.

The third task was to provide this draft peer review, addressing the approach taken, the “top 10” criticisms, and providing technical comments on the arguments where relevant. This draft version has been sent to Eurima for comment, allowing BRE Global the opportunity to address any comments by Eurima.

The final task will be to make any amendments and issue the final version of the peer review.
General View of the Approach

BRE have grave concerns about the approach taken in this project.

1. The approach does not recognise the massive benefits of using insulation. In fact, the report suggests several times that the saving in energy from using insulation will be less than the energy used to manufacture the insulation product. The conclusion of the Background Report states, “The reduction in energy use in buildings, by choosing highly efficient insulation, with good thermal resistance, will reduce energy consumption in the in-use phase by lessening the need for fuel for space heating, balances out some of the embodied energy within the insulation materials”. BRE consider that this statement is factually incorrect and that all insulation materials used in buildings have a very short “payback” in terms of the embodied impact and resulting operational savings. Indeed, data provided within the report on the savings from use of insulation and the embodied impact of manufacturing insulation can be used to clearly demonstrate that the savings from insulation can balance the embodied impact of insulation within a very short period after installation.

As the authors have completely misunderstood the relationship between the impact of manufacturing insulation, and the savings in energy use it can provide, BRE consider that the entire approach to the project is not valid and that the resulting criteria are therefore flawed and need to be reconsidered.

2. In setting criteria, the project team appears to have reviewed existing Type 1 Ecolabel schemes which cover insulation, and then to have chosen the environmental criteria from amongst them. If a set of criteria based on a type 1 ecolabel were required, then the approach of EN ISO 14024:2000 Environmental labels and declarations — Type I environmental labelling — Principles and procedures should have been used. The key aspects from the standard (relevant clause numbers provided in brackets) which do not appear to have been undertaken are:

   • Product environmental criteria shall be based on a measurable difference in environmental impact. (5.5)
   • Product environmental criteria should differentiate between products only when these differences are significant. (5.5)
   • A process of formal open participation among interested parties from the outset (5.9)
   • The development and selection of criteria shall be based on sound scientific and engineering principles (5.14)
   • The scheme must show that the selection of product environmental criteria will not lead to the transfer of impacts from one stage of the life cycle to another or from one medium to another without a net gain of environmental benefit (6.4.1)
   • To set criteria, the scheme shall identify the product life cycle stages where there is differentiation of environmental impacts among the products. The ranges and variability of the data obtained for specific products shall be analysed to ensure that the selected product environmental criteria are adequate and reflect the differences among products. (6.4.2.2)
• the criteria are objective and justifiable (6.6)

3. There is limited agreement within the small number of ecolabelling schemes that do cover insulation in terms of the criteria covered and the levels set. For example,

• only one scheme (GECA) covers the use of legal or sustainable timber
• only two schemes (GECA and Canadian) cover packaging, and of these only the Canadian scheme covers recycled content
• three schemes (GECA, Korea and NZ) have no limit on the use of HFCs with a GWP less than 140
• only three schemes cover recycled content of insulation, and the levels set for each vary widely
• none of the schemes have criteria relating to the use of renewable materials

In view of the lack of coherence between the existing schemes, the identification of particular criteria and the levels set for this particular project has been undertaken with no reference to any evidential base and appears entirely arbitrary.

4. This approach also does not consider why many ecolabelling schemes have decided not to cover insulation. Indeed the report itself quotes “The task of creating criteria for the eco-labelling of thermal insulation product was given to the Danish government by the European Commission in the early nineties. The work was abandoned because it became evident that the benefit from use of insulation products overwhelmed the deficit created during their manufacture.” The report does not provide any developed argument to counter this reasoning.

5. Where technical arguments have been provided by the report, many are technically incorrect. For example, with regard to hazardous materials, the argument provided relates entirely to the use of HCFCs as blowing agents. However, HCFCs have been banned from use in insulation within the EU since 2003 and the argument for providing criteria relating to fluorinated substances is therefore unsubstantiated. Later within this review we provide details of numerous technical inaccuracies.

6. The understanding of hazardous materials, in terms of the differences between inputs to the manufacturing process, emissions from the manufacturing process, materials contained within products, materials emitted from products in use and materials considered hazardous at disposal is not well described within the Background Report. The risks associated within hazardous materials are also not considered — no differentiation between the amount of substances emitted and the potential harm they can cause is provided and the evidence provided relating to hazardous materials in relation to insulation has many inaccuracies and technical errors. The choice of criteria relating to hazardous materials is therefore unsubstantiated.

