6th FIBRE RECYCLING SYMPOSIUM

Manchester Fashion Institute,

7-8th June 2017

Manchester Metropolitan University,

The Textile Institute, UK

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Circular Economy in the manufacture of a recycled cotton/denim low carbon thermal and acoustic insulation

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Recovery Insulation™ Ltd.

Co. No. 4616193

in partnership with S*chools & Homes Energy Education Project Ltd.*/SOLAR-ACTIVE

Co No. 327 3416 Charity No.107 3347

MISSION STATEMENT

"If you improve quality costs will go down and value goes up"

W.E. Deming

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InnoTHERM®

Recycled Cotton/Denim Insulation

The challenge is to specify a low carbon insulation that follows Circular Economy principles in its manufacturing supply chain

Mētisse®

Sustainable insulation

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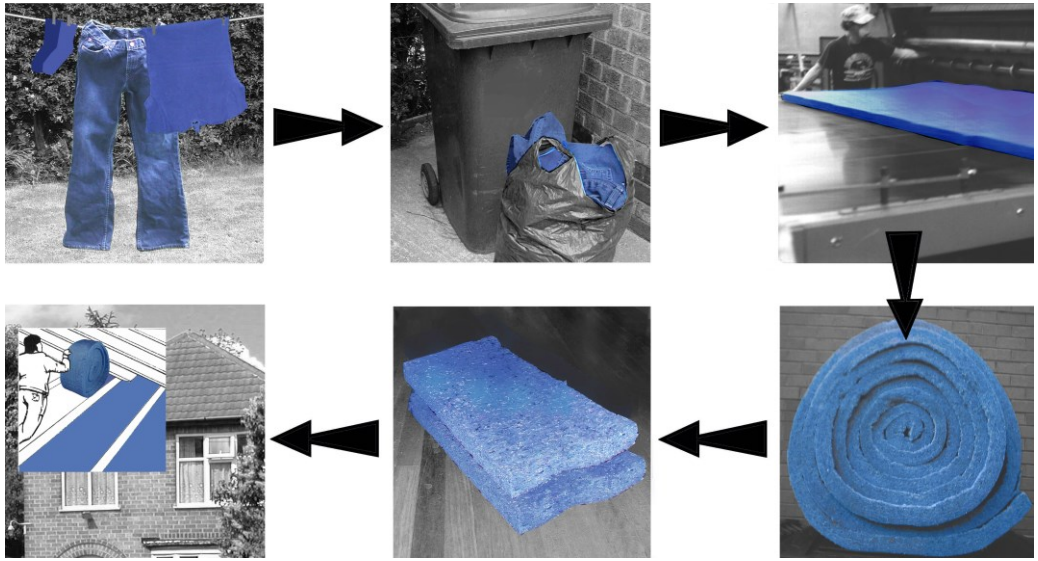
Recovery Insulation is a trading arm of the charity, Schools & Homes Energy Education Project/Solar-Active.

In partnership with EBS Le Relais Métisse have manufacture Inno-Therm®/Metisse® a low carbon non-itch, will not cause allergic reactions thermal and acoustic insulation made from the reuse and recycled cotton/denim.



The raw materials of recycled cotton/jeans are collected and manufactured in France into insulation, transported and sold in the UK and worldwide.

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Treatments
transport
transport
Application of treatments
transport
Fiber production
Wastes (recycled)
transport

Over 70% of the 2.5 – 2.7 million tonnes/year of textiles is not collected for reuse or recycled. [WRAP, May, 2014]

