

CERTIFICATE No. 06/0256

Excel Industries Ltd.,
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Warmcel 300 - 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 Warmcel 300 Loft Insulation, a wood based cellulose fibre, treated with in-organic 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:Part 3 :1985: *Specification for cellulose fibre thermal insulation for application by blowing*.

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

USE:

Warmcel 300, deliver to site in 12kg bags and blown into lofts using a fibre delivery system (Krendl blowing machine and hose) by approved installers, trained and regulated by Excel Industries

MANUFACTURE AND MARKETING:

These products are manufactured and marketed by:

Excel Industries Ltd.,
Maerdy Industrial Estate (South)
Rhymney, Gwent,
NP22 5PY
United Kingdom

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1.1 ASSESSMENT

In the opinion of the Irish Agrément Board (IAB), Warmcel 300, if used in accordance with this Certificate, can meet the requirements of the Building Regulations 1997 - 2006 as indicated in Section 1.2 of this Certificate.

1.2 BUILDING REGULATIONS 1997 to 2006 REQUIREMENT:

Part D – Materials and Workmanship

D3 – Warmcel 300 as certified in this Irish Agrément Certificate is comprised of proper materials fit for their intended use (See Part 4 of this Certificate).

D1 – Warmcel 300 as certified in this Certificate, can meet the requirements of the building regulations for workmanship.

Part B – Fire Safety

B2 – Internal Fire Spread (Linings)

Warmcel 300 complies with the performance requirements of BS 5803: Part 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 Warmcel 300 can meet this requirement. Section 4.1 of this Certificate.

Part F – Ventilation

F2 – Condensation in Roofs

Warmcel 300 will not promote condensation and meets the regulation requirements when designed and installed in accordance with Section 2.4 and Part 3 of this Certificate and Appendix B of BS 5803: Part 5: *Specification for installation of man-made mineral fibre and cellulose fibre insulation*.

Part L – Conservation of Fuel and Energy

L1 - Conservation of fuel and energy

Based on the measured thermal conductivity of Warmcel 300 referred to in this Certificate, the current 'U Value' requirements can be achieved (see Section 4.3 of this Certificate).

2.1 PRODUCT DESCRIPTION

Warmcel 300 cellulose fibre insulation, manufacture in accordance with BS 5803: Part 3: 1985: *Thermal insulation for use in pitched roof spaces in dwellings- Specification for cellulose fibre thermal insulation for application by blowing*. It is used as a thermal insulation material open blown into lofts by approved installers, trained and regulated by Excel Industries. Warmcel 300 is grey in colour and has an average installed density of between 27kg/m³ and 35 kg/m³.

2.2 MANUFACTURE

Warmcel 300 is manufactured from dry clean recycled newsprint which is shredded into small separate pieces. Controlled quantities of boric acid and magnesium sulphate are added during the production process. The product is then packed in red 12kg polythene bags with a baled density of 200 kg/m³ and stacked on pallets -45 per pallet, which is wrapped in a clear polythene cover for additional protection.

2.2.1 Quality Control

Quality control checks are carried out on the incoming raw materials, during production and on the finished product. The management systems of Excel Industries Ltd. have been assessed and registered as meeting the requirements of ISO 9001:2000 by the British Board of Agrément (BBA Certificate No. T235038/2004).

2.3 DELIVERY, STORAGE AND MARKING

Warmcel 300 is delivered to site on pallets in sealed polythene bags each weighing approximately 12kg. Each pallet contains a label identifying the product name, batch code, date of manufacturer and the IAB Logo and Certificate number is printed on the individual bales.

The packaging on Warmcel 300 must be protected from damage in transit and the bags should be stored off the ground, under cover in dry conditions, protected from heat and ignition sources and unopened until ready for use.

2.4 INSTALLATION

2.4.1 General

Warmcel 300 must be installed in accordance with the relevant recommendations of BS 5803: Part 5:1985 *Thermal Insulation for use in pitched roof spaces in dwellings – Specification for installation of man-made mineral fibre and cellulose fibre insulation*, and the Warmcel Loft Insulation Installers Manual. Installation must only be performed by approved installers, trained and regulated by Excel Industries.

Warmcel 300 should not be used where ambient temperatures are consistently above 65°C. It is essential the roof space is ventilated to meet the requirements of BS 5803: Part 5 :1985. Appendix B.

Warmcel 300 is compatible with other insulation types and can therefore be used in top-up situations. In case of doubt the certificate holder's advice should be sought.