In conclusion, the project appears to have been based on an understanding of the impact of insulation within building which is fundamentally flawed. Additionally the approach taken of cherry picking criteria from existing schemes, and the failure to provide accurate factual evidence of the importance of the impacts and the differences between products leads BRE to consider that the existing work to provide Green Public Procurement Criteria for insulation is fundamentally flawed. The requirement for GPP criteria should be reviewed, and if necessary the approach of ISO 14024: 2000 should be used to develop criteria on a sound scientific basis, in consultation with all relevant stakeholders.
Top Ten Criticisms

1. The benefits of insulation within the use phase are not explored or quantified in any way in comparison to the impacts within other life cycle stages and indeed the project team appear to have misunderstood the relatively small embodied impact of insulation would be balanced by the savings in energy use within weeks or months of installation, rather than outweighing the savings over the building life.

2. The approach to developing the GPP Criteria has not followed the principles of ISO 14024:2000 although it appears to be providing a Type 1 Ecolabelling scheme in all but name.

3. Existing ecolabelling schemes do not have a coherent approach to the environmental criteria they cover nor the levels set. They do not therefore provide a sound basis for the choice of CPP criteria and levels although this appears to be the approach taken.

4. The criteria do not appear to have been set with full regard to the entire life cycle of the insulation, and the relevance of impacts for different materials and different stages of the life cycle. In particular, the criteria are likely to result in the transfer of impacts from one stage of the life cycle to another.

5. The Background Report provides very little, and in some cases no evidence, to support the choice of GPP criteria for insulation nor the levels set. This is particularly true, for example, for the criteria relating to hazardous materials and use of renewable raw materials.

6. The Background Report is full of inaccuracies, technical errors and misleading statements and many statements are not supported by references or evidence.

7. Applications covered by the GPP criteria do not cover all relevant uses of insulation and appear arbitrary.

8. The concepts used in the GPP criteria relating to Core criteria, Comprehensive criteria and Award criteria are difficult to follow and the points associated with each criteria are not clear.

9. The mechanisms for verification of GPP criteria vary widely and many are not robust. The bidder, the manufacturer and the supplier are all variously tasked with demonstrating compliance. No clear guidance is provided to authorities to set benchmarks, for example to demonstrate increased recycled content or low GWP of blowing agents.

10. Longevity and consistency of performance of insulation through the building lifetime is not considered.
Comment on Technical Arguments

General

• Report is very focussed on the UK situation, in terms of both references and data

Applications

• Applications covered by the label would not appear to include:
  o Insulation used within framed construction (eg timber frame)
  o Insulation within SIPs (structurally insulated panels)
  o Insulation within metal composite and built up wall cladding
  o Insulation used within flat roofs (cold deck, warm deck and inverted deck)
  o Insulation used beneath the concrete slab for ground floors

No sound technical reasons for the exclusion of these applications of building fabric insulation have been provided.

• The reason for excluding pipe and duct insulation (and for hot water cylinders) appears to be that other ecolabelling schemes have not included them, rather than any sound technical argument.

• The coverage of foil insulation is unclear. In the final report it states that the existing ecolabel schemes do not cover this type of insulation but it does appear to be covered by the Canadian ecoklabel, where “aluminium reflective insulation (plastic layer content)” is included within Table 10.

• Inaccuracies:
  o Solid walls lose more heat than cavity walls – only true if the same materials are used and when the walls are not insulated (BR: 3.1.2)
  o Carpet would not be laid directly onto insulation (BR: 3.1.4)

Materials

• Descriptions of insulation products are not consistent and are sometimes inaccurate suggesting that the project team do not fully understand the building insulation market and the products used. Density, fire resistance, requirement for blowing agents and the types used, compressive strength, moisture resistance, manufacturing processes, uses, constituent materials, closed/open cell structure, recyclability and reusability are mentioned at various points in the Background Document as being important in the choice of insulation, or BRE consider would be relevant, but this information for all insulations is not provided consistently.
Inaccuracies:

- The mineral content of stone wool products is stone, or stone and slag, but a wool composed purely of slag wool is not likely (BR: 3.2.1 3rd bullet).
- Reference 9 (background report) not valid internet link
- We are not aware of a “loose pelleted” mineral wool for use in cavity insulation (BR: 3.2.1)
- Polyurethane foam is not blown with CO₂.
- Expanded polystyrene (EPS) is an open cell foam. Pentane used as blowing agent.
- Extruded polystyrene (XPS) closed cell. HFCs or Pentane used as blowing agents.
- Cellulose insulation could be made out of recycled or virgin cellulose – for insulation only recycled cellulose from newspapers. Can be wet or dry blown. Other chemicals can be used for protection purposes.
- Cork – is not lightweight in context of other insulations. Made from by-product of bottling cork industry.
- Sheep’s wool – uses low grade wool from hill sheep, not suitable for textiles. Wool needs to be scoured requiring energy and the resulting pesticide residue from sheep dip needs treatment. Binders and polyester fibre are required. Chemical treatment is also required to prevent moth attack.
- Hemp fibre – no information on whether sole product of hemp production or how fibres are produced. Again, protection against fire and pests will be required.
- Vermiculite is not organic plant/animal derived – should be listed under other
- Compressed straw – straw bale, straw board not covered?
- Foam glass – why no description or further details?
- Aerated glass – why no description and how does this differ from foam glass?
- Expanded clay pellets – why no description?