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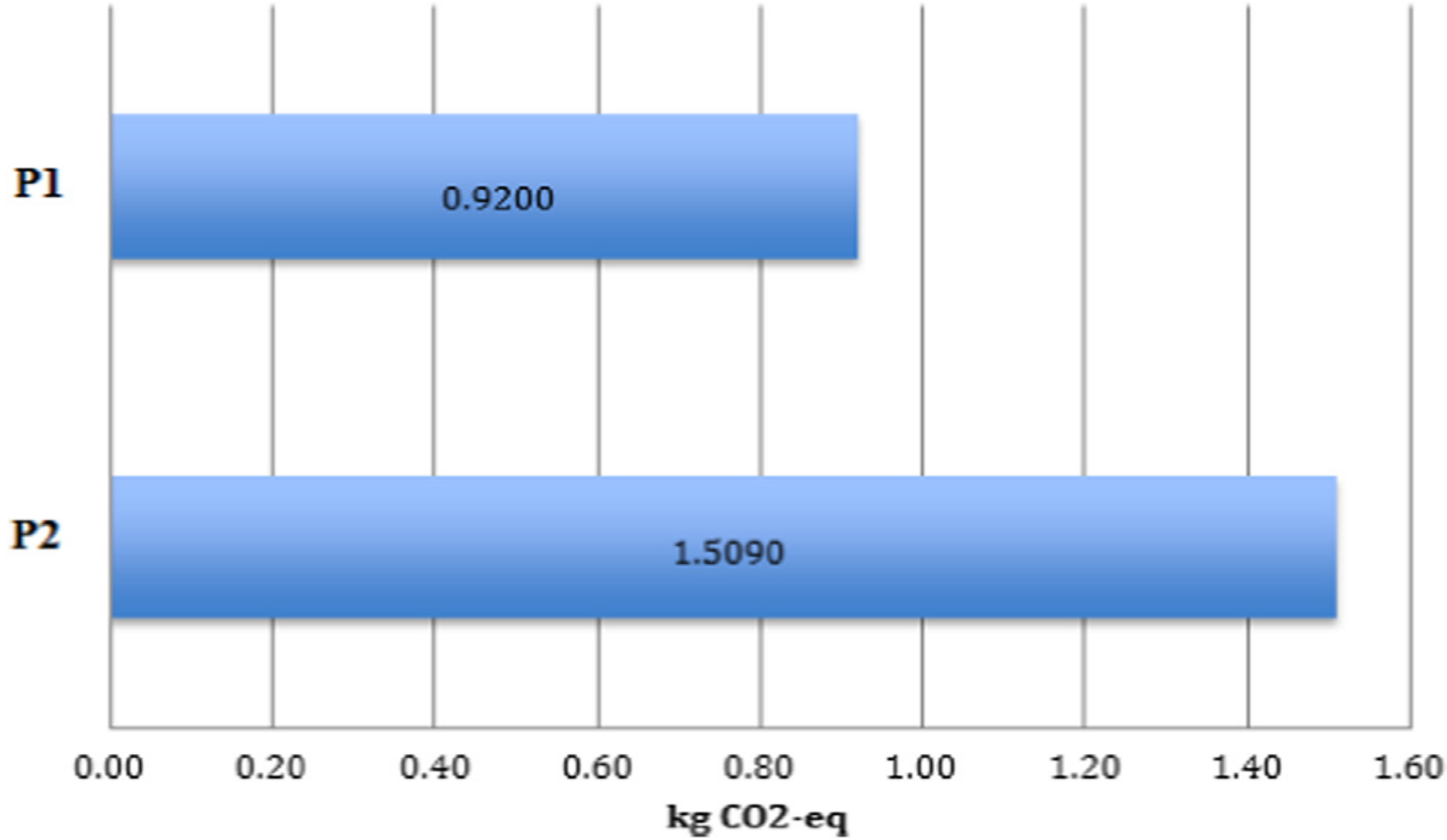
Our studies detail evidence of the importance of considering CO_2 emissions impact of products in all stages of their life – from cradle to grave.

In the purchase of insulation consideration is given primarily to cost and to thermal performance/lamda value.

