Bord Agrément na hÉireann
Irish Agrément Board

CERTIFICATE NO. 07/0285

ECOCEL Ltd., Unit 33, Haven Hill,
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Ecocel Loft Insulation

Isolation de grenier
Wärmedämmung

The **Irish Agrément Board** is designated by Government to issue European Technical Approvals.

Irish Agrément Board Certificates establish proof that the certified products are **'proper materials'** suitable for their intended use under Irish site conditions, and in accordance with the **Building Regulations 1997 to 2006**.

The **Irish Agrément Board** operates in association with the **National Standards Authority of Ireland (NSAI)** as the National Member of UEAtc.

PRODUCT DESCRIPTION:
This Certificate relates to Ecocel Loft Insulation, a cellulose fibre made from recycled paper products, treated with inorganic salts to provide protection against fire, for use as a thermal insulation material mechanically blown into lofts. It is manufactured in accordance with the requirements of BS 5803-3:1985 *Thermal insulation for use in pitched roof spaces in dwellings – Specification for cellulose fibre thermal insulation for application by blowing*.

This Certificate certifies compliance with the requirements of the Building Regulations 1997 to 2006.

USE:
The product is used for the thermal insulation of new or existing lofts using a mechanical blowing system by approved installers, who are trained and monitored by ECOCEL Ltd.

MANUFACTURE AND MARKETING:
The product is manufactured and marketed by:

ECOCEL Ltd.,
Unit 33,
Haven Hill,
Summercove,
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Co. Cork.
Tel: +353 (0)21 4706826
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Part One / Certification 1

1.1 ASSESSMENT

In the opinion of the Irish Agrément Board (IAB), Ecocel Loft Insulation if used in accordance with this Certificate, can meet the requirements of the Building Regulations 1997 to 2006 as indicated in Section 1.2 of this Agrément Certificate.

1.2 BUILDING REGULATIONS 1997 to 2006

REQUIREMENT:

Part D - Materials and Workmanship

D3 – Ecocel Loft Insulation, as certified in this Irish Agrément Board Certificate, is comprised of materials which are 'proper materials' fit for their intended use (see Part 4 of this Certificate).

D1 – Ecocel Loft Insulation used in accordance with this Irish Agrément Board Certificate, can meet the requirements for workmanship.

Part B – Fire Safety

B2 – Internal Fire Spread (Linings)

Ecocel Loft Insulation complies with the performance requirements of BS 5803-4:1985 *Thermal insulation for use in pitched roof spaces in dwellings – Methods for determining flammability and resistance to smouldering.*

B3 – Internal fire spread (Structure)

Lofts filled with Ecocel Loft Insulation can meet this requirement (see Section 4.1 of this Certificate).

Part F – Ventilation

F2 – Condensation in Roofs

Ecocel Loft Insulation will not promote condensation and meets the requirements of this Regulation when designed and installed in accordance with Section 2.4 and Part 3 of this Certificate, and Appendix B of BS 5803-5:1985 *Thermal insulation for use in pitched roof spaces in dwellings – Specification for installation of man-made mineral fibre and cellulose fibre insulation*.

Part J – Heat Producing Appliances

J3 – Protection of Building

Ecocel Loft Insulation should not be placed in contact with flues or metal chimneys, or in contact with heating pipes or fittings where the surface temperature is likely to exceed a continuous temperature of 80^{o}C. Ecocel Loft Insulation installations should be at least 200mm from the flue in a chimney or 40mm from the outer surface of the brick or blockwork chimney. Where a flue pipe is used, Ecocel Loft Insulation should be separated from the flue pipe in accordance with the requirements of this Regulation.

Part L – Conservation of Fuel and Energy

L1 – Conservation of Fuel and Energy

U value calculations may be based on a λ value = 0.039 W/mK for Ecocel Loft Insulation. Based on this value, the current 'U Value' requirements can be achieved (see Section 4.3 of this Certificate).

Part Two / Technical Specification and Control Data 2

2.1 PRODUCT DESCRIPTION

Ecocel Loft Insulation is a cellulose fibre material for use as a thermal insulation material mechanically blown into lofts. The product is manufactured in accordance with BS 5803-3:1985, and is installed by trained and approved installers who are regulated by ECOCEL Ltd. Ecocel Loft Insulation is grey in colour and has an average installed density of 30kg/m^3.

2.2 MANUFACTURE

Ecocel Loft Insulation is manufactured from recycled paper products which are shredded into small pieces. Controlled quantities of inorganic salts are added during the protection process. The product is then packed in 15kg polythene bags and stacked on pallets.