Key Environmental Impacts

- Background report chapter 4, end 1st para states “There is a range of insulating materials each with their own benefits in terms of environmental performance” yet the benefits of each material are not explored in any detail within the report.
- A quote stating that the importance of the longevity and consistency of performance of insulations is included (Background report, 2nd quote, section 4), but no further consideration of this aspect is provided and it is not taken forward into the GPP criteria.
- Comments on other impacts from construction (Background report: penultimate paragraphs, page 7) relate to impacts occurring on the construction site and has no relevance to the choice of insulation.
• The report states that manufacturing and installation waste are factors that should be considered (section 4, last paragraph) but provides no other information or reason for their importance or data to allow them to be considered. They are not taken forward into the GPP criteria.

Life Cycle Phases

• Description of life cycle phases are incomplete, particularly in view of the insulation products covered. The following are not covered:
  
  o Extraction and processing of fossil fuels for both generating energy and as feedstock for the production of plastics
  
  o Livestock agricultural systems to provide wool for insulation
  
  o Long term carbon sequestration within the product is not considered for biomass products other than in comparison to forestry where this is cleared to make way for agricultural production.
  
  o For the use phase, the beneficial impact of insulation on the energy consumption of the building is not considered and though this will be the most important aspect of its environmental impact, outweighing all other aspects over the building life.
  
  o Within the maintenance phase, the report suggests that maintenance of insulation can address compression and dampness which will otherwise reduce effectiveness. In fact this is best addressed by good design, sensible choice of insulation and maintenance of the external envelope to prevent the problem, rather than dealing with it through maintenance once it has happened.
  
  o For the disposal phase, the impact of the release of sequestered carbon and HFCs and their Global Warming Potential are not mentioned.

• The report suggests that some insulation materials will have to be disposed of as hazardous waste but this is not correct for any insulation currently used or arising from demolition.

• The benefit of recycling and reuse of insulation at the end of life is not explored.

• The section on manufacture of insulation states “The oil-derived materials have a large impact in terms of energy consumption and air emissions due to the use of fossil fuels during the production process” but other sources such as the Green Guide Online¹ would not endorse this result – other types of insulation products have similar levels of climate change and fossil fuel depletion on the basis of function based on thermal resistance. It also does not take into account that the feedstock energy within these insulations is still available.

• A detailed description of kenaf fibre production is provided as an example of crop-based insulation production, yet this is not one of the insulations listed in the overview and the production of hemp, cork, straw and wood fibre insulation do not follow this model. Its relevance to this report is questioned.

• The description of the possible benefits of transporting insulation materials which are either less dense or occupy lower volume for a given thermal resistance is a tautology. The maximum load for transport of insulation is normally limited by volume rather than mass. Transport to the retail unit, and then to the installation site should be considered together. Insulation can also be delivered directly to site.

• No mention of resource use as a possible impact is provided in section 4.1, last paragraph.

Manufacturing (embodied) impacts

• The report mentions several times the importance of considering insulation alongside its impact on the building and but twice suggests that the embodied impact of insulation is greater than the beneficial impacts during use. Firstly, the section of the Background Report, 4.2 Key Environmental Impacts first lists 4.2.1 Manufacturing Impacts – Energy Use, suggesting it is the most important impact compared to 4.2.2 Energy Saved in Use which is listed after. Secondly, in the second paragraph of the conclusion, the report states that the savings from use of insulation “balances out some of the embodied energy within the insulation materials”. In fact, the embodied impact of insulation is much smaller than the beneficial impact from energy saving provided by insulation. Data within the report shows that even for insulations with the high embodied impact the energy saved will balance the embodied impact within months of installation.

• The report states 4.2.1 “This [embodied energy] is generally 80% of the total energy input into the material, with the remaining 20% coming from the transportation of the material and its use during construction and within the building.” No source for this is provided, and BRE would strongly reject the truth of this statement’s (with the exception of aggregates and lumber) for most construction materials, including insulation.

