

PRODUCT DATA SHEET

No.11043/45/46

JANUARY 2002

ISOFLEX HIGH PERFORMANCE LIQUID RUBBER WATERPROOFING SYSTEM

The Isoflex Liquid Rubber Waterproofing System is based on a moisture curing urethane elastomer. It comprises of three basic products: Special Primer; Liquid Rubber; Clean-Up Fluid. The system is technically far in advance of traditional bitumen based products and offers unrivalled long term performance.

INTRODUCTION

There are a variety of causes for the eventual breakdown of roofs. The most common is thermal movement, the cyclic pattern caused by heating and cooling that stresses all building materials. Then there is moisture movement, which can cause twisting and warping as well as the cracking that occurs with drying out and shrinkage. The sun plays its part too; solar radiation and oxidation degrade bitumen and mastic asphalts, and high surface temperatures can cause felt and asphalt roofs to slip and creep. Finally man's own efforts can encourage degeneration through poor design and workmanship. Many flat roofs for example suffer the effect of vapour pressure of "drive" on account of inadequate insulation and ventilation systems.

Bitumens, tars and asphalts have been traditionally used on account of their hydrophobic (water repellent) characteristics and low cost. Their disadvantage is their comparatively short life, they become brittle through exposure and eventually crack with thermal movement.

Common remedial procedures can involve resurfacing with hot and cold applied bitumens and tars. It can also mean the removal of the deteriorated materials and their complete

replacement. Frequently these processes require the specialist skills and equipment roofing contractors have.

Although used infrequently on domestic buildings until recent times, specialised membranes have been used on industrial and commercial buildings for many years now. Generally these are in sheet or liquid form and applied by the contractors with specialist training provided by the manufacturers. One such system, and one that has been modified so that it can also meet the requirements of the untrained member of the public or small builder without special equipment, is the ISOFLEX Liquid Rubber Waterproofing System.

Isoflex Liquid Rubber, which is based on a moisture curing urethane elastomer, was initially developed in 1974. Today it is produced in greater volume than any other elastomer in the UK and is the only one widely available at the retail level.

Isoflex is distinguished in formulation by its unusually high solids content, high tensile strength, durability and storage life stability. Of equal importance, Isoflex offers unrivalled reliability: large scale manufacture under scientifically controlled conditions; continuous systematic testing; and the selection of the highest grade raw materials provide the

quality so essential for consistently good on-site performance.

COMPOSITION

Isoflex Special Primer - Single pack high grade urethane polymer resin.

Isoflex Liquid Rubber - Single pack urethane elastomer membrane in liquid form.

Isoflex Clean-Up Fluid - Aromatic hydrocarbon fluid.

PROPERTIES

Isoflex Special Primer

Appearance - Slightly opaque, yellow brown coloured liquid.

Odour - Solvent type.

VOC Content- Very High (>50% w/v).

Advantages - High solids and good flexibility; able to form robust barrier which does not dry, but cures to a "tacky" film in order to permit molecular cross-linking with Liquid Rubber.

Isoflex Liquid Rubber

Appearance - Black, viscous liquid.

Odour - Solvent type.

VOC Content - Medium (8-24.99% w/v).

Advantages - Unlike traditional waterproofing products, Isoflex Liquid Rubber does not embrittle with either age or exposure to the ultraviolet rays in sunlight. Its elasticity will continue to take up high degrees of substrate and thermal movement. Cracking and crazing are eliminated.

Isoflex Liquid Rubber is exceptionally resistant to extremes of temperature and atmospheric pollution. Accelerated weathering tests indicate no appreciable deterioration of the material.

It is easily and quickly applied. It requires no mixing, stirring or heating and can be applied manually at a rate of 40 m² per man hour or up to 600 m² per day by spray.

Isoflex Liquid Rubber's elasticity, durability and ability to adhere to conventionally treated surfaces enables many flat roofs, with a stable substrate, to be refurbished without the need to strip existing surfaces.

Storage life is over 18 months in temperature climatic conditions.

As it cures by reaction with atmospheric moisture, Isoflex Liquid Rubber can be successfully used in a wide range of temperatures.

Isoflex Clean-Up Fluid

Appearance - Clear, colourless liquid.

