

Uniclass L5242	EPIC E342
CI/SfB (47)	X

DECOTHANE

Waterproofing Membrane

TECHNICAL DATA SHEET, SITE WORK AND APPLICATION

DESCRIPTION

The Decothane systems are based on two high performance polyurethane coatings - Decothane EC and Decothane SP. All use atmospheric moisture to trigger the curing process and, unlike conventional polyurethane systems, can cure under ponded water without gassing or foaming. Similarly, they rapidly become resistant to rain damage and may therefore be applied in relatively poor weather without any subsequent loss of performance or durability. The four standard Decothane roofing systems listed below are certified by the British Board of Agrément, the Government's test body for the construction industry.

Decothane EC is an embedment coat used in the Decothane Beta 10 and Omega 15 systems and like Decothane SP, it enables rapid "wetting out" of the reinforcement matting, thereby making it easy to mould around upstands and other detail. Decothane SP is a tough, UV stable top coat which is available in a variety of colours.

Both coatings are highly flexible, vapour permeable and resistant to attack by aggressive atmospheric chemicals.

The durability and other properties of the Decothane membranes depend largely upon their dry film thickness and the Reemat reinforcement that is incorporated within them.

Decothane Beta 10

Using this system, the entire roof area is treated with an initial coat of Decothane EC, into which Reemat Standard GFM is laid and embedded using rolling techniques. Once dry, a top coat of Decothane SP is then applied and again allowed to cure.

Decothane Omega 15

This system is based on an initial coat of Decothane EC, into which Reemat Premium GFM is embedded. Once dry, a top coat of Decothane SP is applied.

Decothane Gamma 20

This system incorporates two coats of Decothane SP, totally reinforced with Reemat Premium GFM.

Decothane Delta 25

This system incorporates an embedment coat of Decothane SP, Reemat Premium GFM and two further coats of Decothane SP.

Guarantees

Guarantees of 10 to 25 years are available. Further details are available on request.

TECHNICAL DATA

Typical Test Data - General

T.B. numbers refer to specific Technical Bulletins which are available on request.

Water vapour permeability

BS.3177 (temperate)

Decothane EC (unreinforced) 39.8 g./m²/day. TB 351/EC

Decothane SP (unreinforced) 12.3 g./m²/day. TB 249/DSP

Impact resistance

All systems: BS.3900 Part E3 (on roofing felt) TB 356/EC, 254/DSP, 386

Withstand 5 mm indentation without damage to films.

Accelerated weathering

Decothane EC TB 363/EC

Not exposed in normal use. However, testing to ASTM G53.88 showed no deterioration other than moderate chalking after 5000 hours.

Decothane SP

BS.3900 Part F3 - 1000 hours TB 250/DSP

QUV ASTM G53.77 - 5000 hours TB 365/BE-10

No erosion, cracking or other defects. Slight chalking.

Service temperature

Decothane EC: -40°C. to +60°C. No change after 1000 hours at 60°C. TB 358/EC

Decothane SP: -50°C. to +80°C. No change after 1000 hours at 80°C. other than slight discolouration. TB 257/DSP

Approximate solids content

Decothane EC: 83.6% by weight; 76.9% by volume.

Specific gravity: 1.34

Decothane SP: 86.8% by weight; 80.4% by volume.

Specific gravity: 1.45

Drying times

Decothane EC

At approx. 20°C. / 50% R.H., touch dry at 2 hours 45 minutes; through cure at 5 hours. TB 360/EC

At 2°C., allow overnight curing before applying Decothane SP.

Chemical resistance

Decothane EC and SP TB 6/EC, 261/DSP

Resistant to a wide range of reagents including paraffin, petrol, fuel oil, white spirit, acid rain, detergents and moderate solutions of acids and alkalis.

Some low molecular weight alcohols can soften.

Salt spray to BS.3900 Part F4 and ASTM B117 - 1000 hours

No rusting, blistering or delamination. TB 361/EC, 262/DSP

Decothane SP

At approx. 20°C. / 50% R.H., touch dry at 2 hours; through cure at 5 hours.

TB 259/DSP

At approx. 2°C., touch dry overnight; through cure at 24 hours.

Pack sizes

Decothane EC: 15 litres.