• The report states “However, comparing insulation products is not as simple as comparing embodied energy figures - the intended end use of the insulation material is a major factor.” but does not

---

2 Table 1 from the Background Report shows the typical annual CO₂ savings from 6 inches of loft insulation are a minimum of 750 kg CO₂. Table 2 shows PU insulation has Embodied CO₂ of 3 kg CO₂ per kg. 400 mm of PU insulation would have a mass of 20 kg (0.4 metres * 50 kg/m³ (max from Table 4 and 400 mm taken as a worst case thickness) therefore a total embodied CO₂ of 60 kg (20*3). As the Embodied CO₂ figures within Table 2 do not take into account the high GWP of blowing agents, we will make a worse case assumption for this (say 10% of the PU foam uses an HFC with a GWP100 of 500) meaning a further 1000 kg CO₂ eq(100 years) of embodied impact (20 kg *10%*500 kg CO₂ eq). This gives a total Embodied CO₂ eq(100 years) for the HFC blown PU foam of 1060 kg which would be balanced by the CO₂ saved by the insulation within 17 months (12 * 1060/750). As 400mm of PU insulation would be likely to have significantly greater benefit than the 750 kg from table 1 due to the increased thickness and lower conductivity of PU insulation, and the density, amount of blowing agent and GWP are all worse case figures, it can clearly be seen that the benefits of insulation in use massively outweigh the embodied impacts when the long building life is taken into consideration.

Similarly, data provided in the report suggests the saving from use of cavity wall insulation is in the order of 800 kg CO₂ per year. 100 mm of PU foam, with a density of 50 kg/m³ (max from table 4) and 10% blowing agent by mass with GWP(100 years) of 500 (high GWP) would give a foam with overall embodied CO₂ (100 years) of 53 kg per kg of foam (3 kg/kg from Table 2 + 0.1*500) or 265 kg CO₂ (100 years) per m² of cavity wall insulation (0.1*50 = 5kg foam/m²). Even where a very high GWP blowing agent is used, the embodied CO₂ from manufacturing the insulation is still balanced within 4 months (12* 265/800) by the saving in energy use.
elaborate (4.2.1). In this regard, the requirements for strength, compressibility, moisture resistance, fire resistance, maximum thickness etc may all be important.

- The report talks about benefit of embodied energy being recovered at end of life through incineration with heat recovery (4.2.1) – this will not recover embodied energy, only feedstock energy (calorific value of insulation) although feedstock energy may be included in embodied energy.

- Recycling of insulation may provide some benefit in reducing embodied energy for the product using the recycled product, although this is currently mainly done for production waste and some construction waste, not end of life waste.

- In table 3, the figures for Embodied Energy that have been used to calculate the Total Embodied Energy from the weight in kg are between 10 and 75% larger than the Embodied Energy figures given in Table 2. No source is given for the Embodied Energy figures used in Table 3 and no explanation is provided for the difference.

- The conductivities given in Table 3 do not correspond to those given in Table 4. (Stone wool 0.038 compared to 0.033-0.034 W/mK, XPS 0.036 compared to 0.026-0.027 W/mK, PU/PIR: 0.024 compared to 0.023 W/mK). BRE regard the conductivities given in both as not entirely representative of the industry.

Energy Saved in Use

- The report confuses density, mass and conductivity – different thicknesses of materials are required to produce the same thermal resistance because of different conductivities of the insulation – the density will then affect the overall mass of insulation required for the given thermal resistance. Materials with different densities could have similar conductivities, and materials with the same density could have different conductivities.

- A key aspect affecting the thermal resistance provided by an insulation is the surface emissivity which affects the radiation of heat from a surface. Using an aluminium foil as the outer layer of an insulation exposed to air, for example in a partially filled cavity wall, will take advantage of the low emissivity of the foil to reduce the radiation, and hence increase the thermal resistance of the wall.

- In 4.2.2, the thermal conductivity of air is given as 0.025 W/mK. This is correct, however air in any quantity (for example the cavity within a wall) will also allow convection and radiation of heat – otherwise air would appear to be one of the very best insulation materials and there would be no reason to use insulation to fill a cavity wall. Most insulation materials make use of the low conductivity of air, and trap it in small pockets, hence reducing convection and radiation, and providing better overall insulation than air alone.

- The last section of 4.2.2 is confusing. If only considering the embodied energy of insulation in isolation, then the thermal conductivity (and emissivity if relevant), density and embodied energy of the material need to be considered together. However, this is where we feel the report has omitted an important aspect.

  - If a set thermal resistance is required, then different materials may have both different thicknesses and different masses. Different thicknesses can affect the amount of other materials used, for example by increasing the thickness of a wall and hence the overall surface area of the building and the amount of external leaf of the wall, by increasing the amount of any
studwork for example being used to support the insulation, or by decreasing the usable surface area. Where there are different masses of insulation, this could affect the overall structure required to support the building. This approach has not explored or quantified the implications of this in any way.

- If a set thickness is used, then different insulations will result in very different amounts of heat loss over the life of the building. Again, no exploration or quantification of the implications of this has been provided.

