TYGON®

APPLICATION SPECIFIC TUBING

When there's no margin for error

A guide to Tygon® tubing formulations

SAINT-GOBAIN

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BY APPLICATIONS

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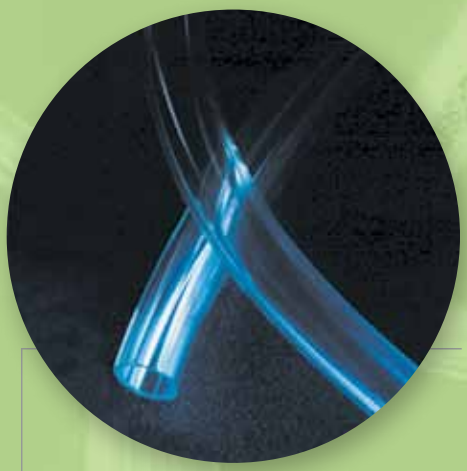
*Shore D Scale.
**1-second reading.
***Durometer measured on outer jacket.

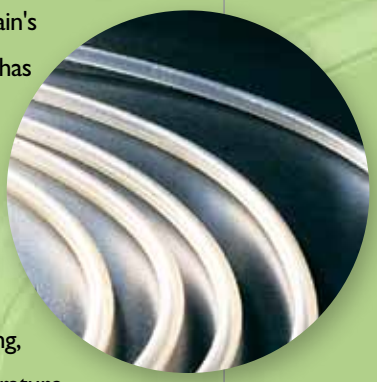
† **For complete compliance information visit www.processsystems.saint-gobain.com**



TYGON®...

A TRADITION OF EXCELLENCE IN HIGH PERFORMANCE TUBING.

PERFORMANCE • QUALITY • INNOVATION



These are characteristics you've come to expect from Saint-Gobain's Tygon® tubing. Since its introduction in the 1940s, Tygon® tubing has been recognized as an integral and vital component in countless fluid transport systems. By delivering an uncompromising standard of consistent performance, today's Tygon® tubing has become the standard by which all flexible tubing is judged.

Whether your need for flexible tubing involves chemical dispensing, fuel dispensing or food and beverage applications; requires temperature, abrasion, chemical or permeation resistance; or necessitates a pure, sterile or inert environment, there is a Tygon® formulation proven to enhance user performance and increase overall productivity. By providing a broad range of Tygon® tubing products, each engineered to meet specific user needs, you can choose a Tygon® formulation that provides the best possible value in use.

Use this catalog to learn more about individual Tygon® tubing formulations and determine which Tygon® tubing is right for your application.

OPTIMIZE PERFORMANCE... SPECIFY TYGON® TUBING

ISO 9001
ISO 14001

BUREAU VERITAS Certification

ISO accreditation further strengthens Saint-Gobain's existing worldwide presence and is consistent with validating the sophisticated standards that have been operative in Saint-Gobain's manufacturing and management practices over the years.

TUBING SELECTION GUIDE

The information presented in this brochure is intended to serve as a guide for selection and specification of flexible tubing. Proper use of this information will lead to the design of systems which provide both optimized tubing performance and overall increased productivity.

In choosing the right tubing for your application there are several factors to consider. Listed to the right are questions which will help direct you in the selection of the proper Tygon® tubing for your specific application. It is required to test tubing under the actual service conditions prior to specifying a particular tubing formulation. If field testing is not practical, laboratory tests that simulate field conditions must be employed.

Assistance in tubing selection is available from our worldwide network of authorized Tygon® tubing distributors. For the name of the distributor nearest you, contact customer service at 1-800-798-1554 or you may contact the nearest sales office listed on the back of this catalog.

TYGON®...

When there's no margin for error

1 What fluid(s) is to be transported?

2 What range of temperatures will the tubing be subjected to?

3 What is the maximum line pressure or vacuum?

4 Are specific dimensional tolerances required?

5 What degree of tubing flexibility is desired?

6 What are the conditions of the ambient environment?

7 Is there a minimum bend radius required?

8 Is clarity of tubing important?

9 What compliance documentation is needed? (e.g., FDA, NSF, ISO 10993, USP, etc.)

10 What method(s) of cleaning and/or sterilization are to be employed?

11 Is resistance to flexural fatigue or abrasion important?

12 Is particle spallation of tubing a concern while used in a peristaltic pump?

13 Will the level of extractability affect the transported fluid?

14 Will any fluid loss or alteration through sorption (adsorption/absorption) affect your final results?

15 Is disposal of contaminated tubing an issue?

16 Will particle entrapment resulting in increased risk of bacterial growth be a concern?

TYGON S3™

PHTHALATE-FREE TUBING

Saint-Gobain recently launched Tygon S3™, a Safe, Smart and Sustainable product transfer solution that is the first bio-based and phthalate-free tubing with Tygon® performance. Tygon S3™ addresses rising safety concerns and regulatory standards regarding the use of phthalates. Phthalates are commonly used in the plastics industry as a plasticizer to increase tubing's flexibility, transparency, durability and longevity.

Many tubing products use a fossil fuel-based phthalate called DEHP (di-2-ethylhexyl phthalate), which may be responsible for negative environmental and human health impacts. Phthalates are a rising concern worldwide, with countries taking legislative action to limit, prohibit or even ban their usage.

The Tygon S3™ line is designed to help manufacturers proactively advance both the food safety and sustainability components of their operations without having to compromise productivity – or their bottom line.

Tygon S3™ uses a bio-based material as a plasticizer, which provides exceptional durability and longevity compared to other solutions on the market. Made from plant extract, bio-based plasticizers are a sustainable resource, contributing to economic development while reducing greenhouse gases and our dependency on petroleum-based substances. Food and beverage processors can also leverage the sustainability benefits of this material to reduce the carbon footprint of their supply chains.

SAFE

Phthalate-Free

SMART

Precision Design

SUSTAINABLE

Bio-Based

TM

PERFORMANCE

Application Specific Tubing

Tygon S3™ tubing complies with FDA, NSF, 3-A, Japan Food Sanitation Law #370/1959, REACH, 1935/2004/EC and 10/2011/EU for many food and beverage applications.

The most widely specified clear, flexible tubing, Tygon S3™ Beverage Tubing is frequently chosen for its taste- and odor-free characteristics.

With its smooth, non-porous bore, Tygon S3™ Food, Milk and Dairy Tubing helps ensure a bacteria-free fluid path in a wide variety of food processing applications.

TYGON S3™ BEVERAGE TUBING

Formulation B-44-3

- *Clear as glass for easy visual monitoring of flow*
- *Lightweight and flexible for easy, quick installation*
- *Broad chemical resistance*
- *Non-wetting properties allow easy cleaning and complete drainage*
- *Contains no BPA*
- *Meets 3-A and NSF 51 and 61 criteria*
- *Contains no chemicals listed in California's Prop 65*
- *Phthalates-free*

Tygon S3™ B-44-3 is specially formulated for transferring a wide variety of beverages including soft drinks, fruit juices, flavored teas and bottled water. In virtually all cases, Tygon S3™ B-44-3 will not affect the taste or odor of products transferred through it, while its excellent non-wetting properties facilitate complete drainage and permit simple flush-cleaning.

Many of the unique properties inherent to Tygon S3™ B-44-3 also apply to a wide variety of complex applications, ranging from fine cosmetic production to the dispensing of water-based printing inks found in the publishing industry. The versatility and proven performance of Tygon S3™ B-44-3 have made it today's most widely specified clear, flexible plastic tubing.

For complete compliance information and appropriate use instructions, please refer to the detailed document of compliance. The complete compliance information and use instructions can be found at www.TygonS3.com.

TYGON S3™ FOOD, MILK AND DAIRY TUBING

Formulation B-44-4X

- *Smooth, non-porous bore will not trap particulates or promote bacterial growth*
- *Compatible with foods containing a high oil content*
- *Resistant to harsh alkaline cleaners and sanitizers*
- *Excellent alternative to rigid piping systems*
- *Contains no BPA*
- *Meets 3-A and NSF 51 and 61 criteria*
- *Contains no chemicals listed in California's Prop 65*
- *Phthalates-free*

Producers of food, milk and dairy products insist upon Tygon S3™ B-44-4X for dependable performance in countless filling, draining, transfer and processing applications. Its smooth, non-porous bore inhibits particle entrapment, promoting a sanitary fluid path by minimizing potential for bacterial growth. It has outstanding resistance to harsh alkaline cleaners and is equally unaffected by commonly used sanitizers.

Light in weight and easy to handle, Tygon S3™ B-44-4X can be put into service quickly. It readily bends to accommodate abrupt corners and obstructions, requiring a minimum of couplings and fittings. Its flexibility can save up to one-third the footage and much of the labor required to install rigid stainless steel or plastic piping.

A special construction of Tygon S3™ B-44-4X is also available to meet applications involving elevated pressure.

For complete compliance information and appropriate use instructions, please refer to the detailed document of compliance. The complete compliance information and use instructions can be found at www.TygonS3.com.

Reinforced for elevated working pressure, Tygon S3™ Pressure Tubing is the most flexible of the reinforced tubings available today.

Tygon S3™ Silver tubing decreases bacterial growth and provides added value.

TYGON S3™ PRESSURE TUBING

FORMULATION B-44-4X I.B.

- *Handles four times the pressure of non-reinforced tubing*
- *Smooth, non-porous bore resists particle entrapment*
- *Clear wall enables visualization of fluid flow*
- *Connects easily to ReSeal® Sanitary Fittings*
- *Meets 3-A and NSF 51 and 61 criteria*
- *Contains no chemicals listed in California's Prop 65*
- *Contains no BPA*
- *Phthalates-free*

Tygon S3™ B-44-4X I.B. can be used to transport many types of fluids in applications ranging from those regulated by FDA guidelines to industrial laboratory applications involving virtually all non-solvent based chemicals.

Lightweight and easy to handle, Tygon S3™ B-44-4X I.B. goes into service quickly. It readily curves around corners and obstructions, requiring a minimum of couplings and fittings. Its flexibility can save up to one-third the footage and much of the labor required to install rigid stainless steel, glass tubing or piping.

Tygon S3™ B-44-4X I.B.'s smooth non-porous inner bore resists particle entrapment and resultant bacterial growth. Its excellent non-wetting properties facilitate complete drainage and increase the overall effectiveness of cleaning, making it the ideal choice in food, beverage, dairy, and other bacterial-sensitive applications. Custom antimicrobial version available upon request.

For complete compliance information and appropriate use instructions, please refer to the detailed document of compliance. The complete compliance information and use instructions can be found at www.TygonS3.com.

TYGON S3™ SILVER ANTIMICROBIAL TUBING

- *Plasticizer-free inner bore*
- *Reduces formation of biofilm and mildew*
- *Inhibits growth of microbes*
- *Meets NSF 51 criteria*
- *Contains no chemicals listed in California's Prop 65*
- *Contains no BPA*
- *Phthalates-free*

Saint-Gobain is the leader in antimicrobial technology. Our custom compounding capabilities allow us to produce antimicrobial versions of many of our tubing products. Tygon S3™ Silver Antimicrobial Tubing is formulated with a silver-based compound on the inner surface at the point of fluid contact; the tubing's outer surface can be treated in cases where bacteria buildup on the I.D. is a concern.

Cleaning procedures, such as washing with detergent and hot water, can kill microbes. But this process can be time consuming and costly, and does not provide residual protection against fresh contamination. The additional use of a durable and safe antimicrobial treatment is the best way to provide protection against microbial contamination. Offering your customers this added protection adds value to your product.

For complete compliance information and appropriate use instructions, please refer to the detailed document of compliance. The complete compliance information and use instructions can be found at www.TygonS3.com.

The most consistently reliable tubing for the transfer of liquids and gases, Tygon S3™ Laboratory Tubing handles virtually all inorganic chemicals found in today's laboratories.

Tygon S3™ Long Flex Life Tubing offers the longest peristaltic pump life of any clear Tygon® tubing formulation.

TYGON S3™ LABORATORY TUBING

Formulation E-3603

- *The new bio-based formulation delivers the same excellent performance*
- *Outstanding chemical resistance*
- *Lot-to-lot consistency for reproducible results*
- *Non-oxidizing and non-contaminating*
- *Smooth, polished inner wall*
- *Slips easily over fittings and grips securely for simple lab set-ups*
- *Contains no BPA*
- *Standard sizes available to hold full vacuum at room temperature*
- *Meets NSF 51 and 61 criteria*
- *Contains no chemicals listed in California's Prop 65*
- *Phthalates-free*

Tygon S3™ E-3603 Tubing handles most inorganic chemicals found in the laboratory. It is nonoxidizing and non-contaminating, and less permeable than rubber tubing. The glassy-smooth inner bore helps prevent buildup to facilitate cleaning. Coils are marked at 1-foot (30.4 cm) intervals for easy measuring.

Tygon S3™ E-3603 Vacuum Tubing has extra-heavy walls that will withstand a full vacuum at room temperature (29.9" [759mm] of mercury at 73˚F [23˚C] and up to 27" [686mm] of mercury at 140˚F [60˚C]). Like standard Tygon® Laboratory Tubing, Tygon S3™ E-3603 Vacuum Tubing resists most inorganic chemicals and can be used in corrosive atmospheres.

For complete compliance information and appropriate use instructions, please refer to the detailed document of compliance. The complete compliance information and use instructions can be found at www.TygonS3.com.

TYGON S3™ LONG FLEX LIFE PUMP TUBING

Formulation E-LFL

- *Longest flex life of any clear Tygon® tubing*
- *Extremely low particulate spallation*
- *Broad chemical resistance*
- *Contains no chemicals listed in California's Prop 65*
- *Contains no BPA*
- *Phthalates-free*

Crystal-clear Tygon S3™ E-LFL tubing is formulated specifically for use in peristaltic pump applications. The new Tygon S3™ E-LFL non-DEHP tubing has even longer pump life not only at 0 psi but also at back pressure of up to 25 psi. With its superior flex life characteristics, Tygon S3™ E-LFL tubing reduces production downtime due to pump tubing failure. Our tests demonstrated reduced particle spallation, which eliminates the need for frequent downstream filter replacement and diminishes the risk of sensitive-fluid contamination.

The non-aging and broad chemical resistance properties of Tygon S3™ E-LFL enable users to utilize the new tubing for transferring chemicals, cleaning agents and bactericides without danger of corrosion (as with metals) or oxidation (as with rubber). Tygon S3™ E-LFL is safe and non-toxic and can be sterilized through conventional autoclave methods (steam 30 minutes at 15 psi, 121°C) and Ethylene Oxide, making it an excellent choice for high purity applications. It can be produced in up to a 2" (5.08 cm) inside diameter, ideal for bulk transfer applications.

For complete compliance information and appropriate use instructions, please refer to the detailed document of compliance. The complete compliance information and use instructions can be found at www.TygonS3.com.

Formulated for flexural resistance and high temperatures, Norprene® Food Process Tubing does not easily crack or deteriorate, even in physically demanding applications.

NORPRENE® FOOD PROCESSING TUBING

Formulation A-60-F

- *Temperature resistant from -75°F to 275°F*
- *Compatible with virtually all common sanitizers and cleaners*
- *Repeatedly autoclavable*
- *Meets 3-A and NSF 51 criteria*
- *Contains no chemicals listed in California's Prop 65*
- *Phthalates-free*

Formulated to withstand the high temperatures frequently occurring during food and beverage processing, Norprene® Food Process Tubing will outlast and outperform virtually all other food grade tubings. Even following extended exposure to heat and ozone, Norprene® Food Process Tubing will not crack or deteriorate as commonly found when using traditional rubber tubings.

