



# International Filter Products

*Revolutionary systems for your industry*

## C-Flex® 082 TPE Tubing

C-Flex® is the original patented thermoplastic elastomer (TPE) tubing specifically designed to meet the critical demands of pharmaceutical and biopharmaceutical applications for fluid processing with an excellent heat seal and sterile weld capabilities. For over 30 years, C-Flex® has been the thermoplastic elastomer (TPE) tubing most widely used and validated by the world's leading pharmaceutical and biopharmaceutical companies. Each coil of C-Flex® tubing is extruded to precise ID and wall dimensions. C-Flex® 082 is translucent tubing for fluid flow visibility, offering the widest range of formulations and sizes in the industry. C-Flex® tubing has a secure global supply chain with redundant manufacturing sites in the United States and Europe with validated manufacturing processes.



C-Flex® comes in a wide variety of sizes and formulations.



One-piece overmolded C-Flex® manifold maintains inner bore diameters with superior reliability and product integrity.

11070 Fleetwood St. Unit B, Sun Valley, CA 91352

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Phone: (818) 504-8115



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## Application

- Aseptic Sealing Disconnections
- Aseptic Welding Connections
- Ideal For Use in Single-Use Assemblies
- Peristaltic Pump
- Cell Culture Operations
- Acid & Base
- Tubing and Bags Manifolds
- Single-Use Fluid Transfer Sets
- Buffer and Media Preparation

## Technical Data Sheet

### Features and Benefits:

- ❖ Sealable and weldable either pre-or post-sterilization.
- ❖ Sterilizable by gamma irradiation and autoclave.
- ❖ Moldable, bondable, and formable for single-use assemblies and over molds.
- ❖ Temperature range -67°C to 135°C (-85°F to 275°F).
- ❖ Significantly less permeable than silicone.
- ❖ All formulas are Animal-Derived Component Free.
- ❖ All-inclusive Validation Guide and the Regulatory Information Overview (RIO) are available for customers upon request.

### Chemical Resistance:

| Chemical Type              | C-Flex Compatibility |
|----------------------------|----------------------|
| Acids, Dilute/Weak         | Excellent            |
| Acids, Strong/Concentrated | Excellent            |
| Bases, Dilute/Weak         | Excellent            |
| Bases, Strong/Concentrated | Excellent            |
| Salts                      | Excellent            |
| High-purity Water          | Excellent            |

Note: A comprehensive chemical compatibility chart is available upon request.

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When some chemical types are not suitable, safe, or chemically compatible with C-Flex, Saint-Gobain offers alternative tubing series. Below, you will find chemicals that are incompatible with C-Flex and the suggested alternative Saint-Gobain tubing series:

| Chemical Type                          | Alternative Saint-Gobain Tubing Series  |
|--|---|
| Alcohol                                | <ul style="list-style-type: none"> <li>i. Sani-Tech</li> <li>ii. PharmaPure</li> <li>iii. PharMed BPT</li> <li>iv. PharmaFluor FEP</li> </ul> |
| Oil / Water Emulsion                   | <ul style="list-style-type: none"> <li>i. Sani-Tech</li> <li>ii. PharmaFluor FEP</li> </ul>   |
| Low Spallation Peristaltic Pump Tubing | <ul style="list-style-type: none"> <li>i. PharmaPure</li> </ul>   |
| Biocompatible Peristaltic Pump Tubing  | <ul style="list-style-type: none"> <li>i. PharMed BPT</li> </ul>  |
| Ketones and Organic Solvent            | <ul style="list-style-type: none"> <li>i. PharmaFluor FEP</li> </ul>  |

## Physical Properties:

| Property  | ASTM Method | Formulations Value |
|---|-------------|--------------------|
| Appearance  | -           | Translucent        |
| Durometer, Shore A  | D2240       | 60                 |
| Tensile Strength, psi                                     | D412        | 1106               |
| Elongation, %   | D412        | 874                |
| Tensile Modulus, @100%/300%, psi                          | D412        | 256/400            |
| Tensile Set @ 300% Stretch                                | D412        | 29                 |
| Compression Set Constant Deflection "B" (22hrs @ 70°C), % | D395        | 89                 |
| Brittle Point, °C   | D746        | -67                |

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## Sterilization Methods:

Autoclavable

One time 30-minute cycle at 121°C

Gamma Irradiation

One time up to 40 kGy

Note: C-Flex tubing will deteriorate with repeated autoclaving. Radiation is the recommended method of sterilization for all C-Flex thermoplastic materials.

