

This certificate is valid for Building Regulations & associated technical guidance in force on the date of registration and for the regulations in the countries indicated

## Duratherm® OS spray applied polyurethane foam for stabilisation and insulation

### Description of Product

This is an assessment of Duratherm® OS spray applied HFC blown polyurethane foam for roof stabilisation and insulation. Applications assessed are stabilisation, insulation and insulation plus stabilisation.

Duratherm® OS is a 2 component modified polyurethane rigid foam system suitable for use in both flat and pitched roof applications. The material is formed in situ by mixing isocyanate and resin within the nozzle of a spray gun during the spraying process. The foam is spray applied in layers not exceeding 20mm with additional layers added to provide thickness. Curing of Duratherm takes place within 2 hours.

For stabilisation purposes the product can be used to extend roof life by at least 20 years.



### Key Factors Assessed

- Mechanical Resistance & Stability
- Safety in case of Fire
- Health, Hygiene and Environmental
- Safety in Use
- Energy Economy and heat retention

### Validity

This certificate was first issued on 1<sup>st</sup> June 2016 and is valid until 1<sup>st</sup> June 2019

Issue Dated 4<sup>th</sup> May 2018

## Scope of Registration

This registered system relates to Duratherm® OS by Isothane Ltd for use in roof stabilisation due to nail fatigue and insulation of flat and pitched roofs.

Systems examined where for use in;

1. **Unfelt pitched roofs for stabilisation where nail fatigue has occurred.** Duratherm is sprayed between rafters to a total thickness of 25-40mm to the underside of the existing roof tiles or slates to provide stabilisation and prolong roof life.
2. **Unfelt pitched roofs for stabilisation and insulation.** Duratherm is sprayed between rafters to required depth and if additional insulation is required below rafter's cross-battens are mechanically fixed to the underside of rafters. Spray filling of Duratherm continues in layers of 20mm thickness. Once complete a VCL and plasterboard is fixed to the underside of the cross-battens.
3. **New or existing pitched roofs for insulation.** Duratherm is sprayed between rafters to the existing bitumen or breathable felt in layers as system 2 above. When installed in roofs with underlay felt, the existing drape of felt will not be affected due to the first pass of the spray being liquid in nature will allow drape to remain.
4. **Flat roofs for insulation.** Duratherm is sprayed directly to the underside of the roof deck in layers not exceeding 20mm as before. Once application is complete foilbacked plasterboard or other VCL plus plasterboard is applied to underside of joists.

A well-sealed ceiling as described in BS 5250 is required.

Example U value calculations have been undertaken showing conformity with target U values of 0.18 W/m<sup>2</sup>K and 0.15 W/m<sup>2</sup>K recommended in Approved Document L1B (England) and Wales. The examples show compliance with AD L with no risk of interstitial condensation. Bespoke calculations will be provided to suit individual site circumstances, a condition of this detail.

Duratherm® OS is spray applied in layers not exceeding 20mm in thickness, additional layers are applied to provide thickness. No more than 10 minutes should elapse between applications of layers.

Roof spaces should be ventilated in accordance with BS5250:2011.

Isothane Ltd is registered under ISO 9001: 2008 (Quality Management System) for design, development and manufacture of polyurethane chemicals and related materials. The identification and merchandising of products or services which supplement the manufactured range.

Isothane Ltd is registered under ISO 14001:2004 (Environmental Management System) for design, development and manufacture of polyurethane chemicals, related materials and systems.

### Preparation/Application

Roof timbers must be dry and any rotten timbers replaced with roof made weathertight prior to installation of Duratherm. Substrates must be clean, dry and free from dirt, grease oil and loose particles, primer may be required for maximum adhesion.

The two component parts of Duratherm are delivered in drums which must be stored in well ventilated areas above 10 C, protected from frost and away from ignition sources. The Isocyanate component is classed as harmful before curing.

The process of applying Duratherm may produce a build-up of harmful vapours, which due to being heavier than air may enter lower parts of the building, it is therefore essential that suitable ventilation is provided. Protective clothing should be worn by all those in application area.

Water tanks should be covered to prevent contamination during application. Duratherm should not be in contact with flue pipes, chimneys or other heat producing appliances. If hot work is to take place near Duratherm, it must be cut back 2 metres and protected by heat blankets.

## Conditions of Certificate

Future alterations to the roof, including removal of slates and tiles should be considered prior to using Duratherm.

Installation to be by trained installers in strict accordance with manufacturer's instructions, guides and recommendations and supported by relevant u-value calculations and condensation risk analysis.

The specific roof construction is to be verified to enable appropriate solution and bespoke U value calculations to be provided to suit individual site circumstances.

Electrical cables should not be encapsulated within Duratherm. Recessed spotlights cannot be used with Duratherm.

Separation distances from flues to Duratherm (combustible material) should conform to guidance in Approved Document J.

### **For Scotland purposes:**

Future alterations to the roof, including removal of slates and tiles should be considered prior to using Duratherm.

Installation to be by trained installers in strict accordance with manufacturer's instructions, guides and recommendations and supported by relevant u-value calculations and condensation risk analysis.

The specific roof construction is to be verified to enable appropriate solution and bespoke U value calculations to be provided to suit individual site circumstances. A job specific condensation risk analysis should be provided.

