PINNACLE WEST INC

ECOTITE™ 2.0

TYPE 2 - 2 LB. CLOSED CELL FOAM

CCMC # 14002-L
Canadian Construction Materials Centre

DESCRIPTION

ECOTITE™ 2.0 is a medium-density insulation for use in residential, commercial, industrial and institutional structures, both new and retrofit. ECOTITE™ 2.0 adheres well to all common building materials. The material itself creates a permanent air seal which further increases its value as an insulating medium. ECOTITE™ 2.0 has been tested and meets the current requirements in the national building code of Canada (NBC) as per CAN/ULC S705.1 and is currently listed by the Canadian Construction Materials Centre (CCMC) under evaluation listing #14002-L.

ECOTITE™ 2.0

TYPICAL APPLICATIONS

- Residential, commercial, industrial and institutional building insulation.
- Interior perimeter stud wall insulation.
- Exterior, below grade and under slab applications.
- Freezers & Coolers.

ECOTITE™ 2.0

KEY FEATURES

- LTTR - TYPE 2 (The Highest) provides long-term thermal resistance of 2.0 $m^2 \bullet K/W$ at 50 mm.
- Meets and exceeds CAN/ULC S705.1-01(Including Amendments 1 and 2) as referenced in the National Building Code of Canada.
- Use on substrates as cold as -15°C (5°F).
- Safe for electrical wiring, can be applied over typical electrical wiring without affecting wire coverings.
- Safe for plumbing, can be applied over PVC (polyvinyl chloride), ABS (acrylonitrile butadiene styrene), PEX (cross-linked polyethylene), copper and steel piping systems.

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ICC ES

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LONG TERM THERMAL RESISTANCE (LTTR) TEST METHOD CAN/ULC 770 MEASURED AT 5 YEARS

ECOTITE™ 2.0 is a TYPE 2 medium-density SPF with an exceptional R-Value of 6.0 per inch. Based on a 88.9mm (3.5") installation.

THICKNESS - MM (INCHES)	R-VALUE (ft^2-hr-F/BTU)	RSI (2.0 m^2•K/W)
50.0 mm (1.97")	11.36	2.00 Type 2 (The Highest)
50.8 mm (2.0")	11.53	2.03
88.9 mm (3.5")	21.06	3.71
100 mm (3.93")	23.84	4.20
101.6mm (4.0)	24.35	4.28
114.3mm (4.5)	27.45	4.83
127.0mm (5.0)	30.55	5.37
152.0mm (6.0)	36.90	6.50
177.8mm (7.0)	43.40	7.64
203.2mm (8.0)	50.00	8.81

TYPICAL PHYSICAL PROPERTIES

(For components)	COMPONENT A	COMPONENT B
Mixing ratio by volume	1	1
Shelf Life - Unopened Containers	12 months	6 months
(For cured material)	**TEST METHOD**	**RESULTS**
Core Density (lb/ft^3 / kg/m^3)	ASTM D-1622	2.0 ± 0.1 / 32 ± 1.5
Initial Thermal Resistance, 50 mm (RSI / R-Value)	ASTM C-518	RSI: 2.37 / R-Value 13.45
Tensile Strength (psi / kpa)	ASTM D-1623	75 / 517
Compressive Strength (psi / kpa)	ASTM D-1621	25.4 / 175
Closed-Cell Content (%)	ASTM D-2856	>93
Fungi Resistance	ASTM G-21	Zero Rating
Air Permeation @ 75Pa	ASTM E-2178	0.0002 L/s
Water Vapor Permeance 50 mm sample	ASTM E-96	41 ng/Pa.s.m^2
Air Leakage ($L/s/m^2$)	ASTM E-283	0.002
Sound Transmission Class (STC)	ASTM E-90	Class 33
VOC Emissions	CAN/ULC S	Pass (1Day)
Water Absorbtion %	ASTM D-2842	0.4% PASS
Dimensional Stability % Volume Change after 28 days	ASTM D-2126	0.03 % @ -29°C(-20°F) -0.7 % @ 80°C((176°F) 0.2 % @ 70°C(158°F), 97 % RH
Flame Spread Class	CAN/ULC S102 CAN/ULC S127 CAN/ULC S102	40 Tunnel 230 Corner 405 Smoke Developed
Surface Burning Characteristics	ASTM E-84	Class 1
ICC-ES	Evaluation Report	ESR-3541

PROCESS SPECIFICATIONS

The system settings required to achieve quality spray foam application will vary depending on environmental and substrate conditions. The following recommended parameters will help ensure optimum foam quality. DO NOT MIX OR RECIRCULATE.

