

For sustainable homes including pre-fabricated buildings plus Eco-Brite® UF for under-floor heating systems



Eco-Brite being installed in a living area prior to fitting plasterboard



Eco-Brite installed in prefabricated wall panels



Typical pavilion with Eco-Brite installed

Introduction

Eco-Brite® is an effective, two sided HRM for use within the fabric of sustainable homes, including timber frame and modular structures.

In combination with fibre insulation, Eco-Brite can provide the most cost-efficient insulating method available that meets the requirements of current Building Regulations.

Eco-Brite® UF is a HRM with a reflective surface on one or two sides, specially developed to increase the efficiency of electric and piped under-floor heating systems.

The Eco-Brite system deflects infrared energy and seals in dust

One of the functions of Eco-Brite is to block at least 96% of infrared energy that would otherwise be absorbed by the soft insulation. Eco-Brite has a very low emissivity of 0.048. The membrane, in conjunction with Apollo adhesive tape, can also be used to seal new or existing soft insulation, decreasing dust levels to acceptable safe levels.

Eco-Brite with reflective surface on both sides.

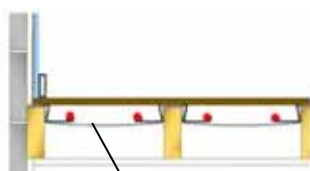
The Eco-Brite system is primarily intended for installation within floors, walls, ceilings and roofs. Its inclusion will reduce the thickness of the soft insulation required, substantially minimising energy needs and improve comfort for occupants. The membrane eliminates excessive heat gain caused by incoming solar radiation yet can keep the room warm during cold weather. No matter the season, room temperatures are far easier to control. For example, solar heat striking a prefabricated roof will conduct through the tiles and insulation layers crossing any air spaces as unwanted infrared energy, eventually warming the inner skin and over heating the room. Conversely, useful heat from within the room will conduct through the inner skin, radiate across any air space into the insulation and be lost. In both scenarios the Eco-Brite system blocks the radiating heat. Furthermore certified tests show the thickness of soft insulation can be reduced depending on the energy specification and location of the building yet still achieve the U values required by a country's Building Regulations.

Eco-Brite UF with reflective surface on one or two sides for under-floor heating applications

A number of under-floor heating suppliers have discovered how Eco-Brite UF greatly improves heat distribution when installed below their electrical element and piped systems. With heating elements and pipes located under the flooring a high percentage of the heat radiates downwards and is wastefully absorbed into the foundation void. Draped over the floor joists and below the pipes, the Eco-Brite UF membrane reflects the radiating heat back up to the floor, warming its surface more rapidly and evenly so providing better temperature control and comfort levels in the room.

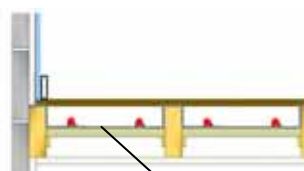
Eco-Brite UF is installed with its bright aluminium facing the under-floor electric element or pipe but not touching so as to prevent heat conduction. Used in floor construction, Eco-Brite UF can also help restrict the ingress of methane and carbon dioxide from landfill sites and the movement of airborne radon from subsoil into the building.

Suspended floor with Eco-Brite UF only



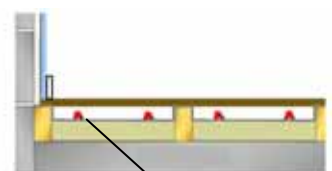
Can be single sided or double sided Eco-Brite UF