2.4.2 Approved Installers

Installation of Warmcel 300 Loft insulation is carried out by the Approved Installers of Excel Industries 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 approved by Excel Industries Ltd. and the IAB to install the product.
- 3) Have undertaken to comply with the Excel Industries Ltd. installation Procedure.
- 4) Are employing technicians who have been issued with appropriate identity cards by Excel Industries Ltd. At least one member of each installation team must carry a card verifying this.
- 5) Are subject to supervision by Excel Industries Ltd. including unannounced site inspections.

2.4.3 Procedure

1. 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.

2. 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.

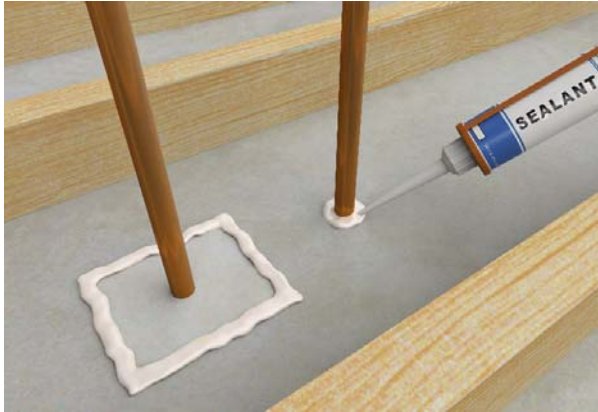


Figure 1: Sealing of Perforations

3. 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 the Warmcel 300 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.

4. 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: Part 5: 1985.
5. Warmcel 300 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°C. Warmcel 300 installations should be at least 200 mm from the flue in a chimney or 40mm from the outer surface of the brick or blockwork chimney. Where a flue pipe is used, Warmcel 300 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 Part J of the Building Regulations 1997 to 2006.
6. 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 exists, or are to be used, particularly recessed down lighters, guards should be fitted to keep the Warmcel 300 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 top of the guard. See figure 2.



Figure 2: Typical Detail of Light Guard

7. Warmcel 300 insulation is installed by approved installers using the Krendl 250 (producing an average installed density of 27 kg/m³) or Krendl 450 Blowing Machine (producing an average installed density of 35 kg/m³). Krendl 500, Krendl 2000 and Krendl 2001 machines can also be used (each produces an average installed density of 35 kg/m³). The Certificate holder should be contacted if further information on these machines is required.
8. Where eaves ventilation exists, proprietary eaves ventilators must be used when installing Warmcel 300 insulation, to meet the ventilation requirements of BS 5803: Part 5 :1985. See figure 3.
9. A proprietary polyethylene or timber hatch-surround is fixed to the hatch frame and holds the Warmcel 300 insulation in place around the hatch perimeter. See figure 4. In addition, timber boards can be installed over the insulation immediately around the hatch to facilitate access to the loft space.
10. The hatch door itself can be insulated by using a proprietary polyethylene bag filled with Warmcel 300 and stapled to the back of the hatch door or by fastening a portion of rigid IAB approved insulation material to the hatch door. In addition the perimeter of the hatch should be sealed with a draft excluder to minimise water vapour ingress
11. 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.
12. A Warmcel Customer Information Sheet is installed inside the loft, close to the hatch opening giving details of the Warmcel 300 insulation system used.
13. After installation of Warmcel 300, the floor area of the loft should not be used for storage. If storage is required, raised shelving should be used.
14. Warmcel 300 absorbs moisture and should therefore be replaced with new dry material if it becomes wet.

