

PRODUCT BROCHURE



Delitube[™] is Optinova's exclusive product line for the food and beverage processing industry. Delitube[™] is the only tubing solution in the extrusion industry that has obtained food grade approvals in all three largest markets China, EU and the US.

- Materials comply with FDA 21 CFR 177.1550, USP Class VI and MERCOSUR GMC-56-92
- Products are tested and approved by US NSF/ANSI 51, European EU10/2011 and Chinese GB4806

Being made from PTFE, FEP and PFA, Delitube[™] can be in direct contact with foods of all food types up to 175°C (347°F). Our tubing has a long life cycle and is easy to clean which makes it cost-effective and low-maintenance.

Delitube™

Food & Beverage Tubing

Optinova offers custom extrusion services with value-adding operations such as tip-forming, spiral cutting, pressure testing, etc. We offer 2D/3D fabricated tubing for optimal flow in tight spaces.

Key features

- UV, crack and chemical resistant
- Extremely low water absorption
- Single- or multi-lumen tubing
- Striped- or multi-striped tubing
- On spools or cut-to-length pieces
 2D & 3D fabricated
- Low gas permeability and autoclavable

Applications

- General fluid handling and quality assurance of F&B processing lines
- Tubing in beverage production machines
- Hot and cold water in coffee machines
- Milk and milk powder in coffee machines



