

## **Isothane Limited**

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**Mr. R. Spencer Business Director - Specialties**

We represent ISOTHANE LTD; a UK based manufacturing company supplying polyurethane products for waterproofing and structural protection for civil engineering and construction.

The company manufactures Polyurethane Prepolymers (TDI and MDI) which are used for the manufacture of waterproofing membranes and also manufactures a single component tar extended liquid moisture curing waterproofing membrane.

This area is Isothane's main business and both the TDI prepolymers and the membrane are exported regularly in 20' containers.

In some cases, we have licensed to companies who now manufacture membranes using Isothane prepolymer as part of the deal. In other cases, we supply prepolymers to companies with their own membrane technology and have technical development programs in place to constantly improve products.

Isothane supplies a range of these products for various applications, both polyurea coatings and polyurea/polyurethane hybrids.

Their main area of activity is polyurethane prepolymers that are used for manufacturing liquid waterproofing membranes and sealants.

Polyurea coatings and Polyurea/Polyurethane hybrids.

They also manufacture two component spray foam, two component polyurea coatings and some one component tar extended liquid waterproofing membranes.

**EMB** - This is a cold applied liquid membrane that is used in construction for waterproofing wet areas, such as balconies, shower rooms, kitchens and basements. If you are not familiar with this type of product it is usually brushed on and cures to make a tough continuous membrane with good waterproofing.

**PD2000** - This is a polyurethane prepolymer, a liquid resin which is used to manufacture the liquid membranes like EMB. If the customer wants the membrane we supply EMB but if they want to make it themselves, which is usually the case,

then we sell the PD2000 prepolymer and they make the liquid membrane (usually extended with either coal tar or bitumen).

Thermadek - This is an example of a spray foam but there is a wide a product range to choose from here depending on the density of the foam required.

ArmourChem - Is a two component polyurea and again there is a range of products but this is the main product for concrete protection and waterproofing, used in secondary containment.

I have attached some technical data sheets to show in more detail the products we can discuss.

We would welcome your comments on these materials.

As an example, please find attached a technical data sheet for Isothane PD2037.

The product Isothane PD2037 is a typical product used by coatings companies to manufacture liquid applied waterproofing membranes. These can be tar/pitch or bitumen extended and can also be just pigmented black or another colour to be used as a basecoat. The main application is the waterproofing of concrete in construction projects and this is done with tar or bitumen extended products.

## **Isothane Limited:**

### **PRODUCTS & DESCRIPTIONS:--**

#### **PREPOLYMERS: PRE-POLYMER RANGE**

Isothane's modern manufacturing facility and capability to handle di-isocyanates such as TDI, MDI & IPDI safely and expertly ensures that all types of Prepolymer can be produced cost effectively. Our flexible manufacturing process enables us to produce any volume, large or small. Bespoke prepolymers can be tailored to individual customers' specific needs, if required.

#### ***1602: PP Prepolymer***

**1602PP** is MDI based polyurethane prepolymer which may be used as the basis for a range of moisture curing polyurethane coating systems.

**One of the applications of 1602PP is in the manufacture of solvent based moisture curing polyurethane floor coating designed to provide a long lasting economical floor sealer.**

#### **Typical Applications**

**Floor coating systems based on 1602PP can be used on most surfaces including concrete, cement, asbestos, granolithic floors, plywood and many others.**

## ***1248: PP Polyurethane Prepolymer***

### **Product Description**

The **1248PP** series is a range of polyfunctional, medium molecular weight, MDI based polyurethane prepolymers with terminal isocyanate groups.

### **Uses**

The **1248PP** series can be used in various sealing, priming and adhesive applications, mainly in one pack products. Certain members of the range are particularly suitable for use in the manufacture of one component, moisture curable, flexible concrete sealers. Other applications include primers of various coating systems and sealers for other porous substrates.

## ***1200PP: Polyurethane Prepolymer***

### **Product Description**

**1200PP** is a polyfunctional, medium molecular weight, MDI based polyurethane prepolymer with terminal isocyanate groups.

