SIG INSULATIONS

A GUIDE TO SUSTAINABLE INSULATION MATERIALS

INTRODUCING SIG INSULATIONS

SIG Insulations is the UK's leading distributor of insulation, dry-lining and related products to the construction industry. Our founding company, Sheffield Insulations, was the pioneer in insulation distribution in 1957. Since then the company has gone from strength to strength due to a successful blend of organic growth and acquisitions. Today SIG Insulations incorporates a number of trading companies, details of which can be found on the back of this brochure.

SIG Insulations' ongoing investments in infrastructure and resources ensure that we continue to be at the forefront of product innovation, technical expertise and customer service. At a time when Building Regulations, environmental issues and modern methods of construction are becoming increasingly complex, the extent of SIG Insulations' specialist knowledge is unrivalled. As the market leader, we want to provide you with a tailor-made service throughout every stage of your projects – from specification to construction.

SIG Insulations is uniquely positioned to take a lead in the sustainability challenge and can provide the most up to date information on this complex area. To find out more about our range of literature, including the **SIG Insulations Guide to the Code for Sustainable Homes** and our sustainability newsletter series **"Sussed"** please go to our website: **www.siginsulations.co.uk/sustainability**

This Sustainable Materials Guide has been designed to assist your understanding of the specific sustainable credentials relating to the many insulation materials available today. The information has been condensed into a simple to use format in order to provide you with the answers you need in a quick and easy way.

CONTENTS

SUSTAINABILITY EXPLAINED

"Sustainability means meeting the needs of the present without compromising the ability of future generations to meet their own needs."

Sustainability is one of the most important issues in the construction industry today. The introduction of the Code for Sustainable Homes along with the drive towards zero carbon dwellings by 2016 means that all developers must now place much greater emphasis on improving their sustainable credentials.

The key to a better understanding of Sustainability is to have enough information on construction materials in order to make an informed choice. Specifiers and contractors need to be aware of the overall impact these materials have on the environment. With this is mind, manufacturers are adopting greater responsibility for providing a complete 'lifespan' of their products, as well as implementing sustainable policies regarding production procedures and fuel economy.

INTRODUCTION TO INSULATION MATERIALS

Quite simply, all insulation regardless of type is good insulation. This is due to a number of defining characteristics:-

- All Insulation has the potential to reduce heat loss and CO_2 emissions.
- Energy conserved through insulation use far exceeds the energy used in its manufacture.
- Insulation performance varies depending on the material type, giving a choice to the builder and specifier.

Therefore, we can safely say that all insulation is sustainable. The more insulation that goes into a building the better as that will, of course, make it more energy efficient.

INTRODUCTION TO INSULATION MATERIALS (CONTINUED)

Whilst all insulation is beneficial, in order to define its sustainable credentials a number of factors must be taken into account. Firstly, the source of the material itself must be considered. The insulation materials featured in this guide can be broken down into three main subcategories:-

- Naturally Occurring Mineral – refers to inorganic fibrous insulation derived from natural mineral based substances.
- Petrochemical – refers to man made insulation derived from raw materials of petroleum or other hydrocarbon origin.
- Organic – refers to insulation materials derived from living organisms.

As well as defining a materials origin there are other things to consider which determine a material's sustainable credentials. These issues are detailed on the following pages:

- Levels of embodied energy
- Operational performance
- Post lifetime recyclability

THINGS TO CONSIDER

Insulation choice is complex, as no one specific insulation type will fulfil one hundred percent of the criteria. Outlined below are a few points to be considered:-

Embodied Energy
This relates to the hidden energy within a product, which includes manufacturing processes and transportation. It relates to all the energy used from the inception of the product to its arrival on site. Low embodied energy is best achieved from organic insulation products. Embodied energy can increase significantly if products are imported or through the heating and melting down of raw materials.

Operational Performance
Operational performance of the insulation relates to the product when 'in situ' and part of a building structure. The insulation material will influence the performance of the building throughout its lifetime and whilst the single biggest factor is thermal conductivity, other factors such as thermal mass, fire performance and ingress of water need to be considered as well.