Material properties

Wall mm (inches) >0.1-5.0 >0.3-4.0 >0.3-4.0 Density g/m3 2.17 2.15 2.15 Specific gravity 2.15 2.15 2.15 Transparency Good Very good Excellent Sterilization EtC), Steam EtC), Steam EtC), Steam Environmental Water absorption % <0.01 <0.01 <0.03 Weather resistance Excellent Excellent Excellent Chemical resistance Excellent Excellent Excellent Flammability V-0 V-0 V-0 Oxygen index % >95 >95 Termal **C(°F) 330 (626) 257-275 (495-527) 300-310 (572-590) Thermal conductivity BTU/hft/°F 1.7 1.4 1.3 Min/Max service temp **C(°F) -240/260 -200/200 -200/260 -400/500 (-328/390) -328/500) *328/500) Shrint temperature **C(°F) 55		Unit	PTFE	FEP	PFA
Density g/m3 2.17 2.15	Wall	mm (inches)	>0.1-5.0	>0.3-4.0	>0.3-4.0
Specific gravity 2.15 2.15 2.15 Transparency Good Very good Excellent Sterilization EtO, Steam EtO, Steam EtO, Steam Environmental Water absorption % <0.01			(>0.004-0.2)	(>0.01-0.16)	(>0.01-0.16)
Transparency Good Very good Excellent Sterilization EtO, Steam EtO, Steam EtO, Steam Environmental Wather absorption % <0.01 <0.01 <0.03 Weather resistance Excellent Excellent Excellent Chemical resistance Excellent Very good Excellent Flammability V-0 V-0 V-0 Oxygen index % >95 >95 >95 Thermal Melting point °C (°F) 330 (626) 257-275 (495-527) 300-310 (572-590) Thermal conductivity BTU/h/ft/°F 1.7 1.4 1.3 1.4 1.3 1.4 1.3 1.4 1.3 1.4 1.3 1.4 1.3 1.4 1.3 1.4 1.3 1.4 1.4 1.3 1.4 1.4 1.3 1.4 1.4 1.3 1.4 1.4 1.3 1.4 1.4 1.3 1.4 1.4 1.3 1.4	Density	g/m3	2.17	2.15	2.15
Sterilization EtO, Steam EtO, Steam EtO, Steam EtO, Steam Environmental Water absorption % <0.01	Specific gravity		2.15	2.15	2.15
Environmental Vater absorption % <0.01 <0.01 <0.03 Weather resistance Excellent Excellent Excellent Chemical resistance Excellent Very good Excellent Flammability V-0 V-0 V-0 Oxygen index % >95 >95 >95 Thermal Melting point °C °F) 330 (626) 257-275 (495-527) 300-310 (572-590) Thermal conductivity BTU/h/ft/°F 1.7 1.4 1.3 Min/Max service temp °C °F) 240/260 -200/200 -200/260 (-400/500) (-328/390) (-328/500) -288/500) Shrink temperature °C °F) 122 (252) 59 (138) 74 (166) Deflection temp (66 psi) °C °F) 122 (252) 59 (138) 74 (166) Mechanical Tensile strength at break MPa 20-34 20-28 25-30 Elongation at break % 200-400 300-325 300 Compressive strength </td <td>Transparency</td> <td></td> <td>Good</td> <td>Very good</td> <td>Excellent</td>	Transparency		Good	Very good	Excellent
Water absorption % <0.01 <0.01 <0.03 Weather resistance Excellent Excellent Excellent Chemical resistance Excellent Very good Excellent Flammability V-0 V-0 V-0 Oxygen index % >95 >95 >95 Thermal Melting point °C (°F) 330 (626) 257-275 (495-527) 300-310 (572-590) Thermal conductivity BTU/h/ft/°F 1.7 1.4 1.3 Min/Max service temp °C (°F) -240/260 -200/200 -200/260 (-400/500) (-328/390) (-328/500) -328/500) Shrink temperature °C (°F) 335-345 (635-653) 149-232 (300-450) -200/260 Deflection temp (66 psi) °C (°F) 122 (252) 59 (138) 74(166) Deflection temp (264 psi) °C (°F) 55 (31) 50 (34) 48 (118) Tensile strength at break MPa 20-34 20-28 25-30 Elongation at break	Sterilization		EtO, Steam	EtO, Steam	EtO, Steam
Weather resistance Excellent Px-0 200 200 200 200 200 200 200 200 200 200/260 200/260 200/260 200/260 200/260 200/260 200/260 200/260 200/260 200/260 200/260 200/260 200/260 200/260 200/260 200/260 200/260 200/260 200/260 200/	Environmental				