Decothane SP: 15 litres.

Typical Test Data - Systems

System	Beta 10	Omega 15	Gamma 20	Delta 25
Dry Film Thickness (approximate)	1200 microns	1400 microns	1400 microns	2000 microns
Max. Tensile Load (1cm. wide strip)	9.1 kg./cm.	23.1 kg./cm.	28.4 kg./cm.	34.6 kg./cm.
Tear Strength	2.8 kg./mm.	4.7 kg./mm.	4.3 kg./mm.	5.7 kg./mm.
Tensile Elongation	20%	24%	22.5%	27.5%
Fire Resistance (BS.476 Part 3)*	All class AA fire rated for spread of flame and fire penetration (Key systems are successfully tested to DD ENV 1187:2002 Test Method 1,2 and 3 European roof test standards).			

* (Felt) TB 243/DSP, 366/BE-10, 376/GA-15. See also BBA Certificate No. 92/2803 Detail Sheet 2.

Coverage rates

System	Reinforcement Type	Embedment Coat (l./m ²)	Second Coat (l./m ²)	Third Coat (l./m ²)	Total (l./m ²)
Beta 10	Reemat Standard	0.75	0.75	n/a	1.50
Omega 15	Reemat Premium	1.0	0.75	n/a	1.75
Gamma 20	Reemat Premium	1.0	0.75	n.a	1.75
Delta 25	Reemat Premium	1.0	0.75	0.75	2.5

Substrate compatibility

System	Substrate	Asphalt- good condition moderate condition	Felt- good condition moderate condition	Concrete, crazed & active	Concrete, crazed & sound	Cement screed, sound	Asbestos cement sheeting	Asbestos free boards	Spray applied foam	Ponded surfaces as above	Metals, small areas & detail work	Profiled metal sheeting / Plastisol	Wood, overfelted	Brick & stone	Slate / tiles	Plastics (GRP, UPVC, ABS)	Bituminous coatings	Paints
Beta 10		✓ X	✓ X	X	✓	✓	X	X	✓	✓	✓	X	✓	✓	✓	✓	✓	✓
Omega 15 Gamma 20 Delta 25		✓ ✓	✓ ✓	✓	✓	✓	X	X	✓	✓	✓	X	✓	✓	✓	✓	✓	✓

Acceleration

It is possible to accelerate the curing times of the Decothane systems. A 240ml pack should be added to 15 litres of Decothane EC and Decothane SP and should not exceed 1% mixing level. Please refer to the Decothane Accelerator datasheet.

Decothane EC

20°C. / 70% R.H., approximately 1 hour cure for overcoat / foot traffic.

10°C. / 70% R.H., approximately 90 minutes cure for overcoat / foot traffic.

Decothane SP

20°C. / 70% R.H., approximately 1 hour cure for overcoat / foot traffic.

10°C. / 70% R.H., approximately 90 minutes cure for overcoat / foot traffic.

APPLICATION

Once the relevant roofing system has been selected, please refer to the table above for details of coverage rates. Please note that the rates quoted are for smooth, sealed surfaces. Rough, porous, absorbent or undulating surfaces will inevitably increase the quantity of coating required, particularly at the embedment stage, to achieve the necessary film thickness and a pin-hole free finish.

Always allow primers and any previous coat to dry/cure thoroughly before applying the following coat. Coatings will generally require curing overnight, although under optimal conditions (at higher temperatures and low relative humidity) work may often recommence sooner.

Minimum application temperatures

Decothane EC: 2°C.

Decothane SP: 2°C.

Throughout the application and curing period, ensure that the substrate and atmospheric conditions remain a minimum of 2°C above the dew point.

Note 1: When applying the Decothane coatings by spray equipment, the materials must be kept above the following minimum temperatures:

Decothane EC: 5°C.

Decothane SP: 10°C.

Note 2: For information concerning the application of Liquid Plastics roofing systems in high temperatures, please contact our Technical Customer Services or Export Department and request Technical Bulletin number 406.

System weights

The dry weights of the principal Liquid Plastics roofing systems on smooth, non-absorbent substrates are listed below.

