



# Delitube™

## Food & Beverage Tubing

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.

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**

|                            | Unit             | PTFE                     | FEP                      | PFA                      |
|----------------------------|------------------|--------------------------|--------------------------|--------------------------|
| Wall                       | mm (inches)      | >0.1-5.0<br>(>0.004-0.2) | >0.3-4.0<br>(>0.01-0.16) | >0.3-4.0<br>(>0.01-0.16) |
| Density                    | g/m <sup>3</sup> | 2.17                     | 2.15                     | 2.15                     |
| Specific gravity           |                  | 2.15                     | 2.15                     | 2.15                     |
| Transparency               |                  | Good                     | Very good                | Excellent                |
| Sterilization              |                  | EtO, Steam               | EtO, Steam               | EtO, Steam               |
| <b>Environmental</b>       |                  |                          |                          |                          |
| 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                      |
| <b>Thermal</b>             |                  |                          |                          |                          |
| 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<br>(-400/500)   | -200/200<br>(-328/390)   | -200/260<br>(-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)                 |
| <b>Mechanical</b>          |                  |                          |                          |                          |
| 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                    |
| <b>Electrical</b>          |                  |                          |                          |                          |
| 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                   |
| Volume resistivity (D 257) | Ohm              | >10 <sup>18</sup>        |                          |                          |

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.