

MATERIAL SPECIFICATION SHEET



CANPEX™ UV Plus Tubing

SCOPE:

This material specification designates the requirements for CANPEX™ UV PLUS hot and cold water distribution tubing. All CANPEX™ UV Plus tubing corresponds to copper tube size (CTS) dimensions, with wall thicknesses corresponding to Standard Dimension Ratio (SDR) 9.

MATERIALS:

All CANPEX™ UV Plus 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). The advanced formulation ensures that when the product is exposed to UV radiation, it will retain both its physical properties, as well as its long-term Chlorine/ORP resistance at the highest level in the industry today. The single layer product is provided in the colors red, white and blue for easy identification of hot and cold lines.

MARKING & CERTIFICATION:

All CANPEX™ UV Plus Tubing is marked with the name CB Supplies as the manufacturer, nominal size, plastic tubing material designation code PEX 5306 (indicating that the PEX tubing has been tested and meets ASTM F876 requirements for the highest chlorine and UV resistance ratings in the industry), design pressure and temperature ratings, relevant ASTM standards, manufacturing date and production code, as well as NSF pw-G and cNSFus stamps (indicating third-party certification by NSF International for meeting and exceeding performance and toxicological standards). NSF conducts random onsite inspections of the manufacturing facilities and independently tests CANPEX™ UV Plus Tubing for compliance with physical performance and toxicological standards.

CANPEX™ UV Plus Tubing conforms to the following codes and standards:

- **ANSI/AWWA C904**, Crosslinked Polyethylene (PEX) Pressure Tubing, 1/2 In. (13 mm) Through 3 In. (76 mm), for Water Service
- **ASTM F876**, Standard Specification for Crosslinked Polyethylene (PEX)
- **ASTM F877**, Standard Specification for Crosslinked Polyethylene (PEX) Plastic Hot- and Cold-Water Distribution Systems
- **ASTM F1807**, Standard Specification for Metal Insert Fittings Utilizing a Copper Crimp Ring for SDR9 Cross-linked Polyethylene (PEX) Tubing and SDR9 Polyethylene of Raised Temperature (PE-RT) Tubing
- **ASTM F2159**, Standard Specification for Plastic Insert Fittings Utilizing a Copper Crimp Ring for SDR9 Cross-linked Polyethylene (PEX) Tubing and SDR9 Polyethylene of Raised Temperature (PE-RT) Tubing
- **CSA B137.5**, Crosslinked polyethylene (PEX) tubing systems for pressure applications
- **CSA B214**, Installation code for hydronic heating systems
- **International Plumbing Code® (IPC)**
- **International Mechanical Code® (IMC)**
- **International Residential Code® (IRC)**
- **NSF/ANSI 14**, Plastic Piping System Components and Related Materials
- **NSF/ANSI/CAN 61**, Drinking Water System Components – Health Effects
- **NSF/ANSI/CAN 372**, Drinking Water System Components – Lead Content
- **Uniform Plumbing Code® (UPC)**
- **Uniform Mechanical Code® (UMC)**

RECOMMENDED USES:

CANPEX™ UV Plus Tubing is intended and recommended for use in hot and cold potable water distribution systems. Design temperature and pressure ratings for CANPEX™ UV Plus are 160 psi @ 73°F and 100 psi @ 180°F per ASTM F876 and CSA B137.5, and 200 psi @ 73°F per CSA B137.0 section 6.6.3.2.2. CANPEX™ UV Plus Tubing can be used in “continuously recirculating hot water plumbing systems” at temperatures of up to 140°F while still maintaining the maximum chlorine resistance in the industry. For information on the suitability for other hot and cold water applications not listed here, consult with your CB Supplies representative.

HANDLING AND INSTALLATION:

CANPEX™ UV Plus Tubing is tough yet flexible. However, it is softer than metals and may be damaged by abrasion or by objects with cutting edges. Use of these materials in hot and cold water distribution systems must be in accordance with good plumbing practices, applicable code requirements and current installation practices available from CB Supplies. CANPEX™ UV Plus Tubing is manufactured to meet written national standards. Contact a CB Supplies representative or the applicable code enforcement bureau for information about approvals for specific applications.

MATERIAL PROPERTIES:

Property	ASTM Test Method	English Units	SI Units
Density	D1505	–	0.944 g/cc
Melt Index ¹ (190°C/2.16 kg)	D 1238	–	0.1 g/10 min
Flexural Modulus ²	D 790	152,000 psi	1050 MPa
Tensile Strength @Yield (2 in/min)	D 638	2,900 psi	20 MPa
Coefficient of Linear Thermal Expansion @ 68°F	D 696	8x10 ⁻⁵ /°F	1.5x10 ⁻⁴ /°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 696	255°F	124°C
Thermal Conductivity	D 177	2.4 Btu-in/(hr)(ft ²)(°F)	3.5 x 10 ⁻³ Watts/(cm ²)(°C/cm)

1. Before cross-linking

2. 73°F



Intertek



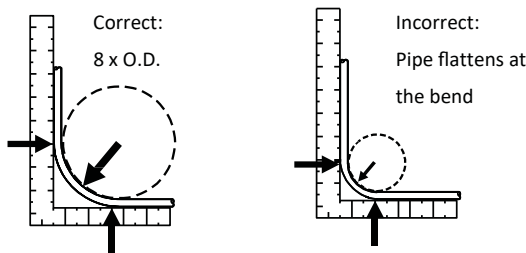
CANPEX™ UV Plus Tubing

QUALITY ASSURANCE

CANPEX™ UV Plus tubing is marked with ASTM F876 and CSA B137.5 designations, affirming that the product was manufactured, sampled, inspected, and tested in accordance with these specifications and has been found to meet or exceed all specified requirements.