Extremely flexible, Norprene® Food Process Tubing resists kinks and retains its shape while installing quickly and easily. Its excellent flexural fatigue resistance makes it the absolute best choice for use in peristaltic pumps often found in dispensing equipment.

Repeatedly autoclavable, Norprene® Food Process Tubing can be steam cleaned in place, eliminating the need for frequent tubing replacement. When harsh sanitizing solutions are used, it exhibits exceptional chemical resistance and is entirely unaffected by a wide variety of cleaning solutions.

Also available with reinforcement to withstand elevated working pressure.

Norprene® Pressure Tubing is ideal for clean-in-place and steam-in-place cleaning sterilization systems.

NORPRENE® PRESSURE TUBING

Formulation A-60-F I.B.

- *Provides long service life*
- *Performs well at a range of temperatures*
- *Ozone and UV light resistant*
- *Repeatedly autoclavable*
- *Meets 3-A and NSF 51 criteria*
- *Contains no chemicals listed in California's Prop 65*
- *Phthalates-free*

Ideal for use in clean-in-place and steam-in-place cleaning and sterilization systems, Norprene® Pressure Tubing has excellent alkali resistance and is compatible with numerous oxidizing agents such as hydrogen peroxide, sodium hypochlorite and ozone.

Norprene® Pressure Tubing exhibits excellent resistance to ozone and UV light, with little or no signs of deterioration in laboratory testing to the equivalent of 10 years of outdoor exposure. Norprene® Pressure Tubing provides long service life when exposed to heat, abrasion and pressure. It is temperature resistant up to 275°F and retains flexibility to -75°F.

For complete compliance information, visit www.processsystems.saint-gobain.com

Tygoprene® XL-60 provides flexibility and long life in peristaltic pump applications.

Provides long life, strength and durability in many demanding applications.

TYGOPRENE® PUMP TUBING

Formulation XL-60

- *Long life in peristaltic pumps*
- *Temperature resistant up to 250°F*
- *Meets NSF 51 criteria*
- *Contains no chemicals listed in California's Prop 65*
- *Phthalates-free*

Designed specifically for use in peristaltic pump applications, Tygoprene® Pump Tubing maintains a pump life of over 500 hours. With a durometer of Shore A60, it is extremely flexible and exhibits superior flex life. Tygoprene® Pump Tubing can be considered an alternative to silicones and PVC when longer pump life is required.

Tygoprene® Pump Tubing is translucent in color and has excellent chemical resistance to a wide range of fluids, including acids and bases. It remains flexible at -40°F and has a maximum recommended temperature of 250°F. Tygoprene® Pump Tubing has passed the UL 94-HB flammability resistance classification.

VERSILIC® HIGH-STRENGTH SILICONE TUBING

Formulation SPX-50

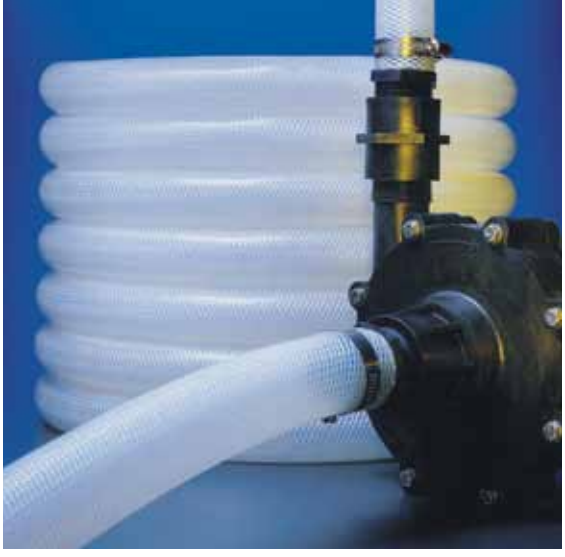
- *Ultra-smooth inner bore reduces risk of particle entrapment*
- *Taste and odor free*
- *Withstands temperature extremes from -75°F to 350°F*
- *Meets 3-A and NSF 51 criteria*
- *Contains no chemicals listed in California's Prop 65*
- *Phthalates-free*

Peroxide-cured Versilic® High-Strength Silicone Tubing is designed for use in applications where flexibility, resiliency and durability are required. Its smooth inner surface reduces the risk of particulate entrapment and microscopic buildup during fluid transfer. In addition, its high and low working temperatures help the tubing retain its flexibility under extreme conditions.

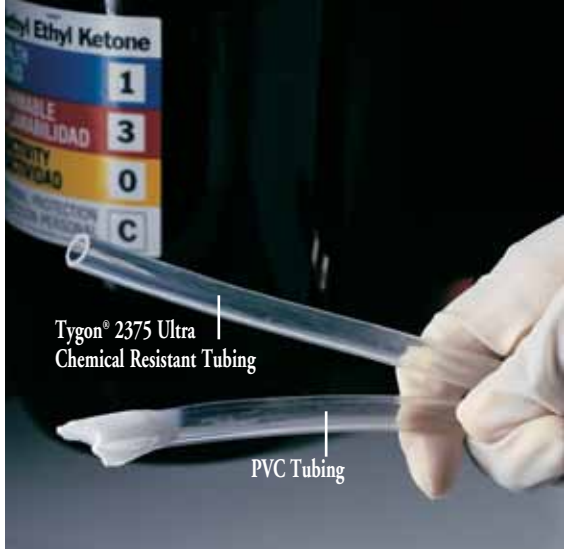
Because of its consistently reliable performance, Versilic® High-Strength Silicone Tubing is ideal for applications such as food & beverage dispensing & processing, appliance manufacturing, cosmetic production and electronic equipment.

Custom formulations can be designed to provide a combination of features, including ultra-high temperature resistance, electrical conductivity, pigmented colors and long flexural life.

For complete compliance information, visit www.processsystems.saint-gobain.com



A silicone tubing that provides elevated working pressures in a variety of applications.



After being immersed in aggressive MEK for 16 hours (plus 4 hours drying time), Tygon® Ultra Chemical Resistant Tubing is still clear and flexible while PVC tubing is completely degraded and rendered useless.

VERSILIC® HIGH-STRENGTH SILICONE PRESSURE TUBING

FORMULATION SPX-70 I.B.

- *Tough braid reinforcement permits use under elevated working pressures*
- *Taste and odor free*
- *Temperature resistant from -112°F to 320°F*
- *Withstands repeated CIP and SIP cleaning and sterilization*
- *Meets 3-A, NSF 51 and USP Class VI criteria*
- *Contains no chemicals listed in California's Prop 65*
- *Phthalates-free*

Produced from a proprietary combination of silicone elastomers, Versilic® SPX-70 IB Tubing optimizes critical physical properties such as tensile strength, elongation and compression set, resulting in a more physically durable product. Its ultra-smooth inner bore reduces the risk of particle entrapment during fluid transfer.

In addition, Versilic® High-Strength Silicone Pressure Tubing will remain resilient and durable under extreme operating temperatures and repeated cleaning and sterilization.

Versilic® Silicone Tubing is entirely non-toxic, non-hemolytic and non-pyrogenic.

TYGON® ULTRA CHEMICAL RESISTANT TUBING

FORMULATION 2375

- *Resistant to highly aggressive chemicals*
- *Plasticizer-free — minimizes risk of fluid contamination*
- *Exceptionally smooth inner surface inhibits particulate buildup*
- *Low sorption maintains fluid integrity*
- *Contains no chemicals listed in California's Prop 65*

Tygon® Ultra Chemical Resistant Tubing offers an unequaled combination of chemical resistance, clarity and flexibility. Tygon® Ultra Chemical Resistant Tubing is virtually unaffected by acids, bases, ketones, salts and alcohols, fitting the requirements of many applications from battery acid filling to hazardous material handling. It's entirely plasticizer-free, eliminating fluid contamination and the premature embrittlement and cracking common with many flexible tubings. Its exceptionally smooth inner surface inhibits particulate buildup and reduces the potential for contamination.

For complete compliance information, visit www.processsystems.saint-gobain.com

An entirely plasticizer-free Tygon® formulation developed for use in applications where extractables are a concern.

TYGON® PLASTICIZER-FREE TUBING

Formulation 2001

- *Superior flex life in peristaltic pumps*
- *Chemically resistant to a wide range of fluids*
- *Temperature resistant from -108°F to 135°F*
- *Clear for easy visual flow monitoring*
- *Contains no chemicals listed in California's Prop 65*
- *Phthalates-free*

Tygon® Plasticizer-Free Tubing is a uniquely engineered product that offers the low compression set properties of a thermoset rubber. Tygon® Plasticizer Free Tubing provides the most flexibility, highest temperature resistance and longest pump life available in a clear, plasticizer / oil free tubing. It is ideal for a broad range of applications including peristaltic pump applications, soap and detergent dispensing, water purification lines, food contact applications and chemical transfer. This uniquely engineered tubing will not embrittle or crack prematurely like other tubings that contain plasticizer or extender oils, benefiting the user with less downtime and tubing changes.

With close dimensional tolerances and outstanding elasticity, Tygothane® Precision Polyurethane Tubing provides worry-free attachment to fittings.

TYGOTHANE® PRECISION POLYURETHANE TUBING

Formulation C-210-A

- *Consistently tight dimensional tolerances*
- *Excellent abrasion and tear resistance*
- *Fuel and lubricant resistant*
- *Sub-zero temperature capabilities*
- *Contains no chemicals listed in California's Prop 65*
- *Phthalates-free*

Our rigidly controlled manufacturing process makes Tygothane® Precision Polyurethane Tubing the flexible polyurethane tubing that has consistently tight tolerances from lot to lot. Precision tolerances and high elasticity provide the user with an easy, worry-free attachment to fittings. Made of a tough, ester-based polyurethane, Tygothane® Precision Polyurethane Tubing's clarity, high tear strength and excellent abrasion resistance make it ideal for many applications, including fuel and lubricant lines, pneumatic lines, abrasive product transfer and cable jacketing. It also offers exceptional resistance to oils, greases, fuels and many chemicals.

Able to withstand rugged daily use, Tygothane® Precision Polyurethane Tubing resists weathering and can be safely used in temperatures ranging from -100°F (-73°C) to 200°F (93°C). It meets FDA criteria for food and beverage use and is also available in ether-based, medical grade and reinforced formulations.

Because of its excellent wear properties, Tygothane® frequently outperforms rubber, plastic and metal materials in the most physically demanding applications.

For extended service in a wide variety of applications, Norprene® Industrial Grade Tubing outlasts virtually all multi-service rubber tubings.

TYGOTHANE® PRECISION POLYURETHANE PRESSURE TUBING

Formulation C-544-A I.B.

- *Abrasion and tear resistant*
- *Braid reinforcement for elevated working pressures*
- *Resistant to oils, greases and fuels*
- *Flexible even in sub-zero temperatures*
- *Meets NSF 61 criteria for potable water contact**
- *Contains no chemicals listed in California's Prop 65*
- *Phthalates-free*

More flexible than many other reinforced urethane tubings, Tygothane® Pressure Tubing can be used in the most physically demanding applications, such as those requiring a tight bend radius. Specially formulated from tough, ether-based polyurethane resin, Tygothane® tubing is resistant to a range of chemicals, including oils, greases, solvents and chemicals.

Because of its excellent wear properties, Tygothane® frequently outperforms traditional rubber, plastic and metal materials when exposed to abrasive conditions. Tygothane® also is plasticizer-free, and remains flexible even when cycled through temperature extremes.

*NSF has length restriction, determined by tubing size, for NSF 61 applications.

NORPRENE® INDUSTRIAL GRADE TUBING

Formulation A-60-G

- *Superior weathering*
- *Abrasion resistant*
- *Outstanding flexural fatigue resistance*
- *Wide temperature range*
- *Low gas permeability versus rubber tubing*
- *Contains no chemicals listed in California's Prop 65*

Norprene® Industrial Grade Tubing outperforms neoprene, EPDM and other general-purpose tubings in test after test and application after application. It will not weaken or crack after years of exposure to heat and ozone.* This provides long service in a wide range of applications such as gasketing, abrasion-resistant sleeving and cable insulation. Performance formulated for on-the-job reliability, Norprene® handles temperatures from -75°F (-60°C) to 275°F (135°C), allowing the use of one material with a broad range of temperatures. It is heat sealable and can be joined without fittings. It also has excellent resistance to inorganic (acids and bases) fluids.

With its outstanding flexural fatigue resistance and high temperature capability, Norprene® Industrial Grade Tubing outlasts and outperforms virtually all other general service tubings in peristaltic and vacuum pump applications.

*500 pphm

For complete compliance information, visit www.processsystems.saint-gobain.com

Designed for safe and efficient handling of most petroleum-based products, Tygon® Fuel and Lubricant Tubing resists embrittlement, cracking and swelling.

Tygon® UV Resistant Tubing protects light-sensitive fluids while resisting degradation from ozone and ultraviolet light.

TYGON® FUEL AND LUBRICANT TUBING

FORMULATION F-4040-A

- *Resists embrittlement*
- *Compatible with most petroleum-based products*
- *Resists swelling and cracking*
- *Ozone and UV light resistant*
- *Contains no chemicals listed in California's Prop 65*

A consistent performer lot after lot, Tygon® Fuel and Lubricant Tubing is the most requested fuel and lubricant tubing for a variety of applications — from small engine fuel lines to coolant transfer. Specifically designed to handle most fuels and industrial lubricants, Tygon® Fuel and Lubricant Tubing resists the swelling and hardening caused by hydrocarbon-based fluids. This significantly reduces the risk of failure due to cracking and leakage. Its minimum extractability safeguards the liquid or vapor being transferred against adulteration.

Extremely flexible (Shore A, 57), Tygon® Fuel and Lubricant Tubing simplifies installation, even in tight places. It is translucent yellow for positive identification and to allow easy flow monitoring. It is routinely used to handle gasoline, kerosene, heating oils, cutting compounds and glycol-based coolants.

TYGON® UV RESISTANT TUBING

FORMULATION R-3400

- *Black in color, protects light-sensitive fluids*
- *Wide range of chemical resistance*
- *Ozone resistant*
- *Excellent burn resistance*
- *Contains no chemicals listed in California's Prop 65*

Ideal for virtually any permanent or temporary chemical transfer application, Tygon® UV Resistant Tubing combines suppleness and flexibility with resistance to a wide range of chemicals. It shows exceptional resistance to strong acids and many alkalies. The flexibility of Tygon® UV Resistant Tubing makes it quick and easy to put into service, providing considerable savings on installation time and cost. Black in color, it is resistant to ultraviolet light, ozone and weathering, making it ideal for many outdoor applications. Standard inventoried sizes of Tygon® UV Resistant Tubing have sufficient wall thickness to block transmission of all UV light.

In-house testing also indicates a UL 94V-O and UL 94HB flammability rating.

For complete compliance information, visit www.processsystems.saint-gobain.com

Resistant to corrosive chemicals and solvents, Fluran® Severe Environment Tubing is designed to handle the most aggressive solutions at temperatures as high as 400°F.

