

TRYMER™
PIR insulation

TRYMER™ 2000 XP

Polyisocyanurate Insulation

TRYMER™ 2000 XP insulation is polyurethane modified polyisocyanurate cellular plastic. The rigid insulation is supplied in the form of bunstock for fabrication into sheets, pipe shells, tank and vessel coverings, and other shapes for a variety of thermal insulation applications.

TRYMER 2000 XP insulation features improved dimensional stability over a wider range of temperatures than standard polyurethane insulation.

TRYMER insulation is not a known nutrient source for mold and mildew.

Applications

TRYMER 2000 XP insulation is suitable for applications that require a Flame Spread Index of 25 or less and a Smoke Developed Index of 450 or less when tested as per ASTM E84. These are typical requirements for pipe insulation located in non-plenum locations so TRYMER 2000 XP Insulation is particularly ideal for use as pipe insulation in the non-plenum areas of commercial buildings. *For pipe insulation located inside plenums of commercial buildings, ITW recommends the use of our Trymer Green Phenolic Insulation.* TRYMER 2000 XP can be used within the service temperature range of -297°F to 300°F (-183°C to 149°C). Typical applications for TRYMER 2000 XP insulation include:

- industrial pipe insulation, including elbows and fittings
- commercial chilled water insulation
- tank and vessel insulation
- core material for architectural and structural panels
- insulation for shipping containers, trucks or railcars
- core material for factory built panellized constructions
- flat or tapered board stock for roof insulation

ITW can provide general guidelines and recommendations for TRYMER™2000 XP insulation. For additional information, visit www.itwinsulation.com, call 1-800-231-1024 or contact your regional ITW representative.

SIZE

Height:	24" (61 cm)
Width:	48" (122 cm)
Length:	36" (91 cm)
	96" (244 cm)
	108" (274 cm)

Custom lengths are also available. Contact your regional ITW representative for details.

PHYSICAL PROPERTIES

TRYMER 2000 XP insulation exhibits the properties and characteristics indicated in Table 1 when tested as represented. Consultation with local code officials and design engineers/specifiers is recommended before application.

As with all cellular polymers, TRYMER 2000 XP insulation will degrade upon prolonged exposure to sunlight. A covering to block ultra-violet radiation must be used to help prevent degradation. Other coverings to protect the insulation from the elements may be required.

ENVIRONMENTAL DATA

TRYMER 2000 XP insulation is specifically formulated to provide excellent thermal insulation properties without the use of chlorofluorocarbon (CFC) or hydrochlorofluorocarbon (HCFC) blowing agents. In compliance with the Montreal Protocol and the Clean Air Act, TRYMER 2000 XP insulation is manufactured with hydrocarbon blowing agents, which have no ozone depletion potential.

SAFETY CONSIDERATIONS

TRYMER 2000 XP insulation requires care in handling. All persons working with this material must know and follow the proper handling procedures. The current Material Safety Data Sheet (MSDS) and General Handling Recommendations for TRYMER contain information on the safe handling, storage and use of this material. For copies of these documents, visit the literature library at www.itwinsulation.com, call 1-800-231-1024 or contact your regional ITW representative.

Installation

TRYMER 2000 XP insulation is specifically formulated for easy fabrication into many shapes, such as pipe coverings, valve and fitting covers, and others to meet specific design needs. Because of the critical technical design aspects in many applications, ITW recommends contacting qualified designers to specify the total system. For more specific instructions, contact a regional ITW representative or access the literature library at www.itwinsulation.com.

Availability

TRYMER 2000 XP insulation is distributed through ITW's extensive Authorized Fabricator Network. For more information, call: 1-800-231-1024.