Odour - Solvent type.

VOC Content- Very High (>50% w/v).

Advantages - Moderately high flash point, low irritant level. Removes Isoflex Special Primer and Liquid Rubber whilst still wet (but not once they have cured).

FIELDS OF APPLICATION

The Isoflex Liquid Rubber Waterproofing System is designed to enable the membrane to adhere to practically any type of material providing it is correctly prepared. This includes roofing felt, asphalt, slates, tiles, asbestos, concrete, brick, wood, glass, ferrous metals, lead and copper. It can also be used directly onto sprayed in-place polyurethane (PU) foam. Designed principally for roof application the Isoflex System can be used on all forms of flat roofs, both for complete recovery as well as patch material. It can also be used for dormer roofs, porches, corrugated roofs, flashings, roof valleys, slate roofs and even glasshouses.

Other Applications

Balconies and Boat Decks

Isoflex liquid Rubber can be used for balconies and decks not subject to heavy foot traffic. In such cases, at least three coats must be applied. A reinforcing scrim, embedded into the second coat, is recommended. In order to improve foothold, finely ground aggregate or sand can be broadcast over the third coat as it dries.

Ponds and Water Systems

Isoflex Liquid Rubber is not recommended for use in garden ponds, swimming pools, water tanks and domestic water systems.

Other Surfaces or Materials

This information sheet relates to commonly found roof surfaces and is not a comprehensive guide to all potential surfaces and materials on which the Isoflex System might be used.

Further information can be obtained on application.

APPLICATION PROCEDURE

General Conditions

Isoflex Liquid Rubber and/or its Primer will bond to anything within their specified limits, but if the contact surface does not adhere firmly to the supporting substrate or, for instance, the contact surface contains silicones or has been treated with a silicone based water repellent, failure may eventually occur.

Heated occupied building create internal vapour pressure that seeks to escape through the roof. Felt blistering is a common symptom of this effect. As Isoflex Liquid Rubber is almost impermeable to water vapour, the ventilation systems within the structure of the roof should be examined where "vapour drive" is likely to occur.

General Substrate Preparation

Cracks and Depressions

Cracks not liable to movement should be filled with Isoflex Wetpatch or other mastic filler. Allow for the solvents they

contain to evaporate. Deep depressions should be treated similarly. Prime with Isoflex Special Primer prior to application of two thick coats of Liquid Rubber. Where water is likely to pond, three thick coats should be applied. Do not apply in coats of more than 1 mm thick but any number of coats can be applied at 24 hour intervals.

Expansion Joints and Cracks Liable to Movement

Clean surrounding surfaces. Where joint sealant does not fill joint, brush in Isoflex Liquid Rubber until flush with surface. Prime joint to a minimum width of 30 cm. Apply a coat of Liquid Rubber and whilst wet embed 30 cm wide strips of reinforcing, woven fabric scrim material, overlapping where necessary, avoid creases and bubbles. Immediately overcoat extending at least 15 cm either side. Do not stretch the fabric. Bolt heads etc. should be given two coats before proceeding with general application.

Abutments, Flashing, Valleys, Vent Bases, Upstands etc.

Isoflex Liquid Rubber is self-flashing and can be used on upstands. In such cases the angle between the horizontal and vertical surface should be covered with a 30 cm wide scrim bandage. This should be embedded into the first Isoflex coat immediately after application, thoroughly rolled to prevent creases and bubbles. Continue up vertical surfaces to a minimum distance of 15 cm. Apply two coats of Isoflex Liquid Rubber. Alternatively use a cant strip or cove fillet where verticals meet horizontals at a right angle.

Special Substrate Preparation

Bituminous Surfaces (e.g. Roofing Felt, Asphalt, etc.)

Remove all loose chippings, dust, fungus, etc. Note that where chippings remain embedded, the surface area is substantially increased and will require a correspondingly greater volume of both Isoflex Special Primer and Liquid Rubber in order to obtain the 1 mm membrane thickness. At least three coats are recommended in such cases.

Cut open blisters, paint underside with Liquid Rubber and secure with felt tacks, brush out exuded Isoflex. Allow to dry thoroughly, including the evaporation of moisture from within the layers of felt. Apply Isoflex Special Primer to achieve a uniform coating then apply Isoflex Liquid Rubber, as directed above, within 48 hours.