### **Uses**

**1200PP** shows a particular advantage when used as an adhesive for wood or similar substrates, other applications include primers of various coating systems and sealers for other porous substrates. Isothane **1200PP** is used in a wide variety of applications, mainly in one component products.

## ***PD2000: Low free TDI monomer Polyurethane Prepolymer***

### **Product Description**

**PD2000** pre-polymer is a new, high performance, TDI based polyurethane pre-polymer with a low free monomer content.

### **Uses**

**PD2000** can be used in various sealing and coating applications both in one and two pack products, and is particularly suitable for use in the manufacture of one component, moisture curable, flexible, seamless membrane coatings. Other applications include joint fillers, pipe coatings and binding for cork, rubber, foam etc.

## **POLYUREA RANGE:**

Isothane manufactures a range of heavy-duty spray elastomers and polyurea coatings for use in the industrial, marine and civil engineering sectors.

Our expertise in spray technology and on-site support make Isothane the ideal partner for your project whether this involves truck bed lining, chemical containment, or bund protection.

Isothane operates an approved contractor network to ensure the high quality of the installation of our polyurea range coating systems.

### **Fast Set Protective Coatings**

The "Armour-Range" are market-leading polyurea / polyurethane hybrid coatings that cure in seconds and can be put into service in minutes. They offer exceptional resistance to mechanical abrasion and chemical attack along with high tensile elongation and crack-bridging properties. Applications are diverse and include bund wall lining, coating of manhole access chambers and pipe protection.

### **Civil Engineering**

The "Armour-Range" are 100% solids, high build coatings which provide 100% adhesion to all substrates commonly used in construction including concrete and metals.

### **Truck Bed Lining**

The toughness and abrasion resistance of the "Armour-Range" make them ideal for use as sprayed-in-place truck bed liners. Being 100% bonded, they offer excellent resistance to water damage, corrosion and other problems associated with traditional drop-in-liners.

### **Potable Water & Food Contact**

ARMOUR - FLEX PW is a 100% solids polyurea elastomer designed as a monolithic, seamless, waterproof liner for where there is direct contact with potable water or food products. It is WRAS, ANSI / NSF 61 and USDA approved. In addition it has proven its performance in frozen food cold stores.

### ***ARMOUR - FLEX PW WRAS approved Polyurea Elastomer for Potable Water or Food Contact***

#### **Product Description**

ARMOUR - FLEX PW is a 100% solids pure polyurea elastomer designed as a monolithic, seamless, waterproof liner for where there is direct contact with potable water or food products. It is the fastest curing and fastest back-in-service polyurea coating available with WRAS approval. ( WRAS certificate 0603509 ). It also has approval for food contact under standard EN1186-3 2002.

ARMOUR - FLEX PW is the first choice where a tough, flexible liner is required. It is very abrasion resistant, requires extremely short down time, contains no

VOCs and has extremely low odour. It has very good salt fog and chemical resistance and may be applied in conditions down to -20°C. It is available in a range of colours as indicated. Light colours may change with UV exposure over time.

Black Grey

### Typical Applications

- Tank linings, water pipe & fittings lining
- Potable water or food product containment lining
- Railway wagon lining for food products

### Typical Properties

**ARMOUR - FLEX**

**PW Resin ARMOUR - FLEX**

**PW H** Appearance Viscous liquid Viscous liquid Viscosity @ 25° C 600 cps 800 cps  
Specific Gravity @ 25° C 1.05 1.15 Water Content <0.01%

### **ARMOUR-CHEM Polyurea Elastomer**

#### Product Description

**THE SPRAY APPLIED, ELASTOMERIC COATING THAT CAN BE PUT INTO SERVICE IN MINUTES.**

The technology of Polyurea sprayed elastomers is based on amine - terminated polyether resins, amine chain extenders and isocyanates. It provides a flexible monolithic extremely tough elastomer with good physical properties, high degrees of thermal and hydrolytic stabilities and excellent water and chemical resistance.

