



## ENERGY SAVINGS

# Tundra

The Tundra® family of products includes premium quality closed-cell polyethylene (PE) foam insulation used in residential, light commercial and light industrial projects to prevent heat loss and protect pipes from freezing. Its flexible nature makes it easy to cut and install.

- // Tundra: Tubular pipe insulation in semi-slit format
- // Tundra SS: Pipe insulation with easy, self-seal closure
- // Tundra W SS: White pipe insulation with self-seal closure
- // Tundra Sheet and Roll: Flexible sheeting for large pipes, tanks and vessels



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Tundra<sup>®</sup>

# Tundra

Tundra® is 100% non-particulating polyethylene foam pipe insulation. Its closed-cell structure won't wick moisture, retards heat loss and helps prevent condensation that could cause mold to develop over time. The SS options have an easy-to-install self-seal closure system. Choose sheets or rolls when you need to insulate large pipes or vessels.

Tundra and Tundra SS



Tundra W SS



Tundra Sheet and Roll



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## APPLICATIONS

Tundra is used to retard heat loss on hot water pipes and to prevent freezing of all water pipes. It is available in a wide range of wall and sheet thicknesses.

Tundra has a low thermal conductivity and very low water vapor transmission rate. This low density product demonstrates excellent thermal, physical and chemical resistant properties and has a broad service temperature range between -297°F and 200°F (-183°C and 93°C). It is ideal for residential applications, but can be installed in light commercial and light industrial projects as well. It is acceptable for use with heat tracing/heat tape.

## INSTALLATION

Tundra pipe insulation is semi-slitted, and can be completely slitted by hand. Tundra SS and W SS are pre-slitted with a factory applied pressure sensitive adhesive to both seam surfaces and has a release liner for easy installation. All butt joints should be properly sealed with ArmaFlex 520 or ArmaFlex 520 BLV contact adhesive.

When Tundra sheet is applied to equipment, use 100% coverage of ArmaFlex 520 contact adhesive. Both surfaces to be joined should be coated and then joined after adhesive is dry to the touch. Compression joints with adhesive applied should be used on all butt edges.



## Technical Data: Tundra, Tundra SS and Tundra W SS

### Tundra and Tundra SS – Black Tubes

#### Approvals, Certifications, Compliances

- GREENGUARD Gold Certified
- Manufactured without CFCs, HFCs, HCFCs, PBDEs, or Formaldehyde.
- Plenum Rated
- ASTM C 1427, Type I (tubes)

- All Armacell facilities in North America are ISO 9001 certified
- Conforms to ASHRAE 90.1 Energy Standards
- Conforms to building codes: International Mechanical Code, IMC, International Energy Conservation Code, IECC, International Residential Code, IRC, Title 24 California Building Energy Efficiency Standards.

#### Sizes: Tundra and Tundra SS

|                             | Tundra                                      | Tundra SS                                   |
|-----------------------------|---|---|
| Wall Thickness (nominal)    | 3/8", 1/2", 3/4" and 1" (10, 13, 19, 25 mm) | 3/8", 1/2", 3/4" and 1" (10, 13, 19, 25 mm) |
| Inside Diameter, Tubular    | 3/8" to 2-5/8" ID (10 mm to 67 mm)          | 3/8" to 4" IPS ID (10 mm to 114 mm ID)      |
| Length of Sections, Tubular | 6' (1.83 m)                                 | 6' (1.83 m)                                 |

\* 3/8" wall up to 3-1/8" ID

### Tundra W SS – White Tubes

#### Approvals, Certifications, Compliances

- Manufactured without CFCs, HFCs, HCFCs, PBDEs, or Formaldehyde.
- Plenum Rated
- ASTM C 1427, Type I (tubes)
- All Armacell facilities in North America are ISO 9001 certified

- Conforms to ASHRAE 90.1 Energy Standards
- Conforms to building codes: International Mechanical Code, IMC, International Energy Conservation Code, IECC, International Residential Code, IRC, Title 24 California Building Energy Efficiency Standards.