Cementitious and Porous Surfaces (Concrete, Cement, Rendering, Asbestos Sheeting, etc.)

Allow at least 28 days to provide drying time for new concrete. Clean off all laitance, loose and foreign material. All friable or dusting surfaces should be cleaned back to a firm base. Apply Isoflex Special Primer as above. On very absorbent surfaces a two coat application of Isoflex Special Primer is recommended. For initial priming coat only Isoflex Special Primer may be diluted with up to 20% Isoflex Clean-Up Fluid.

It is important that Isoflex Liquid Rubber is not applied directly to porous surfaces to avoid polymer starvation.

Slates and Tiles

Clean thoroughly and carry out necessary structural repairs. Apply Isoflex Special Primer to cementitious substrates and porous surfaces such as asbestos cement tiles. Note that a continuous membrane over tiles may inhibit ventilation of the roof void and cause internal condensation, so ensure that the adequate ventilation is provided.

Metal

Ferrous:

Remove coatings, rust and scale by mechanical means or wire brushing, where rust is superficial. Apply Isoflex Special Primer to clean, dry surface as soon as possible after preparation. Do not use on deeply rusted metals, without first priming with anti-corrosion primer.

Non-ferrous:

Mixed substrates such as rusted galvanised sheeting should be prepared as above. Non-rusting galvanised steel should be

degreased and primed with Isoflex Special Primer.

Lead, copper, brass, stainless steel:

These should be cleaned, degreased and coated with Isoflex Special Primer.

Metal Backed Flashing Strip

New metal backed flashing strips may have residual silicones on their surface. Wash with Isoflex Clean-Up Fluid, allow to dry and roughen surface with abrasive paper before applying Isoflex Special Primer and Liquid Rubber.

Wooden Surfaces

Remove all paint and varnish and apply Isoflex Liquid Rubber directly to a clean, dry surface. Where wood is unseasoned and likely to be damp or porous, such as plywood and chipboard, apply Isoflex Special Primer first. Always use Isoflex Special Primer on timber roofs. Make sure that chipboard or plywood is of exterior quality and ensure that timber has not been subjected to silicone, waxes or other water repellent treatments.

Manual Application

General Notes

The wet film thickness of Isoflex Liquid Rubber must not be less than 1 mm. Rough and porous surfaces will reduce coverage and extra material must be applied in order to achieve the minimum thickness required.

The membrane can be laid either in one 1 mm coat or two 0.5 mm coats. Two coats are recommended with uneven and jointed surfaces in order to minimise the possibilities of missed areas, pinholing and insufficient thickness in parts. Individual coats should not be laid with a thickness exceeding 1 mm.

In the case of two applications, it is important to recoat within 24 hours of the first becoming sufficiently cured to allow operator access.

Do not dilute Isoflex Liquid Rubber.

Calculate accurately areas to be treated and quantities of product required to minimise part use of cans.

Procedure

Remove all loose material by vigorous stiff brushing, use a wire brush if necessary.

Remove all fungal growth with a proprietary fungicide and wash off thoroughly with water or as recommended.

Allow surface to dry and for any moisture contained in the structure to evaporate, Isoflex products should not be applied to a damp surface.

Fill in cracks and voids with Isoflex Wetpatch or other exterior mastic filler, in accordance with the preparation instructions above.

Prime with Isoflex Special Primer which cures to a slightly tacky film in 2-4 hours. Overcoat with Liquid Rubber as soon as possible after this time and certainly within 48 hours. If delay exceeds this period repriming is advised.

In order to obtain the correct wet membrane thickness of 1 mm, mark out the surface into square metre areas and pour on an appropriate amount of Liquid Rubber at a rate of ½ litre per square metre per coat, or 1 litre per square metre for a single coat application. (Larger areas can be calculated on the same basis). Spread (but not brush out) with brush or squeegee. Make sure the area is evenly coated. Brush marks will disappear as Isoflex is self-levelling.

In the case of a two coat application, the first coat should be touch-dry in 24 to 48 hours (under certain atmospheric conditions this might be slightly delayed), and the second coat should be applied within 24 hours of this stage to ensure chemical bonding between the two coats.