- At no point during the report is the energy saved by insulation actually equated with the impact of manufacturing insulation on the basis of evidence. In the conclusion, it is stated “the reduction in energy use in buildings, by choosing highly efficient insulation, with good thermal resistance, will reduce energy consumption in the in-use phase by lessening the need for fuel for space heating, [which] balances out some of the embodied energy within the insulation materials”. In Table 1, data is provided on the typical annual CO2 savings from different uses of insulation, but this is not linked quantitatively to the impact of manufacturing insulation. For a loft for example with 6 inches of insulation (150mm), the saving given is 750-880 kg CO2 per year. Using a glass wool with a density of 40 kg/m^3, this would equate to a mass of 6 kg/m^2, and using the Embodied CO2 from Table 2, 8.1 kg of embodied CO2 per m^2. In this case, within 4 days, the insulation will have saved more CO2 than was used in its manufacture. As the insulation will continue to go on saving energy year after year, one can see that the impact of the insulation is therefore extremely small in comparison with the energy saved. The hypothesis in the conclusion that the embodied energy of insulation is greater than the energy it will save in use is incorrect. Other examples earlier in this review (see footnote 2) provided by BRE based on data from the report and covering the use of HFC blown PU insulation also support this argument.

- However, as the amount of insulation used is increased, the saving in energy tends to the maximum, as a zero carbon solution is achieved (in terms of space heating). At this point, the insulation will have maximum impact and operational impact will be minimised, meaning the importance of the embodied insulation will be greatest. What must be ensured is that the choice of insulation maximises the saving in operational impact, which will be much greater than the impact of different insulations.

Hazardous Materials

- 4.2.3 talks only of HCFCs, when within Europe, these were phased from use as insulation blowing agents at the end of 2003. This is recognised in section 3.2.2, where HFCs are still given as possible blowing agents for PU/PIR insulation and phenolic insulations. It should be noted that they can also be used by extruded polystyrene insulation. HFCs have no ozone depletion, but have high global warming potential. It should be noted that there are now HFC blowing agents in development with very low global warming potential.

- The references to the Green Guide and BREEAM are no longer current or correct. Since 2004, when HCFC blowing agents were phased out within Europe, the EcoHomes and BREEAM Pol 1 credit has been awarded where HFC blowing agents have not been used in any thermal insulation in the building. In 2008, this BREEAM credit was changed to relate to the Green Guide rating for insulation (MAT 6). For EcoHomes, and the Code for Sustainable Homes which is now used in England and Wales, the Pol 1 Credit continues to be awarded where HFC blowing agents have not been used in any thermal insulation.
• The report suggests in 4.2.3 that “one of the main issues associated with the environmental impact of insulation relates to blowing agents”, and “all [insulations] have significant environmental impacts, including energy consumption, the use of materials with hazardous properties and the production of hazardous wastes” and in the conclusion, “during the life cycle of thermal insulation hazardous materials are the key environmental impact, especially in the chemical makeup of blowing agents.”. In terms of providing evidence for this (4.2.3), the report mistakenly concentrates on HCFCs (phased out within the EU at the end of 2003 as described in 6.6) rather than HFCs. The report also appears very confused between the situation for hazardous or toxic materials which are:

a) contained within the insulation,

b) released from the insulation during use or

c) cause the material to be treated as a hazardous waste.

In this regard, the report correctly identifies the work of CEN TC351 as developing methods to measure and assess releases covered by b). However in the context of these statements, the report does not cover the REACH legislation which is specifically targeted at the use of hazardous chemicals in manufacture and which might remain within the product. Nor does it reference the source of the information on pollution/health effects for the “toxic component” of insulations provided in Table 5.

• Information given in table 5 is in itself erroneous.

  o For example, phenol is not classified as a carcinogen. Comments on alkylphenols and bisphenol A are given as though relevant to phenol – however these are separate chemicals and if considered to be present in mineral wool, should be listed separately. If only phenol is present then this information is misleading.

  o Dust is mentioned as forming part of photochemical oxidants – this is incorrect.

  o Other chemicals, such flame retardants are used within some insulations, and some can be hazardous – for example hexabromocyclododecane could be used in EPS/XPS and this has now been identified as a substance of very high concern under REACH.

  o However the biggest problem with Table 5 is that no information is provided on the relative amounts and potential risks of these chemicals that may be contained within insulations. For some, such as pentane and boric salts, these chemicals are inputs to insulation and remain unchanged within them and may constitute a relatively significant proportion by mass of the product at installation. Others, such as styrene for EPS or isocyanates for PUR are inputs and react during the manufacturing process to form other chemicals. Amounts that remain in the product are therefore likely to be very small.

• It should be noted that COSHH Material Safety Datasheets required under EU regulation for mineral wool products have not required them to list any phenol, formaldehyde or ammonia content or emissions. Emissions of these substances may however be made during the manufacturing process.