THINGS TO CONSIDER (CONTINUED)

Post Lifetime Recyclability
Many insulation products are, in theory, recyclable. However, there are many contributory factors such as whether a recycling system is in place and at the time of demolition whether the insulation is stripped and removed from the building.

These, and other issues such as the use of additives in the manufacturing process, are just a few of the main points which need to be considered when determining the overall sustainability of a material. Sustainability is a very recent issue and comparisons may not be easy or straightforward.

This brochure has been designed to help you make the right choices with regards to insulation material sustainability. We hope you find it useful. For further information please visit our website or contact one of our trading branches.

INSULATION MATERIALS – SUSTAINABLE CREDENTIALS

ROCK MINERAL WOOL – NATURALLY OCCURRING MINERAL

Sustainable Criteria		Details
1	Raw Materials Used In Production	Natural source minerals.
2	Raw Materials Imported	Levels vary, depending on manufacturer. Full details available on SIG Insulations website.
3	Level Of Embodied Energy	Medium.
4	HCFCs/CFCs	HCFC and CFC free.
5	Level Of Chemical Emissions From Manufacturing Process	Some emissions, in compliance with licensing laws. Levels vary, depending on manufacturer. Full details available on SIG Insulations website.
6	Thermal Performance Range	0.034 – 0.044 W/mk
7	Potential Performance Limitations	Water and compression can reduce performance.
8	Toxicity Level	Emits toxic fumes when burnt.
9	Installation Requirements	Safety wear may be required.
10	Global Warming Potential (GWP)	Zero.
11	Ozone Depletion Potential (ODP)	Zero.
12	Material Lifespan	Lifetime of the building.
13	Biodegradeable Properties	Low. Non biodegradable in landfill.
14	Recyclable Properties	Medium. Can be re-used, although no collection system in place.
15	Green Guide Rating	A
16	Manufacturers' Environmental Policies	Available on SIG Insulations website.

For further information and full details of rock mineral wool manufacturers, visit *www.siginsulations.co.uk/sustainability*.

INSULATION MATERIALS – SUSTAINABLE CREDENTIALS

GLASS MINERAL WOOL – NATURALLY OCCURRING MINERAL

Sustainable Criteria		Details
1	Raw Materials Used In Production	Natural source minerals.
2	Raw Materials Imported	Levels vary, depending on manufacturer. Full details available on SIG Insulations website.
3	Level Of Embodied Energy	High.
4	HCFCs/CFCs	HCFC and CFC free.
5	Level Of Chemical Emissions From Manufacturing Process	Some emissions, in compliance with licensing laws. Levels vary, depending on manufacturer. Full details available on SIG Insulations website.
6	Thermal Performance Range	0.032 – 0.044 W/mk
7	Potential Performance Limitations	Water and compression can reduce performance.
8	Toxicity Level	Emits toxic fumes when burnt.
9	Installation Requirements	Safety wear may be required.
10	Global Warming Potential (GWP)	Zero.
11	Ozone Depletion Potential (ODP)	Zero.
12	Material Lifespan	Lifetime of the building.
13	Biodegradeable Properties	Low. Non biodegradable in landfill.
14	Recyclable Properties	Medium. Can be re-used, although no collection system in place.
15	Green Guide Rating	A
16	Manufacturers' Environmental Policies	Available on SIG Insulations website.

For further information and full details of glass mineral wool manufacturers, visit *www.siginsulations.co.uk/sustainability*.