Chemical resistance Excellent Very good Excellent Flammability V-0 V-0 V-0 Oxygen index % >95 >95 >95 Thermal Melting point °C (°F) 330 (626) 257-275 (495-527) 300-310 (572-590) Thermal conductivity BTU/h/ft/°F 1.7 1.4 1.3 Min/Max service temp °C (°F) -240/260 -200/200 -200/260 (-400/500) (-328/390) (-328/500) -238/500) Shrink temperature °C (°F) 335-345 (635-653) 149-232 (300-450) -202/600 Deflection temp (66 psi) °C (°F) 122 (252) 59 (138) 74(166) Deflection temp (264 psi) °C (°F) 152 (31) 57 (134) 48 (118) Mechanical Tensile strength at break MPa 20-34 20-28 25-30 Elongation at break % 200-400 300-325 300 Compressive strength psi 3 500 2 200	Water absorption	%	<0.01	<0.01	<0.03
Plammability	Weather resistance		Excellent	Excellent	Excellent
Oxygen index % >95 >95 >95 Thermal Melting point °C (°F) 330 (626) 257-275 (495-527) 300-310 (572-590) Thermal conductivity BTU/h/ft/°F 1.7 1.4 1.3 Min/Max service temp °C (°F) -240/260 -200/200 -200/260 √400/500) (-328/390) (-328/500) -328/500) Shrink temperature °C (°F) 335-345 (635-653) 149-232 (300-450) *** Deflection temp (66 psi) °C (°F) 122 (252) 59 (138) 74(166) Deflection temp (264 psi) °C (°F) 55 (131) 57 (134) 48 (118) Mechanical Tensile strength at break MPa 20-34 20-28 25-30 Elongation at break % 200-400 300-325 300 Compressive strength psi 3 500 2 200 2 200 Impact strength Ft-Lb/in 3.5 No Break No Break Flexural Modulus psi 80	Chemical resistance		Excellent	Very good	Excellent
Thermal Melting point °C (°F) 330 (626) 257-275 (495-527) 300-310 (572-590) Thermal conductivity BTU/h/ft/°F 1.7 1.4 1.3 Min/Max service temp °C (°F) -240/260 -200/200 -200/260 Kinink temperature °C (°F) 335-345 (635-653) 149-232 (300-450) 149-232 (300-450) Deflection temp (66 psi) °C (°F) 122 (252) 59 (138) 74(166) Deflection temp (264 psi) °C (°F) 55 (131) 57 (134) 48 (118) Mechanical Tensile strength at break MPa 20-34 20-28 25-30 Elongation at break % 200-400 300-325 300 Compressive strength psi 3 500 2 200 2 200 Impact strength Ft-Lb/in 3.5 No Break No Break Flexural Modulus MPa 275-620 550-700 590-700 Tensile Modulus psi 80 000 50 000 40 000 Hardness </td <td>Flammability</td> <td></td> <td>V-0</td> <td>V-0</td> <td>V-0</td>	Flammability		V-0	V-0	V-0
Melting point °C (°F) 330 (626) 257-275 (495-527) 300-310 (572-590) Thermal conductivity BTU/h/ft/°F 1.7 1.4 1.3 Min/Max service temp °C (°F) -240/260 -200/200 -200/260 (-400/500) (-328/390) (-328/500) -28/500) Shrink temperature °C (°F) 335-345 (635-653) 149-232 (300-450) -240/260 Deflection temp (66 psi) °C (°F) 122 (252) 59 (138) 74(166) Deflection temp (264 psi) °C (°F) 55 (131) 57 (134) 48 (118) Mechanical Tensile strength at break MPa 20-34 20-28 25-30 Elongation at break % 200-400 300-325 300 Compressive strength psi 3 500 2 200 2 200 Impact strength Ft-Lb/in 3.5 No Break No Break Flexural Modulus MPa 275-620 550-700 590-700 Hardness Shore D 55-65 55-60	Oxygen index	%	>95	>95	>95
Thermal conductivity BTU/h/ft/°F 1.7 1.4 1.3 Min/Max service temp °C (°F) -240/260 -200/200 -200/260 (-400/500) (-328/390) (-328/500) Shrink temperature °C (°F) 335-345 (635-653) 149-232 (300-450) Deflection temp (66 psi) °C (°F) 122 (252) 59 (138) 74(166) Deflection temp (264 psi) °C (°F) 55 (131) 57 (134) 48 (118) Mechanical Tensile strength at break MPa 20-34 20-28 25-30 Elongation at break % 200-400 300-325 300 Compressive strength psi 3 500 2 200 2 200 Impact strength Ft-Lb/in 3.5 No Break No Break Flexural Modulus MPa 275-620 550-700 590-700 Tensile Modulus psi 80 000 50 000 40 000 Hardness Shore D 55-65 55-60 55-64 Electrical 2.1	Thermal				