Use Isoflex Clean-Up Fluid or an aromatic based hydrocarbon solvent to clean up.

When the work cannot be finished in one day the continuation work

should overlap the old by approximately 150 mm.

Second coat delay:
Should more than 24 hours elapse after the touch dry stage of the first coat, prime the entire surface with Special Primer and allow to dry before applying second coat within 48 hours.

Airless Spray Application

Graco 45/80-1 King;
Direct immersion;
60 Mesh filter;
6-17 to 6-23 Tips;
3/8 Fluid line;
¼ Whip end;
Fluid pressure 2,500-3,000 PSI.

Note: Stir Isoflex Liquid Rubber before use with spray equipment.

FINISHES

Although Isoflex Liquid Rubber does not degrade with UV light, high levels of solar heat gain can affect any bituminous coatings which may be beneath the Isoflex Liquid Rubber.

Chippings

If the surface is not subject to foot traffic, chippings can be applied. In such cases a three coat application of Isoflex Liquid Rubber is recommended.

Solar Reflective Top Coats

To minimise solar heat gain, solar reflective finishes can be applied to Isoflex. An intermediate coat of Isoflex Special Primer is recommended to minimise discoloration.

Other solar reflective finishes or emulsion paints can be applied to fully cured Isoflex Liquid Rubber according to manufacturers' instructions.

REPAIRS

Minor damage to the Isoflex membrane can be repaired by removing loose membrane, cleaning down the surrounding Isoflex with Isoflex Clean-Up Fluid to provide an overlap of at least 150 mm, coating whole area with Special Primer and finishing with two coats of Isoflex Liquid Rubber.

COVERAGE

Coverage rates vary with the porosity and roughness of surface. The quoted data below is based on average performances. A site trial is recommended.

Isoflex Special Primer

6 to 10 square metres per litre.

Isoflex Liquid Rubber

1 litre per square metre on a smooth surface will provide the necessary film thickness of approximately 1 mm. Any roughness, however, means an increased surface area and must be allowed for in calculating coverage. For roofs with embedded chippings estimate double the normal usage.

IMPORTANT NOTES

Always read instructions carefully before use.

Wear suitable clothing and protective gloves. Expose as little of the skin as possible.

If clothing becomes heavily splashed, remove and replace, do not re-use.

STORAGE

Isoflex Special Primer

Keep in a cool place with lid firmly closed away from heat and sources of ignition.

Isoflex Liquid Rubber

Keep in a cool place away from heat and sources of ignition. Avoid unnecessary opening of cans. The self-levelling properties of Isoflex Liquid Rubber allows it to be poured onto the surface and spread with a brush or squeegee. In very cold conditions store internally before application. Do not attempt to thin Isoflex Liquid Rubber.

Isoflex Liquid Rubber and Special Primer cure by reaction with atmospheric moisture. Once opened they begin to cure and even if resealed a skin will form. This can be removed if products are used within approximately one month. It should be noted that badly dented containers could allow ingress of moisture and the commencement of curing.

DISPOSAL

Unused Isoflex Liquid Rubber and Special Primer should be allowed to cure before disposal.

Some local authorities have special facilities for the disposal of waste products.

Do not empty product into drains or watercourses.

Isoflex Clean-Up Fluid

Keep in a cool place with cap tightly closed. Do not dispose into domestic drainage systems.

HEALTH AND SAFETY

Observe and follow all warnings and instructions for use shown on the pack.

Keep all Isoflex products away from children.

Wear suitable clothing and protective gloves. Once cured neither Isoflex Special Primer or Liquid Rubber can be removed, even with Isoflex Clean-Up Fluid.

Use only on outside surfaces and ensure good ventilation.

Isoflex Liquid Rubber

Isoflex Liquid Rubber is harmful by inhalation. May cause sensitisation by inhalation.

Flammable.

Keep out of reach of children.

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Use only in well ventilated areas.

Contains isocyanates. See information supplied by the manufacturer.

If swallowed seek medical advice immediately and show container/label.

After contact with skin, wash immediately with plenty of soap and water or a proprietary skin cleanser. Do not use solvent or thinners/white spirit.

