Insulthane® 50

Product Description:

Insulthane® 50 is a two component, open-cell spray polyurethane foam (ocSPF) insulation system. It uses water as the sole blowing agent and is installed by certified professionals using specialized equipment that uses a fixed ratio dispensing system. Insulthane® 50 is a unique ocSPF insulation in the industry as it employs a proprietary formula that insures adhesion to substrates and itself. It is the ideal insulation for residential, industrial and commercial applications.

Appearance:

The final cured product is cream in color (natural).

Recommended Applications:

Residential Interior Construction:
Wall enclosures, duct work, ceilings, interior foundation, attic, crawl space, cathedral ceiling, rim joists, raised floors, etc.
Industrial Construction:
Wall enclosures including steel, above or below grade, underside of deck, etc.
Commercial Interior Construction:
Walls, foundation walls, underside of roof decks, etc.

Approvals and Certifications

- All testing to EN harmonized standard EN 14315-1: 2013
- Installed by certified applicators in accordance with Elastochem's training program
- GreenGuard GOLD Certified – ensures product is acceptable for use in schools and healthcare facilities.

Application Information

Applied at a minimum of 50 mm per pass and a maximum of 400 mm per pass as per manufacturer's guidelines. Applying the second pass can be performed after the first pass if required. This process will be repeated for each additional pass.

Foam must be protected from UV exposure within 90 days of application. Apply ocSPF insulation only when surfaces and ambient temperatures are within manufacturers' prescribed limits. Ambient humidity should be below 80% and substrate temperatures must be more than 3°C above dew point to avoid condensation risks.

Substrate temperature: -10 - 35°C

Thermal Resistance

Thickness	Thermal Conductivity W/mK	Thermal Resistance $m^2 \cdot K/W$
50 mm	0.038	1.30
75 mm	0.038	1.95
100 mm	0.038	2.60
125 mm	0.038	3.25
150 mm	0.038	3.90

Technical Properties

Attribute	Test	Results
Density	EN 1602	7 - 12 kg/m^3
Water Vapor Transmission	EN 12086	μ 3.68
Dimensional Stability	EN 1604	DS(TH)4
Short Term Water Absorption	EN 1609	0.54 kg/m^2
Airflow Resistance	EN 9053-1	78.9 x 10^3 $Pa \cdot s.m^{-1}$
Reaction to Fire	EN 11925-2	Class F
Re-occupancy		1 hour with active ventilation
Aged Thermal Conductivity	EN 12667	0.038 W/mK

Attribute	Test	Results
Open Cell Content	EN 4590	97.37%
Substrate Adhesion	EN 14315-1 (Annex F)	
Natural Stone		24 kPa
Concrete		36 kPa
Steel		31 kPa
Timber		33 kPa

All testing performed by an accredited independent third-party test facility

Processing Parameters

Pressures (dynamic):	70-100 bar (1000-1500 psi)
Preheat Temperature:	"A" & "B" 55-60°C (130-140°F)
Hose Temperature:	55-60°C (130-140°F)
Drum Temperature in Use:	21-32°C (70-90°F)

For optimal processing of ocSPF, Elastochem recommends the above parameters in use with a Graco Fusion AP/CS gun equipped with an AR 4242 or an AR 4747 chamber. The use of larger gun chambers may result in diminished yield and physical properties.

Mix the resin component for a minimum of 30 minutes with an electric or pneumatic mixer prior to use (expanding blade mixer recommended). Additional mixing throughout the day may be required based on ambient temperature. The materials can be circulated through the processing equipment to raise the temperatures in the drums. Care should be taken not to overheat the material as this could have adverse effects on the performance.

Liquid Component Characteristics

Component A :	150-250 cps @ 25°C / 77°F (Viscosity)
	1.24 kg/L sg @ 25°C / 77°F (Specific Gravity)
Component B :	500-1000 cps @ 25°C / 77°F (Viscosity)
	1.1 kg/L sg @ 25°C / 77°F (Specific Gravity)
Mix Ratio by Volume:	1:1 of A:B

Storage Recommendation

All material provided by Elastochem is to be sealed until ready for use. Keep drums closed during storage and out of a humid environment.

