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WALLTITE *ECO*TM Insulation / air barrier system

Raising Performance to New Heights®

WALLTITE Eco is a medium density polyurethane foam system that lowers energy consumption and greenhouse gas emissions. It can be used in residential as well as commercial, industrial and institutional applications. The system provides a monolithic surface and exceptional adhesion. There is no air gap between the insulation and the substrate. The building envelope is perfectly insulated and can better withstand severe weather conditions. Available in regular and cold temperature grades, WALLTITE Eco is designed for applications from -10°C to +40°C (14°F to 104°F). The foam is produced on site from two liquid components, a resin and an isocyanate, Lupranate 17. WALLTITE Eco resin uses a **zero ozone-depleting blowing agent**. **The polyol contains both recycled plastic and renewable carbon content**. WALLTITE Eco meets the requirements of CAN/ULC-S705.1-01 (including amendment 1 & 2)) and must be applied by certified contractors as per CAN/ULC-S705.2. **WALLTITE Eco is the first medium density polyurethane to earn the EcoLogo^M**, one of the most widely recognized environmental certifications in North America. It has been awarded the **GREENGUARD Children & SchoolsSM** certification for indoor air quality, thus ensuring optimal occupant comfort and safety. It has also been recognized as a best in class insulation air barrier system through an **Eco-efficiency analysis** measuring **total cost and ecological impact**. The LCA-calculations are set up according to the rules and principles of the ISO 14040 ff. The Eco-efficiency analysis has some additional features to the ISO rules e.g. portfolio, fingerprint. The foam is **purple** in colour.



NOTE:

Major prerequisites for renewable raw materials to become an alternative to fossil resources are their availability at competitive prices for industrial applications, without compromising food production and depleting the natural wealth. For insulation material: WALLTITE Eco™, BASFCanada had chosen to use renewable content from non-edible crops that do not jeopardize global food production.

	Resin	Isocyanate
Liquid Component Properties		
Viscosity mPa•s @ 25°C (77°F)	200 ± 50	200 ± 30
Specific Gravity @ 25°C (77°F)	1.17	1.22
Flash Point °C (°F)	>200 (>392)	>200 (>392)
Ratio (by volume)	100	100
Quality Control Machine Parameters		
Primary Heater		
- Resin °C °F	49 (120)	49 (120)
- Iso °C °F	49 (120)	49 (120)
Hose Temperature °C °F	49 (120)	49 (120)
Pressure in bar (psi) @ 59 to 83 (850 to 1200)		
Temperature in the Laboratory		
Ambient temperature °C (°F)	23 (73)	23 (73)
Substrate (Cardboard) °C (°F)	23 (73)	23 (73)
Quality Control Reactivity Profile		
WALLTITEeco®:	Regular Grade	Cold Temp. Grade
Cream time (sec.)	≤ 1	≤ 1
Gel time (sec.)	1.65 ± 0.25	1.1 ± 0.25
Tack free time (sec.)	3.0 ± 0.5	2.3 ± 0.5
Rise time (sec.)	4.5 ± 1.0	2.6 ± 0.5



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Test Results (in accordance with CAN/ULC-S705.1-01 (including amendment 1 & 2))
The following data was achieved through testing at an independent laboratory. The samples were conditioned under test method ASTM D618 (88hr @ 23°C (73°F), 50% RH)

Density (Core)*

(ASTM D-1622):

kg/m³ (lb³) 28.4 (1.77)

Compressive Strength

(ASTM D-1621): Parallel to rise (10% compression)

kPa (psi) 199 (29)

Tensile Strength

(ASTM D-1623):

kPa (psi) 396 (57)

Open Cell

(ASTM D-2856): %

4.56

Water Absorption

(ASTM D-2842): % by volume

0.62

Dimensional Stability

(ASTM D-2126): % volume change after 28 days

-20°C (-4°F) ambient humidity 0.96

80°C (176°) ambient humidity 5.11

70°C (158°F) and 97% RH 8.60

Water Vapour Permeance – Without the Skins

(ASTM E-96):

ng/Pa•s•m² (perm) @ 50mm (2 in) 50 (0.87)

Volatile Organic Compound (VOC) Emissions during Aging

CAN/ULC-S774

Below detection limit 24 hrs

Service Temperature

°C (°F) -40 to +80 (-40 to +176)

* Lower density = lower R value but lower density means less material used on a building to reach the total desired R value; this is a Sustainable Approach.



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Initial Thermal Resistance**

(ASTM C-518):

After 3 days at 23°C +/- 2 °C (73°F +/- 4°F)

[m²•°K/W] (ft²•hr•°F/Btu)/in @ 50mm (2 in) 2.408 (13.67)

Long Term Thermal Resistance

(CAN / ULC-S770)***

Thickness	Thickness	R Value	RSI
inches	mm	(ft ² .hr.°F/Btu)/in	(m ² .°C/W)
1.97	50	10.31	1.82
2	50.8	10.48	1.85
2.5	63.5	13.47	2.37
2.95	75	16.21	2.86
3	76.2	16.46	2.90
3.5	88.9	19.60	3.35
3.94	100	22.39	3.94
4	101.6	22.74	4.01

Flame Spread Classification****

For a thickness of 50mm (2 inches)

(CAN/ULC-S102 including -S127)

Flame Spread <500

Smoke Development <500

Fungal Growth

When tested to ASTM 1338-96, the samples of WALLTITE® insulation material did not support fungal growth. WALLTITEeco® is under testing and we expect the same results because the polymer itself is not a food source for bacterial and in combination with its lack of water absorption should not allow it to become a substrate for this growth.