#### Features

- **ARMOUR - CHEM** spray is a seamless membrane that can be handled and walked on one minute or less from the time it is sprayed
- **ARMOUR - CHEM** spray is hydrophobic and therefore unaffected by damp substrates when creating non - bonded liners. It can be sprayed at temperatures as low as -30° C with minimal effect on tack free time
- Due to the almost instantaneous gel of **ARMOUR - CHEM** spray, it can be built up to any thickness in one application including vertical and overhead applications. This eliminates the need for multicoat applications
- **ARMOUR - CHEM** spray is 100% solids, no solvents, no V.O.C.s
- The cured elastomer has a high thermal stability with constant working temperatures up to 130° C and intermittent temperatures up to 160° C
- **ARMOUR - CHEM** spray can be applied with a standard 1 : 1 ratio plural component high pressure machine ( capable of developing 2000 psi ). Consult

Isothane technical staff for a specific recommendation. The Polyurea exhibits a high service temperature due to its amorphous structure. The coating will stand in a service temperature range of -50° to +130° C

## Some Recommended Uses

- Fish boat holds
- Earth containment lining
- Tank linings for primary and secondary containment
- Roof coatings for metal decks
- Steel tanks, silos and pipes
- Hail, bird and traffic protection over polyurethane foam
- Encapsulant for styrofoam and other types of floatation
- Liner for concrete tanks, ponds, lagoons, reservoirs, dykes, irrigation ditches, tunnels, barges, etc.

## ***ARMOUR - TRUCK Polyurea Elastomer***

### Product Description

**ARMOUR - TRUCK R** is a resin system which when combined with Armour - Truck H will produce a resilient, durable polyurea elastomer specifically designed for easy application with good physical properties.

**It is typically used as a liner to protect truck beds.**

**ARMOUR - TRUCK** is available in a range of colours as indicated.

White	Black	Red
Yellow	Green	Blue
Orange	Grey	Brown

### Advantages

- Amazing durability
- No loss of load space area
- Does not split or crack like plastic drop-in liners and water cannot get under it
- Easy clean
- Great impact resistance
- Range of colours
- Any thickness required
- Sound deadening qualities
- Smart factory finish
- Very grippy, slip resistant

## **ARMOUR - COAT** **UV Stable Aliphatic Polyurea Elastomer**

### **Product Description**

**ARMOUR - COAT R** is a pure polyurea 100% solids, zero VOC resin system, which when combined with Armour - Coat H will produce a resilient, chemical resistant elastomer. It is fast curing ( 20 - 25 sec tack free time ) and can be used at temperatures down to -20°C. It is formulated to be UV stable / colour fast.

**ARMOUR - COAT** is available in a range of colours as indicated, others by arrangement:

Black                      Dark Grey                      Neutral

### **Typical Applications**

Protective coating where it is required to be UV color stable  
General purpose waterproofing  
Secondary containment  
Pedestrian and vehicles flooring  
New internal and external industrial flooring  
Restoring old internal and external industrial flooring  
Restoring old asphalt layer without removal

## **ARMOUR - PRIME** **Solvent Free, Zero VOC Polyurethane Primer**

### **Description**

**ARMOUR - PRIME** is a specialised, high adhesion primer system designed to improve adhesion between polyurethane or polyurea coatings and substrates. **ARMOUR - PRIME** is particularly suitable when used in conjunction with Isothane Polyurea coatings. It is a solvent free, zero VOC, two-pack system. It acts as a sealer on porous substrates such as concrete and will consolidate a friable substrate such as that of asbestos cement. It acts as a barrier coat on bituminous substrates and improves adhesion to difficult substrates such as non-ferrous metals.

## **Membrane Range**

### **ISOTHANE EM RANGE**

High performance, liquid applied polyurethane systems offer seamless protection from foundation to rooftop, and are available in black and solar reflective aluminium finishes.