Duratherm must not be in contact with electrical cables. Recessed spotlights cannot be used with Duratherm.

Separation distances from flues to Duratherm (combustible material) should conform to guidance in Section 3 of the Technical Handbook.

An approved installer would carry out the site assessment and would have been trained/assessed by Isothane in order to achieve the status of 'approved installer'.

An independent structural assessment on the suitability of the product for use where roof stabilisation is an issue should be carried out.

### **For LABC Warranty purposes:**

The system can be used as an insulation component in new and existing domestic pitched roofs, including hybrid roofs or flat timber roof constructions.

The system can be used as a stabilisation component as a repair medium on tiled and slated pitched roofs suffering from nail fatigue in existing domestic cold roofs.

For use in Warranty conversion projects; a Chartered Structural engineer must provide a structural assessment of the roof conditions and confirm that the use of the product will contribute to achieving a structural life of 60 years for the remediated roof.

The recommendations and limitations within the BBA or BRE certificate are followed and the certificate remains current and not withdrawn at the time of the warranty application.

LABC and LABSS consider that, Duratherm will meet the functional requirements of the Building Regulations (listed below) if the criteria detailed in this certificate are met;



### The Building Regulations 2010 (as amended) England & Wales

Regulation 7	Materials and workmanship
Note:	The product is acceptable.
AD J	Combustion appliances and fuel storage systems
Note:	The product is acceptable.



### The Building Regulations 2010 (as amended) England

AD L1A	Conservation of fuel and power
Note:	The product is acceptable.



### The Building Regulations 2010 (as amended) Wales

AD L1A	Conservation of fuel and power
Note:	The product is acceptable.



### The Building (Scotland) Regulations 2004 (as amended)

Technical Handbook Domestic and Non-Domestic

Regulation 8	Durability, workmanship and fitness of materials
0.8.5:	Ways of establishing the fitness of materials
Regulation 9	Building Standards applicable to construction
Note:	Construction shall be carried out so that the work complies with the applicable requirements of schedule 5.
Mandatory	
Standard 1.1	Structure
1.1.0	Introduction
1.1.1	General
1.1.2	Loading

1.1.3	Design and construction
Note:	An approved installer should carry out the site assessment. Such installer would be trained/assessed by Isothane to achieve the status of 'approved installer'.
Mandatory	
Standard	3.10 Precipitation
3.10.1	General provisions
3.10.8	Roof constructions (pitched)
Note:	Duratherm can be applied onto the underside of sarking boards. Please see Product Sheet 1 of the Duratherm BBA certificate 10/4771.
Mandatory	
Standard 3.15	Condensation (Domestic)
3.15.1	Condensation
3.15.3	Control of condensation in roofs
3.15.5	Interstitial condensation
Note:	An appropriate Vapour Control Layer should be installed at ceiling. Prior to specification a condensation risk analysis should be carried out to assess suitability and the nature of the VCL to be used. See attached BBA certificate 10/4771 Product Sheet 1
Mandatory	
Standard 4.5	Electrical safety
4.5.0	General
4.5.1	Electrical installations
Note:	Wiring should not be encapsulated within Duratherm as the thermal properties could lead to potential overheating and wiring should be installed in conduit.
Mandatory	
Standard 6.2	
6.2.0	General
6.2.6	Conversions of unheated buildings
6.2.7	Conversions of heated buildings
6.2.9	Extensions to the insulation envelope
6.2.11	Alterations to the insulation envelope
Note:	A site specific assessment must be made in every case to establish the maximum U-value required for the product, and the related elements, used in the make-up of the roof.

## Non-Regulatory Information



### LABC Warranty

LABC Warranty conditionally accepts the use of Duratherm when installed and used in accordance with the Scope and Conditions of this Certificate. Visit [www.labcwarranty.co.uk](http://www.labcwarranty.co.uk) for our LABC Warranty Technical Manual requirements and Warranty conditions of acceptance.

## Supporting Documentation

Duratherm® BBA\_1\_Ins - Agrément Certificate

Duratherm® BBA\_2\_Stab - Agrément Certificate

Duratherm® BBA\_1\_IandS - Agrément Certificate

BSI ISO 9001 Quality Management System

BSI ISO 14001 Environmental Management System

NBS Plus\_Duratherm OS

DURATHERM TDS (15)

Flat rf 0.15 –Flat roof 0.15 Wm2K

Flat rf 0.18 –Flat roof 0.18 Wm2K

Pitched rf ins only 0.15 - Pitched roof insulation only 0.15 Wm2K

Pitched rf ins only 0.18 - Pitched roof insulation only 0.18 Wm2K

Pitched rf ins and stab 0.15 - Pitched roof Ins.and stab 0.15 Wm2K

Pitched rf ins and stab 0.18 - Pitched roof Ins.and stab 0.18 Wm2K

## Contact Information

Isothane Ltd

Newhouse Road

Huncoat Business Park

Accrington

Lancashire

BB5 6NT

Tel: 01254 872555

Email: [richard.spencer@isothane.com](mailto:richard.spencer@isothane.com)

Web: [www.isothane.com](http://www.isothane.com)