MAXIMUM RESISTANCE

CANPEX™ UV Plus tubing is made from PEX 5306 material, meaning it has been tested to meet ASTM F876 requirements for the maximum chlorine and UV resistance ratings in the industry. CANPEX™ UV Plus is NSF tested according to ASTM Standard F2023.



NOTE: Tubing may be bent to a minimum of 5 x O.D. with approved bend support.

MINIMUM BURST PRESSURE (PSI)

Size	74° F (23° C)	180° F (82° C)
3/8"	620	275
1/2"	480	215
3/4"	475	210
1"	475	210
1-1/4"	475	210
1-1/2"	475	210
2"	475	210

SDR-9 PEX TUBING

Stock Code	Nominal Size	O. D.	Wall Thickness	I. D.	Weight Per Ft. (lbs)	Volume (Gal)/100 ft.
PX2	3/8"	0.500" ± 0.003"	0.070" + 0.010"	0.360"	0.0413	0.53
PX3	1/2"	0.625" ± 0.004"	0.070" + 0.010"	0.485"	0.0535	0.97
PX4	3/4"	0.875" ± 0.004"	0.097" + 0.010"	0.681"	0.1023	1.90
PX5	1"	1.125" ± 0.005"	0.125" + 0.013"	0.875"	0.1689	3.13
PX6	1 1/4"	1.375" ± 0.005"	0.153" + 0.015"	1.069"	0.251	4.53
PX7	1 1/2"	1.625" ± 0.006"	0.181" + 0.019"	1.263"	0.352	6.31
PX8	2"	2.125" ± 0.006"	0.236" + 0.024"	1.653"	0.599	10.83

Dimensions are in English units. Tolerances shown are ASTM requirements. CANPEX™ UV PLUS is manufactured to these specifications.

PRESSURE DROP TABLE

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

GPM	Nominal Size						
	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
1	.081	.019					
1.5	.163	.038					
2.2	.318	.075					
2.5	.399*	.093					
3	.551	.128	.025				
3.5	.724	.169	.033				
4		.213	.041				
5		.317*	.061				
6		.439	.084	.026			
7		.579	.111	.034			
8			.141	.042			
9			.173*	.052			
10			.209	.063	.024		
11			.248	.075	.029		
12			.290	.087	.033		
13			.336	.101	.039		
14				.115	.044		
16				.147*	.056	.025	
18				.181	.069	.031	
20				.219	.083	.038	
22				.261	.099*	.045	
24					.116	.052	
26					.134	.060	
28					.153	.069	
30					.174	.078*	
32						.088	.024
34						.098	.027
36						.109	.030
38						.120	.033
40						.132	.036
46						.171	.046
52							.058*
80							.128

EXAMPLE: To calculate the pressure drop of a 1/2" line, 40ft. long, with a 3 gpm flowrate, calculate .128 psi x 40ft. = 5.12 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.

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Canada



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 5206 (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 and a 3-month UV resistance rating), 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 ¹ (190° C/2.16 kg)	D 1238	–	0.1 g/10 min
Flexural Modulus ²	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 ⁻⁵ /° F	1.5x10 ⁻⁴ /° 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. ²)(°F)	3.5 x 10 ⁻³ Watts/(cm ²)(°C/cm)

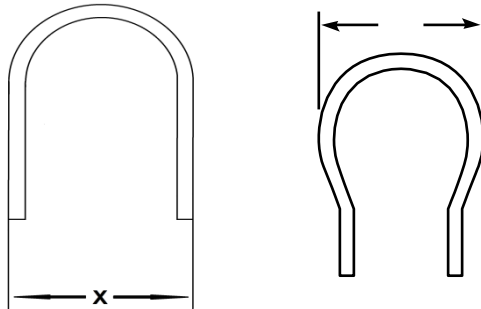
1. Before cross-linking
2. 73°F

CANPEX™ Oxy Barrier

QUALITY ASSURANCE

CANPEX™ OXY Barrier tubing is marked with ASTM F876/F877 and CSA B137.5 designations, affirming that the product was manufactured, inspected, sampled and tested in accordance with these specifications and has been found to meet the specified requirements including 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/m²/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"	5/8"	3/4"	1"
1	0.084	0.020	0.008		
1.5	0.170	0.040	0.016	0.008	
2	0.283	0.066	0.027	0.013	
2.5	0.421*	0.097	0.039	0.019	0.006
3	0.583*	0.134	0.054	0.026	0.008
3.5	0.769*	0.176	0.071	0.034	0.010
4		0.224	0.090	0.043	0.013
4.5		0.276	0.111	0.053	0.016
5		0.333*	0.134	0.063	0.019
6		0.462*	0.185	0.087	0.026
7			0.244*	0.115	0.035
8			0.311*	0.146	0.044
9				0.180	0.054
10				0.218*	0.065
11				0.259*	0.077
12				0.303*	0.090
13					0.104
14					0.119
16					0.151*
18					0.187*
20					0.227*
22					0.269*
24					
26					
28					
30					
32					
34					
36					
38					
40					
46					
52					

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 flow is above 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.

All flows are turbulent for listed pressure losses.

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

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.



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