• In BRE’s view, this report does not provide any substantive evidence that hazardous substances contained within insulation products and likely to be released during use are a significant environmental impact. However BRE consider the release of HFCs from insulation do have a significant impact, most particularly with regard to climate change.
BRE are not aware of any insulation material that covered by this report that is required to be treated as a hazardous waste.

End of Life Management

- End of life management: there is some confusion within the report between whether a material will be recycled at end of life (offering reduced landfill and reduced resource use at end of life), and the benefits of incorporating recycled content. Checking whether a material is likely to be recycled is relevant, because many recyclable insulations do not currently have any recycling system in place for material recovered from demolition, though by the time the insulation is likely to be recycled at end of life systems may be in place. Attempting to check whether the product using any end of life recyclate from the insulation you have chosen would have sufficient technical quality is fairly irrelevant.

- In 4.2.4 the Background Report states that the end use application and required thermal resistance of the insulation product must be the main consideration during product selection. The GPP criteria do not seem to reflect this.

- Table 6 would be much more relevant if it included data on the current % of recycling for production waste, waste arising from new build construction and waste arising from demolition occurring. Table 6 provides no information for cork, whereas 3.2.3 states that it can be recycled where facilities exist.

- Comments regarding the possibility of recycling if the product is not contaminated apply for all insulations that can be recycled.

Relevant EU Legislation and Policy

CEN 350

- With regard to the CEN Mandate 350 work, there are already existing international standards, EN ISO 14040: 2006, EN ISO 14044: 2006, EN ISO 14025: 2005 and EN ISO 21930:2007 which set out methodologies for using Life Cycle Assessment to calculate 5 core impact indicators (climate change, stratospheric ozone depletion, eutrophication, acidification and photochemical ozone creation potential) and a number of inventory indicators including non-renewable, renewable and secondary energy and resource use, measured in MJ and kg respectively. The CEN mandate is intended to
  
a) ensure that comparable Environmental Product Declarations for construction materials can be produced and used in any EU country and
  
b) ensure that EPDs are only used in the context of building level assessments.

Their use to benchmark two different insulations in isolation from the impact that they will each have on the building, in terms of effect on the structure and hence materials used and any differences in operational energy demand, would not be acceptable.

- BRE also feel that the report misunderstands the purpose of the CEN 350 Mandate. It is correct that it covers reporting information at a product level through Environmental Product Declarations, and that the standards themselves will not set targets or benchmarks at the product or the building level. However BRE understand that the intention of the CEN 350 Mandate is that where set, environmental targets or benchmarks should only be set at the building level, and that the GPP criteria would therefore run counter to this intention.
Existing standards and ecolabels.

- The approach taken by this study appears to be to have reviewed existing Type 1 Ecolabel schemes which cover insulation, and then to pick and choose the criteria they have set to produce a set of criteria for Green Public Procurement of thermal insulation. In BRE’s view, this is not a satisfactory approach. If a set of criteria based on a type 1 ecolabel are required, then the approach of ISO 14024:2000 Environmental labels and declarations — Type I environmental labelling — Principles and procedures should be used. The key aspects of this are:

  o Product environmental criteria shall be based on a measurable difference in environmental impact. (5.5)
  o Product environmental criteria should differentiate between products only when these differences are significant. (5.5)
  o A process of formal open participation among interested parties from the outset (5.9)
  o The development and selection of criteria shall be based on sound scientific and engineering principles (5.14)
  o The scheme must show that the selection of product environmental criteria will not lead to the transfer of impacts from one stage of the life cycle to another or from one medium to another without a net gain of environmental benefit (6.4.1)
  
  To set criteria, the scheme shall identify the product life cycle stages where there is differentiation of environmental impacts among the products. The ranges and variability of the data obtained for specific products shall be analysed to ensure that the selected product environmental criteria are adequate and reflect the differences among products. (6.4.2.2)
  o the criteria are objective and justifiable (6.6)

CRITERIA

General comments:

- The bidder, the manufacturer and the supplier are all variously tasked with demonstrating criteria have been met – this is not clear.

- Verification levels appear to vary widely – holding a relevant type 1 ecolabel, demonstrating compliance with relevant type 1 ecolabel criteria, declarations, some other written proof of compliance, other means of proof, a technical dossier from the manufacturer, a test report from a recognised body, and signed declarations are all listed as methods for demonstrating compliance – there appears to be no common approach or method used.

- The level of evidence provided in the background report would not allow a contracting authority to decide on the level of additional points for award criteria with confidence. “Environmental award criteria” is only introduced as a concept in the explanatory notes – are all award criteria considered environmental?