INSULATION MATERIALS – SUSTAINABLE CREDENTIALS

FOAMED GLASS – NATURALLY OCCURRING MINERAL

Sustainable Criteria		Details
1	Raw Materials Used In Production	Natural source minerals.
2	Raw Materials Imported	Raw materials are not imported.
3	Level Of Embodied Energy	High.
4	HCFCs/CFCs	HCFC & CFC free.
5	Level Of Chemical Emissions From Manufacturing Process	No harmful chemicals are released into the environment during manufacture.
6	Thermal Performance Range	0.038 – 0.050 W/mk
7	Potential Performance Limitations	Performance is not reduced by water or compression.
8	Toxicity Level	Emits no toxic fumes when burnt.
9	Installation Requirements	Safety wear may be required.
10	Global Warming Potential (GWP)	1
11	Ozone Depletion Potential (ODP)	Zero.
12	Material Lifespan	Lifespan of the product is 100 years.
13	Biodegradeable Properties	Low. Non biodegradable in landfill.
14	Recyclable Properties	It is possible to recycle with aggregate. Full details on SIG Insulations website.
15	Green Guide Rating	B
16	Manufacturers' Environmental Policies	Available on SIG Insulations website.

For further information and full details of foamed glass manufacturers, visit *www.siginsulations.co.uk/sustainability*.

INSULATION MATERIALS – SUSTAINABLE CREDENTIALS

POLYURETHANE/ POLYISOCYANURATE FOAMS - PETROCHEMICAL

Sustainable Criteria		Details
1	Raw Materials Used In Production	Fossil Fuel.
2	Raw Materials Imported	Majority of raw materials are imported. Full details available on SIG Insulations website.
3	Level Of Embodied Energy	Medium.
4	HCFCs/CFCs	HCFC and CFC free.
5	Level Of Chemical Emissions From Manufacturing Process	No harmful chemicals are released into the environment during manufacture.
6	Thermal Performance Range	0.023 W/mk
7	Potential Performance Limitations	Compression and dust can reduce performance.
8	Toxicity Level	Emits toxic fumes when burnt.
9	Installation Requirements	Safety wear may be required.
10	Global Warming Potential (GWP)	3
11	Ozone Depletion Potential (ODP)	Zero.
12	Material Lifespan	Lifetime of the building.
13	Biodegradeable Properties	Low. Non biodegradable in landfill.
14	Recyclable Properties	Medium. Can be re-used in a different form.
15	Green Guide Rating	A
16	Manufacturers' Environmental Policies	Available on SIG Insulations website.

For further information and full details of polyurethane/polyisocyanurate foam manufacturers, visit *www.siginsulations.co.uk/sustainability*.

INSULATION MATERIALS – SUSTAINABLE CREDENTIALS

EXPANDED POLYSTYRENE - PETROCHEMICAL

Sustainable Criteria		Details
1	Raw Materials Used In Production	Fossil Fuel.
2	Raw Materials Imported	Levels vary, depending on manufacturer. Full details available on SIG Insulations website.
3	Level Of Embodied Energy	Medium.
4	HCFCs/CFCs	HCFC and CFC free.
5	Level Of Chemical Emissions From Manufacturing Process	No harmful chemicals are released into the environment during manufacture.
6	Thermal Performance Range	0.030 – 0.038 W/mk
7	Potential Performance Limitations	Compression can reduce performance.
8	Toxicity Level	Emits toxic fumes when burnt.
9	Installation Requirements	No safety wear required.
10	Global Warming Potential (GWP)	Zero.
11	Ozone Depletion Potential (ODP)	Zero.
12	Material Lifespan	Lifetime of the building.
13	Biodegradeable Properties	Low. Non biodegradable in landfill.
14	Recyclable Properties	High. Can be re-used, collection system in place.
15	Green Guide Rating	A+
16	Manufacturers' Environmental Policies	Available on SIG Insulations website.

For further information and full details of expanded polystyrene manufacturers, visit *www.siginsulations.co.uk/sustainability*.