## ROOF WATERPROOFING

The Isothane EM range offers heavy duty resistance to ponded water and ultra violet light. It possesses excellent strength and elasticity, has no joints or seams and provides 100% adhesion to substrates.

## WEATHERPROOFING

Our EM products' outstanding weathering characteristics can extend the life of many structures including external storage tanks, trunking, asbestos cement and metal cladding

## BELOW GROUND WATERPROOFING AND TANKING

Tough, fully bonded and seamless, the Isothane EM range provides exceptional protection in below ground applications.

### *EMA Elastomeric Waterproofing*

#### Product Description

**EMA** elastomeric membrane is a liquid applied coating based on urethane prepolymers which cures by reaction with atmospheric moisture to give a continuous film which is rubbery and elastic. It contains leafing aluminium which gives excellent U.V. resistance. **EMA** is a very high solid coating designed to give a high-build film. It can be brush or spray applied ( with airless spray equipment ) but it has a higher viscosity than a conventional paint and should not be diluted.

**EMA** cures to a permanently flexible seamless membrane that, by virtue of its chemical reactivity in the wet state, has good adhesion to a wide range of substrates. Unlike more traditional bitumen based products, **EMA** does not readily embrittle with age, exposure to ultra violet radiation or weathering, and hence it does not crack or craze.

Since it is elastomeric **EMA** is not adversely affected by extremes of temperature consequently it does not crack at low temperatures or suffer thermal flow at elevated temperatures.

**EMA** can be applied by brush or roller without the need to mix, stir or heat before application. **EMA** can be made into a sprayable grade by the addition of solvent. Please refer to Isothane instructions on the correct procedure.

#### Areas of Application

Isothane elastomeric membranes are designed to bond to many types of substrate particularly those commonly used as roofing, such as felt, asphalt, slate, tiles, asbestos, concrete, brick, wood, glass and metals. They can also be applied to spray polyurethane (pu) foam insulation. However, it is essential that the substrate and structures are properly prepared, and stable.

Surfaces previously treated with silicone-based materials will inevitably be difficult to overcoat and this should not be attempted with Isothane products.

Substrates with poor adhesion to the underlying structure ( e.g. blistered roofing felt ) may also cause problems in providing sound over-coating.

Preferential vapour drive in buildings must also be borne in mind when over-coating the roof and it may be judged expedient to employ ventilation to cope with transmission of high levels of moisture vapour.

## **EMB Elastomeric Waterproofing**

**Conforms to the requirements of ASTM 836-05 “Standard specification for high solids Content, Cold liquid- Applied Elastomeric Waterproof Membrane for Use with Separate Wearing Course**

### **Product Description**

**EMB** elastomeric membrane is a liquid applied coating based on polyurethane prepolymers extended with tar, which cures by reaction with atmospheric moisture to give a continuous film that is rubber-like and elastic.

**EMB** is a high solid coating designed to give a high-build film. It can be brush or spray applied ( with airless spray equipment ) but it has a higher viscosity than a conventional paint and should not be diluted.

**EMB** cures to a permanently flexible seamless membrane that, by virtue of its chemical reactivity in the wet state, has good adhesion to a wide range of substrates. Unlike more traditional bitumen based products, **EMB** does not readily embrittle with age, exposure to ultra violet radiation or weathering, and hence it does not crack or craze ( European conditions ).

Since it is elastomeric **EMB** is not adversely affected by extremes of temperature consequently it is resistant to cracking at low temperatures and does not suffer thermal flow at elevated temperatures.

**EMB** can be applied by brush, airless spray or roller without the need to mix, stir or heat before application.

### **Areas of Application**

Isothane elastomeric membranes are designed to bond to many types of substrate particularly those commonly requiring a waterproof membrane in ‘tanking’, above and below ground, and internal wet area sections of buildings. It is essential that the substrate and structures are properly prepared, and stable. Surfaces previously treated with silicone-based materials will inevitably be difficult to overcoat and this should not be attempted with ISOTHANE products.