System	Beta 10	Omega 15	Gamma 20	Delta 25
Weight (kg./m ²)	1.4	2.3	2.4	3.4

Colour range

Decothane waterproofing membrane is available in a wide choice of colours, giving a large degree of flexibility when considering the final appearance of the roof. In addition to the colours listed below, special colours can also be produced to order, subject to minimum batch quantities. For further information please contact our Technical Customer Services department.

Colours available ex stock:

Verdi Green	BS 14C35
Steel Grey	RAL 7015
Pearl Grey	RAL 8500
White	Self colour white

Colours subject to minimum batch quantities:

Stone Grey	NCS S 5005-R80B
Grass Green	NCS S 6040-G40Y
Nato Green	RAL 6014
Brick Brown	NCS S 7010-Y70R
Red	RAL 8012
Sandstone	NCS S 3010-Y30R

Low odour Decothane roofing system

For applications where a very low level of odour is required but the moisture triggered properties of the Decothane systems are still essential, LPL manufactures Decothane HS, a high solids coating which exhibits exceptionally low V.O.C. levels. Further details are available on request.

REEMAT FLEXITAPE SYSTEMS

Description

Reemat Flexitape is a nylon mesh which, unlike conventional scrim, is readily capable of stretching within the membrane to accommodate a high degree of thermal and structural movement. It is embedded into Liquid Plastics coatings to impart additional tensile strength and durability, and is available in two standard grades and various widths. Light Duty Flexitape may be used to provide local reinforcement over stable cracks and joints, whilst Heavy Duty Flexitape is used over joints or cracks liable to movement and for bridging gaps between substrates. Both grades will follow surface contours and may easily be moulded over complex detail work. Reemat Flexitape can also be used in the construction of expansion joints.

Sizes

Light Duty Flexitape

50 mm and 150 mm wide rolls; 50 metre lengths.

Heavy Duty Flexitape

75 mm and 150 mm wide rolls; 50 metre lengths.

REEMAT GLASS FIBRE MAT (GFM) SYSTEMS

Description

In addition to the Flexitape products, there are two Reemat GFM reinforcement systems, each consisting of a purpose designed, surface treated blown glass mat that is embedded into various Liquid Plastics coatings in order to provide additional strength and durability. The randomly orientated fibres within the mats give maximum multi-directional tensile strength to the membranes whilst allowing them to remain highly elastomeric. They may be used for total or partial reinforcement and may easily be moulded around protrusions, joints, corners and other surface detail. The lighter grade is Reemat Standard and the heavier grade is Reemat Premium.

Sizes

Reemat Standard

1 metre wide roll; 200 metre lengths; total area = 200m².

Reemat Premium

1.3 metre wide roll; 155 metre lengths; total area = approx. 200m².

DESIGN AND SPECIFICATION CONSIDERATIONS

Building regulations

Wind load - All Liquid Plastics roofing systems are fully bonded and therefore resist wind damage and uplift, and similarly require no ballasting, fixings or welds. Consequently, when applied to a fully bonded substrate or deck, the requirements of BS.6399 Part 2 and the British Standard Code of Practice CP3 Chapter V Part 3 (1985 amendments) do not apply.

Fire - the fire rating of each system is detailed in the typical test data table on page 2. However, all systems comply with the requirements of building regulation E16 for most conventional substrates.

Tolerance to foot traffic

Although all Liquid Plastics roofing systems are innately tough and hard wearing, Reemat Premium reinforcement should always be incorporated on areas such as walkways which are likely to be subject to frequent foot traffic.

When using Decothane systems, LPL Skid Inhibiting Grit may be cast into the membrane in order to produce a durable, skid inhibiting finish. In such cases, the standard system should be applied and allowed to cure. Then, a further coat should be applied at a rate of 0.5 l./m² and whilst it is still wet, the particles should be cast into it at a minimum rate of 0.25 kg./m² - up to a maximum of 1.0 kg./m² depending on the desired effect. This should be allowed to dry and any non-adhered particles should be brushed away. Finally, a top coat should then be applied at a minimum rate of 0.5 l./m². Consideration should also be given to maximising safety by identifying these areas using a different coloured top coat.

SITE WORK AND APPLICATION

U.K.

The following details are intended to provide a general guide to site preparation, application work and associated considerations. For further details, please consult your local Area Sales Manager or our Technical Customer Services Department.