- Why is explanatory note clause 3 “The Contracting authority should ensure that insulation materials they are proposing to purchase have met the requirements of relevant Directives e.g. Habitats Directive / Birds Directive in their production and any National laws and/or regulations e.g. relating to extraction of materials” not a contract performance clause within the GPP criteria.
CRITERIA COVERED BY THE BACKGROUND REPORT

Thermal Characteristics Criteria

- The Background Report states in section 9 that “specifying a minimum level of effectiveness therefore leads to greater insulation within buildings and therefore energy savings within those buildings.” In BRE’s view, the amount of insulation provided will normally be based on a target U value (overall thermal resistance) and the effectiveness of the insulation is not determined by its conductivity alone but by the thickness used and also where relevant, the emissivity. If the authors believe that conductivity is so important, then why not set it at a more challenging level - say 0.035 W/mK.

- The use of conductivity alone does not take into account thermal emissivity where this is usable to increase the thermal resistance offered by an insulation (for example in partial cavity fill).

- The document does not set out the standard for testing or reporting conductivity that will be required. Conductivity varies at different temperatures, and potentially with different testing methods. “Suitable insulation U-value for the buyer’s geographic climatic conditions” is a very subjective criteria.

- Holding a type 1 ecolabel does not demonstrate compliance unless the scheme has a mandatory criteria for the thermal conductivity and it is set at the same level.

- The Background Report states that the New Zealand scheme includes the requirement for “reports from independent sampling and testing demonstrating the product’s stated thermal resistance achieved and must be reasonably expected to retain 90% of thermal performance for the service life.” A quote stating that the importance of the longevity and consistency of performance of insulations is included (Background report, 2nd quote, section 4) but this particular criteria which would appear to be relevant is not taken forward into the GPP criteria.

Recycled Content Criteria

- No definition of recycled content is provided. This could encompass internal production waste, production waste from construction and waste from the product recovered after use in the building. Additionally recycled content could include co-products and bi-products from other processes, or other post consumer waste. BRE would refer to WRAP’s Rules of thumb for recycled content³ for guidance on an approach to defining recycled content.

- It is not clear how the additional points would be awarded in proportion to the % of recycled content within the production when comparing to the same materials, without increased conductivity. The criteria levels for the quoted ecolabels vary for different materials and for the same materials. It is unclear what a “typical” level of recycled content for a particular material would be, and whether this should be calculated on a national, regional or European basis. BRE would refer to WRAP’s work in the UK covering recycled content for insulation materials⁴ relating to standard, good and best practice for example but this may not be relevant across all Europe. For recycled cellulose for example, all products are made of recycled newsprint, so all have high levels of recycled content. It would appear


that none would be awarded points as they would not have a high % of recycled content in comparison to the same material.

- “increase in the amount of material required” – it is not clear whether this is referring to increased thickness due to higher conductivities, increased density or increased mass of raw materials required to manufacture the insulation.

**Blowing Agent Criteria**

- Regulation 842/2006/ EC on fluorinated gases applies to the use of, not release of gases. It only applies to fluorinated gases with a GWP greater than 150 kg CO₂ eq (100 years).

- No arguments are put forward for the decision to set a criteria in terms of HFCs as the Background Document only covers the impact of HCFCs which have been banned for use in insulation in the EU since 2003.

- The reduced conductivity possible with HFC blowing agents (one reason for their use) is not considered.

- Table 11 suggests that both GECA and the Taiwan scheme prevent the use of HFCs. However Table 12 shows that GECA actually only prevents the use of HFCs with a GWP greater than 140, and this is in fact the same for the New Zealand Scheme. The Canadian Scheme prevents the use of HFCs with a GWP greater than 15, but this only covers EPS (which is blown with pentane) and PIR or open cell PUR. BRE believe all PUR insulation for construction to be closed cell.

- This award criteria can only be met by products that use blowing agents – should it not automatically be awarded to products which do not use any blowing agents?

- What are the baseline blowing agents being used for the comparison to demonstrate reduced GWP?

- The GWP of pentane and its isomers is not known although for very short lived hydrocarbons such as pentane, the IPCC⁵ have suggested it would be small. This would make it hard to demonstrate this criteria if pentane is being used.

**Hazardous Materials Criteria**

- In terms of hazardous materials, no evidence in terms of significance of impact (the risk of the event, the amount of the substance, the rate of release (if any), and the level of harm is provided.

- Significant errors were made in the limited evidence provided with regard to hazardous materials contained within insulations (covered in Hazardous Materials above).

- Differentiation between substances used in manufacture, substances released during manufacture (the subject of regulatory control), substances contained within the material and substances released during use is not clear. CEN TC351 will only apply to substances released during the use phase.

- First part of the criteria Technical Specification 2b states the following “shall not be released”, but part b) states “shall not be used”.