TRYMER 2000 XP Polyisocyanurate Insulation

Product Information

TRYMER™ 2000 XP complies with ASTM C591, Grade 2, Type IV

Table 1

Physical Properties of TRYMER™ 2000 XP Polyisocyanurate Foam ^{1,2}			
Property and Test Method	Value	Property ¹ and Test Method ²	Value
Density, ASTM D1622, lb/ft ³ (kg/m ³)	2.05 (32.8)	Closed Cell Content, ASTM D6226, % min.	90
Compressive Strength, ASTM D1621, lb/in ² (kPa),		Water Absorption, ASTM C272, 24-hour immersion, % by volume	<0.7
Parallel to rise	25 (172)	Water Vapor Permeability, ASTM E96	
Perpendicular to rise - width	24 (165)	perm-inch (ng/Pa*s*m)	4 (5.8)
Perpendicular to rise - length	30 (207)	Dimensional Stability ⁵ , ASTM D2126	
Compressive Modulus, ASTM D1621, lb/in ² (kPa),		At -40° F (-40°C), 7 days	
Parallel to rise	650 (4,485)	Length, % change	0.4
Perpendicular to rise - width	475 (3,278)	Volume, % change	0.6
Perpendicular to rise - length	600 (4,414)	At -10° F (-23°C), 7 days	
Shear Strength, ASTM C273, lb/in ² (kPa),		Length, % change	0.2
Parallel and perpendicular, avg	15 (104)	Volume, % change	0.2
Shear Modulus, ASTM C273, lb/in ² (kPa),		At 158° F (70°C), 7 days	
Parallel and perpendicular, avg	250 (1,725)	Length, % change	1.5
Tensile Strength, ASTM D1623, lb/in ² (kPa),		Volume, % change	3.0
Parallel to rise - thickness	20 (138)	At 158° F (70°C), 97% R.H. 7 days	
Flexural Modulus, ASTM C203, lb/in ² (kPa),		Length, % change	1.6
Parallel to rise	720 (4,968)	Volume, % change	3.4
Flexural Strength, ASTM C203, lb/in ² (kPa),		At 300° F (149°C), 7 days	
Parallel to rise	33 (228)	Length, % change	2.7
k-Factor for comparison and product qualification ³ , ASTM C518, Btu-in/hr-ft ² ·°F (W/m°C) @ 75°F (24°C)	0.168 (0.024)	Volume, % change	4.5
R-Value per inch for comparison and product qualification ³ , ASTM C518, hr-ft ² ·°F/Btu (m ² ·°C/W) @ 75°F (24°C)	6.0 (1.06)	Service Temperature ⁶ , °F (°C)	-297 to +300 (-183 to +149)
k-Factor for thickness calculations ⁴ , ASTM C518, Btu-in/hr-ft ² ·°F (W/m°C), Aged 180 days @ 75°F (24°C)	0.19 (0.027)	Surface Burning Characteristics ⁷ , ASTM E84,	
R-Value per inch for thickness calculations ⁴ , ASTM C518, hr-ft ² ·°F/Btu (m ² ·°C/W) @ 75°F (24°C)	5.3 (0.93)	Flame Spread	≤25
		Smoke Developed	≤450
		Color	Tan

- (1) All properties are measured at 74° (23°C), unless otherwise indicated.
- (2) Unless otherwise indicated, data shown are typical values obtained from representative production samples. This data may be used as a guide for design purposes, but should not be construed as specifications. For property ranges and specifications, consult your ITW representative.
- (3) Trymer 2000 XP has third party test results showing a 180 day aged k-Factor of 0.168 Btu-in/hr-ft²·°F at 75°F mean temperature. This value demonstrates the excellent performance of the product and can be used for comparison to other materials and to qualify Trymer 2000 XP to specification requirements.
- (4) Thermal conductivity test results include no safety factor and are obtained in pristine lab conditions on samples with no joints and that have not been subjected to the vagaries of installation. For Trymer 2000XP, ITW recommends that a more conservative 180 days aged k-Factor curve represented by a value of 0.19 Btu-in/hr-ft²·°F at 75°F mean temperature be used for all system design and insulation thickness calculation purposes.
- (5) Frequent and severe thermal cycling can produce dimensional changes significantly greater than those stated here. Special design consideration must be made in systems that cycle frequently.
- (6) Above 300°F, discoloration and charring will occur, resulting in an increased k-factor in the discolored area.
- (7) This numerical flame spread data is not intended to reflect hazards presented by this or any other material under actual fire conditions.