We recommend the use of our Quality Assurance Programme of independently inspected UK contractors. They have high quality systems in place and have received specialist training in the application of our products. Work carried out by quality assured contractors is independently assessed by the Institute of Clerk of Works to ensure that the highest possible standards are achieved.

Single point guarantees are available for up to 25 years, covering both labour and materials.

If the client wishes to use their own contractors a guarantee for only the product performance is available.

Export

Liquid Plastics operates through a worldwide network of distributors who can provide appropriate training and technical support for overseas contractors.

STORAGE OF MATERIALS

All primers and coatings should be kept dry and protected from frost and excessive heat. Previously opened tins should be used as soon as possible - within two or three days at most - and lids should always be replaced securely when the product is not being applied. (High levels of humidity will cause the Decothane coatings to cure more rapidly. Decothane exposed to atmospheric moisture should be used as soon as possible). Further storage information is provided on all Liquid Plastics' containers and on the accompanying CHIP data sheet(s).

Storage temperatures

Minimum temperature: > 0°C.

Maximum temperature: 25°C.

Shelf life

12 months (when stored under the recommended storage conditions).

Maximum substrate moisture content

Wood moisture equivalent (max): 28%

Relative humidity (max): 100%

INDIVIDUAL SUBSTRATE TREATMENTS

Asphalt

Asphalt should conform to BS.988 otherwise, owing to volatiles, bleeding and slight non-detrimental staining can occur. Apply the system directly and always use total reinforcement.

General: All major cracks should be sealed to allow continuity of the Decothane waterproofing membrane.

Felt

Apply Decothane waterproofing membrane direct.

General: Always replace badly degraded felt. Treat blisters by star cutting and removing any underlying water. Allow to dry and re-adhere using Decostik®. Always use a totally reinforced system.

Cementitious substrates

For non-reinforced applications over highly porous, pin-holed or blow-holed concrete (not subject to pre-filling), LPL Bonding Primer is recommended. For reinforced applications, apply either Decothane EC or Decothane SP directly. The amount of embedment coat required may increase on these surfaces. In warm weather, pin-holing may occur with mid or dark colours when primers are not used; these should be eliminated using either a brush or roller prior to the application of the second coat, or as part of any one-coat snagging operations.

General: Allow new cement to cure for a minimum of 10 days - ideally 28 days - and check the maximum substrate moisture tolerance above, before proceeding with the application.

Asbestos cement and asbestos-free equivalents

When the surface is dry, prime the sheets with LPL Tiecoat Sealer. Bolt-heads should be primed using LPL Epoxy Metal Primer.

General: Always ensure strict compliance with Health and Safety Executive requirements when working with asbestos-containing materials. Surfaces should be wetted before cleaning or abrading to prepare the substrate. Local reinforcement must always be used over joints, cracks, fixings, laps and degraded surfaces. Bolt-heads should be abraded to reveal bright metal, tightened and cropped where necessary.

Metal substrates

Some types of factory treated profiled metal sheet roofing may be coated; please refer to our Technical Customer Services Department.

When treating ferrous, or galvanised metals, lead, copper, aluminium, brass or stainless steel, remove all rust, mill scale and oxidation products. Apply LPL Epoxy Metal Primer followed by the Decothane system.

General: Wherever possible, abrade exposed surfaces to reveal bright metal. Use localised reinforcement over joints and fixings. All LPL roofing systems can be used for the treatment of proprietary profiled metal roofs but preliminary adhesion tests are recommended. Consult our Technical Customer Services Department for details.

Timber (over-felted)

Timber and timber based panel roof decks require a complete layer of Liquid Plastics Carrier Membrane bonded using Decostik® prior to the application of the chosen system. The substrate should then be treated as a felt roof. (Details of Liquid Plastics' Carrier Membrane and Decostik® are available on request).

Timber upstands (not over-felted)

Small timber protrusions may be treated directly, provided that the timber is of exterior quality, e.g. plywood, oil tempered hardboard, etc. New plywood, etc., used to overlay vertical roof details, e.g. parapet walls, upstands, boxed plant, etc., should be primed with Liquid Plastics' Bonding Primer prior to coating.

