

# TYGON® 3355-L Extended Life Silicone Tubing



*The excellent fatigue resistance properties of TYGON® 3355-L tubing make it an ideal tubing selection for peristaltic pump systems.*

## Limits Risk of Fluid Contamination

Peristaltic pumping transports fluids efficiently, without risking contact with any portion of the pump itself. To accomplish this, flexible tubing is inserted between the pump rollers and housing. As the rollers rotate around a stationary rotor, the tubing is “squeezed” or occluded, pushing the fluid through the inside tubing surface. As the tubing behind each roller recovers its shape, a vacuum is created, drawing additional fluid in behind the occluded tubing. During this process, the fluid is contained entirely within the flexible tubing, eliminating exposure to any components of the pump and thus the risk of fluid contamination.

## Reduces Potential Production Downtime

TYGON® 3355-L silicone tubing is formulated specifically for use in peristaltic pump applications. With its superior flex life characteristics, manufacturing processes can be simplified by reducing potential production downtime due to pump tubing failure. (See Comparative Peristaltic Pump Tubing Life chart on back of page.)

## Prevents Residue Build-up

The smooth inner surface of TYGON® 3355-L silicone tubing is designed to help reduce the risk of particle entrapment and microscopic build-up during sensitive fluid transfer. This smooth fluid path also can help to facilitate complete sanitation of a fluid transfer system. Even in extended use applications, TYGON® 3355-L silicone tubing may help to prevent residue build-up, aiding in more efficient cleaning and sterilization processes.

Platinum-cured TYGON® 3355-L silicone tubing complies fully with the requirements of the USP Class VI criteria and is entirely non-toxic, non-hemolytic and non-pyrogenic. In addition, TYGON® 3355-L silicone tubing meets FDA 21 CFR Part 177.2600 criteria for use in food contact applications.

## Used in a Range of Applications

TYGON® 3355-L silicone tubing provides versatility in use for a broad range of peristaltic pump applications. For situations requiring other uniquely engineered properties, Saint-Gobain Performance Plastics can design a formulation suited to meet your specific needs, including ultra-high temperature resistance, pigmented colors and closed cell sponge. TYGON® 3355-L has a Master File with the U.S. Food and Drug Administration.

## biopharmaceutical products

High-performance, platinum-cured silicone tubing specifically designed for peristaltic pump applications

### Features/Benefits

- Lasts up to five times longer than other platinum silicone tubings
- Minimal extractables help maintain fluid integrity
- Ultra-smooth inner bore reduces potential for particle entrapment
- Documented biocompatibility for sensitive applications
- Excellent fluid flow characteristics
- Taste-free and odor-free

### Typical Pump Applications

- Production filtration and fermentation
- Sterile fill lines
- Media processing
- Cell harvest collection systems
- Chemistry and blood analysis
- Liquid chromatography



## TYGON® 3355-L Tubing Inventory Sizes

| Part Number | Tubing Size | Length (feet) | Minimum Bend (inches) |
|-------------|-------------|---------------|-----------------------|
| F90031      | 1/8 x 3/16  | 50'           | 3/8                   |
| F90032      | 1/8 x 1/4   | 50'           | 1/2                   |
| F90033      | 5/32 x 7/32 | 50'           | 3/4                   |
| F90034      | 3/16 x 1/4  | 50'           | 1                     |
| F90035      | 3/16 x 5/16 | 50'           | 1/2                   |
| F90036      | 3/16 x 3/8  | 50'           | 3/8                   |
| F90037      | 3/16 x 7/16 | 50'           | 3/8                   |
| F90038      | 1/4 x 5/16  | 50'           | 1-1/2                 |
| F90039      | 1/4 x 3/8   | 50'           | 1-1/2                 |
| F90040      | 1/4 x 7/16  | 50'           | 1-5/8                 |
| F90041      | 1/4 x 1/2   | 50'           | 5/8                   |
| F90042      | 5/16 x 7/16 | 50'           | 1-1/4                 |
| F90043      | 5/16 x 1/2  | 50'           | 5/8                   |
| F90044      | 3/8 x 1/2   | 50'           | 1-1/2                 |
| F90045      | 3/8 x 9/16  | 50'           | 1                     |
| F90046      | 3/8 x 5/8   | 50'           | 1                     |
| F90047      | 7/16 x 9/16 | 50'           | 1-1/2                 |
| F90048      | 7/16 x 5/8  | 50'           | 1-3/4                 |
| F90049      | 1/2 x 5/8   | 50'           | 3                     |
| F90050      | 1/2 x 11/16 | 50'           | 1-3/4                 |
| F90051      | 1/2 x 3/4   | 50'           | 1-1/2                 |

Working pressures are calculated at a 1:5 ratio relative to burst pressure using ASTM D1599. ADDITIONAL SIZES AVAILABLE UPON REQUEST.

