EPS Industry Alliance

Insulation

Expanded Polystyrene (EPS) Insulation

EPS insulation is a versatile molded closed-cell foam plastic insulation that provides long-term stable R-value. EPS has a high level of moisture resistance and meets the most demanding compressive and thermal resistance building requirements.

Building Envelope Thermal Insulation Product Category Rule (PCR), version 1.4 by Underwriters Laboratory (UL).

August 10, 2017 - August 10, 2022

4787238681.101.1

LIFECYCLE IMPACT CATEGORIES

The environmental impacts listed below were assessed throughout the product's lifecycle – including raw material extraction, transportation, manufacturing, packaging, use, and disposal at end of life.

<table>
<thead>
<tr>
<th>ATMOSPHERE</th>
<th>WATER</th>
<th>EARTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozone Depletion Potential</td>
<td>Ozone Depletion Potential</td>
<td>Acidification Potential</td>
</tr>
<tr>
<td>Photochemical Ozone Creation Potential</td>
<td>Photochemical Ozone Creation Potential</td>
<td>Photochemical Ozone Creation Potential</td>
</tr>
<tr>
<td>Global Warming Potential</td>
<td>Global Warming Potential</td>
<td>Eutrophication Potential</td>
</tr>
<tr>
<td>2.79 kg CO₂ eq</td>
<td>1.6E-08 kg CFC-11 eq</td>
<td>0.46 mol H+ eq</td>
</tr>
<tr>
<td>0.20 kg O₃ eq</td>
<td>3.6E-04 kg N eq</td>
<td></td>
</tr>
</tbody>
</table>

FUNCTIONAL UNIT

The functional unit is 1 m² (10.765 ft²) of insulation material with a thickness that gives an average thermal resistance RSI = 1 m²•K/W (R-value 5.68 ft²•hr•°F/BTU) and with a building service life of 60 years. The thickness of the ASTM C578 Type I EPS insulation required for the functional unit is 4.01 centimeters (1.58 in).
### MATERIAL CONTENT

Material content measured to 1%

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>MATERIAL</th>
<th>AVAILABILITY</th>
<th>MASS%</th>
<th>ORIGIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virgin Expanded Polystyrene (EPS)</td>
<td>Virgin Expanded Polystyrene (EPS)</td>
<td>fossil resource, non-renewable</td>
<td>97%</td>
<td></td>
</tr>
<tr>
<td>Recycled EPS Insulation</td>
<td>Recycled EPS Insulation</td>
<td>recycled material</td>
<td>2%</td>
<td></td>
</tr>
<tr>
<td>Blowing Agent (Pentane)</td>
<td>Blowing Agent (Pentane)</td>
<td>fossil resource, non-renewable</td>
<td>0.6%</td>
<td></td>
</tr>
<tr>
<td>Flame Retardant</td>
<td>Flame Retardant</td>
<td>fossil resource, non-renewable</td>
<td>0.4%</td>
<td></td>
</tr>
</tbody>
</table>

### ADDITIONAL ENVIRONMENTAL INFORMATION

- **PRE-CONSUMER RECYCLED CONTENT**
- **POST-CONSUMER RECYCLED CONTENT**
- **VOC EMISSIONS**
- **WATER CONSUMPTION**: 9.94 L

### ENERGY

- **RENEWABLE ENERGY**: 2% (1.74 MJ)
- **NON-RENEWABLE ENERGY**: 98% (69.7 MJ)

### RECYCLING OR REUSE

Recycling has always been an integral part of operations at EPS processing plants. Cutting scrap is recycled and incorporated into the production cycle to make new EPS insulation, and many manufacturers also include post-consumer recycled material. In addition to insulation, recycled EPS can be processed into new products such as plastic lumber.

### STANDARDS

- ASTM C578
- CAN/ULC S701
- ASTM E84
- CAN/ULC S102.2
- ASTM C1512
- ASHRAE 90.1
- NFPA 285

### CERTIFICATIONS

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