2.3 DELIVERY, STORAGE AND MARKING

Ecocel Loft Insulation is delivered to site on pallets in sealed polythene bags each weighing approximately 15kgs. Each pallet contains a label bearing the product name and date of manufacture. The IAB Logo and certificate number are printed on individual bags.

Bags must be stored off the ground, under cover, protected from heat and ignition sources and unopened until ready for use.

2.4 INSTALLATION PROCEDURE

2.4.1 General

Ecocel Loft Insulation must be installed in accordance with the relevant recommendations of BS 5803-5:1985, and the Ecocel Installation Manual. Installation must only be performed by approved installers, trained and regulated by ECOCEL Ltd.

Ecocel Loft Insulation should not be used where ambient temperatures are consistently above 65^{o}C. It is essential that the roof space is ventilated to meet the requirements of BS 5803-5:1985 Appendix B.

Ecocel Loft Insulation is compatible with other insulation types and can therefore be used in top-up situations. In case of doubt, the certificate holder's advice must be sought.

Prior to installation of Ecocel Loft Insulation, the installer should check the following:

- There should be no evidence of condensation or mustiness in the loft.
- Where a sarking felt is fitted beneath the roof tiles, there should be no evidence of significant daylight penetration on each of the two opposing sides of the roof.
- Ensure that any existing insulation material is not blocking the eaves.
- Check soffits externally – gaps on one or either side of the soffit will indicate access to the roof space for ventilating air flow.
- There should be no obvious rainwater penetration or evidence of same, no evidence of wet or dry rot in the roof space.
- The ceiling should be capable of supporting the weight of the insulation and loads imposed during installation.
- There should be no obvious defects in the electrical wiring.
- There should be no obvious corrosion to the structural metal connections in the roof members.

2.4.2 Approved Installers

Installation of Ecocel Loft Insulation is carried out by the approved installers of ECOCEL Ltd. who:

1) Are required to meet the requirements of an initial site installation check by IAB prior to approval and are subject to the IAB Surveillance Scheme.
2) Are trained and approved by ECOCEL Ltd., and approved by the IAB to install the product.
3) Have undertaken to comply with the Ecocel Installation Manual.
4) Are employing technicians who have been issued with appropriate identity cards by ECOCEL Ltd. At least one member of each installation team must carry a card verifying this.
5) Are subject to supervision by ECOCEL Ltd., including unannounced site inspections.

2.4.3 Supervision

Installation should be carried out in accordance with this Certificate, the Ecocel Installation Manual and the IAB Surveillance Scheme.

During installation the following simple checks can be made, as an aid to determining that the installation conforms to the certified method:

1) Check that the eaves ventilation has been maintained.

2) Check that all electrical cables of high amperage uses are raised clear of the insulation, and that all other electrical cables should be laid above the insulation once installation is complete.

3) Check that recessed lights are isolated from the insulation.

4) Check that exposed pipework above the insulation has been insulated to minimise the risk of freezing.

5) Check that all water tanks have been completely enclosed and insulated.

6) Check that the access hatch has been permanently and independently insulated.

7) Check that the insulation is not placed in contact with heating pipes or fittings above 80^{o}C.

8) Check that all perforations through the plasterboard have been sealed with mastic sealant.

9) Ensure a hatch guard has been installed.

Upon completion of the installation of Ecocel Loft Insulation, the installer shall provide the client with a signed and stamped certificate containing details of the installation to meet the requirements of BS 5803-5:1985 Paragraph 10.

2.4.4 Procedure

The loft to be insulated should first be cleared of stored items and the water tank and ventilation openings covered to prevent the ingress of fibre. After the installation of the insulation is completed a permanent guard must be fitted to all vents to prevent blockage by the fibre.

All perforations through the plasterboard ceiling at pipe drops etc. must be sealed with mastic sealant to prevent the ingress of moist air and to prevent the loss of insulation material through the perforations (see Figure 1).

Figure 1: Sealing of Perforations Through Plasterboard Ceiling

All electrical cables of high amperage uses (cooker and shower cables) should be raised and clipped to a conventional rafter or tie above the level of Ecocel Loft Insulation to meet the requirements of ETCI publication EF 207:2003 *Guide to the National rules for electrical installation as applicable to domestic installations*. All other electrical cables should be laid above the insulation once installation is complete.

All pipework on the cold side of the insulation should be well insulated to minimise the risk of freezing. Cold water tanks shall be completely enclosed and insulated to meet the requirements of BS 5803-5:1985.