Chemically resistant and non-contaminating, Tygon® Inert Tubing provides the outstanding clarity and flexibility of Tygon® tubing, combined with the inertness of a fluoropolymer.

FLURAN® SEVERE ENVIRONMENT TUBING

Formulation F-5500-A

- *Provides continuous service at temperatures up to 400°F (204°C)*
- *Excellent resistance to corrosive chemicals, oils, fuels and solvents*
- *Resists ozone, sunlight and weathering*
- *Opaque black color helps protect light sensitive fluids*
- *Contains no chemicals listed in California's Prop 65*

Made of a proprietary fluoroelastomer, Fluran® Severe Environment Tubing has both the physical and chemical characteristics that make it ideal for severe environments, such as dry cleaning fluid lines and solvent recovery systems, where other flexible tubings fail. Fluran® Severe Environment Tubing can be used in continuous service with temperatures as high as 400°F (204°C) and has excellent resistance to corrosive chemicals, oils, fuels, solvents and most mineral acids.

This opaque, black tubing helps protect light-sensitive materials being transferred and will not prematurely crack and age when exposed to ozone, sun and weather. It is highly flexible and resilient, making it the ideal choice in peristaltic pumping of extremely corrosive materials.

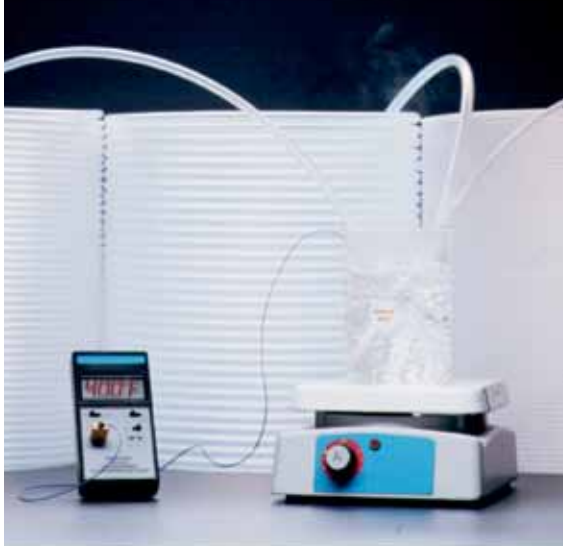
TYGON® INERT TUBING

Formulation SE-200

- *Crystal clear for easy visual flow monitoring*
- *Better flexibility than typical rigid fluoropolymer tubings*
- *Chemically resistant and inert*
- *Non-contaminating fluid path*
- *Contains no chemicals listed in California's Prop 65*
- *Phthalates-free*

Without sacrificing the flexibility, glass-like clarity or outstanding bend radius for which Tygon® tubing is known, Tygon® Inert Tubing can handle many applications where flexible tubing of the past could not be used. Its FEP inner liner provides the ultimate in chemical resistance and can handle a wide variety of fluids from corrosives to MEK-based solvents. The liner is inert, meaning it will not extract or contaminate fluids being transferred. The fluid path will not impart odor or taste, making it well-suited for food and beverage use. It meets FDA criteria for food and beverage applications.

Tygon® Inert Tubing combines all the benefits of Tygon® with the inertness of a fluoropolymer, providing superior performance in many applications and industries.



Chemfluor® tubings are made using fluoropolymers under strictly controlled processing conditions.

CHEMFLUOR® TUBING

FEP, PFA, PTFE

- *Ultra-pure*
- *Non-toxic*
- *Chemically inert*
- *Wide temperature capabilities*
- *Contains no chemicals listed in California's Prop 65*

Chemfluor® fluoropolymer tubings have outstanding chemical and physical properties and can be used in a broad range of temperatures, from -400°F to 500°F, depending on the polymer type. Chemfluor® tubings are available in a variety of different polymer types including FEP, PFA and PTFE. The primary differences among them are use temperature, clarity and mechanical strength, while several chemical and physical properties are common to all. No plasticizers, stabilizers or fillers are used, so they are pure and non-contaminating. Unlike metal and rubber alternatives, Chemfluor® tubings are non-corroding and non-oxidizing. Unlike other plastic materials, they are unaffected by solvents, acids and fuels.

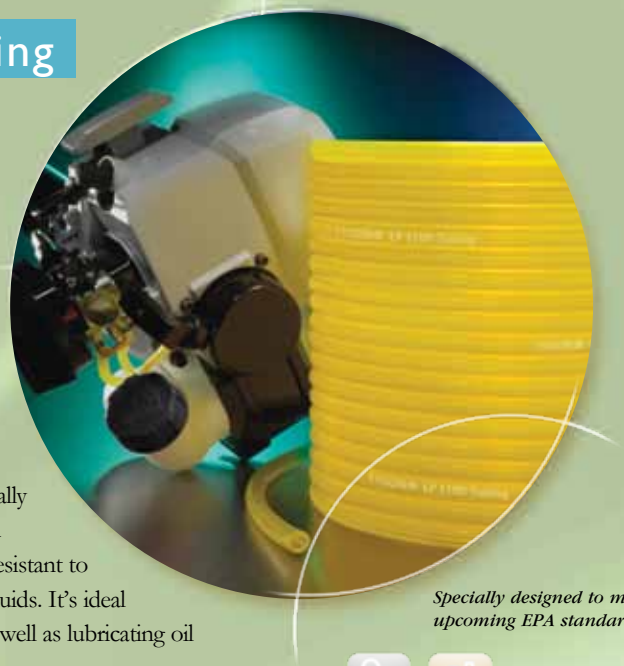
For complete compliance information, visit www.processsystems.saint-gobain.com

TYGON®

Low Permeation Fuel Tubing

TYGON® LP 1100

- *EPA and CARB certified*
- *U.S. patent #8,092,881*
- *Ozone and UV light resistant*
- *Fluoropolymer liner compatible with 100% ethanol*
- *High abrasion, cut and tear resistance for longer service life*
- *Not recommeded for reuse in submersible applications*



Specially designed to meet upcoming EPA standards

Tygon® LP 1100 Patented Low Permeation Fuel Tubing is specially designed to meet the new EPA and CARB evaporation emission standards of 15g/m²/day. Its robust multi-layer construction is resistant to swelling, hardening and cracking caused by hydrocarbon-based fluids. It's ideal for lawn and garden power equipment, small engine fuel lines as well as lubricating oil and grease transfer lines. It is available in custom sizes and colors.

TYGON® LP 1500

- *EPA and CARB certified to meet permeation emission standards of 15g/m²/day*
- *Compatible with E-10 ethanol blend fuel*
- *Highly flexible and kink resistant*
- *Wide temperature range from -40°F to 185°F*
- *U.S. patent #7,866,348B*

Specially designed to meet new government regulatory standards, Tygon® LP 1500 Low Permeation Fuel Tubing is an environmentally responsible tubing for small engine fuel line applications. The tubing's robust, multi-layer design features barriers to minimize permeation, with a chemical and fuel resistant inner layer and a UV resistant outer jacket to prevent premature aging. Offering superior clarity and flexibility, Tygon® LP 1500 provides easy observation of fuel flow and is ideal for hand-held outdoor power equipment.

TYGON® LP 1600

- *EPA and CARB certified for low permeation standards of 15g/m²/day*
- *Excellent resistance to hydrocarbon-based fuels*
- *Fluoropolymer liner compatible with 100% ethanol*
- *Superior flexibility and kink resistance*
- *Patent pending*

Tygon® LP 1600 Low Permeation Fuel Tubing is specially formulated for marine outboard fuel delivery applications and meets the government's new emission standards for clean air. EPA and CARB certified, Tygon® LP 1600 features a highly fuel-resistant, ethanol-compatible inner layer, with a robust design that ensures safe fuel transfer from the tank to the engine. It provides excellent fitting retention and fast, easy assembly.

TYGON®

Custom Products

Excellence…

We strive for it everyday – just like

we have been doing for more than 60 years.

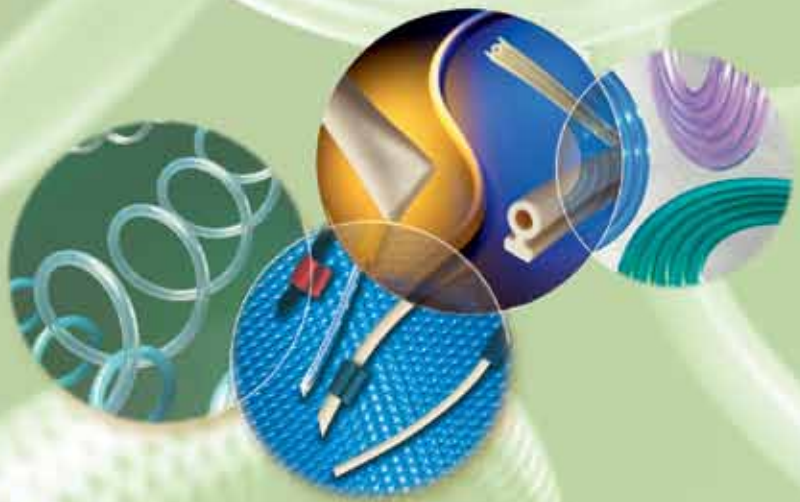
As a world leader in engineered plastics design,
and the world's largest processor of advanced polymers,
Saint-Gobain is where industry-leading companies turn
for products that deliver performance, quality and innovation.

Custom Services

- *Profiles*
- *Special Lengths*
- *Multi-Layer Products*
- *Antimicrobial Liner*
- *Custom Colors*
- *Custom Layline*

Saint-Gobain works closely with leading raw material suppliers
to capitalize on the latest polymer innovations and
developmental grades of new materials. Because of this, we can develop
innovative new products customized to meet specific user needs.
Products can be manufactured in a wide variety of materials,
in different sizes and colors or with specified tolerances. We can extrude
profiles, antimicrobial tubing, conductive tubing and multi-layer tubing
(to improve taste barrier or chemical/permeation resistance),
and also provide coiling and heat sealed ends. We can also meet special
packaging requirements, including custom branding on our products.

The following pages describe some of the specific
custom products and services we offer.
Contact customer service at (800) 798-1554
to obtain quotations on any of
our custom tubing products.



Vendflow® Taste Barrier Tubing

Formulation E-70-V-CE

- *Plasticizer-free fluid pathway*
- *Hydrophobic inner surface reduces taste transfer*
- *Extremely low absorption rate*
- *Smooth inner surface*
- *Phthalates-free*

Specially formulated to transfer water and beverages, Vendflow® E-70-V-CE will not impart any "plastic" taste, as is sometimes found with other tubing. Its exceptional flexibility allows for tight bends and easy installation. Vendflow® E-70-V-CE can be produced in a variety of hardnesses, colors, sizes and lengths to match user requirements.

Specially made for water and beverage transfer applications with strict taste requirements

Provides outstanding chemical resistance and long flex life

Norprene® Chemical

- *Plasticizer-free bore*
- *Long flex life in peristaltic pumps*
- *Excellent chemical resistance*
- *Available in both food grade and industrial grade*
- *Phthalates-free*

Norprene® Chemical Tubing is a high performance co-extruded product specifically formulated for use in applications where extractables are a concern. Its inert plasticizer-free bore is taste-free and ultra-smooth for improved flushability. Norprene® Chemical Tubing is available in various durometers to meet the needs of your pump application, has excellent chemical resistance to harsh chemicals, and is available in both food grade and industrial grade.

Autoanalysis Tubing (TAAT)

- *Broad selection of formulations to meet specific needs*
- *Technical assistance available to assist in tubing formulation and configuration choices*

Major autoanalyzer equipment and micro-pump manufacturers rely on Saint-Gobain's knowledge of polymers and extensive experience with the specific demands required of peristaltic pump tubing. To assure optimum tubing formulation and configuration choices are made, Saint-Gobain can provide technical assistance in the early stages of development. Choices can be tailored to your own specifications or selected from hundreds of current formulations.

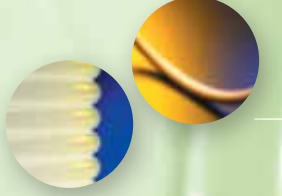
Saint-Gobain leads the way in Autoanalysis Tubing

Custom Tubing Formulations

- *Over 1,000 formulations currently available*
- *Durometer ranges from Shore A38 to Shore D72*
- *Custom compounds can be formulated to match user requirements*
- *Phthalates-free*

Saint-Gobain's commitment to materials research and development continually provides innovative solutions to the challenges of today's applications. Saint-Gobain compounds its own materials to specific formulation requirements using select ingredients which have been carefully qualified and specified. Final product inspection can include burst testing, flow rate testing or measurement of other key performance characteristics in Saint-Gobain's own testing laboratory.

Quality begins with controlling the "mix"



CHEMICAL RESISTANCE PROPERTIES OF TUBING

The ratings in the charts on pages 22 to 25 are based on the results of laboratory tests. They reflect the relative capabilities of various Saint-Gobain's tubing formulations to withstand specific chemicals. NOTE: The ratings in the charts DO NOT reflect the extent to which extraction may occur, or the extent to which fluids may undergo any physical changes in properties or composition, as a result of coming into contact with the tubing. Saint-Gobain makes no representation or warranty with respect to the susceptibility of any fluid to become contaminated or undergo changes in properties or composition as a result of possible extraction of tubing ingredients by the fluid to be transmitted. Certain corrosives that would be destructive to tubing with prolonged exposure can be satisfactorily handled for short periods of time if flushed with water after use. All ratings are based on room temperature (73°F). Chemical resistance will be adversely affected by elevated temperatures.

IMPORTANT: It is the user's responsibility to ensure the suitability and safety of Saint-Gobain tubing for all intended uses, including establishing the compatibility of any fluid with the tubing through which it is transmitted. Laboratory, field or clinical tests must be conducted in accordance with applicable requirements in order to determine the safety and effectiveness for use of tubing in any particular application. If intended for medical use, it is the user's responsibility to ensure that the tubing to be used complies with all applicable medical regulatory requirements.