A nitrogen blanket should be used in ISO barrels for long term storage. ISO and resin barrels should be sealed when not in use. A desiccant air dryer should be used on the Iso barrel to allow pressure to equalize in drum when in use. Keep drums out of direct sunlight. To ensure proper longevity of the products, unopened materials should be indoors within the temperature ranges referenced below. Please see chart below for shelf life of materials:

Shelf Life	Part B (Resin) – 6 months	Part A (ISO) - 12 months
Storage Temperature Recommendations	10-32°C / 50-90°F	10-32°C / 50-90°F

Precautions

Like many construction materials, spray polyurethane foam is a combustible product. Therefore, installers and occupants are to take precautions and safety measures to ensure the foam does not come into contact (within 3") of any devices that have a surface temperature exceeding 70°C. Once application is completed, foam shall be protected with a thermal barrier in accordance with the local building code requirements for a suitable thermal barrier (e.g., drywall).

Adhesion

Substrates must be free of grease, oil, dirt, and surface moisture. The moisture content of porous materials must be below 19% before application of foam.

Manufacturer can be contacted for material compatibility, surface preparation techniques and adhesion on commonly encountered construction materials.

It is up to the builder or designer to determine the suitability of the material for any project. The installer must verify the compatibility of the product at the time of application due to the variability of weather conditions, material suppliers and site conditions which may impact the performance of the product.

Health and Safety Handling

When spraying or handling Insulthane® 50 ISO and Resin, the following protective steps and equipment are required:

Protective Equipment

- Fabric coverall (non-porous)
- Nitrile gloves
- Protective eyewear
- Supplied full face fresh air respirator (while spaying)
- Use personal protective equipment (see SDS)

Exposure

- Avoid all contact with skin
- Avoid all contact with eyes
- Do not ingest
- Do not inhale vapors

In case of exposure, please refer to the SDS for first-aid measures.

Spills

In case of spills, contain and collect spillage with a non-combustible absorbent material, such as: sand, earth, clay-based oil absorbent (kitty-litter), etc.

Start-up Procedure

- Mix Resin for 20-30 minutes with air or electric mixer
- Do NOT circulate until mixing is complete
- Reduce speed of mixer or disconnect
- Circulate both materials until the drum temperature is >70ºF
- Set ISO and RESIN heaters between 130-140ºF
- Set hose heat to the same temperature as the heaters

Reoccupancy

Wait 1-hour post-application with active ventilation of 10ach before re- occupancy of the living space.

Properly fitting breathing apparatus supplying fresh air must also be worn by the installers and all other trades or helpers within 15 meters working distance of the installer. Protective gloves, coveralls, eye protection, safety shoes and hard hats must also be worn while spraying. Mechanical ventilation with a minimum of 10 air changes per hour is also required during and after spray installation.

Certified Installers Only

Only individuals who are trained by Elastochem Specialty Chemicals Inc. and certified by GMS Insulations Ltd are approved to install Wrapsulate.

Important Notes:

It's imperative (especially in colder climates) that the hose insulation is in good shape and completely covers the hose including any unheated whip.

The machine can only increase the temperature by approximately 60°F in the best of circumstances. Using a 01 (AR 4242) chamber will slow the output of chemical through the machine enough for the chemical to reach the heater target values. An added benefit to a smaller chamber size is increased mix and greater product yield.

Conditions and Limitations

The product can be installed in new or retrofit constructions. In either case, the product must be installed in open cavities in the following locations in a wood-frame construction:

- exterior walls including perimeter joists;
- cathedral ceilings
- floors separating living spaces from a garage;
- cantilever overhang floors; and
- raised floors

The building envelope where the product is installed must conform to the requirements of building regulations for vapour barriers, air barriers, and damp proofing (interior below-grade walls).

For retrofit applications whereby there may be occupants in the unaltered part of the building, the qualified installer must ensure that the spraying area is isolated and negatively pressurized by using an exfiltration rate of 10 air changes per hour for at least one (1) hour. An independent toxicological assessment determined that this ventilation rate must also be in effect for one (1) hour before occupancy is permitted in the newly insulated suite. In all situations the occupants should remain out of the building during spraying and for 1 hour afterwards where isolation of the spray area is not possible.

The sprayed material should completely cover the surfaces between the studs, joists and other framing members. The surfaces to be covered should be clean, dry, and not covered in frost, oil, grease, dust or other unsuitable material. As required the insulation must be installed so that there is a reasonably uniform insulating value over the entire face of the insulated area.

The interior side of the applied semi-flexible polyurethane insulation must be covered with an approved thermal barrier such as plasterboard to all habitable areas. The insulation must be kept away from heat-emitting devices, such as recessed light fixtures and chimneys, at the minimum distance required by building regulations. The maximum in-service temperature of the insulation must not exceed 70ºC.

Disclaimer: Technical information as shown in this document is intended to be used as general guidelines only. Please refer to the Safety Data Sheet and product label prior to using this product.

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