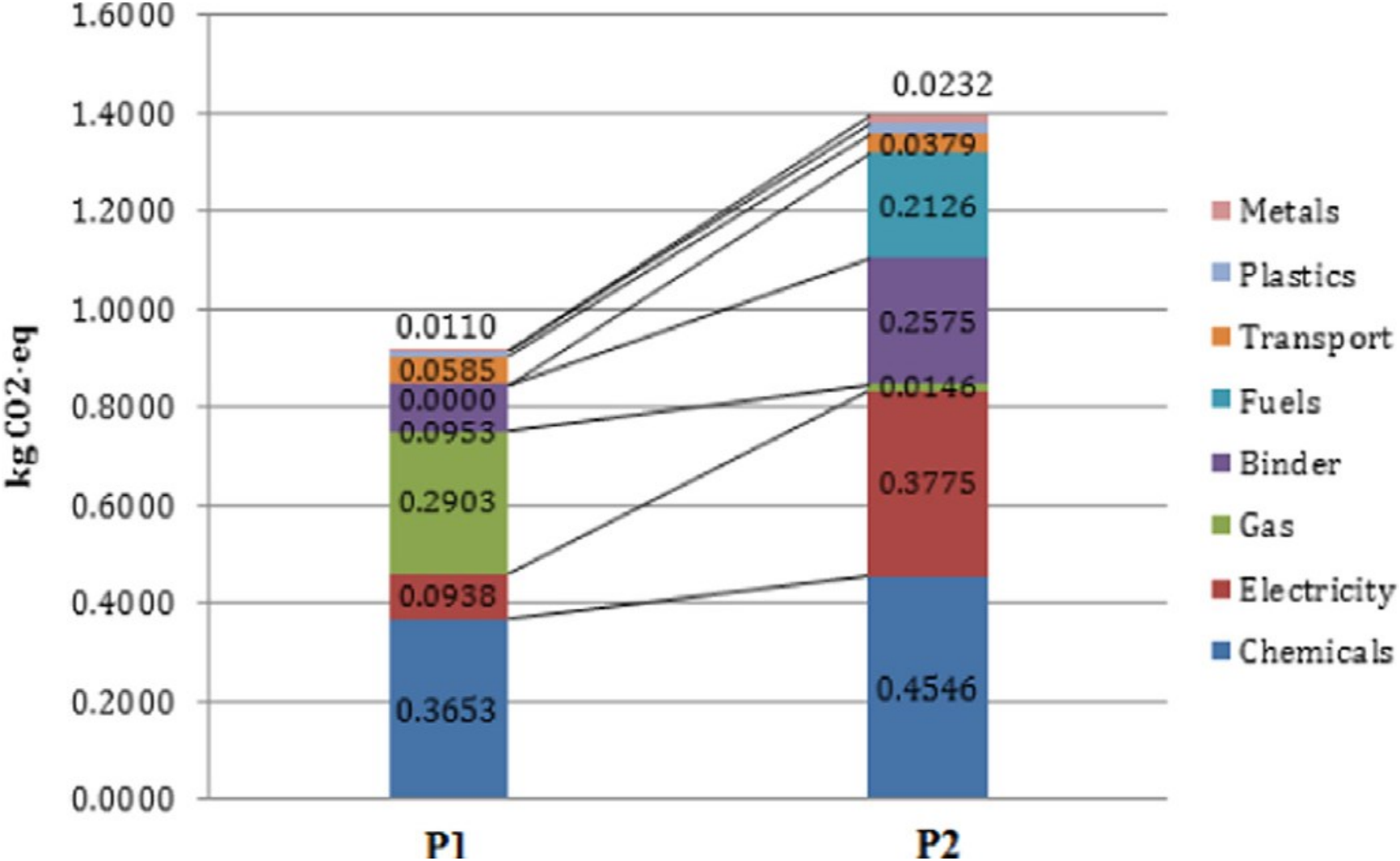
Lamda value (λ value) W/mK)/thermal conductivity is the property of a material that determines how much heat is conducted through the material

Comparative levels of emissions by P1 and P2 supply chains.



The manufacturing supply chain of Inno-Therm®/Metisse® recognizes the importance of a principle of the Circular Economy e.g. low carbon materials in building design while taking into account full life cycle costs.

Breakdown of carbon emissions hotspots in P1 and P2 supply chains.



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London Design Festival

Inno-Therm®/Metisse® was on display at the London Design Festival, September 2016. Arup collaborated with Frener & Reifer, BAM and The Built Environment Trust.

Regather trading co operative in Sheffield installed insulation that reflected their eco-friendly ethos. Made from recycled jeans, easy to install, non-toxic, non-itch, comfortable to handle, good thermal and good thermal performance.