KEY

E Excellent
G Good
F Fair
X Not Recommended

Environment, % Conc.*
w-Water alc-Alcohol

Environment, % Conc.*	Tygon S3™ B-44-3	Tygon S3™ B-44-4X	Tygon S3™ B-44-4X I.B.	Tygon S3™ Silver	Tygon S3™ E-3603	Tygon S3™ E-LFL	Norprene® A-60-F	Norprene® A-60-F I.B.	Tygoprene® XL-60	Versilic® SPX-50	Versilic® SPX-70 I.B.	Tygon® 2375	Tygon® 2001	Tygothane® C-210-A	Tygothane® C-544-A I.B.	Norprene® A-60-G	Tygon® F-4040-A	Tygon® R-3400	Fluran® F-5500-A	Tygon® SE-200	Chemfluor® FEP	Chemfluor® PFA	Chemfluor® PTFE
Acetaldehyde	X	X	X	F	X	X	X	X	F	F	F	F	X	X	X	X	X	X	X	E	E	E	E
Acetamide, 67% in w	X	X	X	E	X	X	G	G	G	G	G	E	G	X	X	G	X	X	X	E	E	E	E
Acetate Solvents (general)	X	X	X	X	X	X	G	G	X	X	X	X	X	X	X	G	X	X	X	E	E	E	E
Acetic Acid, 10% in w	E	E	E	E	E	E	E	E	E	E	E	E	G	G	G	E	E	E	X	E	E	E	E
Acetic Acid, 50-60% in w	G	G	G	E	E	E	G	G	E	E	E	E	E	X	X	G	E	E	X	E	E	E	E
Acetic Acid, Glacial, 100%	F	F	F	F	F	F	G	G	F	X	X	E	G	X	X	G	X	X	X	E	E	E	E
Acetic Anhydride	X	X	X	E	X	X	E	E	E	F	F	E	E	X	X	E	X	X	X	E	E	E	E
Acetone	X	X	X	G	X	X	X	X	X	X	X	G	F	X	X	X	X	X	X	E	E	E	E
Acetonitrile	X	X	X	G	X	X	G	G	X	X	X	G	G	X	X	G	X	X	X	E	E	E	E
Acetyl Bromide	X	X	X	X	X	X	F	F	F	X	X	X	F	X	X	F	X	X	X	E	E	E	E
Acetyl Chloride	X	X	X	X	X	X	F	F	F	X	X	X	F	X	X	F	X	X	X	E	E	E	E
Acetylene Gas	E	E	E	E	E	E	E	E	E	F	F	E	E	E	E	E	E	E	E	E	E	E	E
Acrylonitrile	X	X	X	G	X	X	G	G	X	X	X	G	G	X	X	G	X	X	X	E	E	E	E
Adipic Acid, 100% in alc	X	X	X	X	X	X	G	G	F	X	X	X	G	X	X	G	F	X	X	E	E	E	E
Air	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Alcohols General	X	X	X	E	X	X	E	E	F	E	E	E	E	X	X	E	G	X	X	E	E	E	E
Aliphatic Hydrocarbons	X	X	X	X	X	X	X	X	X	X	X	X	X	G	G	X	G	F	G	E	E	E	E
Allyl Alcohol	X	X	X	E	X	X	F	F	F	X	X	E	E	X	X	F	E	X	E	E	E	E	E
Alum, 5% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Aluminum Chloride, 53% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Aluminum Hydroxide, 2% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Aluminum Sulfate, 50% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Aluminum Salts	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Amines	X	X	X	X	X	X	F	F	F	X	X	X	X	X	X	F	X	X	X	E	E	E	E
Ammonia Gas	E	E	E	E	E	E	E	E	E	X	X	E	E	G	G	E	E	E	X	E	E	E	E
Ammonia, Anhydrous Liquid	G	G	G	G	G	G	G	G	E	X	X	G	G	F	F	G	G	G	X	G	E	E	E
Ammonium Acetate, 45% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	G	G	E	E	E	X	E	E	E	E
Ammonium Carbonate, 50% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Ammonium Hydroxide, 5-10% in w	E	E	E	E	E	E	E	E	E	X	X	E	E	E	E	E	G	E	X	E	E	E	E
Ammonium Hydroxide, 30% in w	E	E	E	E	E	E	E	E	E	X	X	E	E	F	F	E	F	G	X	E	E	E	E
Ammonium Persulfate, 30% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Ammonium Salts	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Ammonium Sulfate, 30% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Amyl Acetate	X	X	X	X	X	X	G	G	X	X	X	X	X	X	X	G	X	X	X	E	E	E	E
Amyl Alcohol	X	X	X	E	X	X	X	X	X	X	X	E	E	F	F	X	E	X	E	E	E	E	E
Amyl Chloride	X	X	X	X	X	X	F	F	X	X	X	X	X	X	X	F	X	X	X	E	E	E	E
Aniline	X	X	X	X	X	X	F	F	X	X	X	X	X	X	X	F	X	X	X	E	E	E	E
Aniline Hydrochloride	X	X	X	X	X	X	F	F	X	X	X	X	X	X	X	F	X	X	X	E	E	E	E
Antimony Salts	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Aqua Regia	X	X	X	E	X	X	X	X	E	X	X	E	E	X	X	X	X	G	X	G	G	E	E
Aromatic Hydrocarbons	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	E	E	E	E
Arsenic Acid, 20% in w	E	E	E	E	E	E	F	F	F	X	X	E	E	E	E	F	E	E	E	E	E	E	E
Arsenic Salts	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
ASTM Reference No. 1 Oil	X	X	X	X	X	X	F	F	X	G	G	X	X	E	E	F	E	X	E	E	E	E	E
ASTM Reference No. 2 Oil	X	X	X	X	X	X	X	X	X	G	G	X	X	E	E	X	E	X	E	E	E	E	E
ASTM Reference No. 3 Oil	X	X	X	X	X	X	X	X	X	X	X	X	X	E	E	X	E	X	E	E	E	E	E
Barium Carbonate, 1% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Barium Hydroxide, 5% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Beer	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Benzaldehyde	X	X	X	F	X	X	X	X	X	F	F	F	F	X	X	X	X	X	X	E	E	E	E
Benzene	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	E	E	E	E
Benzenesulfonic Acid	X	X	X	X	X	X	X	X	E	X	X	X	X	X	X	X	X	X	X	E	E	E	E
Benzoic Acid	X	X	X	X	X	X	G	G	X	X	X	X	X	X	X	G	F	X	X	E	E	E	E
Benzyl Alcohol	X	X	X	E	X	X	E	E	X	E	E	E	E	X	X	E	X	X	E	E	E	E	E
Bleach Liquor, 22% in w	G	G	G	G	F	F	E	E	E	G	G	E	E	G	G	E	E	E	E	E	E	E	E
Borax, 6% in w	E	E	E	E	E	E	E	E	E	G	G	E	E	E	E	E	E	E	E	E	E	E	E
Boric Acid, 4% in w	E	E	E	E	E	E	E	E	E	G	G	E	E	E	E	E	E	E	E	E	E	E	E
Bromine, Anhydrous Liquid	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Butadiene	E	E	E	G	E	E	E	E	E	E	E	G	G	E	E	E	E	E	E	E	E	E	E
Butane	E	E	E	G	E	E	E	E	E	E	E	G	G	E	E	E	E	E	E	E	E	E	E
Butyl Acetate	X	X	X	X	X	X	G	G	X	X	X	X	X	X	X	G	X	X	X	E	E	E	E
Butyl Alcohol	X	X	X	E	X	X	X	X	E	X	X	E	E	F	F	X	E	X	E	E	E	E	E
Butyric Acid	X	X	X	X	X	X	G	G	E	X	X	X	X	X	X	G	F	X	X	E	E	E	E
Calcium Carbonate, 25% in dilute acids	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Calcium Chloride, 30% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Calcium Hydroxide, 10% in glycerol	E	E	E	E	E	E	E	E	E	G	G	E	E	X	X	E	X	E	E	E	E	E	E
Calcium Hypochlorite, 20% in w	E	E	E	E	E	E	E	E	E	G	G	E	E	G	G	E	E	E	E	E	E	E	E

* If concentration is not indicated, assume 100% concentration or the maximum percent solubility in water.
NOTE: Concentrations of room temperature liquids are given in % volume. Concentrations of room temperature solids are given in % weight.

KEY

E Excellent
G Good
F Fair
X Not Recommended

Environment, % Conc.*
w-Water alc-Alcohol

Environment, % Conc.*	Tygon S3™ B-44-3	Tygon S3™ B-44-4X	Tygon S3™ B-44-4X I.B.	Tygon S3™ Silver	Tygon S3™ E-3603	Tygon S3™ E-LFL	Norprene® A-60-F	Norprene® A-60-F I.B.	Tygoprene® XL-60	Versilic® SPX-50	Versilic® SPX-70 I.B.	Tygon® 2375	Tygon® 2001	Tygothane® C-210-A	Tygothane® C-544-A I.B.	Norprene® A-60-G	Tygon® F-4040-A	Tygon® R-3400	Fluran® F-5500-A	Tygon® SE-200	Chemfluor® FEP	Chemfluor® PFA	Chemfluor® PTFE
Calcium Nitrate, 55% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Calcium Salts	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Calcium Sulfate, 1% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Carbon Dioxide, Wet/Dry	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Carbon Disulfide	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	G	E	E	E	E
Carbon Monoxide	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Carbon Tetrachloride	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	E	E	E	E
Carbonic Acid	E	E	E	E	E	E	E	E	E	G	G	E	E	E	E	E	E	E	E	E	E	E	E
Castor Oil	F	F	F	G	X	X	F	F	F	E	E	G	G	E	E	F	E	G	E	E	E	E	E
Cellosolve	X	X	X	X	X	X	F	F	X	X	X	X	X	X	X	F	F	X	X	E	E	E	E
Cellosolve Acetate	X	X	X	X	X	X	F	F	X	X	X	X	X	X	X	F	F	X	X	E	E	E	E
Chlorine, Dry Gas	E	E	E	F	E	E	F	F	G	X	X	F	F	F	F	F	E	E	E	E	E	E	E
Chlorine, Wet Gas	F	F	F	F	F	F	X	X	F	X	X	F	F	X	X	X	E	E	E	E	E	E	E
Chloroacetic Acid, 20% in w	E	E	E	E	E	E	G	G	E	G	G	E	E	X	X	G	X	E	X	E	E	E	E
Chlorobenzene, Mono, Di, Tri	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	E	E	E	E
Chloroform	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	F	E	E	E	E
Chlorosulfonic Acid	X	X	X	X	X	X	X	X	E	X	X	X	X	X	X	X	X	X	X	E	E	E	E
Chromic Acid, 10-20% in w	E	E	E	E	G	G	E	E	E	X	X	E	E	X	X	E	F	E	E	E	E	E	E
Chromic Acid, 50% in w	F	F	F	F	F	F	F	F	G	X	X	G	G	X	X	F	X	E	E	E	E	E	E
Citric Acid, 10-20% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	G	G	E	E	E	E	E	E	E	E
Coconut Oil	F	F	F	G	X	X	F	F	F	E	E	G	G	E	E	F	E	G	E	E	E	E	E
Corn Syrup	E	E	E	E	E	E	E	E	G	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Cottonseed Oil	F	F	F	G	X	X	F	F	F	E	E	G	F	E	E	F	E	G	E	E	E	E	E
Cresol (m, o, or p)	G	G	G	G	F	F	X	X	X	G	G	E	E	X	X	X	F	F	E	E	E	E	E
Cresylic Acid	X	X	X	X	X	X	G	G	X	X	X	X	X	X	X	G	F	X	X	E	E	E	E
Cupric Chloride, 40% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Cupric Nitrate, 70% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Cupric Sulfate, 13% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Cyclohexane	X	X	X	X	X	X	X	X	X	X	X	X	X	G	G	X	F	X	E	E	E	E	E
Cyclohexanone	X	X	X	F	X	X	X	X	X	X	X	F	F	X	X	X	X	X	X	E	E	E	E
Detergent Solutions	E	E	E	E	E	E	G	G	G	G	G	E	E	E	E	G	E	E	E	E	E	E	E
Dibutyl Phthalate	F	F	F	E	F	F	E	E	F	E	E	E	E	X	X	E	F	F	E	E	E	E	E
Diesel Fuel	X	X	X	X	X	X	X	X	X	X	X	X	X	G	G	X	G	X	E	E	E	E	E
Diethylamine, 2.5% in w	E	E	E	E	E	E	E	E	E	X	X	E	E	E	E	E	F	E	X	E	E	E	E
Diethylene Glycol	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Dimethylformamide	X	X	X	E	X	X	G	G	E	G	G	E	E	X	X	G	X	X	X	E	E	E	E
Dimethylsulfoxide	X	X	X	G	X	X	G	G	X	X	X	G	G	X	X	G	X	X	X	E	E	E	E
Dioctyl Phthalate	F	F	F	E	F	F	E	E	F	E	E	E	E	X	X	E	F	F	E	E	E	E	E
Dioxane	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	E	E	E	E
Ether	X	X	X	X	X	X	F	F	X	X	X	X	X	X	X	F	F	X	X	E	E	E	E
Ethyl Acetate	X	X	X	X	X	X	G	G	E	X	X	X	X	X	X	G	X	X	E	E	E	E	E
Ethyl Alcohol (Ethanol)	X	X	X	E	X	X	F	F	E	F	F	E	E	X	X	F	G	X	X	E	E	E	E
Ethyl Benzoate	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	E	E	E	E
Ethyl Chloride	X	X	X	X	X	X	F	F	E	X	X	X	X	X	X	F	X	X	X	E	E	E	E
Ethyl Ether	X	X	X	X	X	X	F	F	X	X	X	X	X	X	X	F	F	X	X	E	E	E	E
Ethylene Bromide	X	X	X	F	X	X	X	X	X	E	E	F	F	X	X	X	X	X	E	G	E	E	E
Ethylene Chlorohydrin	X	X	X	E	X	X	E	E	E	G	G	E	E	X	X	E	G	X	X	E	E	E	E
Ethylene Dichloride	X	X	X	X	X	X	F	F	E	X	X	X	X	X	X	F	X	X	X	E	E	E	E
Ethylene Glycol	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Ethylene Oxide	E	E	E	E	E	E	E	E	E	F	F	E	E	E	E	E	E	E	E	E	E	E	E
Fatty Acids	X	X	X	F	X	X	F	F	E	F	F	F	F	G	G	F	G	F	E	E	E	E	E
Ferric Chloride, 43% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Ferric Nitrate, 60% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Ferric Sulfate, 5% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Ferrous Chloride, 40% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Ferrous Sulfate, 5% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Fluoboric Acid, 48% in w	F	F	F	F	E	F	X	X	E	X	X	E	E	X	X	X	X	X	E	E	E	E	E
Fluorine Gas	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	G	X	G	G	G
Fluosilicic Acid, 25% in w	E	E	E	E	E	E	E	E	E	X	X	E	E	E	E	E	E	E	E	E	E	E	E
Formaldehyde, 37% in w	X	X	X	F	X	X	X	X	E	F	F	F	F	X	X	X	X	X	X	E	E	E	E
Formic Acid, 25% in w	E	E	E	E	E	E	E	E	E	G	G	E	E	F	F	E	F	E	E	E	E	E	E
Formic Acid, 40-50% in w	G	G	G	E	G	G	G	G	E	F	F	E	E	X	X	G	X	G	F	E	E	E	E
Formic Acid, 98% in w	F	F	F	F	F	F	G	G	E	F	F	E	E	X	X	G	X	G	X	E	E	E	E
Freon 11	E	E	E	E	E	E	E	E	G	E	E	E	E	E	E	E	E	E	G	F	F	E	E
Freon 12	E	E	E	E	E	E	E	E	G	E	E	E	E	E	E	E	E	E	G	F	F	E	E
Freon 22	E	E	E	E	E	E	E	E	G	E	E	E	E	E	E	E	E	E	G	F	F	E	E
Fruit Juice	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Fuel Oil	X	X	X	X	X	X	X	X	X	X	X	X	X	G	G	X	G	X	E	E	E	E	E
Furfural	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	E	E	E	E
Gallic Acid, 17% in acetone	X	X	X	X	X	X	G	G	X	X	X	X	X	X	X	G	F	X	X	E	E	E	E
Gasoline, Automotive	X	X	X	X	X	X	X	X	X	X	X	X	X	G	G	X	G	X	E	E	E	E	E
Gelatin	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Glucose, 50% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Glycerol, (Glycerin)	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Glycolic Acid, 70% in w	G	G	G	E	E	E	G	G	G	E	E	E	E	X	X	G	E	E	X	E	E	E	E
Heptane	X	X	X	X	X	X	X	X	X	X	X	X	X	G	G	X	G	F	G	E	E	E	E
Hexane	X	X	X	X	X	X	X	X	X	X	X	X	X	G	G	X	G	F	G	E	E	E	E
Hydrazine	X	X	X	X	X	X	F	F	X	X	X	X	X	X	X	F	X	X	X	E	E	E	E
Hydrobromic Acid, 20-50% in w	E	E	E	E	E	E	X	X	E	X	X	E	E	X	X	X	E	E	E	E	E	E	E
Hydrobromic Acid, 100% in w	F	F	F	F	F	F	X	X	E	X	X	E	E	X	X	X	X	X	E	E	E	E	E
Hydrochloric Acid, 10% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	F	F	E	E	E	E	E	E	E	E
Hydrochloric Acid, 37% in w	F	F	F	F	F	F	G	G	E	X	X	E	E	X	X	G	X	E	G	E	E	E	E
Hydrocyanic Acid	E	E	E	E	E	E	E	E	E	E	E	E	E	G	G	E	E	E	X	E	E	E	E

* If concentration is not indicated, assume 100% concentration or the maximum percent solubility in water.
NOTE: Concentrations of room temperature liquids are given in % volume. Concentrations of room temperature solids are given in % weight.