#### Sizes: Tundra W SS

|                             | Tundra W SS                            |
|-----------------------------|--|
| Wall Thickness (nominal)    | 1/2" and 1" (13 and 25 mm)             |
| Inside Diameter, Tubular    | 3/8" to 4" IPS ID (10 mm to 114 mm ID) |
| Length of Sections, Tubular | 6' (1.83 m)                            |

### Typical Properties

| Physical Properties   | Values        | Test Method            |
|---|---------------|------------------------|
| <b>Thermal Conductivity:</b> Btu • in/h • ft <sup>2</sup> • °F (W/mK)       |               | ASTM C 177 or C 518    |
| 100°F (38°C) Mean Temperature   | 0.28 (0.040)  |                        |
| 75°F (24°C) Mean Temperature  | 0.270 (0.039) |                        |
| 50°F (10°C) Mean Temperature  | 0.265 (0.038) |                        |
| <b>Maximum Service Temperature</b> °F (°C)                                  | 200 (93)      |                        |
| <b>Minimum Service Temperature</b> °F (°C)                                  | -297 (-183)   |                        |
| <b>Water Vapor Permeability. Perm-In</b>                                    | 0.02          | ASTM E 96, Procedure A |
| <b>Water Absorption, % by Volume:</b>                                       | 0.2           | ASTM C 1763            |
| <b>Chemical/Solvent Resistance</b>  | Good          |                        |
| <b>Mildew Resistance/Air Erosion</b>  | Pass          |                        |
| <b>Flame Spread and Smoke Developed Index through 1" (25 mm) thickness*</b> | 25/50 rated   | ASTM E 84              |

\* Cellular plastics and thermoplastics, such as polyethylene/polyolefin insulation, that may drip, melt, delaminate or draw away from the fire, present unique problems and require careful interpretation of the test results.

### Tundra, Tundra SS and Tundra W SS R-Values

| Pipe O.D. or Nominal |        | R Value           |                   |                   |                 |
|----------------------|--------|-------------------|-------------------|-------------------|-----------------|
| Insulation I.D.      |        | 3/8" (10 mm) Wall | 1/2" (13 mm) Wall | 3/4" (19 mm) Wall | 1" (25 mm) Wall |
| 3/8"                 | 10 mm  | 2.6               | 3.7               | 5.9               | 8.8             |
| 1/2"                 | 13 mm  | 2.5               | 3.4               | 5.6               | 8.2             |
| 5/8"                 | 16 mm  | 2.4               | 3.3               | 5.3               | 7.8             |
| 3/4"                 | 19 mm  | 2.3               | 3.1               | 5.0               | 7.4             |
| 7/8"                 | 22 mm  | 2.2               | 3.0               | 4.8               | 7.1             |
| 1-1/8"               | 29 mm  | 2.1               | 2.9               | 4.6               | 6.6             |
| 1-3/8"               | 35 mm  | 2.1               | 2.8               | 4.4               | 6.3             |
| 1-5/8"               | 41 mm  | 2.0               | 2.7               | 4.2               | 6.1             |
| 2"                   | 50 mm  | 2.0               | 2.6               | 4.0               | 5.8             |
| 2-1/8"               | 54 mm  | 2.0               | 2.6               | 4.0               | 5.7             |
| 2-3/8"               | 62 mm  | 2.0               | 2.6               | 4.0               | 5.6             |
| 2-5/8"               | 67 mm  | 2.0               | 2.6               | 3.9               | 5.5             |
| 2-7/8"               | 72 mm  | 2.0               | 2.6               | 3.9               | 5.5             |
| 3-1/8"               | 79 mm  | 2.0               | 2.6               | 3.8               | 5.4             |
| 3-5/8"               | 92 mm  | 1.9               | 2.5               | 3.8               | 5.2             |
| 4-1/8"               | 105 mm | 2.0               | 2.5               | 3.7               | 5.2             |
| 4-1/2"               | 115 mm | 1.9               | 2.5               | 3.7               | 5.1             |

Note: "R" values were calculated using a K factor of 0.27 (75° F, 24° C mean temp.) and nominal all thickness in each case. Lower operating temperatures will result in improved R values. Contact Technical Services for specific recommendations.