## Regulatory Compliance (Biocompatibility, Physicochemical & Extractable Testing):

| Summary of Results: 082 - Translucent  |                    |        |
|--|--------------------|--------|
| Method Description   | Reference Standard | Result |
| Ames Genotoxicity  | ISO 10993-3        | Passed |
| Hemolysis – Indirect Contact   | ISO 10993-4        | Passed |
| Systemic Toxicity - Rabbit Pyrogen (Material Mediated)                                 | ISO 10993-11       | Passed |
| Sterility Test: Bacteriostasis & Fungistasis   | USP <71>           | Passed |
| LAL Gel Clot Endotoxin   | USP <85>           | Passed |
| Tests for In-Vitro Cytotoxicity  | ISO 10993-5        | Passed |
| Biological Reactivity Tests, In-Vitro  | USP <87>           | Passed |
| Class VI Plastics - Biologic Reactivity Tests, In-Vivo: Pre-Gamma Irradiation Samples  | USP <88>           | Passed |
| Class VI Plastics - Biologic Reactivity Tests, In-Vivo: Post-Gamma Irradiation Samples | USP <88>           | Passed |
| Elastomeric Closures for Injection   | USP<381>           | Passed |
| Physicochemical Tests for Plastics   | USP <661>          | Passed |
| Rubber Closures for Containers   | EP 3.2.9           | Passed |

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## C-Flex 082 Tubing Standard Size:

| C-Flex® - 082 - Translucent Tubing Standard Size |                              |                       |                                 |                              |   |     |
|--|------------------------------|-----------------------|---------------------------------|------------------------------|---|-----|
| Part Numbers                                     | Standard Coil Length, ft (m) | ID x OD x Wall (inch) | ID x OD x Wall (inch fractions) | ID x OD x Wall (millimeters) | Average Working Pressure (psi): 66°F (19°C) |     |
|  |                              |                       |                                 |                              | C-Flex® 082                                 |     |
|  |                              |                       |                                 |                              | psi   | bar |
| 082-031-1  | 50' (15 m)                   | 0.031 x 0.094 x 0.031 | 1/32 x 3/32 x 1/32              | 0.8 x 2.4 x 0.8              | 30  | 2.1 |
| 082-063-1  | 50' (15 m)                   | 0.063 x 0.125 x 0.031 | 1/16 x 1/8 x 1/32               | 1.6 x 3.2 x 0.8              | 21  | 1.4 |
| 082-063-2  | 50' (15 m)                   | 0.063 x 0.188 x 0.062 | 1/16 x 3/16 x 1/16              | 1.6 x 4.8 x 1.6              | 46  | 3.2 |
| 082-125-2  | 50' (15 m)                   | 0.125 x 0.250 x 0.062 | 1/8 x 1/4 x 1/16                | 3.2 x 6.4 x 1.6              | 27  | 1.9 |
| 082-188-2  | 50' (15 m)                   | 0.188 x 0.313 x 0.062 | 3/16 x 5/16 x 1/16              | 4.8 x 8.0 x 1.6              | 22  | 1.5 |
| 082-188-3  | 50' (15 m)                   | 0.188 x 0.375 x 0.094 | 3/16 x 3/8 x 3/32               | 4.8 x 9.5 x 2.4              | 36  | 2.5 |
| 082-250-2  | 50' (15 m)                   | 0.250 x 0.375 x 0.062 | 1/4 x 3/8 x 1/16                | 6.4 x 9.5 x 1.6              | 17  | 1.2 |
| 082-250-3  | 50' (15 m)                   | 0.250 x 0.438 x 0.094 | 1/4 x 4/9 x 3/32                | 6.4 x 11.2 x 2.4             | 23  | 1.6 |
| 082-250-4  | 50' (15 m)                   | 0.250 x 0.500 x 0.125 | 1/4 x 1/2 x 1/8                 | 6.4 x 12.7 x 3.2             | 30  | 2   |
| 082-313-3  | 50' (15 m)                   | 0.313 x 0.500 x 0.094 | 5/16 x 1/2 x 3/32               | 7.9 x 12.7 x 2.4             | 20  | 1.4 |
| 082-375-2  | 50' (15 m)                   | 0.375 x 0.500 x 0.062 | 3/8 x 1/2 x 1/16                | 9.6 x 12.7 x 1.6             | 12  | 0.8 |
| 082-375-3  | 50' (15 m)                   | 0.375 x 0.563 x 0.094 | 3/8 x 5/9 x 3/32                | 9.6 x 14.3 x 2.4             | 16  | 1.1 |
| 082-375-4  | 50' (15 m)                   | 0.375 x 0.625 x 0.125 | 3/8 x 5/8 x 1/8                 | 9.6 x 15.9 x 3.2             | 21  | 1.4 |
| 082-500-3  | 50' (15 m)                   | 0.500 x 0.688 x 0.094 | 1/2 x 2/3 x 3/32                | 12.7 x 17.4 x 2.4            | 13  | 0.9 |
| 082-500-4  | 50' (15 m)                   | 0.500 x 0.750 x 0.125 | 1/2 x 3/4 x 1/8                 | 12.7 x 19.1 x 3.2            | 15  | 1.1 |
| 082-625-4  | 50' (15 m)                   | 0.625 x 0.875 x 0.125 | 5/8 x 7/8 x 1/8                 | 15.9 x 22.2 x 3.2            | 13  | 0.9 |
| 082-750-4  | 15' (4.5 m)                  | 0.750 x 1.00 x 0.125  | 3/4 x 1 x 1/8                   | 19.0 x 25.4 x 3.2            | 11  | 0.8 |
| 082-750-6  | 15' (4.5 m)                  | 0.750 x 1.125 x 0.188 | 3/4 x 1 3/8 x 3/16              | 19.0 x 28.3 x 4.8            | 15  | 1   |
| 082-750-8  | 15' (4.5 m)                  | 0.750 x 1.250 x 0.250 | 3/4 x 1 1/4 x 1/4               | 19.0 x 31.7 x 6.4            | 19  | 1.3 |
| 082-1000-6                                       | 15' (4.5 m)                  | 1.00 x 1.375 x 0.188  | 1 x 1 3/8 x 3/16                | 25.4 x 34.9 x 4.8            | 11  | 0.8 |
| 082-1000-8                                       | 15' (4.5 m)                  | 1.00 x 1.500 x 0.250  | 1 x 1 1/2 x 1/4                 | 25.4 x 38.1 x 6.4            | 15  | 1   |

