



## MATERIAL SPECIFICATION SHEET



### CANPEX™ OXY Barrier Hydronic Radiant Heat Tubing

#### SCOPE:

CANPEX™ OXY Barrier cross-linked polyethylene (PEX) tubing is designed for use in hydronic radiant heating systems. CANPEX™ OXY Barrier includes an oxygen barrier layer that helps restrict the passage of oxygen through the wall of the tubing. All CANPEX™ OXY Barrier is manufactured and tested to the requirements of ASTM F876 and ASTM F877 and is CTS-OD (copper tube size outer dimension controlled) with an SDR - (standard dimension ratio) 9 wall thickness. CANPEX™ OXY Barrier tubing also has been tested to and meets the requirements of NSF 14 & 61 and CSA B137.5 for potable water applications.

#### MATERIALS:

All CANPEX™ OXY Barrier tubing is manufactured from a cross-linkable high density polyethylene produced by grafting organo-silanes onto a polyethylene base. A catalyst (accelerator) added to the cross-linkable polyethylene during extrusion initiates the cross-linking process. Cross-linking is completed with hot water or steam (sauna). CANPEX™ OXY Barrier includes 3 layers. The first layer is the cross-linked, high density polyethylene. The second layer is an adhesive for the third layer, the ethylene vinyl alcohol layer (EVOH oxygen barrier). EVOH is highly resistant to the passage of oxygen.

#### MARKING & CERTIFICATION:

All CANPEX™ OXY Barrier tubing is marked with the name CB Supplies as the manufacturer, nominal size, plastic tubing material designation code PEX 5006 (indicating that the PEX tubing has been tested and meets the ASTM F876 requirements for minimum chlorine resistance at the end use condition of 100% @ 140° F), design pressure and temperature ratings, relevant ASTM standards, manufacturing date and production code, as well as NSF-pw stamps (indicating third-party certification by NSF International for meeting and exceeding performance and toxicological standards, as well as achieving the highest chlorine resistance rating in the PEX industry). NSF conducts random onsite inspections of the manufacturing facilities and independently tests CANPEX™ Oxy Barrier tubing for compliance with physical, performance, and toxicological standards. CANPEX™ OXY Barrier tubing is also certified to meet the Uniform Plumbing Code®, Uniform Mechanical Code®, International Plumbing Code®, International Residential Code®, International Mechanical Code®, NSF 14 and 61, NSF/ANSI 372 (Lead Free), CSA (Canadian Standards Association) B137.5 (cNSFus), ULC/UL (Underwriters Laboratory) S101/UL 263 and ULC S102.2 and ASTM E84 through Warnock Hersey.

#### RECOMMENDED USES:

CANPEX™ OXY Barrier tubing is intended and recommended for use in hydronic radiant heating, cooling, and snow melting systems utilizing water or a water/glycol mix as the heat or cold transfer medium. Tubing may be installed in concrete, gypsum based lightweight concrete, sand, asphalt (in accordance with special guidelines) in or under wood flooring or behind wallboard or plaster. CANPEX™ OXY Barrier may also be used as transfer lines for baseboard heating systems with a maximum operating temperature of 200°F @ 80 psi.

#### HANDLING AND INSTALLATION:

Install CANPEX™ OXY Barrier in accordance with installation manuals provided by manufacturer and applicable code requirements. Water or air can be used to pressure test the system. Please follow manufacturer's requirements on pressure and length of time. CANPEX™ OXY Barrier comes with 90 day UV protection. For information on the suitability for other applications contact your CB Supplies representative.

#### MATERIAL PROPERTIES:

Property	ASTM Test Method	English Units	SI Units
Density	D1505	–	0.944 g/cc
Melt Index <sup>1</sup> (190° C/2.16 kg)	D 1238	–	0.1 g/10 min
Flexural Modulus <sup>2</sup>	D790	152,000 psi	1050 MPa
Tensile Strength @ Yield (2in/min)	D638	2,900 psi	20 MPa
Coefficient of Linear Thermal Expansion @ 68° F	D696	8x10 <sup>-5</sup> /° F	1.5x10 <sup>-5</sup> /°C
Hydrostatic Design Basis @ 73° F (23° C)	D2837	1,250 psi	8.6 MPa
Hydrostatic Design Basis @ 180° F (82° C)	D2837	800 psi	5.5 MPa
Vicat Softening Point	D696	255° F	124° C
Thermal Conductivity	D177	2.4 Btu-in./(hr.)(ft. <sup>2</sup> )(°F)	3.5 x 10 <sup>-3</sup> Watts/(cm <sup>2</sup> )(°C/cm)