Repeated exposure may cause skin dryness or cracking.

Do not breathe vapour/spray.

When spraying wear suitable respiratory protective equipment.

Isoflex Special Primer

Keep out of reach of children.

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

If swallowed seek medical advice immediately and show this container/label.

Use only in well ventilated areas.

Contains isocyanates. See information supplied by the manufacturer.

After contact with skin, wash immediately with plenty of soap and water or a proprietary skin cleanser. Do not use solvent or thinners/white spirit.

Repeated exposure may cause skin dryness or cracking.

Do not breathe vapour/spray.

When spraying wear suitable respiratory protective equipment.

Isoflex Clean-Up Fluid

Keep out of reach of children.

Keep away from sources of ignition - no smoking.

Avoid contact with skin and eyes.

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

If swallowed seek medical advice immediately and show container/label.

After contact with skin, wash immediately with plenty of water.

Repeated exposure may cause skin dryness or cracking.

Ensure maximum ventilation during application and drying.

Specific health and safety data sheets are available on request.

FLAMMABILITY

Isoflex Liquid Rubber, Isoflex Special Primer and Clean-Up Fluid are flammable liquids.

Keep away from sources of ignition - no smoking.

SUPPLY

Obtainable from DIY outlets and builders merchants.

SIZES

Isoflex Special Primer - 750 ml, 2.5 litre.

Isoflex Liquid Rubber - 750 ml, 2.1 litre, 4.25 litre.

Isoflex Clean-Up Fluid - 500 ml.

TECHNICAL DATA

Isoflex Special Primer

Approximate drying time: Cures to a slightly tacky film in 2-4 hours.

Period before application of Isoflex Liquid Rubber: Min. 2 hours, max. 48 hours. When applying to bitumen surfaces allow at least 4 hours before applying Isoflex Liquid Rubber. Temperature limits for application: 0-40°C.

Flash point: 61°C approximately.

Flammability: Flammable liquid.

Isoflex Liquid Rubber

Colour: Black.

Physical form: Viscous liquid.

Average theoretical solids content: 90% min.

Coverage: 1.0 litre per m² (dependent on surface and service requirements).

Approximate drying time: Touch dry in 24-36 hours approximately (at 20°C, 50% relative humidity) (varies with ambient temperature). Max. cure after 7 days (at 20°C, 50% relative humidity).

Temperature limits for application: 0° to 40°C.

Elongation: 300% approximately.

Tensile strength: 1.7 n/mm² approx.

Flammability: Wet state - Flash point 54°C (Abel closed cup) approximately.

Accelerated weathering: After 10,000 hours no appreciable deterioration.

Resistance to:

Weathering U/V - Excellent;

Dilute acid/alkali - Excellent;

Industrial environments - Excellent;

Chemical plant fallout and fumes - Excellent;

Mechanical damage - Excellent.

Isoflex Clean-Up Fluid

Aromatic hydrocarbon based solvent.

Flash point: 43°C.

Flammability: Flammable liquid.

LIABILITY

Whilst these specifications are based on expert technical knowledge, practical experience and laboratory testing, the success of the Isoflex Waterproofing System depends upon the nature and condition of the surface on which the Isoflex products are applied, as well as the manner in which that surface is prepared. Without control or supervision of the preparation for and application of Isoflex products, general guarantees cannot be offered.

INFORMATION AND SERVICE

Our Technical Services Department will be pleased to offer specific guidance or provide any further information you may require.

Ronseal has been registered to BS EN ISO 9000 1994 (Registered Firm No. FM 1669/1).

Ronseal Ltd. Operates an Environmental Management System that complies with the requirements of BS 7750:1994, certificate No. EMS 35924.

Ronseal Ltd. has achieved Investors in People certification, (certificate number 59586).

©RONSEAL LTD.,

**Thorncliffe Park
Chapelton
Sheffield
S35 2YP**

Tel:

+44 (0114) 240 9469

(Technical Services)

+44 (0114) 246 7171

(Main Switchboard)

Fax:

(0114) 245 5629

E. Mail:

enquiry@ronseal.co.uk

Website:

www.ronseal.co.uk

Ronseal and Isoflex are Registered Trademarks.

JANUARY, 2002
ISSUE 3