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### Ordering Guide



| [1]  | [2]  |
|--|--|
| Inner Diameter [ID] Code   | Wall Thickness Code  |
| <ul style="list-style-type: none"> <li>• <b>031</b>: 0.031 inch or 1/32 inch</li> <li>• <b>063</b>: 0.063 inch or 1/16 inch</li> <li>• <b>125</b>: 0.125 inch or 1/8 inch</li> <li>• <b>188</b>: 0.188 inch or 3/16 inch</li> <li>• <b>250</b>: 0.250 inch or 1/4 inch</li> <li>• <b>313</b>: 0.313 inch or 5/16 inch</li> <li>• <b>375</b>: 0.375 inch or 3/8 inch</li> <li>• <b>500</b>: 0.500 inch or 1/2 inch</li> <li>• <b>625</b>: 0.625 inch or 5/8 inch</li> <li>• <b>750</b>: 0.750 inch or 3/4 inch</li> <li>• <b>1000</b>: 1.00 inch or 1 inch</li> </ul> | <ul style="list-style-type: none"> <li>• <b>1</b>: 0.031 inch or 1/32 inch</li> <li>• <b>2</b>: 0.063 inch or 1/16 inch</li> <li>• <b>3</b>: 0.094 inch or 3/32 inch</li> <li>• <b>4</b>: 0.125 inch or 1/8 inch</li> <li>• <b>6</b>: 0.188 inch or 3/16 inch</li> <li>• <b>8</b>: 0.250 inch or 1/4 inch</li> </ul> |

### Example:

**082-125-2**

C-Flex 082 - Thermoplastic Elastomer Tubing, ID 0.125 in X OD 0.250 in X Wall thickness 0.062 in, Average Working Pressure 27 PSI at 66°F (19°C), 50 Ft per Coil

Part Number

Description

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