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LONDON 2012

Inno-Therm®/Metisse® acoustic eko 45mm [45 kg/m3] with sound absorption (= 0.95) and acoustic fading of 42 dB, chosen by NBC Universal Sports & Olympics as part their green initiative, to avoid creating unnecessary landfill. Used at London Games in 2012, re-used at Sochi Winter Olympics 2014; and used at Rio Olympics 2016 and for Pyeongchang Olympic Winter Games 2018

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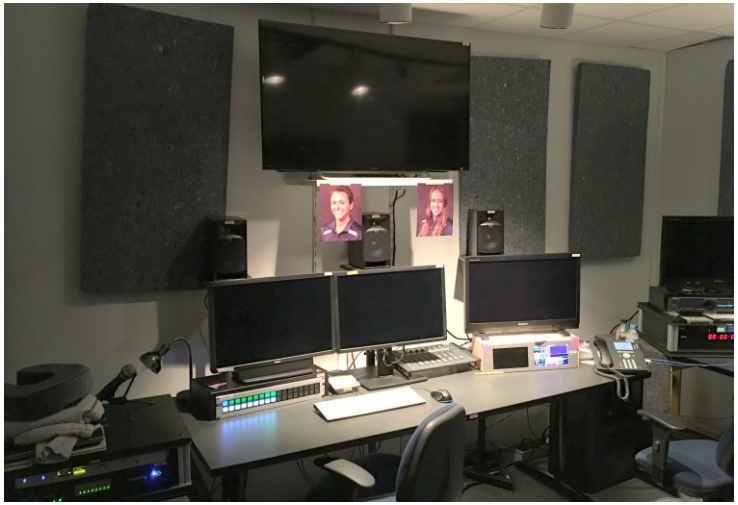


“The insulation made a big improvement to our editing rooms”. It needed to be a non fibrous to use in technical equipment areas because any airborne materials entering sensitive broadcast very important.

Amina technologies, specialist invisible loudspeakers plastered into walls and ceiling.

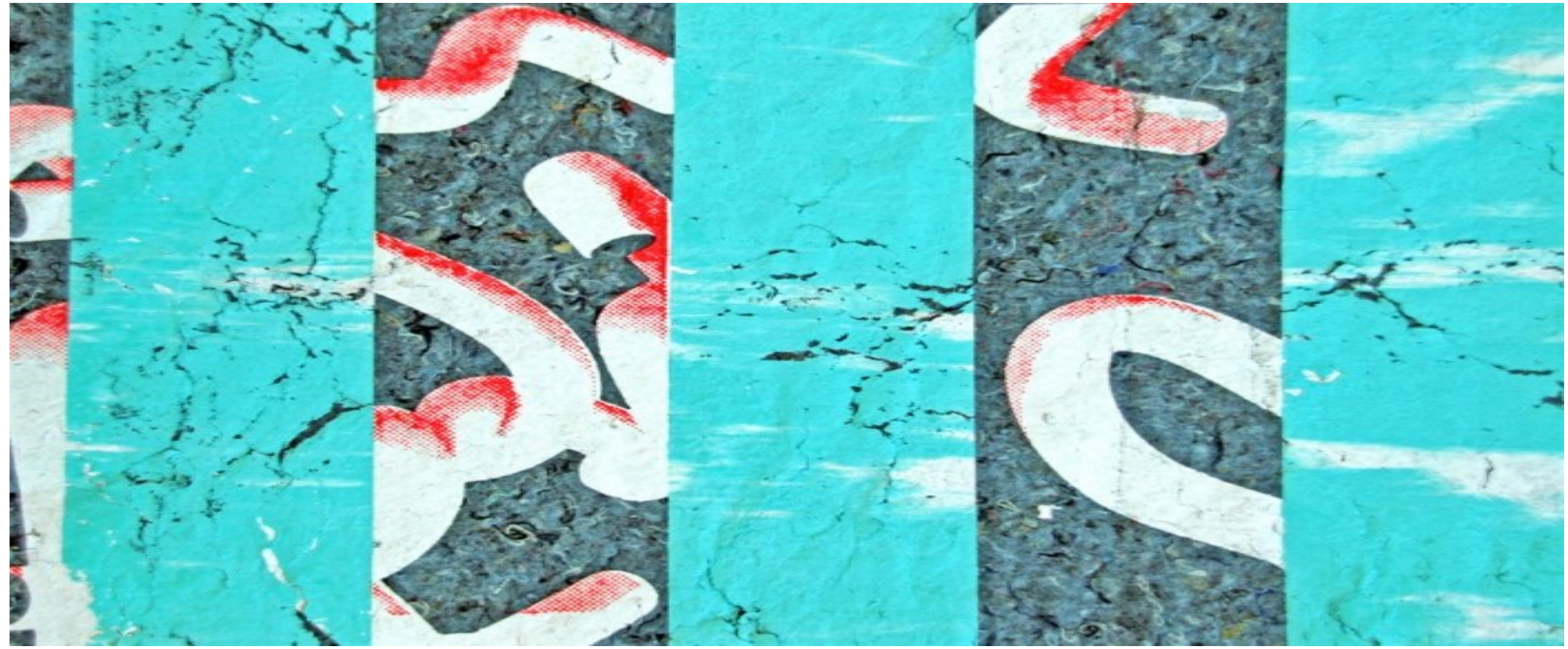
Inno-Therm ®/Metisse® acoustic was used for six reasons:

1. **Safe to handle**
2. **Recycled material**
3. **Does not emit harmful or irritating fibres**
4. **Remains stable in volume,**
5. **Highly acoustically absorbent**
6. **Concern for carbon foot print in supply chain**

"These are the genuine reasons why we like the material over new hydrocarbon alternatives".

There are concerns about adhesives, resins and additives used in mineral fibre insulation, plus concerns about fibres released into the air.

Ref: Tom Woolley, 2016. Building Materials, Health and Indoor Air Quality: No Breathing Space.



Textile Design

Artwork printed on Inno-Therm® by Marta Velasco, BA Textile Design final year student at **Central Saint Martins,** exhibited at CSM Degree Show: 17-22/06/14

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Textile Design

Artwork printed on Inno-Therm® by Marta Velasco

Design and Fashion application of Inno-Therm ®/Metisse®

Sophie Molyneux studying Fashion Design at Falmouth University was primarily inspired by the concept of compulsive art – creating abstract pieces exploring sculptural form in relation to the body. Inno-Therm ®/Metisse® was the primary and the principal inspiration for her final collection. Eco friendly, soft to touch and an all round stunning aesthetic

“Inno-Therm® insulation provoked the concept of an egg in my work: the idea of an ovular whole containing and insulating a beautiful core. I have used natural and organic fabrics furthering my continuous search for alternative processes in fashion design.”

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Inno-therm/Metisse is specified in low carbon building projects, by DIY home owners, musicians setting up home music studios and by those who have some understanding in respect to what makes an insulation product sustainable.

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LOW CARBON BUILDING PROJECTS 2014-2017

- 1. South Yorkshire Energy Centre, Sheffield
- 2. Genesis Eco-Building – Somerset College of D & T
- 3. Torfaen (South Wales) Eco Building
- 4. Hemphill Hall, Nottingham (a listed building refurbishment)
- 5. The Materials and Engineering Research Institute [MERI], Sheffield 'eco-house' project.
- 6. Barnsley College Think Low Carbon (TLC) Centre
- 7. Bradford Enterprise Park in conjunction with Modcell
- 9. Cultybraggan Camp, Hut 1, Comrie, Perthshire
- 10. REACH Homes - affordable low-impact eco-homes Sheffield based project using recycled shipping containers.
- 11. Castle Hill School, North Yorkshire **– straw bale**

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"With INNO - THERM we have found a product that happily answers four of our objectives as the product is manufactured in the UK, creating employment opportunities and producing an environmentally friendly insulation. In fact as ***INNO - THERM has slightly better thermal properties we were able to reduce the timber stud sizes, which in turn offset some of the cost while still achieving very good U – values.*** *"*

Nick James – White Design Architects

whitedesign

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Inno-therm®/Metisse® selected as product of the month April 2017 by Alliance for Sustainable Building Products [ASBP]

In 2007 featured in BBC series ‘It’s Not Easy Being Green’ and DIY/SOS in 2010.
Selected in 2014 by Kevin McCloud as eco-an innovation green heroes and 2015 shortlisted for M&S/Eco Big Innovation Pitch Award.

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Research is required to evaluate all insulation materials to create a simple energy rating index which compares their carbon footprint. Much like the European Eco label that provides an A-G rating required for all electrical items – showing their environmental impact

The general public needs to be better informed on the environmental credentials of insulation products that use natural fibres

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