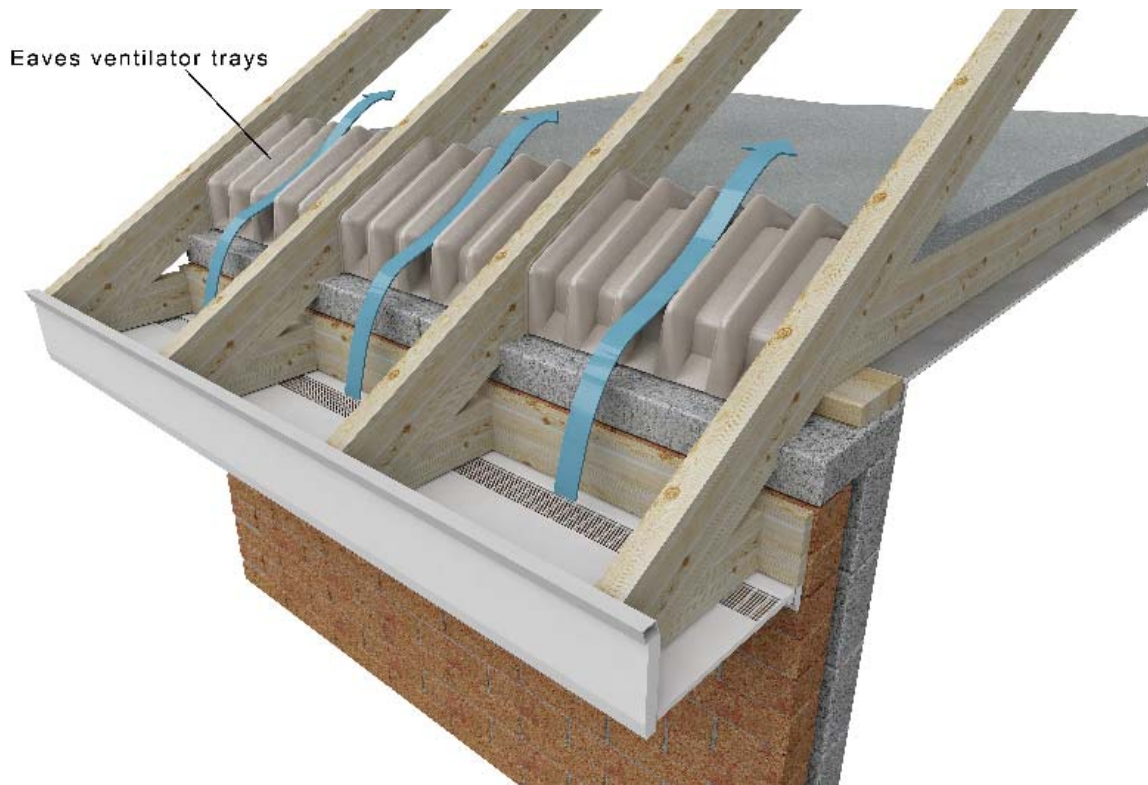


Figure 3: Typical Detail at Eaves

2.4.4 Supervision

Installation should be carried out in accordance with this Certificate, Excel Industries Ltd's System Supplier Manual and the IAB Surveillance Scheme.

During and after 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 exists 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 fitting above 80°C.
- 8) Check that all perforations through the plasterboard have been sealed with mastic sealant.
- 9) Ensure a hatch guard has been installed.

On completion of the installation of Warmcel 300, the Installer shall provide the client with signed and stamped certificate containing details of the installation to meet the requirements of BS 5803: Part 5: 1985, paragraph 10.