KEY

E Excellent
G Good
F Fair
X Not Recommended

Environment, % Conc.*
w-Water alc-Alcohol

Environment, % Conc.*	Tygon S3™ B-44-3	Tygon S3™ B-44-4X	Tygon S3™ B-44-4X I.B.	Tygon S3™ Silver	Tygon S3™ E-3603	Tygon S3™ E-LFL	Norprene® A-60-F	Norprene® A-60-F I.B.	Tygoprene® XL-60	Versilic® SPX-50	Versilic® SPX-70 I.B.	Tygon® 2375	Tygon® 2001	Tygothane® C-210-A	Tygothane® C-544-A I.B.	Norprene® A-60-G	Tygon® F-4040-A	Tygon® R-3400	Fluran® F-5500-A	Tygon® SE-200	Chemfluor® FEP	Chemfluor® PFA	Chemfluor® PTFE
Hydrofluoric Acid, 10% in w	E	E	E	E	E	E	X	X	E	X	X	E	E	X	X	X	E	E	E	E	E	E	E
Hydrofluoric Acid, 25% in w	F	F	F	F	F	F	X	X	E	X	X	E	E	X	X	X	X	X	E	E	E	E	E
Hydrofluoric Acid, 40-48% in w	F	F	F	F	X	X	X	X	E	X	X	E	E	X	X	X	X	X	E	E	E	E	E
Hydrogen Gas	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Hydrogen Peroxide, 3% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Hydrogen Peroxide, 10% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Hydrogen Peroxide, 30% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	F	F	E	X	E	E	E	E	E	E
Hydrogen Peroxide, 90% in w	F	F	F	G	X	X	G	G	E	F	F	G	G	X	X	G	X	F	E	E	E	E	E
Hydrogen Sulfide	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Hydroquinone, 7% in w	E	E	E	E	E	E	G	G	G	F	F	E	E	E	E	G	E	E	E	E	E	E	E
Hypochlorous Acid, 25% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	F	F	E	E	E	E	E	E	E	E
Iodine, 50 ppm in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Isobutyl Alcohol	X	X	X	E	X	X	F	F	F	X	X	E	E	X	X	F	E	X	E	E	E	E	E
Isooctane	X	X	X	X	X	X	X	X	X	X	X	X	X	G	G	X	G	X	E	E	E	E	E
Isopropyl Acetate	X	X	X	X	X	X	G	G	X	X	X	X	X	X	X	G	X	X	E	E	E	E	E
Isopropyl Alcohol	X	X	X	E	X	X	F	F	F	X	X	E	E	X	X	F	E	X	E	E	E	E	E
Isopropyl Ether	X	X	X	X	X	X	F	F	X	X	X	X	X	X	X	F	F	X	X	E	E	E	E
Jet Fuel, JP8	X	X	X	X	X	X	X	X	X	X	X	X	X	G	G	X	G	X	E	E	E	E	E
Kerosene	X	X	X	X	X	X	X	X	X	X	X	X	X	G	G	X	G	X	E	E	E	E	E
Ketones	X	X	X	F	X	X	X	X	X	X	X	F	F	X	X	X	X	X	X	E	E	E	E
Lacquer Solvents	X	X	X	X	X	X	G	G	X	X	X	X	X	X	X	G	X	X	X	E	E	E	E
Lactic Acid, 3-10% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	G	G	E	E	E	X	E	E	E	E
Lactic Acid, 85% in w	X	X	X	E	X	X	G	G	E	X	X	E	E	X	X	G	X	X	X	E	E	E	E
Lard, Animal Fat	F	F	F	G	F	F	F	F	F	E	E	G	G	E	E	F	E	G	E	E	E	E	E
Lead Acetate, 35% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Lead Salts	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Lemon Oil	X	X	X	X	X	X	X	X	X	X	X	X	X	G	G	X	F	X	E	E	E	E	E
Limonene-D	X	X	X	X	X	X	X	X	X	X	X	X	X	G	G	X	F	X	E	E	E	E	E
Linoleic Acid	X	X	X	F	X	X	F	F	F	F	F	F	F	G	G	F	G	F	E	E	E	E	E
Linseed Oil	F	F	F	G	X	X	F	F	X	E	E	G	G	E	E	F	E	G	E	E	E	E	E
Lubricating Oils, Petroleum	X	X	X	X	X	X	X	X	X	G	G	X	X	E	E	X	E	X	E	E	E	E	E
Magnesium Carbonate, 1% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Magnesium Chloride, 35% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Magnesium Hydroxide,10% in dil. acid	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Magnesium Nitrate, 50% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Magnesium Sulfate, 25% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Maleic Acid, 30% in w	X	X	X	F	X	X	F	F	F	F	F	F	F	G	G	F	G	F	E	E	E	E	E
Malic Acid, 36% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	G	G	E	E	E	X	E	E	E	E
Manganese Salts	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Mercuric Chloride, 6% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Mercuric Cyanide, 8% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Mercury	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Mercury Salts	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Methane Gas	E	E	E	E	E	E	E	E	E	F	F	E	E	E	E	E	E	E	E	E	E	E	E
Methyl Acetate	X	X	X	X	X	X	G	G	X	X	X	X	X	X	X	G	X	X	X	E	E	E	E
Methyl Bromide	X	X	X	X	X	X	F	F	X	X	X	X	X	X	X	F	X	X	X	E	E	E	E
Methyl Chloride	X	X	X	X	X	X	F	F	X	X	X	X	X	X	X	F	X	X	X	E	E	E	E
Methyl Ethyl Ketone	X	X	X	F	X	X	X	X	X	X	X	F	F	X	X	X	X	X	X	E	E	E	E
Methyl Isobutyl Ketone	X	X	X	F	X	X	X	X	X	X	X	F	F	X	X	X	X	X	X	E	E	E	E
Methylene Chloride	X	X	X	X	X	X	F	F	X	X	X	X	X	X	X	F	X	X	X	E	E	E	E
Methyl Methacrylate	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	F	E	E	E	E
Milk	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Mineral Oil	G	G	G	X	G	G	X	X	F	X	X	X	X	E	E	X	E	E	E	E	E	E	E
Mineral Spirits	X	X	X	X	X	X	X	X	X	X	X	X	X	G	G	X	G	X	E	E	E	E	E
Molasses	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Monoethanolamine	X	X	X	X	X	X	F	F	E	X	X	X	X	X	X	F	X	X	X	E	E	E	E
Motor Oil	X	X	X	X	X	X	X	X	X	X	X	X	X	E	E	X	E	X	E	E	E	E	E
Naphtha	X	X	X	X	X	X	X	X	X	X	X	X	X	G	G	X	G	X	E	E	E	E	E
Naphthalene	X	X	X	X	X	X	X	X	X	X	X	X	X	G	G	X	G	X	E	E	E	E	E
Natural Gas	E	E	E	E	E	E	E	E	E	F	F	E	E	E	E	E	E	E	E	E	E	E	E
Nickel Chloride, 40% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Nickel Nitrate, 75% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Nickel Salts	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Nickel Sulfate, 25% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Nitric Acid, 10% in w	E	E	E	E	E	E	E	E	E	F	F	E	E	X	X	E	X	E	E	E	E	E	E
Nitric Acid, 35% in w	G	G	G	G	G	G	E	E	E	X	X	E	E	X	X	E	X	E	F	E	E	E	E
Nitric Acid, 68-71% in w	X	X	X	E	X	X	X	X	E	X	X	E	E	X	X	X	X	G	X	G	G	E	E
Nitrobenzene	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	E	E	E	E	E
Nitromethane	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	E	E	E	E
Nitrous Acid, 10% in w	E	E	E	E	E	E	E	E	E	G	G	E	E	F	F	E	F	E	E	E	E	E	E
Nitrous Oxide	E	E	E	E	E	E	E	E	E	G	G	E	E	E	E	E	E	E	E	E	E	E	E
Oils, Animal	F	F	F	G	X	X	F	F	F	E	E	G	G	E	E	F	E	G	E	E	E	E	E
Oils, Essential	X	X	X	X	X	X	X	X	X	X	X	X	X	G	G	X	F	X	E	E	E	E	E
Oils, Hydraulic (Phosphate Ester)	F	F	F	X	X	X	X	X	X	X	X	X	X	G	G	X	E	F	E	E	E	E	E
Oils, Hydrocarbon	X	X	X	X	X	X	X	X	G	G	X	X	E	E	E	X	E	X	E	E	E	E	E
Oils, Vegetable	F	F	F	G	X	X	F	F	F	E	E	G	G	E	E	F	E	G	E	E	E	E	E
Oleic Acid	X	X	X	F	X	X	F	F	F	F	F	F	X	G	G	F	G	F	E	E	E	E	E
Oleum, 25% in w	E	E	E	E	E	E	E	E	G	G	G	E	E	X	X	E	G	E	E	E	E	E	E
Ortho Dichlorobenzene	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	E	E	E	E
Oxalic Acid, 12% in w	F	F	F	F	F	F	G	G	E	F	F	E	E	X	X	G	X	G	X	E	E	E	E
Oxygen	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Ozone, 300pphm	E	E	E	E	E	E	E	E	E	X	X	E	E	E	E	E	E	E	E	E	E	E	E
Palmitic Acid, 100% in ether	X	X	X	F	X	X	F	F	X	F	F	F	F	G	G	F	G	F	E	E	E	E	E
Paraffins	X	X	X	X	X	X	X	X	X	X	X	X	X	G	G	X	G	F	G	E	E	E	E

* If concentration is not indicated, assume 100% concentration or the maximum percent solubility in water.
NOTE: Concentrations of room temperature liquids are given in % volume. Concentrations of room temperature solids are given in % weight.