## ***ISOTHANE PU PRIMER Polyurethane Primer***

### **Description**

**PU PRIMER** is a specialised, high adhesion primer system designed to improve adhesion between a large variety of coatings and substrates. PU PRIMER is particularly suitable when used in conjunction with Isothane Elastomeric Membrane coatings or Isothane foams. It is a special blend of moisture curing urethane prepolymers in solvent and its chemical similarity to EM coatings ensures good adhesion between the two within the specified overcoat times. It acts as a sealer on porous substrates such as concrete and will consolidate a friable substrate such as that of asbestos cement. It acts as a barrier coat on bituminous substrates and improves adhesion to difficult substrates such as non-ferrous metals.

References to the specific application of **PU PRIMER** are made in the Isothane Data and Application Notes.

## ***FOAMSHIELD***

### ***All Polyurethane High Performance Coating System***

### **Product Description**

**FOAMSHIELD** is a composite two component coating system consisting of a brown urethane base coat and a light grey urethane top coat. The **FOAMSHIELD** base coat gives exceptional adhesion to the substrate whilst **FOAMSHIELD** top coat provides a hardwearing and weather resistant top surface.

### **Uses**

The **FOAMSHIELD** system is used for all roofing applications where permanent ponding water is not a problem. The system can withstand 1" of ponded water over 10m<sup>2</sup> per 48 hours. Ponding conditions in excess of this demand special consideration, and reference should be made to our Technical Department. The system is designed for use on sprayed polyurethane foam, but can be applied to other surfaces provided due consideration is given to priming and joint preparation.

## **Rigid Polyurethane Foam**

**We supply liquid components for the manufacture of foam by our customers.**

### ***INDUSTRIAL***

Isothane's range of Industrial Foam products is extremely versatile, with applications across the insulation, buoyancy and moulding industries. Incorporating the latest PU

technology, the range is environmentally friendly with water blown systems eliminating the need for CFC blowing agents.

Many of our PU and PIR systems have independent approvals - for example, Marine Safety for our buoyancy systems. A wide range of densities are available and special requirements can be formulated if required.

## ***INSULATION***

Foam applications range from low temperature insulation of cryogenic equipment - for example LNG pipelines - to high temperature insulation of district heating pipes or subsea oil pipelines.

With the increasing emphasis on energy savings in housing, the high insulation value of foam makes it ideal for sandwich insulation of doors.

## ***ECOFIL 40*** ***All Water Blown Foam System***

### **Product Description**

Mix Ratio 1 / 1.5 ( 40 / 60 ) : Resin / Isocyanate [by weight].  
Mix Ratio by Volume = 40 / 54 : Resin / Isocyanate.

**ECOFIL 40** is a two component, all water blown, polyurethane rigid foam system. At typical moulded densities of 40 to 50 Kg/m<sup>3</sup>, the Ecofil 40 system produces a fine celled foam with low friability and good adhesion to substrates.

### **Approvals**

**ECOFIL 40** Buoyancy foams have been tested and evaluated for use in life saving appliances according to the International Convention For Safety At Sea "SOLAS" chapter III & International Maritime Organisation ( IMO ). This certification was issued by Lloyd's Registered Shipping on behalf of the Maritime Safety Agency ( MSA ) and Type Approval on behalf of the UK Government Department of Transport ( DOT ).

IMO Resolution A 689 (17)  
IMO Resolution MSC 81 (70) Part 1. (Copies available on request).

## ***LD40 Rigid Foam System***

### **Description**

**LD40** is a two component, 1:1 ratio, CFC & HCFC FREE rigid foam system which when processed through suitable dispense machinery will produce a rigid foam of approximate density 40 kg/m<sup>3</sup> with good compressive strength, cell structure and other physical properties.

## Uses

**LD40** is a general-purpose system for use in a wide variety of moulding applications where the foam needs gradual rise.