Min/Max service temp °C (°F) -240/260 (-400/500) -200/200 (-328/390) -200/260 (-328/500) Shrink temperature °C (°F) 335-345 (635-653) 149-232 (300-450) 74(166) Deflection temp (66 psi) °C (°F) 122 (252) 59 (138) 74(166) Deflection temp (264 psi) °C (°F) 55 (131) 57 (134) 48 (118) Mechanical Tensile strength at break MPa 20-34 20-28 25-30 Elongation at break % 200-400 300-325 300 Compressive strength psi 3 500 2 200 2 200 Impact strength Ft-Lb/in 3.5 No Break No Break Flexural Modulus MPa 275-620 550-700 590-700 Tensile Modulus psi 80 000 50 000 40 000 Hardness Shore D 55-65 55-60 55-64 Electrical Dielectric const at 103 Hz 2.1 2.1 2.1 Dielectric DF at 103 Hz 0.0002 0.0001	Melting point	°C (°F)	330 (626)	257-275 (495-527)	300-310 (572-590)
Shrink temperature °C (°F) 335-345 (635-653) 149-232 (300-450) Deflection temp (66 psi) °C (°F) 122 (252) 59 (138) 74(166) Deflection temp (264 psi) °C (°F) 55 (131) 57 (134) 48 (118) Mechanical Tensile strength at break MPa 20-34 20-28 25-30 Elongation at break % 200-400 300-325 300 Compressive strength psi 3 500 2 200 2 200 Impact strength Ft-Lb/in 3.5 No Break No Break Flexural Modulus MPa 275-620 550-700 590-700 Tensile Modulus psi 80 000 50 000 40 000 Hardness Shore D 55-65 55-60 55-64 Electrical Dielectric const at 103 Hz 2.1 2.1 2.1 Dielectric DF at 103 Hz 0.0002 0.0001 0.0002 Dielectric DF at 106 Hz 0.0002 0.0008 0.0003	Thermal conductivity	BTU/h/ft/°F	1.7	1.4	1.3
Shrink temperature °C (°F) 335-345 (635-653) 149-232 (300-450) Deflection temp (66 psi) °C (°F) 122 (252) 59 (138) 74(166) Deflection temp (264 psi) °C (°F) 55 (131) 57 (134) 48 (118) Mechanical Tensile strength at break MPa 20-34 20-28 25-30 Elongation at break % 200-400 300-325 300 Compressive strength psi 3 500 2 200 2 200 Impact strength Ft-Lb/in 3.5 No Break No Break Flexural Modulus MPa 275-620 550-700 590-700 Tensile Modulus psi 80 000 50 000 40 000 Hardness Shore D 55-65 55-60 55-64 Electrical Dielectric const at 103 Hz 2.1 2.1 2.1 Dielectric DF at 103 Hz 0.0002 0.0001 0.0002 Dielectric DF at 106 Hz 0.0002 0.0008 0.0003	Min/Max service temp	°C (°F)	-240/260	-200/200	-200/260
Deflection temp (66 psi) °C (°F) 122 (252) 59 (138) 74(166) Deflection temp (264 psi) °C (°F) 55 (131) 57 (134) 48 (118) Mechanical Tensile strength at break MPa 20-34 20-28 25-30 Elongation at break % 200-400 300-325 300 Compressive strength psi 3 500 2 200 2 200 Impact strength Ft-Lb/in 3.5 No Break No Break Flexural Modulus MPa 275-620 550-700 590-700 Tensile Modulus psi 80 000 50 000 40 000 Hardness Shore D 55-65 55-60 55-64 Electrical Dielectric const at 103 Hz 2.1 2.1 2.1 Dielectric DF at 103 Hz 0.0002 0.0001 0.0002 Dielectric DF at 106 Hz 0.0002 0.0008 0.0003			(-400/500)	(-328/390)	(-328/500)
Deflection temp (264 psi) °C (°F) 55 (131) 57 (134) 48 (118) Mechanical Tensile strength at break MPa 20-34 20-28 25-30 Elongation at break % 200-400 300-325 300 Compressive strength psi 3 500 2 200 2 200 Impact strength Ft-Lb/in 3.5 No Break No Break Flexural Modulus MPa 275-620 550-700 590-700 Tensile Modulus psi 80 000 50 000 40 000 Hardness Shore D 55-65 55-60 55-64 Electrical Dielectric const at 103 Hz 2.1 2.1 2.1 Dielectric DF at 103 Hz 0.0002 0.0001 0.0002 Dielectric DF at 106 Hz 0.0002 0.0008 0.0003	Shrink temperature	°C (°F)	335-345 (635-653)	149-232 (300-450)	
Mechanical Tensile strength at break MPa 20-34 20-28 25-30 Elongation at break % 200-400 300-325 300 Compressive strength psi 3 500 2 200 2 200 Impact strength Ft-Lb/in 3.5 No Break No Break Flexural Modulus MPa 275-620 550-700 590-700 Tensile Modulus psi 80 000 50 000 40 000 Hardness Shore D 55-65 55-60 55-64 Electrical Dielectric const at 103 Hz 2.1 2.1 2.1 Dielectric DF at 103 Hz 0.0002 0.0001 0.0002 Dielectric DF at 106 Hz 0.0002 0.0008 0.0003	Deflection temp (66 psi)	°C (°F)	122 (252)	59 (138)	74(166)
