

Insulthane® HC High Compressive Strength Foam

Product Description

Insulthane® HC is a high compressive strength, structural spray polyurethane foam insulation. It delivers excellent resistance to heavy loads, moisture and extreme temperatures. Insulthane® HC is offered in a variety of compressive strengths suitable for commercial and industrial applications. The spray application creates a continuous insulation system that leaves no seams or other imperfections.

Appearance

The final cured product is cream in colour.

Recommended Applications

Residential Construction:

Under slab construction

Industrial Construction:

Highways, bridge abutments, utility lines, material retainment, geotechnical applications

Commercial Construction:

Plaza deck applications, parking decks, ice rinks, airport runways

Application Information

A minimum of 15mm per pass and maximum of 50mm as per the guidelines of the CAN/ULC-S705.2 application standard. Applying a second pass of foam, if required, can be performed after the first has cooled to a core temperature below 38°C (100°F). This process will be repeated for each additional pass. If spraying on heat sensitive materials (PEX pipe, low voltage wiring), spray maximum of 1" of foam and allow to fully cool before additional full thickness passes are added.

Foam must be protected from UV exposure within 90 days of application. Apply ccSPF 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 (5°F) above dew point to avoid condensation risks.

Substrate and ambient temperature limits: 5 - 50°C

A more in-depth application guide is available in the applicators manual. Please consult *Application Training Manual – Spray-Applied Polyurethane Foam*.

Technical Properties

Attribute	Test	Insulthane® HC 40	Insulthane® HC 60	Insulthane® HC 100
Aged R-Value @ 1"	ASTM C518	R 5.2 / RSI 0.92 (90 days)	R 5.0 / RSI 0.88 (180 days)	R 4.7 / RSI 0.83 (180 days)
Compressive Strength	ASTM D1621	338 kPa (49 psi)	448 kPa (65 psi)	703 kPa (102 psi)
Density	ASTM D1622	54 kg/m ³ (3.4 lbs/ft ³)	59 kg/m ³ (3.7 lbs/ft ³)	112 kg/m ³ (7 lbs/ft ³)
Flame Spread	CAN/ULC-S102	< 500 SD	< 500 SD	< 500 SD
Water Absorption	ASTM D2842	3.0%	1.3%	0.1%
Water Vapour Permeance @ 2"	ASTM E96	69.8 ng / Pa-s-m ² (1.22 perms)	62.4 ng / Pa-s-m ² (1.09 perms)	44.6 ng / Pa-s-m ² (0.78 perms)
Linear Dimensional Stability (28 days @ 80°C)	ASTM D2126	< 1.5%	< 1.5%	< 0.5%
Linear Dimensional Stability (28 days @ 70°C, 97 RH)	ASTM D2126	< 3%	< 3%	< 1%
Volumetric Dimensional Stability (28 days @ 80°C)	ASTM D2126	-0.8%	In progress	-0.8%
Volumetric Dimensional Stability (28 days @ 70°C, 97 RH)	ASTM D2126	-0.12%	In progress	0.8%

Processing Parameters and Equipment

Pressures (dynamic):	1250-1500 psi (85-100 bar)
A&B Preheat Temperature:	120-135°F (49-57°C)
Hose Temperature:	120-135°F (49-57°C)
Drum Temperature in Use:	70-90°F (21-32°C)
Surface Temperature:	23-120°F (-5-50°C)

For optimal processing of Insulthane® HC, Elastochem recommends the above parameters in use with a Graco Fusion AP/CS gun equipped with an AR 4242 to AR 5252 chamber (or equivalent). 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 (i.e. Graco expanding blade mixer). 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 to not overheat the material as this could have adverse effects on the performance.

Liquid Component Characteristics

Component A:	MDI (ISO) Colour: Brown 150 - 350 cP @ 25°C 1.24 kg/L sg @ 25°C
Component B:	Resin Colour: Amber < 800 cP @ 25°C 1.11 kg/L sg @ 25°C
Mix Ratio by Volume:	1:1 of A:B

Chemical Storage

All material provided by Elastochem are to be sealed until ready for use. To ensure proper longevity of the products, unopened materials should be indoors within the specified range. Please see chart below for storage temperature and shelf life of materials:

Drum Storage Temperature:

ISO (A)	10-32°C (50-90°F)	12 month shelf life
RESIN (B)	10-32°C (50-90°F)	6 month shelf life

Please refer to product label for recommended best before date.

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 with any heat emitting devices. 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 (i.e. drywall).

Adhesion

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

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

Health and Safety Handling

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

Protective Equipment

- Fabric coverall
- Nitrile gloves (when handling raw compounds)
- Palm dipped gloves (while spraying)
- Supplied full face fresh air respirator
- Use personal protective equipment (see SDS)

Exposure

- Avoid all contact with skin
- Avoid all contact with eyes
- Do not ingest
- Do not inhale the vapours

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.

For larger spills, contact Elastochem 1-877-787-2436 or any agency specialized in chemical damage control (e.g., CANUTEC at 613-996-6666).

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, with a preheater temperature of 90°F until the drum temperature is a minimum of 70°F
- Set ISO and RESIN heaters between 120-135°F
- Set hose heat to the same temperature as the resin heater
- Once temperature setpoints have been met, pressurize hose to 1250-1500 psi

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

The machine can only increase the temperatures by 60°F in the best of circumstances. Using an 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.

Certified Installers Only

Only individuals who are trained by Elastochem Specialty Chemicals Inc. and certified by Urethane Foam Consultants (UFC) are allowed to purchase Insulthane® HC. UFC is the third-party certification organization specified by Elastochem Specialty Chemicals Inc. to provide a certified training program. Services provided by UFC include follow-up inspections, certification and remediation.

Reoccupancy

Wait 24 hours post-application with ventilation 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 10 meters (33 feet) 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 0.3 air changes per hour is also required during and after spray installation.

Conditions and Limitations

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.

Product cannot be applied in any area where a CAN/ULC-S705.1 or CAN/ULC-S712.1 material is required.

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 and safety codes.

The maximum in-service temperature of the insulation must not exceed 80°C.

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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