Ecocel Loft Insulation should not be placed in contact with flues or metal chimneys or in contact with heating pipes or fittings where the surface temperature is likely to exceed a continuous temperature of 80^{o}C. Ecocel Loft

Insulation must be at least 200mm from the flue in a chimney or 40mm from the outer surface of the brick or blockwork chimney. Where a flue pipe is used, Ecocel Loft Insulation should be separated from the flue pipe by at least three times the diameter of the flue pipe in accordance with the requirements of TGD to Part J of the Building Regulations 1997 to 2006.

Due to the fire risk due to high temperatures that can be caused by high current values produced by extra-low voltage lighting, it is recommended that only surface mounted extra-low voltage lighting be used. However where recessed lights exist, or are to be used, particularly recessed down-lighters, guards should be fitted to keep the Ecocel Loft Insulation at least 75mm from the heat source and should be made of rigid boards or light gauge non-magnetic metal. Where used with down-lighters and recessed light fittings, the guard should be open-topped, or ventilated by drilling holes in the tope of the guard (see Figure 2).

Ecocel Loft Insulation is installed by approved installers using the Krendle 250 or similar blowing machine. The certificate holder should be contacted if further information on these machines is required.

Where eaves ventilation exists, ventilation into the attic must be maintained when installing Ecocel Loft Insulation to meet the ventilation requirements of BS 5803-5:1985 (see Figure 3).

A proprietary polyethylene or timber hatch surround is fixed to the hatch frame and holds the insulation in place around the hatch perimeter. In addition, timber boards can be installed over the insulation immediately around the hatch to facilitate access to the loft space.

The hatch door itself can be insulated by using a proprietary polyethylene bag filled with Ecocel Loft Insulation and stapled to the back of the hatch door or by fastening a portion of rigid IAB approved insulation material to the hatch door. The perimeter of the hatch should be sealed with a draught excluded to minimise water vapour ingress.

An extra 10% thickness above the desired final thickness should be installed before levelling of the surface to ensure a minimum depth requirement is achieved after settlement.

An Ecocel Information Label is installed inside the loft close to the hatch opening, giving details of the Ecocel Loft Insulation used.

After installation, the floor area of the loft should not be used for storage. If storage is required in the loft, raised shelving should be used.

Ecocel Loft Insulation absorbs moisture and therefore must be replaced with new dry material if it becomes wet.