Tensile strength at break MPa 20-34 20-28 25-30 Elongation at break % 200-400 300-325 300 Compressive strength psi 3 500 2 200 2 200 Impact strength Ft-Lb/in 3.5 No Break No Break Flexural Modulus MPa 275-620 550-700 590-700 Tensile Modulus psi 80 000 50 000 40 000 Hardness Shore D 55-65 55-60 55-64 Electrical Dielectric const at 103 Hz 2.1 2.1 2.1 Dielectric DF at 103 Hz 0.0002 0.0001 0.0002 Dielectric DF at 106 Hz 0.0002 0.0008 0.0003	Deflection temp (264 psi)	°C (°F)	55 (131)	57 (134)	48 (118)
Elongation at break % 200-400 300-325 300 Compressive strength psi 3 500 2 200 2 200 Impact strength Ft-Lb/in 3.5 No Break No Break Flexural Modulus MPa 275-620 550-700 590-700 Tensile Modulus psi 80 000 50 000 40 000 Hardness Shore D 55-65 55-60 55-64 Electrical Dielectric const at 103 Hz 2.1 2.1 2.1 Dielectric DF at 103 Hz 0.0002 0.0001 0.0002 Dielectric DF at 106 Hz 0.0002 0.0008 0.0003	Mechanical				
Compressive strength psi 3 500 2 200 2 200 Impact strength Ft-Lb/in 3.5 No Break No Break Flexural Modulus MPa 275-620 550-700 590-700 Tensile Modulus psi 80 000 50 000 40 000 Hardness Shore D 55-65 55-60 55-64 Electrical Dielectric const at 103 Hz 2.1 2.1 2.1 Dielectric const at 106 Hz 2.1 2.1 2.1 2.1 Dielectric DF at 103 Hz 0.0002 0.0001 0.0002 Dielectric DF at 106 Hz 0.0002 0.0008 0.0003	Tensile strength at break	MPa	20-34	20-28	25-30
Impact strength Ft-Lb/in 3.5 No Break No Break Flexural Modulus MPa 275-620 550-700 590-700 Tensile Modulus psi 80 000 50 000 40 000 Hardness Shore D 55-65 55-60 55-64 Electrical Dielectric const at 103 Hz 2.1 2.1 2.1 Dielectric const at 106 Hz 2.1 2.1 2.1 2.1 Dielectric DF at 103 Hz 0.0002 0.0001 0.0002 Dielectric DF at 106 Hz 0.0002 0.0008 0.0003	Elongation at break	%	200-400	300-325	300
Flexural Modulus MPa 275-620 550-700 590-700 Tensile Modulus psi 80 000 50 000 40 000 Hardness Shore D 55-65 55-60 55-64 Electrical Dielectric const at 103 Hz 2.1 2.1 2.1 Dielectric const at 106 Hz 2.1 2.1 2.1 Dielectric DF at 103 Hz 0.0002 0.0001 0.0002 Dielectric DF at 106 Hz 0.0002 0.0008 0.0003	Compressive strength	psi	3 500	2 200	2 200
Tensile Modulus psi 80 000 50 000 40 000 Hardness Shore D 55-65 55-60 55-64 Electrical Dielectric const at 103 Hz 2.1 2.1 2.1 Dielectric const at 106 Hz 2.1 2.1 2.1 Dielectric DF at 103 Hz 0.0002 0.0001 0.0002 Dielectric DF at 106 Hz 0.0002 0.0008 0.0003	Impact strength	Ft-Lb/in	3.5	No Break	No Break
Hardness Shore D 55-65 55-60 55-64 Electrical Dielectric const at 103 Hz 2.1 2.1 2.1 Dielectric const at 106 Hz 2.1 2.1 2.1 Dielectric DF at 103 Hz 0.0002 0.0001 0.0002 Dielectric DF at 106 Hz 0.0002 0.0008 0.0003	Flexural Modulus	MPa	275-620	550-700	590-700
Electrical Dielectric const at 103 Hz 2.1 2.1 2.1 Dielectric const at 106 Hz 2.1 2.1 2.1 Dielectric DF at 103 Hz 0.0002 0.0001 0.0002 Dielectric DF at 106 Hz 0.0002 0.0008 0.0003	Tensile Modulus	psi	80 000	50 000	40 000
Dielectric const at 103 Hz 2.1 2.1 2.1 Dielectric const at 106 Hz 2.1 2.1 2.1 Dielectric DF at 103 Hz 0.0002 0.0001 0.0002 Dielectric DF at 106 Hz 0.0002 0.0008 0.0003	Hardness	Shore D	55-65	55-60	55-64
Dielectric const at 106 Hz 2.1 2.1 2.1 Dielectric DF at 103 Hz 0.0002 0.0001 0.0002 Dielectric DF at 106 Hz 0.0002 0.0008 0.0003	Electrical				
Dielectric DF at 103 Hz 0.0002 0.0001 0.0002 Dielectric DF at 106 Hz 0.0002 0.0008 0.0003	Dielectric const at 103 Hz		2.1	2.1	2.1
Dielectric DF at 106 Hz 0.0002 0.0008 0.0003	Dielectric const at 106 Hz		2.1	2.1	2.1
	Dielectric DF at 103 Hz		0.0002	0.0001	0.0002
Volume resistivity (D 257) Ohm >10 ¹⁸	Dielectric DF at 106 Hz		0.0002	0.0008	0.0003
• , •	Volume resistivity (D 257)	Ohm	>1018		

Optinova tubing can be customized or colored to meet specific customer requirements. We have OTC standard sizes in our global warehouses in the US, Germany and Thailand for fast delivery.