- For Technical Information: 1-800-231-1024
- For Sales Information: 1-800-231-1024
- ITW Insulation Systems
- 1370 East 40th Street, Building 7, Suite 1, Houston, TX 77022-4104
- www.itwinsulation.com

NOTICE: No freedom from any patent owned by ITW or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, Customer is responsible for determining whether products and the information in this document are appropriate for Customer's use and for ensuring that Customer's workplace and disposal practices are in compliance with applicable laws and other government enactments. ITW Insulation Systems assumes no obligation or liability for the information in this document. NO WARRANTIES ARE GIVEN; ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED.

COMBUSTIBLE: Protect from high heat sources. Local building codes may require a protective or thermal barrier. For more information, consult MSDS, call ITW at 1-800-231-1024 or contact your local building inspector.

ITW Insulation Systems

Shop Drawing Submittal Review

Transmitted To: Cannon Design

Date: February 7, 2017

Attention: stl-cac@cannondesign.com

Contact Person / WTA Field Inspector:
Patrick Garner

Project Name: Webster University-**ISB**

Reviewed by: Mike Nolte

Project No. WT 14127.01

☐

UPS

☐

Courier

☒

Email

Copies	No.	Description
1 PDF	232500M01	(Submittal No.'s:) (R&B CxSRC)
		(Cannon #232500-001) - (Paric #15051-0453) - (WES #607)
		➤ Mechanical Insulation Product Data

***Remarks: See Review Comments on PAGE 2.**

c: Kelvin Patel
Kpatel@cannondesign.com

☐ Furnish as Submitted

☒ ***Furnish as Noted**

☐ Rejected

☐ Revise & Resubmit

☐ Reviewed

☐

Corrections or comments made on shop drawings during this review do not relieve contractor from compliance with requirements of drawings and specifications. This check is only for review of general conformance with the design concept of project and general compliance with information given in contract documents. Contractor is responsible for: confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating his work with that of all other trades; and performing his work in a safe and satisfactory manner.

Shop Drawing Submittal Review

***Submittal Review Comments**

1. Contractor responsible to verify that all adhesives, sealants and sealant primers meet the requirements of LEED Credit IEQ 4.1. Provide Product Data for Credit IEQ 4.1 for all adhesives, sealants and sealant primers, including printed statement of VOC content. The submittal does not appear to contain this information for all sealants submitted.
2. Provide aluminum jacketing on all exterior piping per Specification 232500-2.2-D-5: For insulation installed outdoors and insulation subject to water damage, provide an additional **0.016 inch** aluminum jacket with lock seam, longitudinal joint and gasketed bands for butted joints as required for a watertight installation. Jacket shall be complete with waterproof, laminated paper lining and shall be manufactured by ITW Insulation System or RPR Products.

14127.01 - 232500 M01
MTN TO REVIEW -
01/18/17

From: STL-CAC <STL-CAC@CANNONDESIGN.COM>
To: 'Patrick Garner' <pgarner@wmtao.com>, "WTASHOP (WTASHOP@wmtao.com)"
<WTA...
CC: "Patel, Kelvin" <kpatel@CANNONDESIGN.COM>
Date: 1/18/2017 3:01 PM
Subject: Webster ISB - 23 2500-001
Attachments: 232500-001 Mechanical Insulation Product Data.pdf

Attached for review.

Melissa Pirtle

[cid:image001.png@01D2719B.8CD710A0]
1100 Clark Ave
St. Louis, Missouri 63102
T 314.425.8797
cannondesign.com

SUBMITTAL IDENTIFICATION SHEET

To be completed by Contractor/CM

PROJECT NAME	
ADDRESS	
NUMBER	
OWNER	
ARCHITECT / ENGINEER	
SUBMITTED BY	
CONTRACTOR / CM SUBMITTAL NO.	CANNON DESIGN SUBMITTAL NO.
DRAWING / DETAIL REFERENCE	SPECIFICATION SECTION / PARAGRAPH
MANUFACTURER / SUPPLIER	ITEM / PRODUCT ID
REQUIRED DATE	PRIORITY
CRITICALITY	

