

### PRODUCT DATA SHEET

#### Thermo-12<sup>®</sup> Gold

Thermo-12 Gold is a preformed, high-temperature, abuse-resistant pipe and block insulation with exceptional structural strength, composed of hydrous calcium silicate for use on systems operating up to 1200°F(650°C). It is inorganic, non-combustible, Asbestos Free and meets or exceeds the physical and thermal property requirements of ASTM C533, Type 1. Integral to Thermo-12 Gold is, a distinctive formula and process that inhibits corrosion to outside surfaces of pipe and equipment.

#### THE ADVANTAGES

- Excellent resistance to damage enhancing the life of the system.
- Inhibits corrosion on carbon steel and stainless steel piping and equipment.
- Consistent thermal performance to 1200°F(650°C).
- Non-Combustible Insulation.
- Structural strength protects against damage to lagging.
- Asbestos, Mercury and Lead Free.
- No organic binders; No loss of insulation integrity due to binder burn out.
- Large selection of sizes and forms.

#### APPLICATIONS

Thermo-12 Gold is the product of choice for high-temperature pipe and equipment due to its high strength and durability, low thermal conductivity and corrosion inhibiting performance. Thermo-12 Gold is especially recommended for use in the petrochemical, power generation and process industries where piping and equipment operating up to 1200°F (650°C). The corrosion inhibiting properties are not diminished by temperature cycling so the corrosion protection will continue for the life of the product. Thermo-12 Gold will not burn and may be used as a component in fire protection systems in the some applications. Please visit our website at [www.jm.com/industrial.com](http://www.jm.com/industrial.com) for specific application information.

#### FIRE SAFETY

**Surface Burning Characteristics.** When tested in accordance with ASTM E84, NFPA 255, and UL 723, Thermo-12 Gold has flame spread/smoke developed ratings of 0/0.

**Non-Combustible.** When tested in accordance with ASTM E136 as defined by NFPA 255 and NFPA 101.

#### ADDITIONAL INFORMATION AND SDS

Please visit our website at [www.jm.com/industrial](http://www.jm.com/industrial)

**CUSTOMER SERVICE, TECHNICAL & GENERAL INFORMATION (800) 866-3234**



#### AVAILABLE FORMS AND SIZES

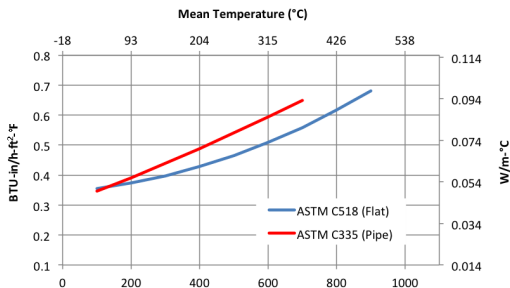
Pipe Sizes		Thermo-12 Gold
in.	mm	
½-24	15-600	Pipe Insulation
20-37	500-925	Quad Segments
38-52	950-1300	Hex Pipe Covering (Ruston Plant Only)
30 min	750 min	3-V Scored Block Width - 12" (305 mm) Length - 36" (914 mm)
Flat Surfaces		Flat Block Width - 6" and 12" (152 mm and 305 mm) Length - 36" (914 mm)

Non-standard width and thickness may be available on a made-to-order basis only. Inquire for price and availability.

#### 3-V SCORED BLOCK APPLICATION GUIDE

Minimum Diameter			
Insulation Thickness		Triple Scored	
in.	mm	in.	mm
1½	38	30	762
2	51	40	1016
2½	64	50	1270
3	76	60	1524
3½	89	70	1778
4	102	80	2032

### THERMAL CONDUCTIVITY



	Mean Temperature	°F						
		100	200	300	400	500	600	700
ASTM C335 (Pipe)	Btu · in/(hr · ft <sup>2</sup> · °F)	.344	.389	.437	.486	.538	.591	.647
	W/m · °C	.050	.056	.063	.070	.078	.085	.093
ASTM C518 (Flat)	Btu · in/(hr · ft <sup>2</sup> · °F)	.355	.373	.397	.428	.465	.509	.559
	W/m · °C	.051	.054	.057	.062	.067	.073	.081

\* Thermo-12 Gold Insulation is tested in accordance with ASTM C518 and ASTM C335.

### PRODUCT CERTIFICATION

When ordering material to comply with any government specification or any other listed specification, a statement of that fact must appear on the purchase order. Government regulations and other listed specifications require specific lot testing, and prohibit the certification of compliance after shipment has been made. There may be additional charges associated with specification compliance testing. Please refer to IND-CSP-3 for Certification Procedures and Charges. Call customer service for more information.

### ISO 9000 CERTIFICATION

Thermo-12 Gold is manufactured and tested in our own facilities under implemented Quality Management Systems which are certified to be in accordance with stringent ISO 9000 series quality standards. This certification, along with regular independent third-party auditing for compliance, is your assurance that this product delivers consistent high quality.

### SPECIFICATION COMPLIANCE

ASTM C165 Compressive Strength	>100psi(690kPa) 5% compression
ASTM C203 Flexural Strength	>50psi(450kPa)
ASTM C302 Density (Dry) Average	>14pcf(230kg/m <sup>3</sup> )
ASTM C356 Linear Shrinkage	<2.0% after 24hr Soaking period at 1200°F(650°C)
ASTM C421 Abrasion Resistance Weight Loss by Tumbling	After the first 10min <20% After the second 10min<40%
ASTM C447 Maximum Service Temperature	1200°F(650°C)
ASTM C533, Type I Material Specification	Passes
ASTM C665 Corrosivity to Steel	Passes
ASTM C795/C871/C692 Corrosion: Austenitic Stainless Steel	Passes
ASTM C1338 Fungi Resistant	Passes
ASTM C1617 Corrosion	Passes-
ASTM E84 Surface Burning Characteristics	Flame Spread -0 Smoke Developed -0
ASTM E119 Building Fire Test	Passes
ASTM E136 Non-Combustible	Passes
BS 476 PART II	Passes
Can/ULC S-102 Surface Burning Characteristics	Flame Spread -0 Smoke Developed -0
NFPA 255 Surface Burning Characteristics	Flame Spread -0 Smoke Developed -0
ISO 8143 Material Specification	Passes
NRC Reg. Guide 1.36	Passes
MIL-I-24244 Military Specification	Passes
MIL-I-2781F to 1200°F(650°C) [Pipe] Military Specification	Passes
MIL-I-2819F Class 2 to 1200°F(650°C) [Block] Military Specification	Passes

Industrial Insulation Group, LLC manufactures MinWool-1200<sup>®</sup> mineral fiber pipe, block and a variety of other insulations; Thermo-12<sup>®</sup> Gold Calcium Silicate pipe and block insulation; Microporous Blanket Insulation; Super Firetemp<sup>®</sup> fireproofing board; SprouleWR-1200<sup>®</sup> Perlite pipe and block insulation; high-temperature adhesives, and insulating finishing cement. The physical and chemical properties presented herein represent typical, average values obtained in accordance with accepted test methods and are subject to normal manufacturing variations. They are supplied as a technical service and are subject to change without notice. Numerical flame spread and smoke developed ratings are not intended to reflect hazards presented by these or any other materials under actual fire conditions. Check with the Customer Service Office to assure current information. All Industrial Insulation Group products are sold subject to the Johns Manville Limited Warranty and Limitation of Remedy. For a copy of the Johns Manville Limited Warranty and Limitation of Remedy, email info.industrial@jm.com.

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