** The initial thermal resistance is used for comparative purposes.

*** Lower density = lower R value but lower density means less material used on a building to reach the total desired R value; this is a Sustainable Approach.

**** Numerical flame spread ratings are not intended to reflect hazards presented by this or any other products made from this material under actual fire conditions.

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Applications

Air Leakage Results

As per the technical guide for: Air Barrier Systems for exterior walls of low-rise buildings, Master Format Section: 07272. Prepared by CCMC, NRC

Material Result

L/s/m² at 75 Pa 0.0053

WALLTITEeco exceeds the requirements stated in the 2005 National Building Code (NBC)

WALLTITEeco meets the requirements of CAN/ULC-S705.1-01 (including amendment 1 & 2) and must be applied by certified contractors as per CAN/ULC-S705.2.

Vapour Permeance

When WALLTITEeco® is installed in an exterior insulating sheathing-type application, the water vapour permeance (WVP) value requires that the wall assembly complies with table 9.25.1.2., Subsection 9.25.4., and Article 9.13.3.3. of the NBC 2005.

Tests done on WALLTITE® by an independent laboratory approved by the Standard Council of Canada. These tests are not yet complete for WALLTITEeco® but the vapour permeance value of WALLTITE at 2 inches is 62.5 ng/Pa•s•m² where with WALLTITEeco, the value is 50 ng/Pa•s•m², therefore the results of WALLTITEeco should be equal or lower in value.

Tests done on WALLTITE by an independent laboratory

<u>Substrate</u>	WVP of the substrate	WVP of substrate + 25 mm (1 inch) WALLTITE
	ng/Pa•s•m ²	ng/Pa•s•m ²
1 ⁵ / ₈ " Concrete slab	9.8	2.8
1/2" O.S.B.	49.0	33.0
1/2" Plywood, int. grade	75.9	36.9
1/2" Gypsum, int. Grade	1,656.0	90.7
1/4" Cardboard	—	76.3
2" Concrete block	—	59.0



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General Application Instructions

WALLTITEeco, properly mixed, will produce high quality polyurethane foam when applied according to our specifications. Regular grade system must be applied between +5°C to +40°C (41°F to 104°F). Cold temperature grade system must be applied between -10°C to +5°C (14°F to 41°F). Spraying at lower temperatures may result in poor adhesion between the foam and the substrate.

Equipment Parameters

Primary heater, resin and iso °C (°F)	32 (90)	49 (120)
Hose temperature	32 (90)	49 (120)
Mixing pressure in bar (psi)	59 to 83	(850 to 1200)

Storage Recommendations

Resin and Isocyanate must be stored on pallets in a dry location, away from sunlight and other sources of direct heat.

	Isocyanate	Resin
Shelf Life	12 months	6 months
Temperature °C	16- 27	16 - 23
°F	60 - 80	60 - 73

Health, Safety and Toxicity Considerations

Handling Recommendations:

Isocyanate – Lupranate 17

- Use personal protective equipment (see MSDS)
- Avoid all contact with skin and eyes
- Do not inhale the vapours
- Do not store in a humid environment
- In case of spills, absorb using sand or absorbing material (no sawdust)
- For larger spills, contact BASF Canada at 1-800-454-2673, or any agency specialized in chemical damage control (e.g. CANUTEC at 613-996-6666)

Resin WALLTITE®

Contains a low boiling point blowing agent:

- Use personal protective equipment (see MSDS)
- Before opening, unscrew the bung slowly to release the gas pressure in the drums
- Avoid all contact with skin



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Application Safety

While spraying, always work with adequate ventilation. Protective gloves, overalls, eye protection, safety shoes, hard hats and a properly fitting breathing apparatus supplying fresh air **must** be worn by the installers (and others working within 10 meters - 33 feet of the installer) at all times while spraying****. Persons with known respiratory allergies must avoid exposure to the Isocyanate component. If inhalation of vapours occurs, remove the person from the working area to breathe fresh air and if breathing is still difficult call a physician. Avoid contact with eyes, skin and clothing. In case of eye contact, immediately flush with large amount of water for at least 15 minutes and call a physician immediately. In case of skin contact, wash area with soap and water. Wash soiled clothing before reuse.

Do not apply WALLTITEeco® in excess of 50 mm (two inches) per pass due to the product's exothermic effect. Allow passes to thoroughly cool before applying successive passes.

Drum Description

Isocyanate: Red 250 kg (551 lb), steel drum
Resin: Blue 220 kg (441 lb), steel drum

Fire Hazard

Fires involving either component may be extinguished with carbon dioxide, dry chemical, or an inert gas. Application of large quantities of chemical spray is recommended for spill fires. Personnel fighting the fire must be equipped with self-contained breathing apparatus.

Note: WALLTITE is a registered trademark of BASF

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**** As per the standard CAN/ULC-S705.2-05

BASF Canada

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