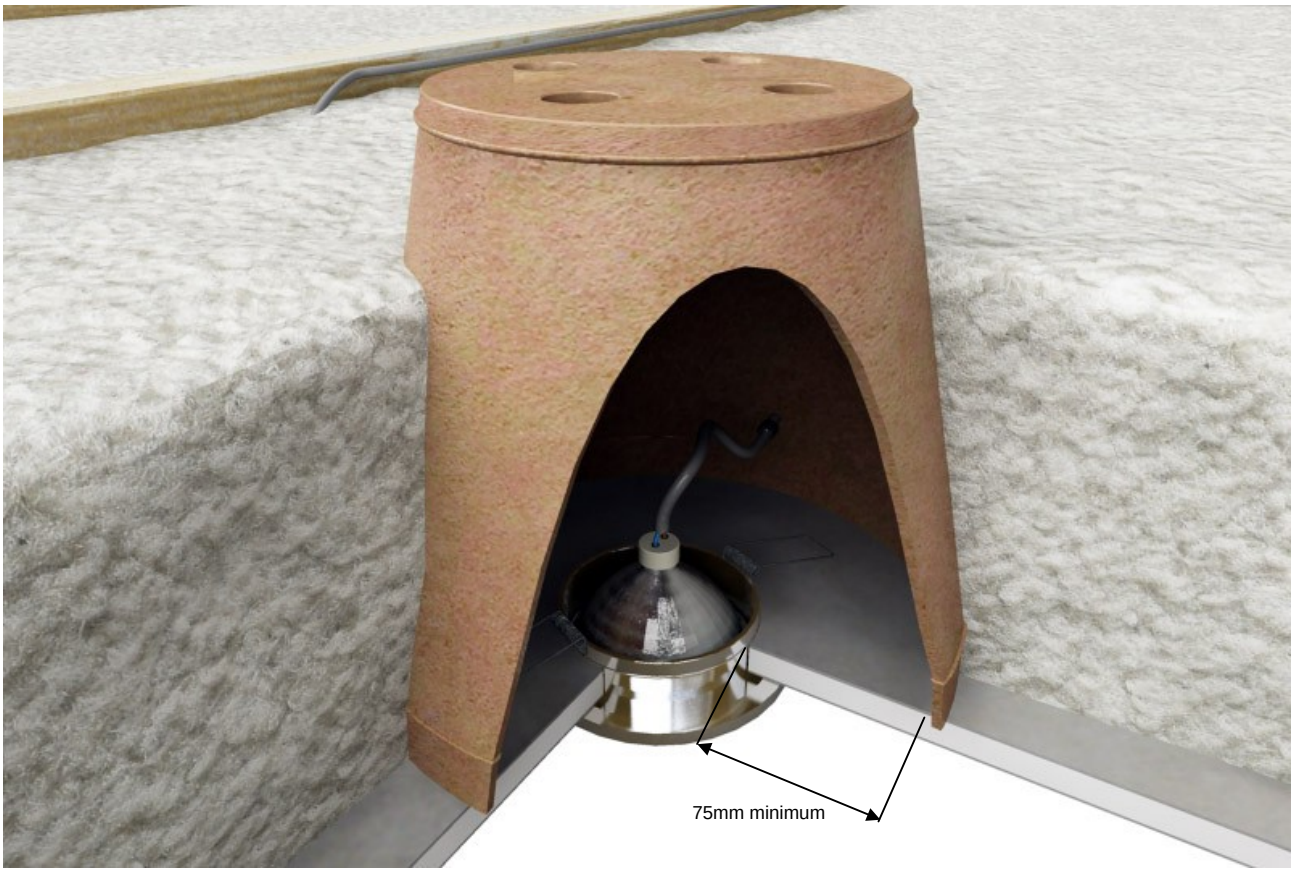


Figure 2: Light Guard Detail

2.4.5 Assessment of Roof Space After Completion

After Ecocel Loft Insulation has been installed in the roof space, it shall be established that the following conditions are fulfilled:

- The roof space is adequately ventilated.
- All water tanks have been completely enclosed including lids and insulated unless they are located on the joists.
- Exposed pipe work above the insulation has been insulated in accordance with BS 5422:2001 *Method for specifying thermal insulating materials for pipes, tanks, vessels, ductwork and equipment operating within the temperature range –40°C to 700°C*, to minimise the risk of freezing.
- The access hatch has been permanently and independently insulated.
- The insulation has not been installed directly over recessed lights. Combustible material is not in contact with flues or metal chimneys.
- All loose electrical wires have been lifted and re-laid over the insulation where practicable.
- The installer has removed the debris, packages etc. from the site.
- The stamped certificate has been issued to the client.

