1. **PRODUCT NAME**
Korolite® 400 Expanded Polystyrene (EPS) Insulation

2. **MANUFACTURER**
Airfoam Industries Ltd.
19402 - 56 Ave, Surrey BC V3S 6K4 Canada
800.663.8162 or 604.534.8626 | www.airfoam.com

3. **PRODUCT DESCRIPTION**
Korolite® Expanded Polystyrene (EPS) is a high-performance, closed cell, rigid foam insulation material that uses air as main ingredient. EPS insulation resists moisture and mold/fungi growth with low environmental impacts, high & stable Long-Term Thermal Resistance, and good drying potential over the long service lives of buildings.

Korolite® 400 is used in many residential and commercial construction applications such as wall, roof and below-grade insulation including under slabs.

**Sizes:** Korolite® EPS insulation is available in various lengths, widths and common thicknesses listed in Table 2. Common widths and lengths are 2'x8' and 4'x8' [0.61mx2.44m or 1.22mx2.44m] but can be custom ordered in any size to meet your project specifications.

4. **TECHNICAL DATA**

**Code Compliance**
Korolite® 400 EPS insulation is third-party certified and complies with:
- **Thermal Insulation:** ASTM C578 Type XIV, ICC-ES AC12
- **Surface Burning Characteristics:** CAN/ULC-S102.2, ASTM E84 (UL 723)

**Material Properties**
Korolite® 400 insulation products exhibit the typical physical properties indicated in Table 1 and below when tested as represented. Typical insulation values for common thicknesses are listed in Table 2.

**Environment Data**
EPS has much lower environmental impacts than most other foam plastic insulation materials. The Environmental Product Declaration (EPD) has been certified by UL Environment and is available on www.airfoam.com.
Korolite® EPS insulation may contain up to 30% pre-consumer recycled content or can be ordered without recycled content for EIFS/Stucco applications. Korolite® EPS insulation **resists mold & fungi growth** per ASTM C1338 and has no nutritional value for insects. To protect against termites place adequate physical barriers such as membranes around below-grade EPS.

**Max. service temperature:** Long-Term Exposure 75°C [167°F], Intermittent Exposure 80°C [176°F]

**Thermal expansion coefficient:** 5-7 • 10⁻⁵/°K

**Capillarity:** None.

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**TABLE 1. Korolite® 400 EPS Insulation - Material Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Units</th>
<th>Value</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Compressive Resistance</strong>&lt;sup&gt;1&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum @ 10% Deformation</td>
<td>psi</td>
<td>40</td>
<td>ASTM D1621 Proc. A</td>
</tr>
<tr>
<td></td>
<td>kPa</td>
<td>276</td>
<td>ASTM C518</td>
</tr>
<tr>
<td><strong>Thermal Resistance</strong>&lt;sup&gt;3,4&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum @ 24°C [75°F]</td>
<td>R-Value / inch thickness</td>
<td>4.27</td>
<td>ASTM C203 Proc. B</td>
</tr>
<tr>
<td></td>
<td>Rsi / 25mm thickness</td>
<td>0.74</td>
<td>ASTM C518</td>
</tr>
<tr>
<td><strong>Flexural Strength</strong>&lt;sup&gt;2&lt;/sup&gt;</td>
<td>psi</td>
<td>60</td>
<td>ASTM C518</td>
</tr>
<tr>
<td></td>
<td>kPa</td>
<td>414</td>
<td>ASTM C518</td>
</tr>
<tr>
<td><strong>Water Vapor Permeance</strong>&lt;sup&gt;1&lt;/sup&gt;</td>
<td>perms</td>
<td>2.3</td>
<td>ASTM E96 decant</td>
</tr>
<tr>
<td>Maximum @ 1” [25.4mm] thickness</td>
<td>ng/(Pa·s·m²)</td>
<td>132</td>
<td>ASTM C272, 1 day</td>
</tr>
<tr>
<td><strong>Water Absorption</strong>&lt;sup&gt;2&lt;/sup&gt;</td>
<td>% by volume</td>
<td>2</td>
<td>ASTM D2126, 7 Days @ 70°F</td>
</tr>
<tr>
<td><strong>Dimensional Stability</strong></td>
<td>% linear change max.</td>
<td>1.5</td>
<td>ASTM C518 or C177</td>
</tr>
<tr>
<td><strong>Additional Thermal Resistance Information</strong>&lt;sup&gt;3,4&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Typical R-value&lt;sup&gt;4&lt;/sup&gt; per inch [25.4mm] @ 25°F</td>
<td>ft²·hr·°F/(BTU·in)</td>
<td>4.8</td>
<td>ASTM C518 or C177</td>
</tr>
<tr>
<td>@ 40°F</td>
<td>ft²·hr·°F/(BTU·in)</td>
<td>4.6</td>
<td>ASTM C518 or C177</td>
</tr>
</tbody>
</table>

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<sup>1</sup> The test methods used to determine the material properties provide a means of comparing different cellular plastic thermal insulations. They are intended for use in specifications, product evaluations and quality control, but they are not intended to predict end-use product performance.

<sup>2</sup> The test methods used to determine the material properties provide a means of comparing different cellular plastic thermal insulations. They are intended for use in specifications, product evaluations and quality control, but they are not intended to predict end-use product performance.

<sup>3</sup> The elastic limit is between 1% and 2% strain. Compressive resistances at 10% strain are provided for applications where the intended use can tolerate plastic (permanent) deformation under load.

<sup>4</sup> R means resistance to heat flow. The higher the R-value, the greater the insulating power.