INSULATION MATERIALS – SUSTAINABLE CREDENTIALS

EXTRUDED POLYSTYRENE - PETROCHEMICAL

Sustainable Criteria		Details
1	Raw Materials Used In Production	Fossil Fuel.
2	Raw Materials Imported	Levels vary, depending on manufacturer. Full details available on SIG Insulations website.
3	Level Of Embodied Energy	Medium.
4	HCFCs/CFCs	CFC free.Small quantities of HCFCs used in production.
5	Level Of Chemical Emissions From Manufacturing Process	Some emissions, in compliance with licensing laws. Levels vary, depending on manufacturer. Full details available on SIG Insulations website.
6	Thermal Performance Range	0.029 – 0.031 W/mk
7	Potential Performance Limitations	Compression can reduce performance.
8	Toxicity Level	Emits toxic fumes when burnt.
9	Installation Requirements	No safety wear required.
10	Global Warming Potential (GWP)	Less than 5.
11	Ozone Depletion Potential (ODP)	Zero.
12	Material Lifespan	Lifetime of the building.
13	Biodegradeable Properties	Low. Non biodegradable in landfill.
14	Recyclable Properties	Collection systems vary between manufacturers. Full details on SIG Insulations website.
15	Green Guide Rating	B
16	Manufacturers' Environmental Policies	Available on SIG Insulations website.

For further information and full details of extruded polystyrene manufacturers, visit *www.siginsulations.co.uk/sustainability*.

INSULATION MATERIALS – SUSTAINABLE CREDENTIALS

PHENOLIC FOAM - PETROCHEMICAL

Sustainable Criteria		Details
1	Raw Materials Used In Production	Fossil Fuel.
2	Raw Materials Imported	Levels vary depending on the manufacturer.
3	Level Of Embodied Energy	Medium.
4	HCFCs/CFCs	CFC/HCFC free.
5	Level Of Chemical Emissions From Manufacturing Process	No harmful chemicals are released into the environment during manufacture.
6	Thermal Performance Range	0.021 – 0.024 W/mk
7	Potential Performance Limitations	Thermal performance is the time-averaged value over 25 years. Full details available on SIG Insulations website.
8	Toxicity Level	Emits no toxic fumes when burnt.
9	Installation Requirements	Where any cutting is involved, dusk mask, eye protection and gloves should be worn.
10	Global Warming Potential (GWP)	3
11	Ozone Depletion Potential (ODP)	Zero.
12	Material Lifespan	Lifetime of the building.
13	Biodegradeable Properties	Low. Non biodegradable in landfill.
14	Recyclable Properties	Medium. Can be re-used, although no collection system in place.
15	Green Guide Rating	Not rated.
16	Manufacturers' Environmental Policies	Available on SIG Insulations website.

For further information and full details of phenolic foam manufacturers, visit *www.siginsulations.co.uk/sustainability*.

INSULATION MATERIALS – SUSTAINABLE CREDENTIALS

SHEEP'S WOOL – ORGANIC

Sustainable Criteria		Details
1	Raw Materials Used In Production	Organic.
2	Raw Materials Imported	Less than 17% imported. Full details available on SIG Insulations website.
3	Level Of Embodied Energy	Low.
4	HCFCs/CFCs	HFC and CFC free.
5	Level Of Chemical Emissions From Manufacturing Process	No harmful chemicals are released into the environment during manufacture.
6	Thermal Performance Range	0.039 W/mk
7	Potential Performance Limitations	Compression can reduce performance.
8	Toxicity Level	Does not emit toxic fumes when burnt.
9	Installation Requirements	No safety wear required.
10	Global Warming Potential (GWP)	Less than 1.
11	Ozone Depletion Potential (ODP)	Zero.
12	Material Lifespan	Lifetime of the building.
13	Biodegradeable Properties	High. Biodegradable in landfill.
14	Recyclable Properties	Medium. Can be re-used, although no collection system in place.
15	Green Guide Rating	Unrated.
16	Manufacturers' Environmental Policies	Available on SIG Insulations website.

For further information and full details of sheep's wool manufacturers, visit *www.siginsulations.co.uk/sustainability*.