Equipment pre-heater temperature		
Component A	120 – 130°F	49 – 54°C
Component B	120 – 130°F	49 – 54°C
Hose temperature	120 – 130°F	49 – 54°C
Spray pressure	1100 – 1200 PSI	76 – 83 Bar

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APPLICATION INSTRUCTIONS

Designed for an application rate of 13 mm (½ inch) minimum to 50 mm (2 inches) maximum. Once installed and material has cooled, it is possible to add additional applications in order to increase the overall installed thickness of SPF. It is critical that materials are stored at recommended temperatures before and during application to allow for proper proportioning of materials.

STORAGE

ECOTITE™ 2.0 components should be stored in sealed containers at 18 – 29º C (65 – 85º F) in a dry area. Avoid exposure to freezing temperatures. Store on wooden pallets to avoid direct contact with the ground. Material in containers should be maintained at 18 – 29º C (65 – 85º F) while in use. Material temperature should be confirmed with a thermometer or an infrared gun.

SITE CONDITIONS

ECOTITE™ 2.0 Insulation is available in two seasonal grades. Recommended and acceptable substrate temperatures:

All-Season Formula	**Arctic Formula**
10°C to 38°C (50°F to 100°F) Recommended	-15°C to 10°C (5°F to 50°F) Recommended
0° to 50°C (32° to 122°F) Acceptable Range	-15° to 25°C (5° to 79°F) Acceptable Range

PACKAGING

A set of ECOTITE™ 2.0 consists of one (1) 208 Liter (55 gallon) drum of 'A' component and one (1) 208 Liter (55 gallon) drum of 'B' component. Net weight per set is 453.5 kg (1000 pounds).

PRECAUTIONS

Protect from exposure to moisture. Water will cause the "A" component (ISO) to generate carbon dioxide with resulting high pressure in closed containers.

CREDENTIALS & APPROVALS

CAN/ULC S705.1 - ECOTITE™ 2.0 has been tested and meets the current requirements in the national building code of Canada (NBC).
CCMC Listing - ECOTITE™ 2.0 is listed by the Canadian Construction Materials Centre (CCMC) under evaluation listing #14002-L.
Zero ODP - ECOTITE™ 2.0 utilizes zero ozone depleting blowing agents.

CERTIFIED INSTALLER

ECOTITE™ 2.0 is to be installed by an accredited contractor using certified installers in accordance with CAN/ULC-S705.2-05.

SAFETY PRECAUTIONS

Health Considerations - Consult the Material Safety Data Sheets. This chemical system requires the use of proper safety equipment and procedures. Please follow the product MSDS for detailed information and handling guidelines. In addition to reading and understanding the MSDS, all contractors and applicators must use appropriate respiratory, skin and eye Personal Protective Equipment (PPE) when handling and processing polyurethane chemical systems. Consistent use of personal proper protective equipment to prevent exposure during spraying and within the 24 hour-period after spraying is completed is critical to eliminating the health hazard. As with all SPF systems, improper application techniques such as: excessive thickness of SPF, spraying into or under rising SPF and off-ratio material, potential results of improperly installed SPF include: dangerously high reaction temperatures that may result in fire and offensive odors that may or may not dissipate. Improperly installed SPF must be removed and replaced with properly installed materials. Large masses of ECOTITE™ 2.0 should be removed to an outside safe area cut into smaller pieces and allowed to cool before discarding into any trash receptacle. AIR INTAKE UNITS SHOULD BE SHUT DOWN AND VENTS SEALED DURING POLYURETHANE SPRAY APPLICATIONS.

WARRANTY

When installed properly in accordance with instructions, Pinnacle West Enterprises Inc. warrants that the properties of the product meet product specifications as outlined in this technical data sheet. Save and except any exclusions referenced in the warranty.

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