Suspended floor with Eco-Brite UF on insulation panel



Single sided Eco-Brite UF

Floating floor with Eco-Brite UF on insulation panel above concrete



Single sided Eco-Brite UF

Summary of Physical Characteristics		
Eco-Brite with reflective surface on both sides for use in prefabricated buildings.		
Nominal thickness – manual micrometer	135 microns	
Tear resistant	Tensile MD of 3.905kN/m.	Resists accidental tearing in the factory keeping wastage to a minimum.
Puncture resistant	Beach puncture of 40.5 kg-cm	Less patching.
Moisture resistant	Moisture/vapour transmission rate of 0.023 g/m ² .	Seals structure from outside humidity.
Light and strong	96m x 1.25m = 120m ² roll weighs only 18.72 kg	Clean and easy to handle when installing.
Corrosion resistant	Unique surface coating on reflective surfaces	Surfaces keeps bright and clean.
Fire propagation index	Class 0	BS476:Part 6: 1989
Surface flame spread	Class 1	BS476:Part 7: 1997
Eco-Brite UF with reflective surface on one side for under-floor heating applications. Two sided Eco-Brite UF– see above		
Nominal thickness – manual micrometer	115 microns	
Tear resistant	Tensile MD of 3.905kN/m.	Resists accidental tearing keeping wastage to a minimum
Puncture resistant	Beach puncture of 36.0 kg-cm	Less patching.
Moisture resistant	Moisture/vapour transmission rate of 0.023 g/m ² .	Seals floor structure from outside humidity.
Light and strong Choice of three roll widths	96m x 1.250m = 120m ² roll. Weight 15.5 kg 25m x 0.625m = 15.6m ² roll. Weight 2.02 kg 25m x 0.416m = 10.4m ² roll. Weight 1.35 kg	Clean and easy to handle when installing. Sized to provide economic use.
Corrosion resistant	Unique surface coating on reflective surface	Surface keeps bright and clean.
Fire propagation index	Class 0	BS476:Part 6: 1989
Surface flame spread	Class 1	BS476:Part 7: 1997
Temperature resistant	-22°C to +120°C	
Apollo Adhesive Tape used to seal membrane edges and on to structural elements.		
Nominal roll size	100m x 50mm	36 in box
Reflectivity	95%	To match membrane
Emissivity	0.05	To match membrane
Adhesive thickness	0.0381mm	Waterproof acrylic adhesive – see below
Peel adhesion - PSTC-1	11.4 N/25mm	
Shear adhesion – PSTC-7	Indefinite 15.2 kPa	
Tensile - PSTC-31	99.4 N/25mm	
Elongation	150%	
Max continuous use temp	+127°C	
Min application temp	-37°C	
Release liner	62g	

**BY INSTALLING AN ECO-BRITE SYSTEM, ENERGY USAGE FOR HEATING OR COOLING WILL
SUBSTANTIALLY REDUCE CARBON EMISSIONS AND YOUR ENERGY BILLS**



Eco-Brite and Eco-Brite UF with their tough high density polyethylene (HDPE) substrate core are manufactured and distributed worldwide by Apollo Energy Research.

The technology involved is a further advance where mass production techniques have provided products that features a tear resistant, HDPE substrate that can greatly improve the energy use in buildings.



Apollo HPA™ Adhesive Tape



Long-life HEAT REFLECTING tape for the Building Sector

Long-life Heat Reflecting products made from a various sheet materials were conceived by NASA space scientists to protect orbiting craft from solar radiation. This heat control technology has spawned a variety of terrestrial applications. These include the famous "space" blankets that keep athletes and accident victim's warm, heat-reflecting sheaths for water tanks, air-conditioning ducts, heat-sensitive equipment and even high performance racing car components

Introduction

Based on the heat control technology developed at NASA, Apollo Energy Research have developed a high performance, heat reflecting tape for use in the building sector. The product has been tested to confirm a life-span of at least 20 years.

Apollo HPA™ (High Performance Acrylic) Adhesive Tape has been specifically engineered to withstand the rigors of site work.

Apollo HPA™ Adhesive Tape

Apollo HPA Adhesive Tape is used to seal the joints between adjacent sheets, of Heat Reflecting Membrane, Bubble-Foil and Multi-Foil products. It is also used to seal off these products around stud-work, door or window frames. So without having to using a variety of mastics or other tapes the structure can be effectively sealed preventing air infiltration and ensuring the building meets its mandatory air pressure test.

The aluminium surface of the tape has a special coating that ensures it's UV resistant, bright surface never tarnishes. 100% waterproof and bug proof, this Class 0 fire rated material has a tough high density polyethylene (HDPE) substrate core essential for a long working life and keeping wastage to a minimum during installation.

One side of the sheet is coated with a specially developed waterproof acrylic adhesive with release liner.

Once the tape is in position, the adhesive migrates into other tarnish proof coating used on most heat reflecting foil products, where it sets over a short period of time providing a life-long bond.



Apollo long-life adhesive tape showing release liner



Apollo HPA adhesive tape being used to seal a Heat Reflecting Membrane installed in a private home prior to fitting plasterboard

Apollo HPA Adhesive Tape with release liner	
Nominal size of roll and weight	50mm x 100m
Nominal weight per roll	5m ² roll weighs 700g including card core.
Thickness without release liner	45 micron
Reflectivity	96%
Emmissivity	0.05
Peel adhesion – PSTC-1	11.4N/25mm
Shear adhesion – PSTC-7	Indefinite at 15.2 k/Pa
Tensile PSTC-31	99.4N/25mm
Elongation	150%
Maximum continuous use temperature	+127°C
Minimum application temperature	- 37°C
Release liner	75g

nbs2 APOLLO HPA ADHESIVE TAPE 11.03.02



Apollo HPA Adhesive Tape features a tough tear resistant, HDPE substrate.

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