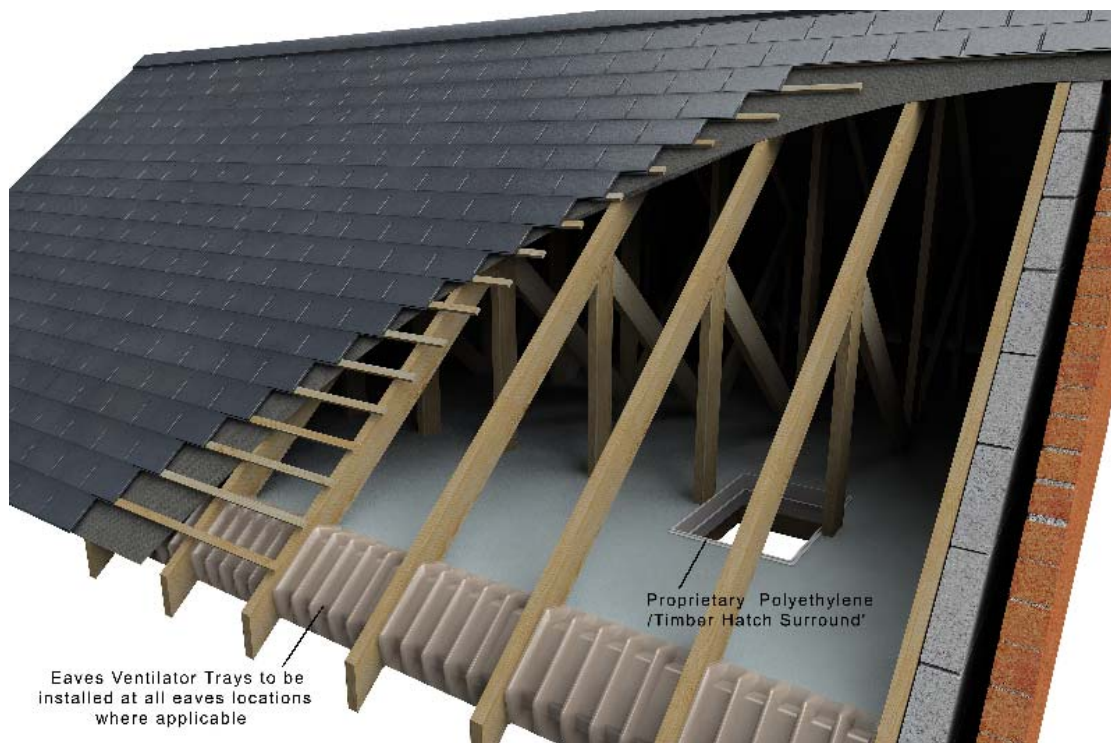


Figure 4: Typical installation details of Warmcel 300

3.1 GENERAL

Warmcel 300 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. See Table 1 for details.

3.2 It is essential that perforations through the plasterboard ceiling at pipe drops etc. are sealed with mastic sealant to prevent the ingress of moist air. In addition, service openings should be sealed with a draft excluder. Any wet or damp Warmcel 300 insulation must be replaced with new material.

3.3 As with all types of attic insulation, construction detailing should comply with good practices. Any defects should be corrected prior to the installation of insulation system.

3.4 Special precautions are required when installing Warmcel 300 in close proximity with electrical 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 2.4.3 of this certificate.

3.5 Warmcel 300 should not be used where ambient temperatures are likely to be constantly above 65°C.

4.1 BEHAVIOUR IN FIRE

Warmcel 300 contains inorganic fire retardants which inhibit flaming and smouldering combustion and complies with the performance requirements of BS 5803: Part 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 Part J of the Building Regulations 1997 to 2006. See clause 2.4.3 paragraph 5 and 7 for details relating to the installation of Warmcel 300.

4.2 RESISTANCE TO MOISTURE

Warmcel 300 absorbs moisture and should 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 Warmcel 300 when measured in accordance with I.S. 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 0.040 W/mK.

See Table 1 for declared U-values of Warmcel 300 (after settlement).

4.4 TOXICITY

Warmcel 300 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 Excel Industries safety protocols.

4.5 CORROSIVITY

Warmcel 300 meets the requirements for resistance to initiate corrosion when tested to BS 5803: Part 3, Appendix B *Method of test for corrosivity*.

4.6 DURABILITY

Warmcel 300 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 kept dry and installed in accordance with this Certificate. Warmcel 300 absorbs moisture and should therefore be replaced with new dry material if it becomes wet.

4.8 TESTS

Tests were carried out to determine the products characteristics, thermal conductivity, corrosivity, and practability.

4.9 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 smoulder, flammability, ash content, blowtorch, settlement and retention of additives tests were also assessed.

Table 1: Estimated U Values *

Installed Thickness (mm)	Settled Thickness (mm)	Settled Density (kg/m ³)	Declared Installed U Value (After settlement) – W/m ² K
100	90	25 +/- 15%	0.44
150	135	25 +/- 15%	0.30
200	180	25 +/- 15%	0.22
250	225	25 +/- 15%	0.18
300	270	25 +/- 15%	0.15

* Above U values based on Warmcel 300 having a thermal conductivity (λ value) of 0.040W/mK when installed with a density of 24kg/m³. Assumed roof construction of 10mm tiles on battens, sarking felt, loft space with 100x38mm joists at 600mm centres with Warmcel 300 between/over and 10mm plasterboard.

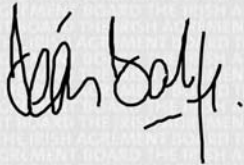
- 5.1** National Standards Authority of Ireland ("NSAI") following consultation with the Irish Agrément Board ("IAB") has assessed the performance and method of installation of the product/process and the quality of the materials used in its manufacture and certifies the product/process to be fit for 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. 1989, 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.

The Irish Agrément Board

This Certificate No. **06/0256** is accordingly granted by the NSAI to **Excel Industries Ltd.** on behalf of The Irish Agrément Board.

Date of Issue: **September 2006**

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.n sai.ie