The values listed for working and burst pressures are derived from tests conducted under controlled laboratory conditions. Many factors will reduce the tubing's ability to withstand pressures, including temperature, chemical attack, stress, pulsation and the attachment to fittings. It is imperative that the user conduct tests simulating the conditions of the application prior to specifying the tubing for use.

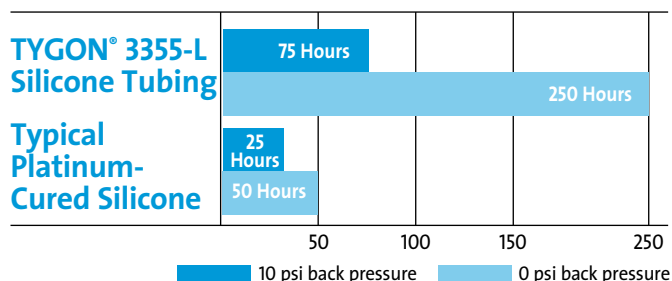
## TYGON® 3355-L Typical Physical Properties

| Property   | ASTM Method      | Value or Rating     |
|--|------------------|---------------------|
| Durometer Hardness Shore A, 15 Sec   | D2240-97         | 55                  |
| Color  | —                | Translucent         |
| Tensile Strength psi (MPa)   | D412-97          | 900 (6.2)           |
| Ultimate Elongation, %   | D412-97          | 400                 |
| Tear Resistance lb-f/inch (kN/m)   | D624-91 Die B    | 135 (23.6)          |
| Specific Gravity   | D792-91          | 1.12                |
| Water Absorption, % 24 hrs. @ 23°C   | D570-95          | 0.16                |
| Compression Set Constant Deflection, % @ 158°F (70°C) for 22 hrs.          | D395-89 Method B | 5                   |
| Brittleness by Impact Temp., °F (°C)                                       | D746-95          | <-112°F (<-80°C)    |
| Maximum Recommended Operating Temp., °F (°C)                               | —                | 400 (204)           |
| Dielectric Strength v/mil (kV/mm)  | D149-95          | 462 (18.2)          |
| Tensile Modulus, @ 100% Elongation, psi (MPa) @ 200% Elongation, psi (MPa) | D412-97          | 375 (2.6) 500 (3.4) |
| Tensile Set, %   | D412-97          | 6                   |

Unless otherwise noted, all tests were conducted at room temperature (73°F). Values shown were determined on 0.075" thick extruded strip or 0.075" thick molded ASTM plaques or molded ASTM durometer buttons.

## Comparative Peristaltic Pump Tubing Life

The table below depicts hours until failure of 1/4" ID x 3/8" OD tubing. In each case, a 3-roller pump head was utilized operating at 600 rpm under room temperature (73°F). Tubing failure is measured in hours of use prior to rupture.



The performance of tubing in peristaltic pumping applications is affected by the conditions of use and equipment utilized, along with size and wall thickness of the tubing tested. The data above is presented for information only and should not be utilized for specification purposes.

**TYGON® TUBING IS NOT INTENDED FOR USE AS AN IMPLANT MATERIAL**

TYGON® is a registered trademark.

## BIOPHARMACEUTICAL PRODUCTS

*Come through clean.™*

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**IMPORTANT:** It is the user's responsibility to ensure the suitability and safety of Saint-Gobain Performance Plastics tubing for all intended uses. Laboratory and clinical tests must be conducted in accordance with applicable regulatory requirements in order to determine the safety and effectiveness for use of tubing in any particular application.

For a period of 6 months from the date of first sale, Saint-Gobain Performance Plastics Corporation warrants this product to be free from defects in materials and workmanship. Our only obligation will be to replace any portion proving defective, or at our option, to refund the purchase price thereof. User assumes all other risk, if any, including the risk of injury, loss or damage, direct or consequential, arising out of the use, misuse, or inability to use, this product. THIS WARRANTY IS IN LIEU OF THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSE, AND ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. No deviation is authorized.

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