



## MATERIAL SPECIFICATION SHEET



### CANPEX™ OXY Barrier Hydronic Radiant Heat Tubing

#### SCOPE:

This specification designates the requirements for CANPEX OXYBarrier cross-linked polyethylene (PEX) tubing for use in hydronic radiant heating systems. CANPEX OXYBarrier includes an oxygen barrier layer that helps restrict the passage of oxygen through the wall of the tubing. All CANPEX OXYBarrier is manufactured and tested to the requirements of ASTM F876 and F877 and is CTS-OD (copper tube size outer dimension controlled) with an SDR - (standard dimension ratio) 9 wall thickness.

#### MATERIALS:

CANPEX OXYBarrier tubing is produced from cross-linkable, high density polyethylene resin. This cross-linkable resin is produced by grafting organo-silane molecules onto a base polyethylene chain. A catalyst that initiates the cross-linking process is blended with the resin before extrusion. Cross-linking is conducted after extrusion by exposing the tubing to heat and moisture (steam). CANPEX OXYBarrier 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 OXYBarrier tubing is marked with the name VPFL as the manufacturer, nominal size, plastic tubing material designation code PEX 5006 (indicating that the PEX tubing has been tested and meets the 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 on site inspections of the manufacturing facilities and independently tests CANPEX OXYBarrier tubing for compliance with physical, performance, and toxicological standards. CANPEX OXYBarrier is also certified to meet the Uniform Plumbing Code, NSF-61, NSF-14, NSF Annex G (Lead Free), CSA (Canadian Standards Association) B137.5 (cNSF), ULC/UL (Underwriters Laboratory) S101/UL263 and ULC S102 through Warnock Hersey.

#### RECOMMENDED USES:

CANPEX OXYBarrier tubing is recommended for 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 OXYBarrier 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 OXYBarrier 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 OXYBarrier comes with a 90 day UV protection. For information on the suitability for other applications, contact your Seymour Industries representative.

#### MATERIAL PROPERTIES:

Property	ASTM Test Method	English Units	SI Units
Density	D 792	-	0.952 g/cc
Melt Index <sup>1</sup>	D 1238	-	2.0 g/10min
Flexural Modulus <sup>2</sup>	D 638	150,000 psi	1000 MN/m <sup>2</sup>
Tensile Strength @ Yield (2 in/min)	D 638	3,900 psi	.26 MN/m <sup>2</sup>
Coefficient of Expansion @ 68° F	D 696	8 x 10 <sup>-4</sup> /°F	1.4 x 10 <sup>-4</sup> /°C
Hydrostatic Design Basis @ 73°F (23°C)	D 2837	1,250 psi	8.6 MPA
Hydrostatic Design Basis @ 180°F (82°C)	D 2837	800 psi	5.5 MPA
Vicat Softening Point	D 648	255°F	124°C
Thermal Conductivity	C 177	2.7 Btu/hr/ft <sup>2</sup> /°F	1.1x10 <sup>-3</sup> cal/sec/cm/°C

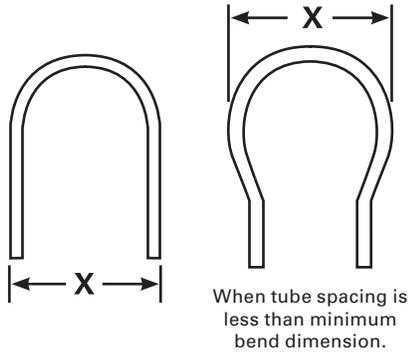
1. Before Crosslinking  
2. 73°F

## CANPEX™ OXY Barrier

### QUALITY ASSURANCE

CANPEX OXY Barrier tubing is manufactured and tested to the requirements of ASTM F876 and F877. The degree of cross-linking of finished tubing is determined by method ASTM D2765.

When the tube spacing is less than the minimum recommended bending dimension, the loop ends should be swept out to at least the dimensions shown.



Otherwise, if tube spacing 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 requirement for oxygen tight pipes.

Dimension X	
Tubing Size	With the Coil
5/16"	7"
3/8"	8"
1/2"	10"
5/8"	12"
3/4"	14"
1"	18"
1-1/4"	22"
1-1/2"	26"

### PRESSURE DROP TABLE

Expressed per/ft.

	Size										
	5/16"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"			
GPM	PSI Head Loss										
.1	.002	.005	.001	.001							
.2	.009	.021	.004	.008	.001	.001					
.3	.018	.042	.017	.002	.004	.001	.002				
.4	.031	.072	.013	.030	.003	.007	.001	.002			
.5	.047	.109	.020	.045	.004	.010	.002	.004			
.6	.066	.152	.027	.063	.006	.014	.003	.006	.001	.003	
.7	.088	.203	.036	.084	.008	.019	.003	.008	.002	.004	
.8		.047	.108	.011	.024	.004	.010	.002	.005		
.9		.058	.134	.013	.030	.005	.012	.002	.006		
1		.070	.1626	.016	.037	.007	.015	.003	.007	.001	.002
1.5			.034	.078	.014	.032	.006	.015	.002	.004	
2			.058	.133	.024	.055	.011	.025	.003	.007	
3				.050	.116	.023	.052	.007	.015		
4				.085	.197	.030	.089	.011	.026		
6				.181	.417	.082	.189	.024	.056		
8					.140	.322	.041	.095			
10					.211	.487	.062	.143	.023	.054	
12					.296	.683	.087	.201	.032	.075	
14								.042	.098		
16								.052	.123	.022	.052
18								.065	.151	.027	.063
20								.078	.182	.033	.077
22								.093	.217	.039	.091
24								.108	.252	.045	.105
26									.052	.121	
28									.060	.140	
30									.067	.156	
32									.075	.175	

### SDR-9 PEX TUBING

ASTM F876/F877/CTS-OD SDR-9

Tubing Size	O.D.	Wall Thickness	Nom. I.D.	Weight Per Ft.	Volume (Gal)/100 ft.
5/16"	0.430 ± .003	.064 ± .010	0.292	.0340	0.34
3/8"	0.500 ± .003	.070 ± .010	0.350	.0413	0.50
1/2"	0.625 ± .004	.070 ± .010	0.475	.0535	0.92
5/8"	0.750 ± .004	.083 ± .010	0.574	.0752	1.34
3/4"	0.875 ± .004	.097 ± .010	0.671	.1023	1.82
1"	1.125 ± .005	.125 ± 0.10	0.863	.1689	3.04
1-1/4"	1.375 ± .005	.153 ± .015	1.053	.2523	4.52
1-1/2"	1.625 ± .006	.181 ± .019	1.243	.3536	6.30

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

CANPEX OXY Barrier tubing is available in both straight lengths and coils.

NSF-pw

NSF International Performance and Health Effects (Standards 14 & 61)



ULC/UL S101/UL263 Listed for Fire Resistant & Firestop Products & Systems.



NSF certified to CSA B137.5



IAPMO Certified



Warnock Hersey Certified to ULC S102

ANNEX G Lead-free