INSULATION MATERIALS – SUSTAINABLE CREDENTIALS

HEMP – ORGANIC

Sustainable Criteria		Details
1	Raw Materials Used In Production	Organic.
2	Raw Materials Imported	Raw materials are not imported.
3	Level Of Embodied Energy	Low.
4	HCFCs/CFCs	HFC and CFC free.
5	Level Of Chemical Emissions From Manufacturing Process	No harmful chemicals are released into the environment during manufacture.
6	Thermal Performance Range	0.040 W/mk
7	Potential Performance Limitations	Compression and water can reduce performance.
8	Toxicity Level	Does not emit toxic fumes when burnt.
9	Installation Requirements	No safety wear required.
10	Global Warming Potential (GWP)	Less than 1.
11	Ozone Depletion Potential (ODP)	Zero.
12	Material Lifespan	Lifetime of the building.
13	Biodegradeable Properties	High. Biodegradable in landfill.
14	Recyclable Properties	Medium. Can be re-used, although no collection system in place.
15	Green Guide Rating	Unrated.
16	Manufacturers' Environmental Policies	Available on SIG Insulations website.

For further information and full details of hemp manufacturers, visit *www.siginsulations.co.uk/sustainability*.

INSULATION MATERIALS – SUSTAINABLE CREDENTIALS

WOOD FIBRE – ORGANIC

Sustainable Criteria		Details
1	Raw Materials Used In Production	Organic.
2	Raw Materials Imported	Imported to the UK from Europe.
3	Level Of Embodied Energy	Medium.
4	HCFCs/CFCs	HCFC and CFC free.
5	Level Of Chemical Emissions From Manufacturing Process	No harmful chemicals are released into the environment during manufacture.
6	Thermal Performance Range	0.038 – 0.049 W/mk
7	Potential Performance Limitations	Should not be saturated with liquid water.
8	Toxicity Level	Does not emit toxic fumes when burnt.
9	Installation Requirements	No safety wear required.
10	Global Warming Potential (GWP)	Less than 1.
11	Ozone Depletion Potential (ODP)	Zero.
12	Material Lifespan	Lifetime of the building.
13	Biodegradeable Properties	High. Biodegradable in landfill.
14	Recyclable Properties	Medium. Can be re-used, although no collection system in place.
15	Green Guide Rating	Not rated.
16	Manufacturers' Environmental Policies	Available on SIG Insulations website.

For further information and full details of wood fibre manufacturers, visit *www.siginsulations.co.uk/sustainability*.

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0161 7931100
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0114 244 1420

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020 7473 9310
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Portsmouth
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01752 675417
Leicester
0116 232 5000
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01925 225252
Leeds
0113 385 7777
Newcastle
0191 226 6730
Glasgow
0141 643 3600
Aberdeen
01224 771566
Birmingham
0121 665 3060
Bristol
0117 980 1440
Norwich
01603 226020
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020 8839 4290
Manchester
0161 868 2530
Chesterfield
01246 269537
Bedford
01234 740605

Solent
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020 8556 4439
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023 8063 8796

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CH Insulations
Witney, Oxon
01993 700993

Franklin
Brighton
01273 878700
Worthing
01903 218115
Epsom
01372 730070

Clyde Insulation Supplies
Stirling
01786 849100

Via its multi company structure, SIG Insulations supplies insulation and related materials to the construction industry and offshore, marine, petrochemical, power generation and heating and ventilating markets.

The following SIG Insulations companies supply the construction industry with specialist insulation, dry lining and related products.

Sheffield Insulations
www.sheffins.co.uk

Warren Insulation
National Suppliers of Insulation and Related Products
www.warren.co.uk

ORION TRENT
www.oriontrent.co.uk

WOODS INSULATION
www.woodsinsulation.co.uk

Solent
INSULATION SUPPLIES
www.solentinsulation.co.uk

FRANKLIN
www.franklinltd.co.uk

CHD (Wh Hlesey)
www.chdwhittlesey.co.uk

CH Insulation Products
www.chinsulation.co.uk

Kitsons
THERMAL SUPPLIES
www.kitsonsthermal.co.uk

CLYDE INSULATION SUPPLIES LTD
www.clyde-insulation.co.uk

eviee
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