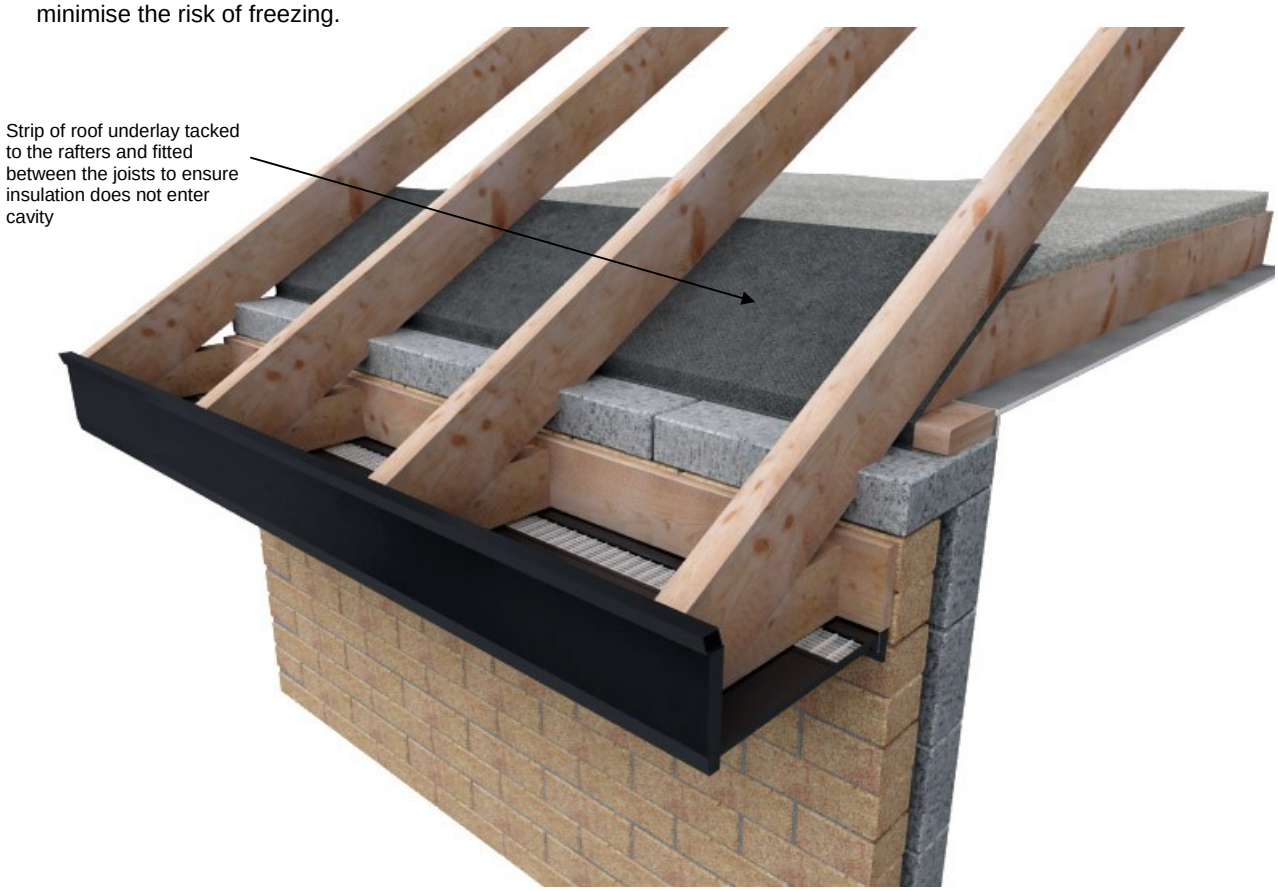


Figure 3: Eaves Detail

Part Three / Design Data 3

3.1 Ecocel Loft Insulation, when installed in accordance with this Certificate, is effective in reducing the U-value (thermal transmittance) of new and existing attic floor constructions.

3.2 Service openings should be sealed with a draught excluder. Any wet or damp Ecocel Loft Insulation material must be replaced with new dry material.

3.3 As with all types of attic insulation, construction detailing should comply with good practice. Any defects should be corrected prior to the installation of Ecocel Loft Insulation.

3.4 Special precautions are required when installing Ecocel Loft Insulation in close proximity to electric cables of high amperage, extra-low voltage lighting, or items whose surface temperature is likely to exceed a continuous temperature of 80°C, as detailed in Section 2.4.3 of this Certificate.

3.5 Ecocel Loft Insulation should not be used where ambient temperatures are likely to be consistently above 65°C.

4.1 BEHAVIOUR IN FIRE

Ecocel Loft Insulation contains inorganic fire retardants which inhibit flaming and smouldering combustion and complies with the performance requirements of BS 5803-4:1985. The product is however classified as a combustible material and must therefore not be used in close proximity to flues in accordance with the requirements of TGD to Part J of the Building Regulations 1997 to 2006.

4.2 RESISTANCE TO MOISTURE

Ecocel Loft Insulation absorbs moisture and must therefore be replaced with new dry material if it becomes wet. All perforations through the plasterboard must be sealed with mastic sealant to prevent moisture ingress.

4.3 THERMAL INSULATION

The declared thermal conductivity (λ value) of Ecocel Loft Insulation when measured in accordance with IS EN 12667:2000 *Thermal performance of building materials and products – Determination of thermal resistance by means of guarded hot plate and heat flow meters method – Products of high and medium thermal resistance*, is 0.039W/mK. See Table 1 for declared U-values of Ecocel Loft Insulation after settlement.

4.4 TOXICITY

Ecocel Loft Insulation does not carry a hazard classification. The product is a non-irritant with a pH of 6.5 – 7.5 and while no specific safety equipment is required, compliance with the Safety, Health and Welfare at Work (General Application) Regulations 1993 (S.I. No. 44 of 1993) and Amendments regarding Personal Protective Clothing should be observed together with ECOCEL Ltd. safety protocols.

4.5 CORROSIVITY

Ecocel Loft Insulation meets the requirements for resistance to initiate corrosion when tested to BS 5803-3:1985 Appendix B.

4.6 DURABILITY

Ecocel Loft Insulation contains additives to provide protection against insects, biological and fungal attack and to make them unattractive to vermin. The product will be virtually unaffected by the normal conditions found in a roof space and will have a life compatible with that of traditional loft insulation materials so long as it is kept dry and is installed in accordance with this Certificate. As stated in Section 4.2, Ecocel Loft Insulation absorbs moisture and must therefore be replaced if it becomes wet.