**LD40** is used in the thermal insulation of large panels, water heaters, storage tanks, refrigerated containers, behind produce store pressure walls and related double skin applications. It is particularly useful for the filling of large volumes where its gradual rise and excellent flow properties are used to best advantage.

## **REPROCELL 300** *The Alternative To Timber*

### Product Description

**REPROCELL 300** is a dual component, MDI based system which when dispensed through suitable machinery will produce rigid polyurethane foam with typical core density in the range of 300 – 450 kg / m<sup>3</sup>. Reprocell foam systems are free from CFC's or HCFC's and comply with present and forthcoming environmental requirements of Kyoto Protocol.

### Uses & Applications

**REPROCELL 300** has been designed to produce high density foam which can be moulded to simulate wood for a variety of applications. The cured foam has a tough skin and will accommodate screws and nails, and can be stained using the recognised wood stains, paints or varnishes.

In external applications such as porch furniture, the foam needs to be protected against ultra violet degradation by painting.

**REPROCELL** combines low weight with long-term stability and extremely low water absorption characteristics. It does not decay or rot and is not susceptible to attack by termites or other wood boring insects. Isothane technical personnel are available to advise on specialist processes and surface treatments as required.

## **REPROCELL 500** *The Alternative To Timber*

### Product Description

**REPROCELL 500** is a dual component, MDI based system which when dispensed through suitable machinery will produce rigid polyurethane foam with typical core density in the range of 500 – 650 kg / m<sup>3</sup>. Reprocell foam systems are free from CFC's or HCFC's and comply with present and forthcoming environmental requirements of Kyoto Protocol.

## Uses & Applications

**REPROCELL 500** has been designed to produce high density foam which can be moulded to simulate wood for a variety of applications. The cured foam has a tough skin and will accommodate screws and nails, and can be stained using the recognised wood stains, paints or varnishes.

In external applications such as porch furniture, the foam needs to be protected against ultra violet degradation by painting.

**REPROCELL** combines low weight with long-term stability and extremely low water absorption characteristics. It does not decay or rot and is not susceptible to attack by termites or other wood boring insects. Isothane technical personnel are available to advise on specialist processes and surface treatments as required.

## Spray Foam Insulation

### ***AGRISPRAY® OS Spray foam system***

**AGRISPRAY® OS** is an HCFC AND CFC FREE two component, 1:1 ratio, rigid foam system which when processed through suitable spray machinery (Graco, Gusmer, Glas-Craft) will produce a rigid foam of approximate density 35kg/m<sup>3</sup> with exceptionally good compressive strength. Service Temp range -15oC to 70oC. When tested to BS476 part 7 the foam achieves a Class 1 surface spread of flame.

### **Physical Properties**

**AGRISPRAY® OS** is a two component, modified polyurethane rigid foam which, sprayed through suitable foam machinery, gives a product of nominal density 35 kg/m<sup>3</sup>.

Laboratory test results  
(typical):-

Cream time	3-5	seconds
Tack free time	10-16	seconds
Rise time	20-30	seconds
Free rise density	26-30	kg/m <sup>3</sup>

## Uses

**AGRISPRAY® OS** is used for insulation in:

- Exterior or interior of agricultural buildings
- Ocean going yachts/canal barges
- Internal industrial roofing

- Domestic slate or tiled roofs

Standard **AGRISPRAY® OS** should not be used on substrates below 5oC. When used externally the foam must be protected from ultra-violet radiation and atmospheric degradation by a suitable elastomeric coating, e.g. **ISOTHANE EM**.

## ***DURATHERM® OS Spray foam system***

### **Product Description**

**DURATHERM® OS** is an HCFC AND CFC FREE two component, 1:1 ratio, rigid foam system which when processed through suitable spray machinery (Graco, Gusmer, Glas-Craft) will produce a rigid foam of approximate density 35kg/m<sup>3</sup> with exceptionally good compressive strength. Service Temp range -15oC to 70oC. When tested to BS476 part 7 the foam achieves a Class 1 surface spread of flame.