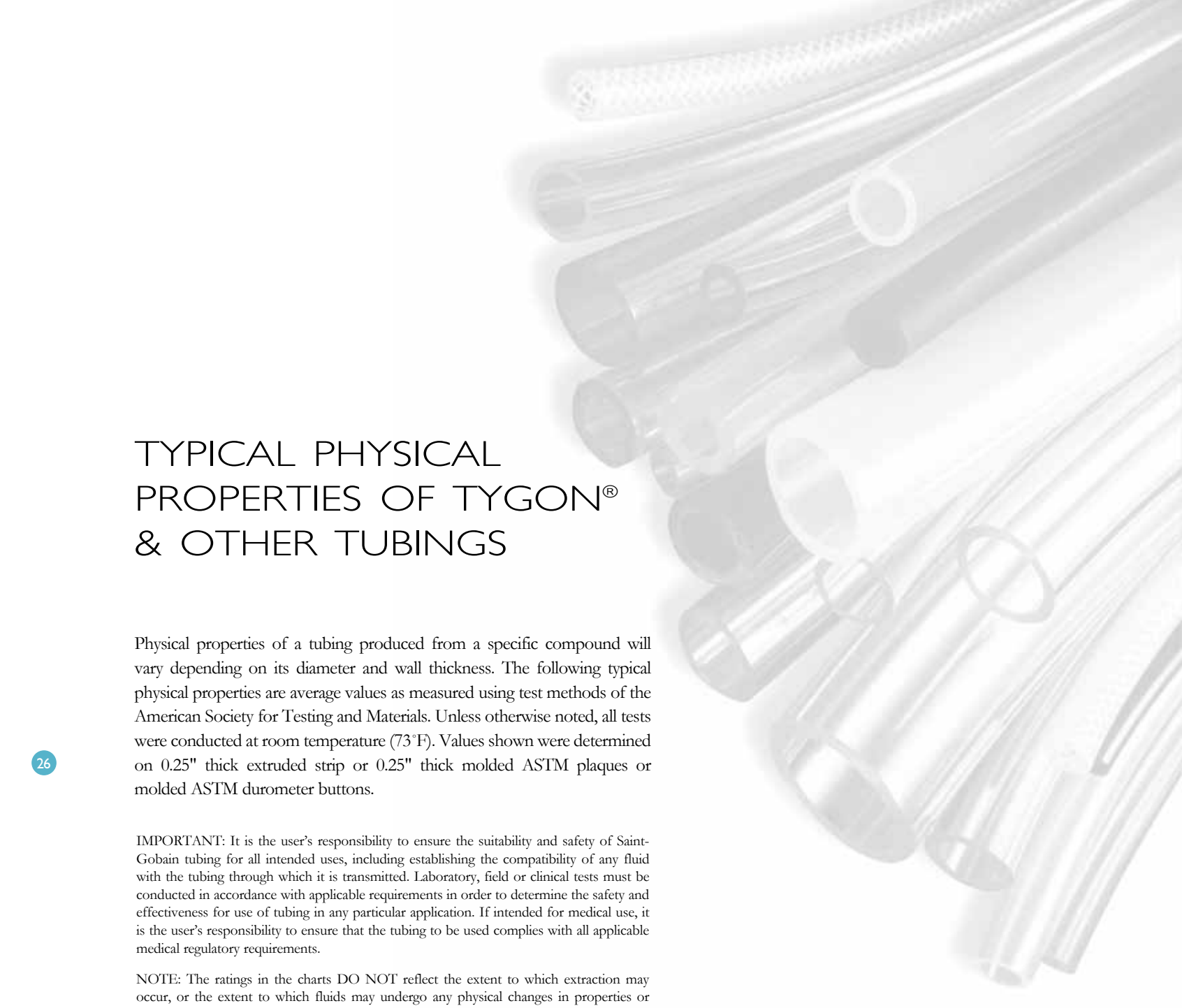
KEY

E Excellent
G Good
F Fair
X Not Recommended

Environment, % Conc.*
w-Water alc-Alcohol

Environment, % Conc.*	Tygon S3™ B-44-3	Tygon S3™ B-44-4X	Tygon S3™ B-44-4X I.B.	Tygon S3™ Silver	Tygon S3™ E-3603	Tygon S3™ E-LFL	Norprene® A-60-F	Norprene® A-60-F I.B.	Tygoprene® XL-60	Versilic® SPX-50	Versilic® SPX-70 I.B.	Tygon® 2375	Tygon® 2001	Tygothane® C-210-A	Tygothane® C-544-A I.B.	Norprene® A-60-G	Tygon® F-4040-A	Tygon® R-3400	Fluran® F-5500-A	Tygon® SE-200	Chemfluor® FEP	Chemfluor® PFA	Chemfluor® PTFE
Perchloric Acid, 67% in w	F	F	F	F	F	U	E	E	E	X	X	E	E	X	X	E	X	E	E	E	E	E	E
Perchloroethylene	X	X	X	X	X	X	F	F	F	X	X	X	X	X	X	F	X	X	X	E	E	E	E
Phenol, 5-10% in w	E	E	E	E	G	G	E	E	X	X	X	E	E	X	X	E	E	F	E	E	E	E	E
Phenol, 91% in w	G	G	G	G	F	F	E	E	X	X	X	E	E	X	X	E	F	X	E	E	E	E	E
Phosphoric Acid, <10% in w	E	E	E	E	E	E	E	E	E	X	X	E	E	E	E	E	E	E	E	E	E	E	E
Phosphoric Acid, 25% in w	E	E	E	E	E	E	E	E	E	X	X	E	E	E	E	E	E	E	E	E	E	E	E
Phosphoric Acid, 85% in w	F	F	F	F	F	F	E	E	G	X	X	E	E	X	X	E	X	E	E	E	E	E	E
Phosphorous Trichloride Acid	F	F	F	F	F	F	G	G	G	X	X	E	E	X	X	G	X	E	G	E	E	E	E
Photographic Solutions	E	E	E	E	E	E	G	G	G	F	F	E	E	E	E	G	E	E	E	E	E	E	E
Phthalic Acid, 9% in alc	F	F	F	E	X	X	E	E	X	F	F	E	E	X	X	E	F	X	E	E	E	E	E
Phthalic Anhydride, 9% in alc	X	X	X	E	X	X	E	E	G	F	F	E	E	X	X	E	X	X	X	E	E	E	E
Picric Acid, 1% in w	E	E	E	E	E	E	X	X	X	X	X	E	E	X	X	X	E	E	E	E	E	E	E
Plating Solutions	E	E	E	E	E	E	E	E	G	X	X	E	E	X	X	E	X	E	E	E	E	E	E
Potassium Carbonate, 55% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Potassium Cyanide, 33% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Potassium Dichromate, 5% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Potassium Hydroxide, <10% in w	E	E	E	E	E	E	E	E	E	G	G	E	E	X	X	E	X	E	E	E	E	E	E
Potassium Hypochlorite, 70% in w	G	G	G	G	E	F	E	E	G	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Potassium Iodide, 56% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Potassium Permanganate, 6% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Potassium Salts	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Propane Gas	E	E	E	E	E	E	E	E	E	F	F	E	E	E	E	E	E	E	E	E	E	E	E
Propyl Alcohol (Propanol)	X	X	X	E	X	X	F	F	F	X	X	E	E	X	X	F	E	X	E	E	E	E	E
Propylene Glycol	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Propylene Oxide	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Pyridine	X	X	X	F	X	X	F	F	E	X	X	F	F	X	X	F	X	X	X	G	G	G	E
Salicylic Acid, 1% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	G	G	E	E	E	X	E	E	E	E
Silicone Oils	G	G	G	E	G	G	F	F	E	X	X	E	G	E	E	F	E	E	E	E	E	E	E
Silver Nitrate, 55% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Skydrol 500A	F	F	F	X	X	X	X	X	X	X	X	X	X	G	G	X	E	F	E	E	E	E	E
Soap Solutions	E	E	E	E	E	E	G	G	E	F	F	E	E	E	E	G	E	E	E	E	E	E	E
Sodium Acetate, 55% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Sodium Benzoate, 22% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Sodium Bicarbonate, 7% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Sodium Carbonate, 7% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Sodium Chlorate, 45% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Sodium Chloride, 20% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Sodium Cyanide, 30% in w	E	E	E	E	E	E	E	E	E	G	G	E	E	X	X	E	X	E	E	E	E	E	E
Sodium Fluoride, 3% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Sodium Hydroxide, 10-15% in w	E	E	E	E	E	E	E	E	E	G	G	E	E	X	X	E	X	E	E	E	E	E	E
Sodium Hydroxide, 30-40% in w	G	G	G	G	G	G	E	E	E	G	G	E	E	X	X	E	X	X	E	E	E	E	E
Sodium Hypochlorite, 5.5% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	G	G	E	E	E	E	E	E	E	E
Sodium Hypochlorite, 12.2% in w	E	E	E	E	F	F	E	E	E	G	G	E	E	G	G	E	E	E	E	E	E	E	E
Sodium Nitrate, 3.5% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Sodium Salts	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Sodium Sulfate, 5% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Sodium Sulfide, 45% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Sodium Sulfite, 10% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Stannic Chloride, 50% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	F	F	E	F	E	E	E	E	E	E
Stannous Chloride, 45% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Stearic Acid, 5% in alc	X	X	X	F	X	X	F	F	E	F	F	F	F	G	G	F	G	F	E	E	E	E	E
Styrene Monomer	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	F	E	E	E	E
Sulfur Chloride	X	X	X	E	X	X	X	X	E	X	X	E	E	X	X	X	X	X	E	E	E	E	E
Sulfur Dioxide, Gas Dry	E	E	E	E	E	E	E	E	E	G	G	E	E	F	F	E	G	E	E	E	E	E	E
Sulfur Dioxide, Gas Wet	E	E	E	E	E	E	E	E	E	G	G	E	E	F	F	E	G	E	E	E	E	E	E
Sulfur Trioxide, Wet	G	G	G	G	G	G	G	G	E	F	F	G	G	X	X	E	X	G	G	G	G	G	G
Sulfuric Acid, 10% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Sulfuric Acid, 30% in w	E	E	E	E	E	E	E	E	E	G	G	E	E	X	X	E	G	E	E	E	E	E	E
Sulfuric Acid, 95-98% in w	X	X	X	E	X	X	X	X	E	X	X	E	E	X	X	X	X	X	E	E	E	E	E
Sulfurous Acid	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Tannic Acid, 75% in w	F	F	F	F	F	F	G	G	E	F	F	E	E	X	X	G	X	G	X	E	E	E	E
Tartaric Acid, 56% in w	E	E	E	E	E	E	E	E	E	G	G	E	E	E	E	E	E	E	E	E	E	E	E
Tetrahydrofuran	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	E	E	E
Thionyl Chloride	E	E	E	E	E	E	E	E	E	G	G	E	E	F	F	E	G	E	E	E	E	E	E
Tin Salts	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Titanium Salts	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Toluene	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	F	E	E	E	E
Trichloroacetic Acid, 90% in w	E	E	E	E	E	E	G	G	E	G	G	E	E	X	X	G	X	E	X	E	E	E	E
Trichloroethane	X	X	X	X	X	X	F	F	X	X	X	X	X	X	X	F	X	X	X	E	E	E	E
Triethanolamine	G	G	G	G	E	E	F	F	X	X	X	X	X	X	X	F	X	X	X	E	E	E	E
Trichloroethylene	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	E	E	E	E
Trichloropropane	X	X	X	X	X	X	F	F	X	X	X	X	X	X	X	F	F	X	X	E	E	E	E
Tricresyl Phosphate	F	F	F	F	F	F	E	E	G	E	E	E	E	X	X	E	F	F	E	E	E	E	E
Trisodium Phosphate	F	F	F	F	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Turpentine	X	X	X	X	X	X	X	X	X	X	X	X	X	G	G	X	G	X	E	E	E	E	E
Urea, 20% in w	E	E	E	E	E	E	E	E	E	G	G	E	E	E	E	E	E	E	E	E	E	E	E
Uric Acid	E	E	E	E	E	E	E	E	E	G	G	E	E	F	F	E	F	E	F	E	E	E	E
Vinegar	E	E	E	E	E	E	E	E	E	E	E	E	E	G	G	E	E	E	X	E	E	E	E
Vinyl Acetate	X	X	X	X	X	X	G	G	X	X	X	X	X	X	X	G	X	X	X	E	E	E	E
Water, Deionized	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Water, Distilled	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Xylene	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	F	E	E	E	E
Zinc Chloride, 80% in w	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Zinc Salts	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E

* If concentration is not indicated, assume 100% concentration or the maximum percent solubility in water.
NOTE: Concentrations of room temperature liquids are given in % volume. Concentrations of room temperature solids are given in % weight.



TYPICAL PHYSICAL PROPERTIES OF TYGON® & OTHER TUBINGS

Physical properties of a tubing produced from a specific compound will vary depending on its diameter and wall thickness. The following typical physical properties are average values as measured using test methods of the American Society for Testing and Materials. Unless otherwise noted, all tests were conducted at room temperature (73˚F). Values shown were determined on 0.25" thick extruded strip or 0.25" thick molded ASTM plaques or molded ASTM durometer buttons.

IMPORTANT: It is the user's responsibility to ensure the suitability and safety of Saint-Gobain tubing for all intended uses, including establishing the compatibility of any fluid with the tubing through which it is transmitted. Laboratory, field or clinical tests must be conducted in accordance with applicable requirements in order to determine the safety and effectiveness for use of tubing in any particular application. If intended for medical use, it is the user's responsibility to ensure that the tubing to be used complies with all applicable medical regulatory requirements.

NOTE: The ratings in the charts DO NOT reflect the extent to which extraction may occur, or the extent to which fluids may undergo any physical changes in properties or composition, as a result of coming into contact with the tubing. Saint-Gobain makes no representation or warranty with respect to the susceptibility of any fluid to become contaminated or undergo changes in properties or composition as a result of possible extraction of tubing ingredients by the fluid to be transmitted. Certain corrosives that would be destructive to tubing with prolonged exposure can be satisfactorily handled for short periods of time if flushed with water after use. All ratings are based on room temperature (73°F). Chemical resistance will be adversely affected by elevated temperatures.

	Durometer Hardness Shore A, 15s	Color	Maximum Recommended Operating Temp. °F (°C)	Tensile Strength psi (MPa)	Ultimate Elongation, %	Tensile Set,† %	Tear Resistance lb-f/in (kN/m)	Compression Set** Constant Deflection, %	Brittle Temperature, °F (°C)	Specific Gravity	Water Absorption, %
ASTM Method	**D2240**			**D412**	**D412**	**D412**	**D1004**	**D395**	**D746**	**D792**	**D570**
Tygon S3™ B-44-3	66	Clear	165 (74)	2300 (15.8)	410	81	180 (32)	65	-49 (-45)	1.20	0.13
Tygon S3™ B-44-4X	66	Clear	165 (74)	2100 (14.5)	450	78	200 (35)	62	-47 (-44)	1.21	0.15
Tygon S3™ B-44-4X I.B.	66	Clear (between braid)	165 (74)	2100 (14.5)	450	78	200 (35)	62	-47 (-44)	1.21	0.15
Tygon S3™ Silver	69	Silver	160 (71)	2300 (15.8)	240	65	190 (33.3)	71	-47 (-44)	1.20	<0.01
Tygon S3™ E-3603	56	Clear	165 (74)	1650 (11.4)	450	107	125 (22)	61	-58 (-50)	1.18	0.24
Tygon S3™ E-LFL	56	Clear	165 (74)	1550 (10.7)	380	44	122 (21)	64	-65 (-54)	1.16	0.18
Norprene® A-60-F	61	Cream	275 (135)	1000 (6.9)	375	57	120 (21)	30	-75 (-60)	0.98	0.30
Norprene® A-60-F I.B.	61	Cream	275 (135)	1000 (6.9)	375	57	120 (21)	30	-75 (-60)	0.98	0.30
Tygoprene® XL-60	60	Translucent	250 (121)	1630 (11.2)	770	100	190 (33.3)	55	-87 (-66)	0.90	0.07
Versilic® SPX-50	50	Translucent	350 (177)	1500 (10.3)	450	8	148 (26)	10	-112 (-80)	1.17	0.06
Versilic® SPX-70 I.B.	71	Translucent (between braid)	320 (160)	1200 (8.3)	300	10	130 (22.8)	10	-112 (-80)	1.20	0.08
Tygon® 2375	75	Clear	125 (52)	2000 (13.8)	700	187	220 (39)	84	-108 (-78)	0.90	<0.01
Tygon® 2001	69	Clear	135 (57)	800 (5.51)	500	110	140 (24.5)	40	-108 (-78)	0.88	0.04
Tygothane® C-210-A	82*	Transparent	200 (93)	6050 (41.7)	500	98	475 (83.1)	68	-100 (-73)	1.20	1.12
Tygothane® C-544-A I.B.	85*	Clear (between braid)	180 (82)	5000 (34.5)	400	45	350 (61.3)	19	-100 (-73)	1.12	1.80
Norprene® A-60-G	61	Black	275 (135)	1000 (6.9)	375	47	120 (21)	30	-75 (-60)	0.98	0.30
Tygon® F-4040-A	57	Translucent Yellow	165 (74)	1820 (12.5)	310	50	167 (29)	65	-35 (-37)	1.26	0.49
Tygon® R-3400	64	Black	165 (74)	2250 (15.5)	350	56	185 (32)	64	-6 (-21)	1.31	0.19
Fluran® F-5500-A	60*	Black	400 (204)	1400 (9.3)	300	13	100 (17.5)	37	-60 (-51)	1.90	0.23
Tygon® SE-200	66***	Clear	170 (77)	2000 (13.8)	350	76	165 (29)	53	-40 (-40)	1.45	<0.01
Chemfluor® FEP	55D*	Translucent	400 (204)	2600 (17.9)	275	N.A.	N.A.	N.A.	-100 (-73)	2.17	<0.01
Chemfluor® PFA	60D*	Translucent	500 (260)	2500 (17.2)	300	N.A.	N.A.	N.A.	-320 (-196)	2.17	<0.03
Chemfluor® PTFE	58D*	Translucent	500 (260)	2650 (18.3)	250	N.A.	N.A.	N.A.	-450 (-268)	2.18	<0.01

* 1-second reading.

†75% of ultimate elongation

**Test performed at 158°F (70°C) for 22 hours.

*** Durometer measured on outer jacket

SUGGESTED MAXIMUM WORKING PRESSURES FOR TYGON® & OTHER TUBINGS

The maximum working pressure of Tygon® tubing varies with the different formulations. In addition, working pressure is affected by temperature, size and wall thickness, time and material transmitted as explained below:

> TEMPERATURE

Since Tygon® tubing is produced from a variety of polymers, elastomers and rubbers, temperature should be considered in the selection of a Tygon® formulation for an end-use application. As a rule, tubing will stiffen as ambient temperature is reduced from standard room temperature (73°F/23°C). At higher temperatures, the tubing will become more flexible and physical properties such as tensile strength will become lower.

> SIZE AND WALL THICKNESS

Working pressure increases as the wall thickness increases relative to the bore size.

> TIME

If pressure exceeding the maximum suggested working pressure is maintained over a period of time, the tubing will gradually swell and eventually rupture.

> MATERIAL TRANSMITTED

Even materials such as solvents that attack Tygon® tubing can be handled over short periods of time. However, prolonged exposure tends to cause swelling, loss of normal tensile strength and reduced pressure resistance.

IMPORTANT: It is the user's responsibility to ensure the suitability and safety of Saint-Gobain tubing for all intended uses, including establishing the compatibility of any fluid with the tubing through which it is transmitted. Laboratory, field or clinical tests must be conducted in accordance with applicable requirements in order to determine the safety and effectiveness for use of tubing in any particular application. If intended for medical use, it is the user's responsibility to ensure that the tubing to be used complies with all applicable medical regulatory requirements.