4.7 TESTS AND ASSESSMENTS WERE CARRIED OUT TO DETERMINE THE FOLLOWING:

- Product characteristics
- Thermal conductivity
- Corrosivity
- Flammability
- Smouldering resistance

4.8 OTHER INVESTIGATIONS

(i) Existing data on product properties in relation to fire, toxicity, environmental impact and durability were assessed.

(ii) The manufacturing process was examined including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.

(iii) In-house testing including flammability, smoulder resistance, and retention of additives were also assessed.

Table 1: Estimated U Values W/(m^2K) for Ecocel Loft Insulation (λ = 0.039 W/mK)

Installed Thickness (mm)	Settled Thickness (mm)	Settled Density (kg/m^3)	Declared Installed U-value After Settlement (W/m^2K)
110	100	30	0.39
163	150	30	0.36
218	200	30	0.19
245	225	30	0.17
272	250	30	0.15
Note: U-values above are based on a roof construction of 10mm tiles on battens, sarking felt, loft space with 100 x 38mm joists at 600mm centres with Ecocel Loft Insulation between/over, and 10mm plasterboard.			

5.1 National Standards Authority of Ireland ("NSAI") following consultation with the Irish Agrément Board ("IAB") has assessed the performance and method of installation of the product/process and the quality of the materials used in its manufacture and certifies the product/process to be fit for the use for which it is certified provided that it is manufactured, installed, used and maintained in accordance with the descriptions and specifications set out in this Certificate and in accordance with the manufacturer's instructions and usual trade practice. This Certificate shall remain valid for five years from date of issue so long as:

(a) the specification of the product is unchanged.

(b) the Building Regulations 1997 to 2006 and any other regulation or standard applicable to the product/process, its use or installation remains unchanged.

(c) the product continues to be assessed for the quality of its manufacture and marking by NSAI.

(d) no new information becomes available which in the opinion of the NSAI, would preclude the granting of the Certificate.

(e) the product or process continues to be manufactured, installed, used and maintained in accordance with the description, specifications and safety recommendations set out in this certificate.

(f) the registration and/or surveillance fees due to IAB are paid.

5.2 The IAB mark and certification number may only be used on or in relation to product/processes in respect of which a valid Certificate exists. If the Certificate becomes invalid the Certificate holder must not use the IAB mark and certification number and must remove them from the products already marked.

5.3 In granting Certification, the NSAI makes no representation as to;

(a) the absence or presence of patent rights subsisting in the product/process; or

(b) the legal right of the Certificate holder to market, install or maintain the product/process; or

(c) whether individual products have been manufactured or installed by the Certificate holder in accordance with the descriptions and specifications set out in this Certificate.

5.4 This Certificate does not comprise installation instructions and does not replace the manufacturer's directions or any professional or trade advice relating to use and installation which may be appropriate.

5.5 Any recommendations contained in this Certificate relating to the safe use of the certified product/process are preconditions to the validity of the Certificate. However the NSAI does not certify that the manufacture or installation of the certified product or process in accordance with the descriptions and specifications set out in this Certificate will satisfy the requirements of the Safety, Health and Welfare at Work Act. 2005, or of any other current or future common law duty of care owed by the manufacturer or by the Certificate holder.

5.6 The NSAI is not responsible to any person or body for loss or damage including personal injury arising as a direct or indirect result of the use of this product or process.

5.7 Where reference is made in this Certificate to any Act of the Oireachtas, Regulation made thereunder, Statutory Instrument, Code of Practice, National Standards, manufacturer's instructions, or similar publication, it shall be construed as reference to such publication in the form in which it is in force at the date of this Certification.

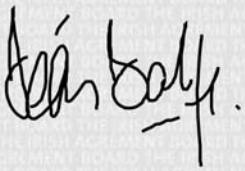
Bord Agrément na hÉireann
Irish Agrément Board

The Irish Agrément Board

This Certificate No. **07/0285** is accordingly granted by the NSAI to **ECOCEL Ltd.** on behalf of The Irish Agrément Board.

Date of Issue: **September 2007**

Signed



Seán Balfe
Director of the Irish Agrément Board

Readers may check that the status of this Certificate has not changed by contacting the Irish Agrément Board, NSAI, Glasnevin, Dublin 9, Ireland. Telephone: (01) 807 3800. Fax: (01) 807 3842. www.nsai.ie