To be completed by Reviewer

CANNON DESIGN SUBMITTAL NUMBER
RECEIVED DATE

- ☐ **A. No Exceptions Taken**
No further review of submittal is required.
- ☐ **B. Make Corrections Noted**
Incorporate corrections in work;
resubmission is not required.
- ☐ **C. Revise and Resubmit**
Revise as noted, and resubmit for review.
- ☐ **D. Rejected**
Submittal is not in compliance with Contract Documents;
provide new submittal.
- ☐ **E. For Record / Information Only**
Submittal was reviewed for Record / Information
purposes only.
- ☐ **F. Not Required for Review**
Submittal is not required by Contract Documents
and has not been reviewed.

Review is for conformance with the design concept of this project and for general compliance with contract documents. Contractor is responsible for quantities, dimensions and compliance with contract documents and for information that pertains to fabrication processes, construction techniques and coordination of this work with all trades which will be affected thereby. This review is null and void if submittal deviates from contract documents and does not indicate or note deviations.

ITEM BEING SUBMITTED (check only one)

- ☐ Shop Drawings ☐ Certification / Qualifications ☐ Coordination Drawing
☐ Samples ☐ Record Documents ☐ Calculations
 (_____ copies) ☐ Product Data ☐ Schedules
☐ LEED Submittal ☐ O&M Manuals
☐ Other _____

ITEM BEING SUBMITTED FOR (check only one)

- ☐ Action ☐ Information Only ☐ Record

REMARKS OR DEVIATIONS

CONTRACTOR / CM CERTIFICATION
(SUBMITTALS NOT CERTIFIED WILL BE RETURNED WITHOUT REVIEW)



PARIC CORPORATION
SUBMITTAL STAMP

THIS SHOP DRAWING HAS BEEN REVIEWED BY PARIC CORPORATION

Subcontractor remains responsible for dimensions, quantities, coordination with other trades and compliance with contract documents.

Ry:

Devin D. Gates

REVIEWED BY	DATE

A/E COMMENTS

- ☐
- See attached sheet(s) for additional comments

REVIEWED BY	DATE



77 Westport Plaza
Suite 250
St. Louis, MO 63146

TRANSMITTAL

No. 15051-0453

Paric Corporation

PROJECT: 15051-Webster University Interdisciplinary Science Building

DATE: 01/17/2017

TO: Cannon Design
1100 Clark Ave
St Louis MO 63102

Fax;
314-241-2203

RE: Mechanical insulation product data

ATTN: Kelvin Patel

JOB: 15051

WE ARE SENDING:		SUBMITTED FOR:	ACTION TAKEN:
☐ Shop Drawings		☒ Approval	☐ Approved as Submitted
☐ Letter		☐ Your Use	☐ Approved as Noted
☐ Prints		☐ As Requested	☐ Returned After Loan
☐ Change Order		☐ Review and Comment	☐ Resubmit
☐ Plans			☐ Submit
☐ Samples		SENT VIA:	☐ Returned
☐ Specifications		☐ Attached	☐ Returned for Corrections
☒ Other: Product Data		☐ Separate Cover Via:	☒ Due Date: 08/26/2016

Item	Package	Code	Rev.	Copies	Date	Description	Status
Submittal		232500-001	1		01/17/2017	Mechanical insulation product data	Submitted

NOTES:

CC:

Signed: _____
Devin Gates



Mechanical

LETTER OF TRANSMITTAL

TO: Paric Corporation

77 West Port Plaza #250

St. Louis, MO 63146

ATTN: Jason Szachnieski, Devin Gates

DATE: 1/16/17

JOB #: 5768

RE: Webster ISB

We are sending you

☒

Shop drawings

☐ Attached

☐ Prints

☐ Under separate cover

☐ Plans

☐ Samples

☐ Specifications

☐ Copy of letter

☐ Change order

☐ Other

COPIES	DATE	NO.	DESCRIPTION
1	1/16/17	232500	Mechanical Insulation

These are transmitted as checked below:

☐ For signature

☐ For your use

☐ As requested

☐ For bids due

☒

For review and comment

☐ Approved as submitted

☐ Approved as noted

☐ Returned for corrections

☐ Prints returned after loan to us

☐ Other

☐ Resubmit

☒

Submit

☐ Return

☐ copies for approval

☐ copies for distribution

☐ corrected prints

Remarks: Please return by 1/24/17

COPY TO: file

SIGNED:

Alex Chambers



Mechanical

Webster University ISB Webster Groves, MO

Submittal #:

232500

Submittal Description:

Mechanical Insulation

Return By:

1/24/17

Please Note: To avoid scheduling delays and equipment release delays, please submit by the "Return By" date.

CHECKED BY:			
DESIGNER:		ENGINEER: ☒	
☒	NO EXCEPTION TAKEN	☐	MAKE CORRECTIONS NOTED
☐	SUBMIT SPECIFIED ITEM	☐	REVISE AND RESUBMIT
☐	REJECTED	☐	
Checking is only for general conformance with the design concept of the project and general compliance with the information given in the contract documents. Any action shown is subject to the requirements of the plans and specifications. Equipment supplier is responsible for: dimensions which shall be confirmed and correlated at the job site; fabrication processes and techniques of construction; coordination of his work with that of all other trades; and satisfactory performance of his work.			
		Job #:	5768
		Date:	1/16/17
		By:	ARC



TDK Mechanical Services

745 Merus Ct.
Fenton, Missouri 63026
636-600-1662 phone / fax

SUBMITTAL TRANSMITTAL

DATE: December 21, 2016

COMPANY: Trenholm Mechanical Insulation
ATTENTION TO: Audra Trenholm
EMAIL: audra@trenholminsulation.com

FROM: Dan Esker
PHONE: (636) 290-3733 cell / (636) 600-1662 office
EMAIL: dan@tdkmechanical.com

PROJECT: Webster University Interdisciplinary Science E
St. Louis, MO
DESCRIPTION: _____

Mechanical System	Insulation	Thickness	Occurs at
Heating Hot Water	Fiberglass ASJ Pipe Covering	1"	Indoors - Pipe Sizes Under 4"
Heating Hot Water	Fiberglass ASJ Pipe Covering	1-1/2"	Indoors - Pipe Sizes 4" & Over
Chilled Water	PolyISO Pipe Covering	1"	Indoors - All Pipe Sizes
Chilled Water Equipment	Elastomeric Sheet Rubber	1"	Indoors - Mechanical Room
PCS/PCR	PolyISO Pipe Covering	1"	Indoors - All Pipe Sizes
Glycol Piping	Elastomeric Pipe Covering	1"	Indoors - All Pipe Sizes
Refrigeration Piping	Elastomeric Pipe Covering	1"	Indoors - All Pipe Sizes
Medium Pressure Supply Air Duct	FSK Fiberglass Duct Wrap	1-1/2" / 0.75#	Indoors - Concealed
Fume Exhaust Duct	Unifrax Fyre Wrap	(1) layer of 1-1/2"	Indoors - Concealed
Kitchen Exhaust Hood Duct	Unifrax Fyre Wrap	(2) layers of 1-1/2"	Indoors - Concealed
Outside Air Duct	FSK Fiberglass Duct Board	1-1/2" / 3#	Indoors - Concealed
All Duct Work Systems	Foil Tape	4"	Indoors - Concealed
PVC Fittings	Proto PVC Fittings	N/A	At Fiberglass & PolyISO Pipe Covering Fittings
Vimasco Adhesive	WC-5	N/A	At Fiberglass Pipe Covering
Armaflex Adhesive	Armaflex 520 Adhesive	N/A	At Elastomeric Pipe Covering
PolyISO Adhesive	Childer's CP-10	N/A	At PolyISO Pipe Covering

NOTES/CLARIFICATIONS:

Low Pressure Round Supply Air Duct. FSK Fiberglass Duct Wrap. 1-1/2" / 0.75#. Indoors - Concealed