NOTE: The ratings in the charts DO NOT reflect the extent to which extraction may occur, or the extent to which fluids may undergo any physical changes in properties or composition, as a result of coming into contact with the tubing. Saint-Gobain makes no representation or warranty with respect to the susceptibility of any fluid to become contaminated or undergo changes in properties or composition as a result of possible extraction of tubing ingredients by the fluid to be transmitted. Certain corrosives that would be destructive to tubing with prolonged exposure can be satisfactorily handled for short periods of time if flushed with water after use. All ratings are based on room temperature (73°F). Chemical resistance will be adversely affected by elevated temperatures.

WORKING PRESSURE RATINGS

I. D. (inches)	O. D. (inches)	Wall Thickness (inches)	Tygon S3™ B-44-3	Tygon S3™ B-44-4X	Tygon S3™ B-44-4X I.B.		Tygon S3™ Silver	Tygon S3™ E-3603	Tygon S3™ E-LFL	Norprene® A-60-F		Norprene® A-60-F I.B.	Tygoprene® XL-60
			Max. Working Pressure at 73°F (psi)	Max. Working Pressure at 73°F (psi)	Max. Working Pressure at 73°F (psi)	Max. Working Pressure at 160°F (psi)	Max. Working Pressure at 73°F (psi)	Max. Working Pressure at 73°F (psi)	Max. Working Pressure at 73°F (psi)	Max. Working Pressure at 73°F (psi)	Max. Working Pressure at 180°F (psi)	Max. Working Pressure at 73°F (psi)	Max. Working Pressure at 73°F (psi)
.020	.145	.062											
1/32	3/32	1/32		100				69					
	5/32	1/16											
1/16	1/8	1/32	60	60				36					
	3/16	1/16	100	100				69	50	34	21		35
.080	.140	.030											
3/32	5/32	1/32	43	43				25					
	3/16	3/64											
	7/32	1/16	74					47					
1/8	3/16	1/32	34	34				20					
	1/4	1/16	60	60			65	36	34	19	12		20
	3/8	1/8											
5/32	7/32	1/32	28	28				17					
	1/4	3/64											
	9/32	1/16	50	50				30					
3/16	1/4	1/32	25	25				14					
	5/16	1/16	43	43			50	25	25	13	8		13
	3/8	3/32	60	60				36					
	7/16	1/8	74					47					
	.443	.1278											
	9/16	3/16											
1/4	5/16	1/32	19					12					
	3/8	1/16	34	34			40	20	20	10	6		15
	7/16	3/32	47	47	250	90		28					
	1/2	1/8	60	60				36	35	19	12	125	
	.515	.1325											
	5/8	3/16											
5/16	3/8	1/32											
	7/16	1/16	28	28				17	16	8	5		11
	1/2	3/32	40	40				23					
	9/16	1/8	50	50				30					
	5/8	5/32		60				36					
	13/16	1/4											
3/8	1/2	1/16	25	25			30	14		7	4		11
	9/16	3/32	34	34				20					
	5/8	1/8	44	44	170	90		25	25	13	8	105	
	.687	.156											
	7/8	1/4											
	1	5/16											
7/16	1/2	1/32											
	9/16	1/16		22				13					
	5/8	3/32		30				18					
	11/16	1/8	36					22					
1/2	5/8	1/16	19	19				12					
	11/16	3/32	27	27				15					
	3/4	1/8	34	34	200	95	38	20	20	10	6	100	15
	13/16	5/32		40				24					
	.847	.1735											
	1-1/8	5/16											
9/16	5/8	1/32											
	3/4	3/32		25				14					
	13/16	1/8						18					
5/8	3/4	1/16											
	13/16	3/32		23				13					
	7/8	1/8	29	29	165	105		17		8	5	95	11
	.980	.1775											
	15/16	5/32		35				20					
	1-3/8	3/8											
11/16	3/4	1/32											
	7/8	3/32						12					
	15/16	1/8	27										
3/4	7/8	1/16											
	15/16	3/32											
	1	1/8	25	25	145	85		14		7	4		11
	1-1/16	5/32		30				17				85	
	1-1/8	3/16		34				20					
	1.150	.200											
	1-1/4	1/4		43				25	24				
	1-1/2	3/8											
7/8	1	1/16											
	1-1/8	1/8	22	22				13					
	1-3/16	5/32						15					
1	1-1/8	1/16											
	1-1/4	1/8	20	20				12					
	1-5/16	5/32		24									
	1-3/8	3/16	27	27	100	60		16	15			75	
	1.390	.195											
	1-1/2	1/4	34	34				20					
	2	1/2											
1-1/8	1-3/8	1/8		18									
	1-1/2	3/16						14					
1-1/4	1-1/2	1/8	16					10					
	1-5/8	3/16	23	23	85	55		13					
	1.636	.1930											
	1-3/4	1/4	28										
1-1/2	1-7/8	3/16	19	19				12					
	1.900	.200											
	2	1/4	25	25	75	45		14					
1-3/4	2-1/4	1/4	22					13					
2	2-1/2	1/4	19	19				12					
	2-3/4	3/8		27	60	40							
	3	1/2	34	34									
2-1/4	2-3/4	1/4	18										
2-1/2	3	1/4		16									
	3-1/4	3/8		23									
3	3-1/2	1/4		14									
	3-3/4	3/8		19	40	25							
	4	1/2											
4	5	1/2		19									
6	6-1/2	1/4											
.010	.030	.010											
.020	.060	.020											
.030	.090	.030											
.040	.070	.015											
.050	.090	.020											

WORKING PRESSURE RATINGS

I. D. (inches)	O. D. (inches)	Wall Thickness (inches)	Versilic® SPX-50		Versilic® SPX-70 I.B.		Tygon® 2375	Tygon® 2001	Tygothane® C-210-A		Tygothane® C-544-A I.B.		Norprene® A-60-G		Tygon® F-4040-A
			Max. Working Pressure at 73°F (psi)	Max. Working Pressure at 320°F (psi)	Max. Working Pressure at 73°F (psi)	Max. Working Pressure at 320°F (psi)	Max. Working Pressure at 73°F (psi)	Max. Working Pressure at 73°F (psi)	Max. Working Pressure at 73°F (psi)	Max. Working Pressure at 175°F (psi)	Max. Working Pressure at 73°F (psi)	Max. Working Pressure at 175°F (psi)	Max. Working Pressure at 73°F (psi)	Max. Working Pressure at 180°F (psi)	Max. Working Pressure at 73°F (psi)
.020	.145	.062													
1/32	3/32	1/32	22	21											
	5/32	1/16													
1/16	1/8	1/32	14	13					70	40					
	3/16	1/16	22	21			50	45					34	21	
.080	.140	.030													40
3/32	5/32	1/32	11	10											
	3/16	3/64													50
	7/32	1/16	18	16											
1/8	3/16	1/32	9	8					45	25					
	1/4	1/16	14	13			30	30	74	45			19	12	50
	3/8	1/8									420	220	34	21	
5/32	7/32	1/32	7	6											
	1/4	3/64													
	9/32	1/16													
3/16	1/4	1/32	7	6					34	19					
	5/16	1/16	11	10			20	22	56	33			13	8	35
	3/8	3/32	14	13					70	44			19	12	
	7/16	1/8	18	16											
	.443	.1278			180	175									
	9/16	3/16											34	21	
1/4	5/16	1/32	5	4					28	12					
	3/8	1/16	9	8			18	17	42	25			10	6	30
	7/16	3/32	12	11					58	28			15	9	
	1/2	1/8	14	13					70	45	275	150	19	12	
	.515	.1325			145	140									
	5/8	3/16											26	16	
5/16	3/8	1/32													
	7/16	1/16	7	6			15	14	36	22			8	5	25
	1/2	3/32	10	9									12	7	
	9/16	1/8	7	6											
	5/8	5/32													
	13/16	1/4											28	17	
3/8	1/2	1/16	9	8			13	12	34	19			7	4	20
	9/16	3/32	11	10					45	27			10	6	
	5/8	1/8	6	5					54	33	205	115	13	8	35
	.687	.156			210	190									
	7/8	1/4													
	1	5/16													
7/16	1/2	1/32													
	9/16	1/16											6	4	15
	5/8	3/32	8	7					40	21					
	11/16	1/8							49	29					
1/2	5/8	1/16	5	4					26	14			6	3	15
	11/16	3/32	7	6					36	18			8	5	
	3/4	1/8	9	8			18	16	46	27	195	110	10	6	30
	13/16	5/32													
	.847	.1735			185	165									
	1-1/8	5/16													
9/16	5/8	1/32													
	3/4	3/32													
	13/16	1/8													
5/8	3/4	1/16							24	11					
	13/16	3/32	6	5					32	16			7	4	
	7/8	1/8	7	6			15	13	38	21	175	105	8	5	25
	.980	.1775			135	125									
	15/16	5/32													
	1-3/8	3/8													
11/16	3/4	1/32													
	7/8	3/32													
	15/16	1/8													
3/4	7/8	1/16													
	15/16	3/32							26	13					
	1	1/8	7	6			13	11	33	20			7	4	20
	1-1/16	5/32									150	100			
	1-1/8	3/16													
	1.150	.200			170	105									
	1-1/4	1/4													
	1-1/2	3/8													
7/8	1	1/16													
	1-1/8	1/8													
	1-3/16	5/32													
1	1-1/8	1/16													
	1-1/4	1/8	5	4					28	14			6	3	
	1-5/16	5/32													
	1-3/8	3/16					14	13			120	80			
	1.390	.195			105	75									
	1-1/2	1/4													
	2	1/2													
1-1/8	1-3/8	1/8													
	1-1/2	3/16													
1-1/4	1-1/2	1/8	5	4											
	1-5/8	3/16													
	1.636	.1930			80	65									
	1-3/4	1/4									95	65			
1-1/2	1-7/8	3/16													
	1.900	.200			70	45									
	2	1/4	6	5							80	50			
1-3/4	2-1/4	1/4													
2	2-1/2	1/4									70	40			
	2-3/4	3/8													
	3	1/2													
2-1/4	2-3/4	1/4													
2-1/2	3	1/4													
	3-1/4	3/8													
3	3-1/2	1/4													
	3-3/4	3/8													
	4	1/2													
4	5	1/2													
6	6-1/2	1/4													
.010	.030	.010													
.020	.060	.020													
.030	.090	.030													
.040	.070	.015													
.050	.090	.020													

WORKING PRESSURE RATINGS

I. D. (inches)	O. D. (inches)	Wall Thickness (inches)	Tygon® R-3400	Fluran® F-5500-A		Tygon® SE-200		Chemfluor® FEP			Chemfluor® PFA			Chemfluor® PTFE		
			Max. Working Pressure at 73°F (psi)	Max. Working Pressure at 73°F (psi)	Max. Working Pressure at 275°F (psi)	Max. Working Pressure at 73°F (psi)	Max. Working Pressure at 160°F (psi)	Max. Working Pressure at 73°F (psi)	Max. Working Pressure at 212°F (psi)	Max. Working Pressure at 400°F (psi)	Max. Working Pressure at 73°F (psi)	Max. Working Pressure at 212°F (psi)	Max. Working Pressure at 400°F (psi)	Max. Working Pressure at 73°F (psi)	Max. Working Pressure at 212°F (psi)	Max. Working Pressure at 400°F (psi)
.020	.145	.062														
1/32	3/32	1/32														
	5/32	1/16														
1/16	1/8	1/32	60	18	12	100	45	412	148	N/A	412	190	103	336	180	97
	3/16	1/16														
.080	.140	.030														
3/32	5/32	1/32	45													
	3/16	3/64														
	7/32	1/16	80													
1/8	3/16	1/32														
	1/4	1/16	60	19	13	85	40	417	150	N/A	417	192	104	339	182	98
	3/8	1/8														
5/32	7/32	1/32														
	1/4	3/64						289	104	N/A	289	133	72	236	126	68
	9/32	1/16	50													
3/16	1/4	1/32	25					177	64	N/A	177	81	44	144	77	42
	5/16	1/16	45	15	9	75	38	312	112	N/A	312	143	78	254	136	73
	3/8	3/32	60													
	7/16	1/8														
	.443	.1278														
	9/16	3/16														
1/4	5/16	1/32						140	50	N/A	140	64	35	114	61	33
	3/8	1/16	35	13	8	55	35	250	90	N/A	250	115	63	204	109	59
	7/16	3/32	50													
	1/2	1/8														
	.515	.1325														
	5/8	3/16														
5/16	3/8	1/32						113	41	N/A	113	52	28	92	49	26
	7/16	1/16	30	11	6											
	1/2	3/32														
	9/16	1/8														
	5/8	5/32														
	13/16	1/4														
3/8	1/2	1/16	25	10	5			97	35	N/A	97	45	24	79	42	23
	9/16	3/32				50	25									
	5/8	1/8	45													
	.687	.156														
	7/8	1/4														
	1	5/16														
7/16	1/2	1/32						83	30	N/A	83	38	21	67	36	19
	9/16	1/16	20													
	5/8	3/32														
	11/16	1/8														
1/2	5/8	1/16						139	50	N/A	139	64	35	113	61	33
	11/16	3/32														
	3/4	1/8	35			45	18									
	13/16	5/32														
	.847	.1735														
	1-1/8	5/16														
9/16	5/8	1/32						65	23	N/A	65	30	16	53	29	15
	3/4	3/32														
	13/16	1/8														
5/8	3/4	1/16						114	41	N/A	114	52	28	93	50	27
	13/16	3/32														
	7/8	1/8	30													
	.980	.1775														
	15/16	5/32														
	1-3/8	3/8														
11/16	3/4	1/32						54	19	N/A	54	25	13	44	24	13
	7/8	3/32														
	15/16	1/8														
3/4	7/8	1/16														
	15/16	3/32														
	1	1/8	25			30	12									
	1-1/16	5/32														
	1-1/8	3/16														
	1.150	.200														
	1-1/4	1/4														
	1-1/2	3/8														
7/8	1	1/16														
	1-1/8	1/8														
	1-3/16	5/32														
1	1-1/8	1/16														
	1-1/4	1/8														
	1-5/16	5/32														
	1-3/8	3/16														
	1.390	.195														
	1-1/2	1/4														
	2	1/2														
1-1/8	1-3/8	1/8														
	1-1/2	3/16														
1-1/4	1-1/2	1/8														
	1-5/8	3/16														
	1.636	.1930														
	1-3/4	1/4														
1-1/2	1-7/8	3/16														
	1.900	.200														
	2	1/4														
1-3/4	2-1/4	1/4														
2	2-1/2	1/4														
	2-3/4	3/8														
	3	1/2														
2-1/4	2-3/4	1/4														
2-1/2	3	1/4														
	3-1/4	3/8														
3	3-1/2	1/4														
	3-3/4	3/8														
	4	1/2														
4	5	1/2														
6	6-1/2	1/4														
.010	.030	.010														
.020	.060	.020														
.030	.090	.030														
.040	.070	.015														
.050	.090	.020														