## Technical Data: Tundra Sheet and Roll – Black and White

### Approvals, Certifications, Compliances

- ASTM C 1427 Type II (sheets)
- All Armacell facilities in North America are ISO 9001 certified

### Typical Properties

| Physical Properties   | Values        | Test Method            |
|---|---------------|------------------------|
| <b>Thermal Conductivity:</b> Btu • in/h • ft <sup>2</sup> • °F (W/mK)       |               | ASTM C 177 or C 518    |
| 100°F (38°C) Mean Temperature   | 0.28 [0.040]  |                        |
| 75°F (24°C) Mean Temperature  | 0.270 [0.039] |                        |
| 50°F (10°C) Mean Temperature  | 0.265 [0.038] |                        |
| <b>Maximum Service Temperature °F (°C)</b>                                  | 200 (93)      |                        |
| <b>Minimum Service Temperature °F (°C)</b>                                  | -297 (-183)   |                        |
| <b>Water Vapor Permeability, Perm-In</b>                                    | 0.02          | ASTM E 96, Procedure A |
| <b>Water Absorption, % by Volume:</b>                                       | 0.2           | ASTM C 1763            |
| <b>Chemical / Solvent Resistance</b>  | Good          |                        |
| <b>Mildew Resistance/Air Erosion</b>  | Pass          | UL 181                 |
| <b>Flame Spread and Smoke Developed Index through 1" (25 mm) thickness*</b> | 25/50 rated   | ASTM E 84              |

\* Cellular plastics and thermoplastics, such as polyethylene/polyolefin insulation, that may drip, melt, delaminate or draw away from the fire, present unique problems and require careful interpretation of the test results.

### Sizes

|                        |  |
|------------------------|--|
| Sheet Width and Length | 3' x 4' (0.92 m x 1.22 m)  |
| Thickness (nominal)    | 1/4", 3/8", 1/2", 3/4", 1", 1-1/2", 2", 2-1/2" (6.4 mm, 10 mm, 13 mm, 19 mm, 25 mm, 38 mm, 51 mm, 64 mm) |
| Roll Width and Length  | 4' x 50' (1.22m x 15.3m)   |
| Thickness (nominal)    | 3/8", 1/2", 3/4", 1", 1-1/2", 2", 2-1/2" (10 mm, 13 mm, 19 mm, 25 mm, 25 mm, 38 mm, 51 mm, 64 mm)        |

### Outdoor Use

Painting with WB Finish or other protective jacketing is required to prevent damage to the insulation in exterior applications and to comply with the insulation protection sections of the International Energy Conservation Code (IECC) and ASHRAE 90.1.

### R-Values

#### Per Square Foot

| 3/8" (10 mm) | 1/2" (13 mm) | 3/4" (19 mm) | 1" (25 mm) | 1-1/2" (38 mm) | 2" (50 mm) | 2-1/2" (63 mm) |
|--------------|--------------|--------------|------------|----------------|------------|----------------|
| 1.4          | 1.9          | 2.8          | 3.7        | 5.6            | 7.4        | 9.3            |

Note: "R" values were calculated using a K factor of 0.27 (75° F, 24° C mean temp.) and nominal wall thickness in each case. Lower operating temperatures will result in improved R values. Contact Technical Services for specific recommendations.

### Sound Absorption Co-efficients at Frequency

#### ASTM E-795 Type A Mounting / Sabins / Sq. Ft.

| Thickness    | 125Hz | 250Hz | 500Hz | 1000Hz | 2000Hz | 4000Hz | NRC  |
|--------------|-------|-------|-------|--------|--------|--------|------|
| 1/4" (6 mm)  | 0.00  | 0.03  | 0.05  | 0.10   | 0.25   | 0.45   | 0.10 |
| 1/2" (12 mm) | 0.03  | 0.04  | 0.08  | 0.15   | 0.4    | 0.25   | 0.2  |
| 1" (25 mm)   | 0.1   | 0.15  | 0.45  | 0.3    | 0.4    | 0.33   | 0.35 |

All data and technical information are based on results achieved under typical application conditions. It is the customer's responsibility to verify if the product is suitable for the intended application. The responsibility for professional and correct installation and compliance with relevant building regulations lies with the customer. By ordering/receiving product you accept the **Armacell General Terms and Conditions of Sale** applicable in the region. Please request a copy if you have not received these.

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# ABOUT ARMACELL

As the inventors of flexible foam for equipment insulation and a leading provider of engineered foams, Armacell develops innovative and safe thermal, acoustic and mechanical solutions that create sustainable value for its customers. Armacell's products significantly contribute to global energy efficiency making a difference around the world every day. With 3,100 employees and 24 production plants in 16 countries, the company operates two main businesses, Advanced Insulation and Engineered Foams. Armacell focuses on insulation materials for technical equipment, high-performance foams for high-tech and lightweight applications and next generation aerogel blanket technology.

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