### **Physical Properties**

**DURATHERM® OS** is a two component, modified polyurethane rigid foam which, sprayed through suitable foam machinery, gives a product of nominal density 35 kg/m<sup>3</sup>.

Laboratory test results  
(typical):-

Cream time	3-5	seconds
Tack free time	10-16	seconds
Rise time	20-30	seconds
Free rise density	26-30	kg/m <sup>3</sup>

### **Uses**

**DURATHERM® OS** is used for:

- Retrofit insulation / stabilisation for pitched / flat roofs
- New build insulation
- Loft conversions
- Commercial buildings
- Ocean going yachts / canal barges

**DURATHERM® OS** can be used to upgrade the thermal performance of roofs, floors or walls of any property, to meet current building regulations. Standard **DURATHERM® OS** should not be used on substrates below 5°C.

## ***PIRTHANE® ‘O’ Spray foam and Coating Composite***

### **Product Description**

**PIRTHANE® ‘O’** is an insulating system with excellent fire resistant properties. It complies with the requirements for a Class 0 surface as defined in Paragraph A12(b) of

Approved Document B 'Fire Safety', to the Building Regulations 1991. It has a Class 1 surface spread of flame when tested to BS476 Part 7 1997; when tested to BS476 Part 6 1989 the material achieved a fire propagation index (I) of not more than 12 and subindex (i1) of not more than 6.

**PIRTHANE® 'O'** comprises of a low thermal conductivity insulating foam (**PIRTHANE® HR**) coated with a one component waterborne intumescent (**PIRTHANE® FPC**).

### Physical Properties

Reactivity @ 20°C

Cream time	2-3	seconds
Tack free time	10-15	seconds
Rise time	16-22	seconds
Free rise density	25-27	kg/m <sup>3</sup>

### Uses

**PIRTHANE® 'O'** is used for thermal insulation and condensation control on:

- Underside of concrete soffits or floor slabs.
- Interior of commercial buildings.
- Internal surfaces of marine craft.

**PIRTHANE® 'O'** should not be used on substrates below 5°C.

### Benefits

- Low thermal conductivity - reduced thickness - space saving.
- Lightweight - typically 2.5kg/m<sup>2</sup> for 0.45W/m<sup>2</sup>K U-Value.
- Excellent adhesive properties - withstands high wind speeds and vibration - can be used on single skin substrates.
- Zero Ozone Depletion Potential.
- Zero air erosion.
- Low cost maintenance.

## **TECHNITHERM®**

### **CAVITY WALL STABILISATION AND INSULATION SYSTEM**

#### Product Description

**TECHNITHERM®** is a totally CFC & HCFC FREE two component, 1:1 mix ratio rigid polyurethane foam which complies with the requirements of BS 7457:1994 for the stabilisation and thermal insulation of masonry cavity walls and holds an Agrément Board Certificate No: 97/3426. It is required that **TECHNITHERM®** is installed in accordance with BS 7456:1991 Code of Practice by BBA approved installers trained by Isothane Ltd technical staff.

## Physical Properties

Property	Value	Method
*Thermal conductivity, aged, <80mm thick	0.028 W / mK	BS EN ISO 13165
*Thermal conductivity, aged, 80-120mm thick	0.026 W / mK	BS EN ISO 13165
*Thermal conductivity, aged, >120mm thick	0.025 W / mK	BS EN ISO 13165
Compressive strength - normal to major plane: ( 50mm cavity )	210 kPa	BS4370:Pt1
Shear strength - parallel to major plane: ( 50mm cavity )	241 kPa	BS4370:Pt2
Dimensional stability linear change at:		
24hrs @ -15°C	- 0.2 / 0 / 0.2% ( L / W / T )	BS4370:Pt1
24hrs @ +70°C	0.3 / 0.4 / 0.1% ( L / W / T )	
Water Vapour Permeability parallel to foam thickness	5.9ng / (pa.sm) max	BS4370:Pt2
Closed Cell Content	90%	BS4370:Pt2
* Burning Characteristics	Less than 40mm	BS4735
*Tensile Adhesion to Masonry:		
Aerated Concrete	51 kPa	
Brick	155 kPa	BS4757
Breeze Block	166 kPa	
Appearance	Uniform, fine cell structure	BS4757
Density	42 Kg / m <sup>3</sup>	BS4757

\*Tests carried out independently by UKAS Approved Laboratories.

