



## Thermal Industrial Insulation Manufactured By: **Howred Corp.**

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### PRODUCT

GOODTEMP is a high-temperature thermal insulation made of expanded perlite and sodium silicate reinforced with fibers to increase impact resistance. This thermal insulation is inhibited, asbestos-free high-temperature insulation. Being inherently inhibited, GOODTEMP protects austenitic stainless steel piping and equipment from failure due to chloride stress corrosion cracking. GOODTEMP also inhibits corrosion of other ferrous metals. The unique characteristic of bonding millions of vitrified air cells gives abundant industrial applications to this inhibited high-temperature insulation.

### APPLICATIONS

GOODTEMP is recommended for insulating piping, vessels and equipment in continuous and cyclic operation. It is especially suited to new high-temperature applications in process piping, refractory use and in chemical plants and refineries. **Its moisture resistance is particularly advantageous for installations in high humidity and high rainfall areas. Sodium silicate as the primary binding agent gives corrosive inhibition without equal among manufacturers of high-temperature insulation.** Goodtemp is asbestos free and meets all health and safety requirements of the Occupational Health and Safety Administration (OSHA).

### GOODTEMP ADVANTAGES

<b>Water Repellent</b>	Goodtemp does not absorb water. It is ideal for applications that are exposed to rain during installation or applications where water may be trapped between the steel and the insulation.
<b>Non-Wicking</b>	Goodtemp will not wick water into the insulation. Water resistance is completely through the thickness of the insulation.  Goodtemp provides protection against water and moisture intrusion into the system.
<b>CUI Inhibitor</b>	Reduces the risk of piping and equipment damage caused by corrosion. Provides corrosion inhibition for austenitic stainless steel and other ferrous metals.
<b>Corrosion Protection</b>	Acid resistant, contains virtually no chlorides, no lime.
<b>High Compressive Strength</b>	Reduces damage causing loss of thermal performance. Reduces the chance that the process piping and equipment will be damaged by water intrusion.
<b>Inorganic Binders</b>	Nothing to burn out causing loss of strength.
<b>Non-Combustible</b>	Rated non-combustible according to NFPA 220, ASTM E84, ASTM E136, and CAN/ULC S114.
<b>Fire Resistance</b>	Excellent fire resistance for both commercial and industrial applications.
<b>Metric Lengths</b>	All one meter lengths

# PHYSICAL PROPERTIES

<b>Temperature limits</b> .....	Maximum 1200°F (650°C) Continuous 1200°F (650°C) Cyclic 1200°F (650°C)
<b>Density (dry)</b> .....	12-14 lbs./cu.ft. (160 kg/m <sup>3</sup> -208)
<b>Compressive strength</b> .....	5% deformation 70-80 psi
<b>Linear shrinkage</b> .....	1.60%
<b>Water absorption</b>	
By volume @ 90% relative humidity 4 weeks.....	1.30%
By volume, immersed 24 hours .....	2.70%
<b>Acid resistance (after 24 hours immersion)</b>	
25% sulfuric or hydrochloric acid .....	No effect
<b>Chloride stress corrosion cracking</b> .....	Meets Nuclear Regulatory Guide 1.36 ASTM C795/C692/C871
<b>Accelerated corrosion test</b> .....	ASTM C1617 <DI Water

## Goodtemp Block and Pipe Thermal Conductivity

Thermal conductivity expressed as BTU/hr·ft.<sup>2</sup>/°F/in. (Kcal/m<sup>2</sup>/hr./°C/cm)

	Block ASTM C177	Pipe ASTM C335	ASTM C610
Mean temperature	Btu·in/hr·ft <sup>2</sup> ·°F (W/m <sup>2</sup> ·°C)	Btu·in/hr·ft <sup>2</sup> ·°F (W/m <sup>2</sup> ·°C)	Btu·in/hr·ft <sup>2</sup> ·°F (W/m <sup>2</sup> ·°C)
100°F (38°C)	0.48 (0.068)	0.44 (0.063)	0.48 (0.069)
200°F (93°C)	0.51 (0.073)	0.50 (0.072)	0.53 (0.076)
300°F (149°C)	0.55 (0.079)	0.56 (0.081)	0.59 (0.085)
400°F (204°C)	0.59 (0.085)	0.62 (0.089)	0.69 (0.099)
500°F (260°C)	0.63 (0.091)	0.68 (0.098)	0.75 (0.108)
600°F (316°C)	0.68 (0.098)	0.74 (0.107)	0.80 (0.115)
700°F (371°C)	0.73 (0.106)	0.80 (0.115)	
800°F (427°C)	0.79 (0.114)		
900°F (482°C)	0.85 (0.122)		

ISO 9002

Complies with: ASTM C610, ASTM C795, ASTM E84, MIL-I-24244, NRC 1.36, and UL 1709

## STANDARD SIZES

Goodtemp simplifies metric conversion through the use of standard one meter lengths.

### PIPE INSULATION

<b>Iron pipe</b> .....	1/2 in. through 24 in. IPS, half sections
<b>Thickness</b> .....	1 in. through 4 in. single layer; double layer available
<b>Standard length</b> .....	1 meter (39.37 in.)

### BLOCK INSULATION

<b>Standard width</b> .....	6 in. and 12 in.
<b>Standard length</b> .....	1 meter (39.37 in.)
<b>Standard thickness</b> .....	1 in. through 6 in. in 1/2 in. increments
<b>V-grooved/scored</b> .....	12 in. widths
<b>Curved block segments</b> .....	Exact diameter - any diameter

Quads available in limited diameters and thicknesses.

*Note: Goodtemp has manufacturing capabilities for special applications such as greater thicknesses, larger widths and certain copper pipe sizes.*