Brick and stone

Apply the Decothane waterproofing membrane directly.

General: Usual preparation procedures should be observed. Use localised reinforcement over joints.

Slates, tiles, etc.

Apply the Decothane waterproofing membrane (incorporating full reinforcement) directly to the slate and tiles (including glazed tiles).

General: Ensure all slates/tiles are sound and securely fastened, replacing obviously broken or missing sections. Venting of roof spaces may be necessary.

Plastics

Apply the Decothane waterproofing membrane directly.

General: Many plastic substrates such as GRP or polycarbonate may be treated, but advice should be sought from our Technical Customer Services Department for other specific applications. Usual preparation procedures should be observed. Remove any oxidised layers and use localised reinforcement over joints.

Bituminous coatings

Apply the Decothane waterproofing membrane directly.

General: Do not coat sticky or mobile surfaces, volatile mastic coatings or old coal tar coatings. Always use fully reinforced systems.

Paints

Apply the Decothane waterproofing membrane directly to gloss paints - e.g. chlorinated rubber, epoxy or alkyd. Emulsion paints may be coated directly. Adhesion tests should be conducted prior to overcoating aluminium based solar reflective coatings; prime soundly adhered surfaces with LPL Epoxy Metal Primer.

General: (See also "Metals" sub-section). When applying Liquid Plastics coatings over previously applied coatings, ensure that the existing material is sound and firmly adhered. LPL Bonding Primer should be used if the existing coating is porous or chalking. For further information about specific applications, please consult our Technical Customer Services Department.

Existing Liquid Plastics membranes

Following inspection, apply Liquid Plastics Reactivation Primer and allow to dry prior to the application of the Decothane waterproofing membrane.

General: Inspect the existing membrane and check that it is still soundly adhered. Clean the membrane using a water jet at approximately 14N/mm² (2000 p.s.i) using Liquid Plastics Biocleanse if necessary. Allow to dry.

ROUTINE CARE AND MAINTENANCE

General

In normal use, Liquid Plastics' roofing systems require no routine maintenance other than periodic inspections to check for damage by accidental impact or by building modifications involving the roof structure. During the course of such inspections, sharp objects such as screws, stones, broken glass and other material should be removed from the surface in order to minimise the chances of accidental damage by subsequent foot traffic.

In order to prevent damage by excessive localised loading, particularly on roofs incorporating soft insulation, planks or other simple load-spreading devices should be placed under ladders or the supports of free standing structures on the roof.

Repairs

In the event of localised damage, or to reinstate a completely seamless barrier following structural modifications, repairs can be made quickly and easily by applying more of the appropriate coating to the affected areas. If treating small punctures, the surrounding membrane should be cleaned, primed if necessary and repaired by the application of additional material (usually by brush or roller). If treating new joints etc. embed either Reemat GFM or Flexitape into the wet coating and allow to cure before applying a second coat. In all cases, care should be taken to restore the dry film thickness of the original membrane.

LONG TERM MAINTENANCE

Inspection

Towards the end of the anticipated design life of the chosen system, the membrane should again be inspected. In practice, the actual durability of the various Liquid Plastics' roofing systems will often far exceed the quoted life span and maintenance will not strictly be necessary for several years after the termination of the stated period. Nonetheless, it is recommended that the system be overcoated when it has reached the end of its design life in order to ensure effective and continuous protection against water ingress. In all cases, inspections should then be carried out regularly (annually, for example) in order to check for signs of wear or excessive weathering.

Note: If the top coat was previously applied in a different colour to the underlying coat, this will serve as a guide to the need for re-coating - i.e. the coating underneath will begin to show through when the top coat wears thin.

Refurbishment

Liquid Plastics roofing systems do not need to be replaced at the end of their initial design lives. They may be restored to extend their original durability simply by the application of LPL Reactivation Primer and a single, additional coat. This method of roof refurbishment is significantly more cost effective than conventional alternatives and will enable further long term cost savings to be made.

Specification assistance

NBS is the industry standard specification system, which allows architects, specifiers and engineers to insert clauses into specifications by manufacturer and product, making the process quicker and more efficient. We are members of NBS Plus and therefore detailed up-to-date product information is readily available to create accurate specifications.

CONTACT DETAILS

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