---

⁵ IPCC/TEAP Special Report: Safeguarding the Ozone Layer and the Global Climate System: Chapter 2 Chemical and Radiative Effects of Halocarbons and Their Replacement Compounds
• In relation to classification and labelling the situation has now changed with the introduction of REACH (Regulation (EC) No 1907/2006) and, more significantly, the introduction of the CLP Regulation (Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures).

• REACH did not make any changes to 67/548/EEC but amended 1999/45/EC. The main impact of REACH was that it the registrant (effectively the producers and importers of substances or mixtures) now have to self-classify their products according to the criteria in 67/548/EEC as part of the REACH process. There is an obligation for the registrants to agree (wherever possible) the classification for a given substance (or mixture) and to submit this to the European Chemicals Agency (ECHA) who will maintain a database of such classifications. Member States can now only propose a classification for a substance when a case is made for the need for a community-wide classification – it is expected that this will be limited mainly to CMRs (carcinogens, mutagens and reprotoxicants).

• Regulation (EC) No 1272/2008 amends both Directive 67/548/EEC and REACH (and will repeal Directive 1999/45/EC) by introducing what is known as the Globally Harmonised System (GHS) for classification and labelling of chemicals (the change between the two systems is to be gradually phased in over time) will result in a some changes in the terminology used. In particular, the criteria proposed uses a series of risk phrases and safety phrases for the classification and labelling whereas the CLP/GHS uses a system based on hazard statements and precautionary statements. As a result of the move to GHS, the current set of risk phases (R40, 45, 49, 60, 61, 62, 63 etc. etc.) will be replaced by a new terminology.

• REACH considers substances of very high concern to also include substances that are persistent, bioaccumulative and toxic (PBT) and very persistent, very bioaccumulative (vPvB) properties. Not all of these substances (particularly the vPvB) will get one of the R-phrases listed in the current criteria. Under REACH, once the PBT or vPvB substance has been identified (and prioritised) an authorisation would be needed for its continued use in products at concentrations above 0.1% by weight.

• The report repeats a number of times that due to use of hazardous materials, some insulations will need to be treated as hazardous waste. Although the disposal of insulation within white goods is covered by specific legislation to recover blowing agents, BRE are not aware of any insulation material arising from construction or demolition of buildings that needs to be considered as a hazardous waste. This includes foam insulations blown with CFCs, HCFCs or HFCs arising from demolition (foams using CFCs and HCFCs are now banned from use in buildings in the EU so will not arise as construction waste).

Packaging Criteria

• Are more points gained if you have packaging with both recycled content and renewable raw materials. This potentially encourages excessive packaging.

• This criteria does not address packaging reduction, recyclability of packaging or take back schemes for packaging.

• For renewable content of packaging, the criteria do not refer to sustainable sourcing (FSC etc).

• Again, no evidence has been provided to support the levels used in the criteria.

• Why is holding a type 1 ecolabel not referred to in verification?
**Product Information:** Contract performance clauses

- Product R values are dependent on thickness – this is inappropriate for blown insulation where the thickness is not fixed.

- The material that the product is manufactured from: This sets no cut off limit on the % of materials which need to be reported. Do they need to be reported in terms of biggest first?

- Why is % recycled content only required for composite materials – homogenous materials can also have recycled content?

- No definition of recycled content is provided. This is essential in order to ensure comparability.

**OTHER CRITERIA NOT COVERED BY SECTIONS WITHIN THE BACKGROUND REPORT**

**Selection Criteria 1: EMS**

Is the Environmental Management System required to be audited? A product may also have been awarded a Type 1 ecolabel but this will not demonstrate this criteria has been met unless having an EMS is a mandatory criteria of the scheme.

**Wood based materials: Legal Sourcing and Sustainable Forest Management**

- It is not clear whether this applies to products made from recycled wood or wood based materials (eg recycled newsprint). (cork for insulation has normally been a by-product from wine cork production and could be regarded as a waste from that industry)

- It is not clear whether separate verification required for the core criteria, compared to award criteria.

- The principal environmental issue associated with use of cork is that cork forests are normally designated habitats of special interest. The legality of sourcing for cork will not ensure that the forests are well managed and their habitat preserved and we would therefore recommend that only the award criteria is applied as this will ensure both legality and sustainable management.

- Award criteria 1 (optional). It is uncertain how compliance would be demonstrated without certification. A technical dossier of the manufacturer should not be considered sufficient. Test reports are also unsuitable as you cannot test the sustainability of a product, evidence of chain of custody and audit of the forest must be undertaken.

**Technical Specification 6: renewable raw materials**

- No evidence has been provided for the environmental life cycle benefits of renewable materials as insulations. Evidence from the Green Guide shows that some renewable materials have higher overall environmental impacts than non-renewable alternatives.