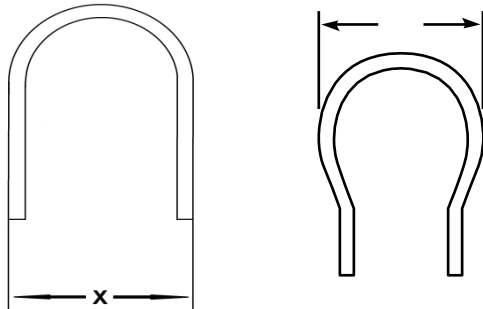
1. Before cross-linking  
2. 73°F

## CANPEX™ Oxy Barrier

### QUALITY ASSURANCE

CANPEX™ OXY Barrier tubing is marked with ASTM F876/F877 and CSA B137.5 designations, it affirms that the product was manufactured, inspected, sampled and tested in accordance with these specifications and it has been found to meet the specified requirements and includes evaluation of the degree of cross-linking of the finished tubing according to the ASTM D2765 standard method.

When The CANPEX™ OXY Barrier tube space is less than the minimum recommended bending dimension, the loop ends should be swept out to at least the dimension shown below.



When spacing for the tube is less than minimum bend dimension.

Dimension X	
Tubing Size	With the Coil
1/2"	10"
5/8"	12"
3/4"	14"
1"	18"

Otherwise, if the spacing for the tube is equal or greater than "X", a standard loop may be used.

CANPEX™ OXY Barrier Oxygen Permeation: All sizes have less than 0.1 grams/m<sup>3</sup>/day.

NOTE: CANPEX™ OXY Barrier Tubing meets DIN 4726 requirements for oxygen tight pipes.

### PRESSURE DROP TABLE

Expressed as PSI/FT Pressure Drop (US Gallons / Minute and Nominal I. D. used for calculation)

GPM	Size			
	3/8"	1/2"	3/4"	1"
1	.061	.014		
1.5	.130	.030		
2.2	.264	.062		
2.5	.334*	.078		
3	.468	.110	.021	
3.5	.623	.146	.028	
4		.187*	.036	
5		.283	.054	
6		.396	.076	.022
7		.528	.101	.030
8			.130	.038
9			.161*	.048
10			.196	.058
11			.234	.069
12			.275	.081
13			.381	.094
14				.108*
16				.138
18				.172
20				.209
22				.249
24				
26				
28				
30				
32				
34				
36				
38				
40				
46				
52				
80				

EXAMPLE: To calculate the pressure drop of a 1/2" line, 40 ft. long, with a 3 gpm flowrate, calculate. 110 psi x 40 ft. = 4.4 psi pressure drop. Most plumbing codes require 8 psi residual pressure at the fixture. Refer to your local code requirements.

\*Indicates 8 fps maximum velocity allowed by some plumbing codes.

NOTE: Maximum flow for each size based on 12 fps velocity. PSI x 2.307 = headloss.

### SDR-9 PEX TUBING

ASTM F876/F877 CTS-OD SDR-9 (Available in coils and Lengths).

Stock Code	Tubing Size	O. D. (in.)	Wall Thickness (in.)	Nom. I. D. (in.)	Weight Per Foot (lbs)	Volume (Ga/100 ft.)
PXOB2	3/8"	0.500" ± 0.003"	0.070" + 0.010"	0.360"	0.0413	0.53
PXOB3	1/2"	0.625" ± 0.004"	0.070" + 0.010"	0.485"	0.0535	0.97
PXOB58	5/8"	0.750" ± 0.004"	0.083" + 0.010"	0.754"	0.0838	1.34
PXOB4	3/4"	0.875" ± 0.004"	0.097" + 0.010"	0.681"	0.1023	1.90
PXOB5	1"	1.125" ± 0.005"	0.125" + 0.013"	0.875"	0.1689	3.13

NOTE: Dimensions are in English units. Tolerances shown are ASTM requirements. CANPEX™ OXY Barrier tubing is manufactured to within these specifications.

NSF-pw

NSF International  
Performance and  
Health Effects  
(Standards NSF 14,  
61 & NSF/ANSI 372)



ULC/ULS101/UL263 Listed  
for Fire Resistant & Firestop  
Products & Systems.



NSF certified to  
CSAB137.5



IAPMO Certified



Listed International  
Plumbing Code



Warnock Hersey  
Certified to ULC  
S102.2 and ASTM E84



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