## Uses

**TECHNITHERM®** is used for the stabilisation of masonry cavity walls by strongly adhering the inner and outer leaves together and as such is a convenient and cost effective alternative to metal cavity tie replacement. In addition, as a consequence of the excellent thermal insulation properties of the foam, “U” values of 0.33 Wm<sup>2</sup>K are achieved in a 65mm cavity of standard construction, and 0.22 Wm<sup>2</sup>K in a 100mm cavity of standard construction. Even better values can be realised through choice of special blockwork, etc.

## **THERMADEK 40 LK Spray foam system**

### **Product Description**

**THERMADEK 40 LK** is an HCFC & CFC FREE two component, 1:1 ratio, rigid foam system which when processed through suitable spray machinery ( Graco, Gusmer, Glas-Craft ) will produce a rigid foam of approximate density 40kg/m<sup>3</sup> with exceptionally good compressive strength and a very smooth surface. The system complies with British Standard Numbers 5241 and 7021 for external roof insulation and weatherproofing.

### **Physical Properties**

**THERMADEK 40 LK** is a two component, modified polyurethane rigid foam which, sprayed through suitable foam machinery, gives a product of nominal density 40 kg/m<sup>3</sup>.

Laboratory test results  
(typical):-

Cream time	3-5	seconds
Tack free time	8-17	seconds
Rise time	20-28	seconds
Free rise density	33-37	kg/m <sup>3</sup>

### **Uses**

**THERMADEK 40 LK** is used for insulation in:

- External roofing – pitched and flat.
- External buildings and cold stores.
- External oil and chemical storage tanks.

**THERMADEK 40 LK** should not be used on substrates below 10oC. When used externally the foam must be protected from ultra-violet radiation and atmospheric degradation by a suitable elastomeric coating, e.g. ISOTHANE EM.

## **Thermadek Winter Grade**

### **Product Description**

**THERMADEK WINTER GRADE** is a two component, 1:1 ratio, rigid foam system which when processed through suitable spray machinery ( Graco / Gusmer / Glas-Craft ) will produce a rigid foam of approximate core foam density 40kg/m<sup>3</sup> with exceptionally good adhesion to cold substrates.

### **Physical Properties**

**THERMADEK WINTER GRADE** is a two component, polyurethane rigid foam that, when sprayed through suitable foam machinery, gives a product of nominal core density 40 kg/m<sup>3</sup>.

Laboratory Cup test results @ 5°C (typical): -

Cream time	2-5	Seconds
Tack free time	7-13	seconds
Rise time	10-20	seconds
Free rise density	35-45	kg/m <sup>3</sup>

## **Uses**

**THERMADEK WINTER GRADE** is used for insulation in:

- Ocean going yachts / canal barges
- Industrial / commercial walls or roofing
- Any particularly cold and conductive substrate, especially metal

**THERMADEK WINTER GRADE** can be used on substrates down to minus 50C. When used externally the foam must be protected from ultra-violet radiation and atmospheric degradation by a suitable elastomer protective coating.

## ***SPECIALIST CONTRACT MANUFACTURING***

Isothane's Specialist Contract Manufacturing expertise can help you add extra production capacity, master awkward manufacturing problems or develop and produce new product lines.

**We offer a wide range of services from specialist contract manufacturing of your material right through to contract development - where we become part of your development team, helping you bring new products through to market. Complete confidentiality is, of course, guaranteed.**