<sup>5</sup> Values are for 1 inch or 25mm thick samples with natural skins intact. Better values will result for thicker materials.

<sup>6</sup> The lab-test methods for water absorption use complete submersion under a head of water for 24 or 96 hours, so the values are applicable to specific design requirements only when the end-use conditions are similar to test method requirements.
Korolite® 400 EPS Technical Specifications

Fire Characteristics
• Limiting Oxygen Index: min. 24% per ASTM D2863. Airfoam’s EPS for construction applications contains a polymeric (non-HBCD) fire retardant modifier.

Surface Burning Characteristics
• Canada: CAN/ULC-S102.2: Flame-Spread Rating ≤290, Smoke Developed Classification over 500.
• USA: ASTM E84 (UL 723): Flame Spread Index ≤25,
  Smoke Developed Index ≤450 up to 6" thick.

Fire Protection
CAUTION: This product is combustible. Keep away from high heat and ignition sources. A protective barrier or a thermal barrier is required as specified in the appropriate building code.
¾ Hour Fire Rating for a Composite Wall Assembly with EPS c.i. (Continuous Insulation) per CAN/ULC-S101, ASTM E119, see Design No. CPIA/CWP 45-01. Meets NFPA 285 with specific limitations for an exterior wall assembly.
For more information consult Airfoam’s CCRR-0379 at www.airfoam.com/ Airfoam-Code-Report-CCRR-0379.pdf, your engineer, local building department or call Airfoam at 800.663.8162.

Solubility & Incompatibility
Insoluble in water and in general chemically inert. EPS dissolves in hydrocarbons (e.g. fuels, oils, tar), organic solvents (e.g. acetone/ketones, benzene, paint thinner), ethers, esters, aldehydes and amines.

5. INSTALLATION
Install Korolite® insulation in compliance with all applicable building codes. Korolite® insulation is easy to handle and install and can be cut with a utility knife or any sharp blade. Butt edges and ends tightly to adjacent EPS boards. Ensure compatibility of any other product (such as adhesives, tapes, coatings or finishes) with Expanded Polystyrene. Korolite® Rigid Foam Insulation is a non-structural material. Korolite® insulation shall only be placed into an assembly where the moisture transport mechanisms are well understood and determined to be acceptable in accordance with accepted engineering practice (e.g. current ASHRAE Handbook of Fundamentals).
For safe handling and storage information refer to the Safety Data Sheet (SDS) at www.airfoam.com/SDS.pdf or request a printed copy.

GHS Classification: Non-Hazardous.
UV-light surface degradation: white EPS can be exposed to direct sunlight for a few weeks. Prolonged exposure to ultraviolet light creates a yellow dust on the surface of EPS products which has negligible impact on the products' properties but may require removal before adhering other materials such as stucco or self-adhesive membranes.

TABLE 2. Korolite® 400 Thermal Resistance @ 75°F [24°C] by Thickness

<table>
<thead>
<tr>
<th>Material Thickness</th>
<th>Min. R-Value ft²·hr·°F/BTU</th>
<th>Min. Rsi (m²·K)/W</th>
</tr>
</thead>
<tbody>
<tr>
<td>1&quot;</td>
<td>25.44mm 4.27</td>
<td>0.74</td>
</tr>
<tr>
<td>1.5&quot;</td>
<td>38.1mm 6.41</td>
<td>1.11</td>
</tr>
<tr>
<td>2&quot;</td>
<td>50.8mm 8.54</td>
<td>1.48</td>
</tr>
<tr>
<td>2.5&quot;</td>
<td>63.5mm 10.68</td>
<td>1.85</td>
</tr>
<tr>
<td>3&quot;</td>
<td>76.2mm 12.81</td>
<td>2.22</td>
</tr>
<tr>
<td>4&quot;</td>
<td>101.6mm 17.08</td>
<td>2.96</td>
</tr>
<tr>
<td>5&quot;</td>
<td>127mm 21.35</td>
<td>3.70</td>
</tr>
<tr>
<td>6&quot;</td>
<td>152.4mm 25.62</td>
<td>4.44</td>
</tr>
</tbody>
</table>

Additional Thermal Resistance information for colder temperatures is available at www.korolite.com.

6. AVAILABILITY
Korolite® EPS insulation is supplied from Surrey BC through our extensive distribution network. For product availability or to get in touch with your local distributor, call Airfoam at 800.663.8162 or +1.604.534.8626.

7. WARRANTY

8. MAINTENANCE
No maintenance is required in normal use. EPS insulation that became wet can be dried out within reasonable times per ASTM C1512 tests using adequate drainage and/or ventilation.

9. TECHNICAL SERVICES
Airfoam can provide technical information and support to help address questions when using Korolite® EPS Insulation. Technical personnel are available to assist with any insulation project. For technical assistance, contact Airfoam at:
Online: www.airfoam.com/eps-insulation-support.php
Phone: 800.663.8162 or +1.604.534.8626
Fax: +1.604.534.1212

Recycling: Expanded Polystyrene (EPS) can be recycled for reuse in a variety of different applications, from construction and landscaping to packaging and park benches. Airfoam Industries Ltd. is a registered Recycling Facility for EPS materials accepting recyclable #6 white Expanded Polystyrene (EPS) from our customers - free of charge, if it is clean, dry, and not mixed with any other materials.

10. FILING SYSTEM
Korolite® 400 EPS Technical Specifications filed at: www.airfoam.com

Please contact us for a free estimate or additional information: www.airfoam.com

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