SIZE LISTING OF INVENTORIED TUBING

I. D. (inches)	O. D. (inches)	Wall Thickness (inches)	Tygon S3™ B-44-3				Tygon S3™ B-44-4X			Tygon S3™ B-44-4X I.B.			Tygon S3™ B-44-4X I.B. UNIPACS	Tygon S3™ Silver
			20'	50'	100'	500'	10'	20'	50'	10'	20'	50'	10 pcs. @10'	50'
.020	.145	.062												
1/32	3/32	1/32							•					
	5/32	1/16												
1/16	1/8	1/32		•	•	•			•					
	3/16	1/16		•					•					
.080	.140	.030	•	•				•						
3/32	5/32	1/32		•					•					
	3/16	3/64								•				
	7/32	1/16		•										
1/8	3/16	1/32		•	•				•					
	1/4	1/16		•	•				•					•
	3/8	1/8	•	•	•			•	•	•	•	•	•	•
5/32	7/32	1/32		•					•					
	1/4	3/64												
	9/32	1/16		•					•					
3/16	1/4	1/32		•					•					
	5/16	116		•					•					•
	3/8	3/32		•					•					
	7/16	1/8		•										
	.443	.1278												
	9/16	3/16												
1/4	5/16	1/32		•										
	3/8	1/16		•					•					•
	7/16	3/32		•					•			•		
	1/2	1/8		•					•					
	.515	.1325			•		•	•						
	5/8	3/16												
5/16	3/8	1/32												
	7/16	1/16		•					•					
	1/2	3/32		•					•					
	9/16	1/8		•					•					
	5/8	5/32							•					
	13/16	1/4												
3/8	1/2	1/16		•					•					•
	9/16	3/32		•					•					
	5/8	1/8		•					•			•	•	
	.687	.156			•		•	•	•	•				
	7/8	1/4												
	1	5/16												
7/16	1/2	1/32												
	9/16	1/16							•					
	5/8	3/32							•					
	11/16	1/8		•										
1/2	5/8	1/16		•					•					
	11/16	3/32		•					•					
	3/4	1/8		•					•			•		•
	13/16	5/32							•					
	.847	.1735												
	1-1/8	5/16												
9/16	5/8	1/32												
	3/4	3/32							•					
	13/16	1/8												
5/8	3/4	1/16												
	13/16	3/32							•					
	7/8	1/8		•					•			•		
	.980	.1775	•	•	•		•	•	•	•				
	15/16	5/32							•					
	1-3/8	3/8												
11/16	3/4	1/32												
	7/8	3/32												
	15/16	1/8		•										
3/4	7/8	1/16												
	15/16	3/32												
	1	1/8		•					•			•	•	
	1-1/16	5/32							•					
	1-1/8	3/16							•					
	1.150	.200												
	1-1/4	1/4							•					
	1-1/2	3/8												
7/8	1	1/16												
	1-1/8	1/8		•										
	1-3/16	5/32							•					
1	1-1/8	1/16												
	1-1/4	1/8		•					•					
	1-5/16	5/32							•					
	1-3/8	3/16		•					•				•	
	1.390	.195										•		
	1-1/2	1/4		•					•					
	2	1/2												
1-1/8	1-3/8	1/8							•					
	1-1/2	3/16												
1-1/4	1-1/2	1/8		•										
	1-5/8	3/16		•					•			•		
	1.636	.193												
	1-3/4	1/4		•										
1-1/2	1-7/8	3/16		•					•					
	1.900	.200												
	2	1/4		•					•	•	•	•		
1-3/4	2-1/4	1/4		•										
2	2-1/2	1/4		•				•	•					
	2-3/4	3/8								•	•			
	3	1/2	•					•						
2-1/4	2-3/4	1/4	•											
2-1/2	3	1/4						•						
	3-1/4	3/8						•						
3	3-1/2	1/4						•						
	3-3/4	3/8						•		•	•			
	4	1/2												
4	5	1/2					•							
6	6-1/2	1/4												
.010	.030	.010												
.020	.060	.020												
.030	.090	.030												
.040	.070	.015												
.050	.090	.020												

• Indicates standard off-the-shelf items. ▲Sizes for vacuum applications; standard off-the shelf item.

■UNIPACS are packaged individually with ten 10-foot lengths per carton. † Tygon S3™ R-3603 UNIPACS in size 1" I.D. x 2" O.D. x 1/2" wall only contains four 10-foot lengths per carton.

SIZE LISTING OF INVENTORIED TUBING

I. D. (inches)	O. D. (inches)	Wall Thickness (inches)	Tygon S3™ E-3603				Tygon S3™ E-LFL		Norprene® A-60-F	Norprene® A-60-F I.B.	Norprene® Pump Tubing	Versilic® SPX-50		Versilic® SPX-70 I.B.	
			20'	50'	100'	500'	10'	25'	50'	50'	50'	25'	50'	25'	50'
.020	.145	.062											•		
1/32	3/32	1/32		•											
	5/32	1/16											•		
1/16	1/8	1/32		•	•	•		•					•		
	3/16	1/16		•					•		•				
.080	.140	.030											•		
3/32	5/32	1/32		•	•										
	3/16	3/64											•		
	7/32	1/16		•									•		
1/8	3/16	1/32		•		•		•					•		
	1/4	1/16		•	•	•			•		•				
	3/8	1/8							•				•		
5/32	7/32	1/32		•											
	1/4	3/64													
	9/32	1/16		•	•										
3/16	1/4	1/32		•				•					•		
	5/16	116		•	•	•			•		•		•		
	3/8	3/32		•									•		
	7/16	1/8		•										•	
	.443	.1278													
	9/16	3/16											•		
1/4	5/16	1/32		•				•					•		
	3/8	1/16		•	•	•			•		•		•		
	7/16	3/32		•				•					•		
	1/2	1/8		•	•				•	•				•	
	.515	.1325												•	
	5/8	3/16													
5/16	3/8	1/32						•					•		
	7/16	1/16		•					•		•		•		
	1/2	3/32		•									•		
	9/16	1/8		•											
	5/8	5/32		•											
	13/16	1/4											•		
3/8	1/2	1/16		•					•		•		•		
	9/16	3/32		•				•					•		
	5/8	1/8		•					•	•				•	
	.687	.156													
	7/8	1/4													
	1	5/16													
7/16	1/2	1/32													•
	9/16	1/16		•									•		
	5/8	3/32		•											
	11/16	1/8		•									•		
1/2	5/8	1/16		•									•		
	11/16	3/32		•	•			•					•		
	3/4	1/8		•					•	•	•				
	13/16	5/32		•										•	
	.847	.1735													
	1-1/8	5/16													
9/16	5/8	1/32													
	3/4	3/32		•											
	13/16	1/8		•											
5/8	3/4	1/16											•		
	13/16	3/32		•									•		
	7/8	1/8		•					•	•	•			•	
	.980	.1775													
	15/16	5/32		•											
	1-3/8	3/8													
11/16	3/4	1/32													
	7/8	3/32		•											
	15/16	1/8													
3/4	7/8	1/16													
	15/16	3/32											•		
	1	1/8		•					•		•				
	1-1/16	5/32		•						•					
	1-1/8	3/16		•											
	1.150	.200					•								
	1-1/4	1/4		•											
	1-1/2	3/8													
7/8	1	1/16													
	1-1/8	1/8													
	1-3/16	5/32		•											
1	1-1/8	1/16										•			
	1-1/4	1/8		•											
	1-5/16	5/32					•				•				
	1-3/8	3/16		•											•
	1.390	.195								•					
	1-1/2	1/4		•											
	2	1/2													
1-1/8	1-3/8	1/8													
	1-1/2	3/16		•								•			
1-1/4	1-1/2	1/8		•											
	1-5/8	3/16		•									•		
	1.636	.193													
	1-3/4	1/4													
1-1/2	1-7/8	3/16		•											
	1.900	.200										•			
	2	1/4		•											
1-3/4	2-1/4	1/4		•											
2	2-1/2	1/4	•	•							•				
	2-3/4	3/8													
	3	1/2													
2-1/4	2-3/4	1/4													
2-1/2	3	1/4													
	3-1/4	3/8													
3	3-1/2	1/4													
	3-3/4	3/8													
	4	1/2													
4	5	1/2													
6	6-1/2	1/4													
.010	.030	.010													
.020	.060	.020													
.030	.090	.030													
.040	.070	.015													
.050	.090	.020													

• Indicates standard off-the-shelf items. ▲Sizes for vacuum applications; standard off-the shelf item.

MICROBORE

SIZE LISTING OF INVENTORIED TUBING

I. D. (inches)	O. D. (inches)	Wall Thickness (inches)	Tygon® 2375		Tygon® 2001	Tygothane® C-210-A	Tygothane® C-544-A I.B.		Norprene® A-60-G	Tygon® F-4040-A	Tygon® R-3400	Fluran® F-5500-A	Tygon® SE-200	Chemfluor® FEP		Chemfluor® PFA		Chemfluor® PTFE	
			25'	50'	50'	100'	50'	100'	50'	50'	50'	50'	50'	50'	100'	50'	100'	50'	100'
.020	.145	.062																	
1/32	1/16	1/32												•	•				
	3/32	1/32																	
	5/32	1/16																	
1/16	1/8	1/32				•					•	•	•	•		•		•	
	3/16	1/16			•				•					•					
.080	.140	.030								•									
3/32	5/32	1/32									•			•					
	3/16	3/64								•									
	7/32	1/16									•								
1/8	3/16	1/32				•								•		•		•	
	1/4	1/16			•	•			•	•	•	•	•	•		•		•	
	3/8	1/8					•		•									•	
5/32	7/32	1/32																	
	1/4	3/64											•	•		•		•	
	9/32	1/16									•							•	
3/16	1/4	1/32				•					•			•		•		•	
	5/16	116		•	•	•			•	•	•	•	•	•		•		•	
	3/8	3/32				•			•		•							•	
	7/16	1/8																	
	.443	.1278																	
	9/16	3/16							•										
1/4	5/16	1/32				•								•		•		•	
	3/8	1/16		•	•	•			•	•	•	•	•	•		•		•	
	7/16	3/32				•			•		•							•	
	1/2	1/8				•		•	•										
	.515	.1325																	
	5/8	3/16							•										
5/16	3/8	1/32												•		•		•	
	7/16	1/16		•	•	•			•	•	•	•							•
	1/2	3/32							•										
	9/16	1/8							•										
	5/8	5/32																	
	13/16	1/4																	
3/8	1/2	1/16		•	•	•			•	•	•	•		•		•		•	
	7/16	1/16												•	•	•	•	•	•
	9/16	3/32				•			•				•					•	
	5/8	1/8		•		•		•	•	•	•								
	.687	.156																	
	7/8	1/4																	
	1	5/16																	
7/16	1/2	1/32												•		•		•	
	9/16	1/16							•	•	•								
	5/8	3/32				•													
	11/16	1/8																	
1/2	9/16	1/16												•	•	•	•		
	5/8	1/16				•			•	•				•		•		•	
	11/16	3/32				•			•										
	3/4	1/8		•	•	•		•	•	•	•		•						
	13/16	5/32																	
	.847	.1735																	
	1-1/8	5/16																	
9/16	5/8	1/32																	
	3/4	3/32																	
	13/16	1/8																	
5/8	11/16	1/16												•	•	•	•		
	3/4	1/16				•								•		•		•	
	13/16	3/32				•			•									•	
	7/8	1/8		•	•	•		•	•	•	•								
	.980	.1775																	
	15/16	5/32																	
	1-3/8	3/8																	
11/16	3/4	1/32												•		•			
	7/8	3/32																•	
	15/16	1/8																	
3/4	7/8	1/16												•		•			
	15/16	3/32				•													
	1	1/8		•	•	•			•	•	•		•						
	1-1/16	5/32						•											
	1-1/8	3/16																	
	1.150	.200																	
	1-1/4	1/4																	
	1-1/2	3/8																	
7/8	1	1/16												•		•			
	1-1/8	1/8																	
	1-3/16	5/32																	
1	1-1/8	1/16												•					
	1-1/4	1/8				•			•										
	1-5/16	5/32																	
	1-3/8	3/16	•		•			•											
	1.390	.195																	
	1-1/2	1/4																	
	2	1/2																	
1-1/8	1-3/8	1/8																	
	1-1/2	3/16																	
1-1/4	1-1/2	1/8																	
	1-5/8	3/16																	
	1.636	.193																	
	1-3/4	1/4					•												
1-1/2	1-7/8	3/16																	
	1.900	.200																	
	2	1/4					•												
1-3/4	2-1/4	1/4																	
2	2-1/2	1/4					•												
	2-3/4	3/8																	
	3	1/2																	
2-1/4	2-3/4	1/4																	
2-1/2	3	1/4																	
	3-1/4	3/8																	
3	3-1/2	1/4																	
	3-3/4	3/8																	
	4	1/2																	
4	5	1/2																	
6	6-1/2	1/4																	

• Indicates standard off-the-shelf items.

▲ Sizes for vacuum applications; standard off-the shelf item

VACUUM RATINGS* AND BEND RADIUS VALUES

I. D. (inches)	O. D. (inches)	Wall Thickness (inches)	Tygon S3™ B-44-3		Tygon S3™ B-44-4X		Tygon S3™ B-44-4X I.B.			Tygon S3™ Silver		Tygon S3™ E-3603		Tygon S3™ E-LFL			Norprene® A-60-F		
			Minimum Bend Radius (in.)	Vacuum Rating In. of Mercury at 73°F	Minimum Bend Radius (in.)	Vacuum Rating In. of Mercury at 73°F	Minimum Bend Radius (in.)	Vacuum Rating In. of Mercury at 73°F	Vacuum Rating In. of Mercury at 160°F	Minimum Bend Radius (in.)	Vacuum Rating In. of Mercury at 73°F	Minimum Bend Radius (in.)	Vacuum Rating In. of Mercury at 73°F	Minimum Bend Radius (in.)	Vacuum Rating In. of Mercury at 73°F	Vacuum Rating In. of Mercury at 160°F	Minimum Bend Radius (in.)	Vacuum Rating In. of Mercury at 73°F	Vacuum Rating In. of Mercury at 180°F
.020	.145	.062																	
1/32	3/32	1/32			1/8	29.9						1/8	29.9						
	5/32	1/16																	
1/16	1/8	1/32	1/4	29.9	1/4	29.9						1/4	29.9						
	3/16	1/16	1/8	29.9	1/8	29.9						1/8	29.9	1/4	29.9	29.9			
.080	.140	.030																	
3/32	5/32	1/32	3/8	29.9	3/8	29.9						3/8	29.9						
	3/16	3/64																	
	7/32	1/16	1/4	29.9								1/4	29.9						
1/8	3/16	1/32	1/2	25.0	1/2	25.0						1/2	20.0						
	1/4	1/16	3/8	29.9	3/8	29.9				1/2	29.9	3/8	29.9	1/2	29.9	29.9			
	3/8	1/8																	
5/32	7/32	1/32	3/4	16.0	3/4	16.0						3/8	12.0						
	1/4	3/64																	
	9/32	1/16	1/2	29.9	1/2	29.9						1/2	29.9						
3/16	1/4	1/32	1		11.0	1	11.0					1	9.0						
	5/16	1/16	5/8	29.9	5/8	29.9				3/4	29.9	5/8	29.9	3/4	29.9	29.9			
	3/8	3/32	1/2	29.9	1/2	29.9						1/2	29.9						
	7/16	1/8	3/8	29.9								3/8	29.9						
	.443	.1278																	
	9/16	3/16																	
1/4	5/16	1/32	1-5/8	6.0								1-5/8	5.0						
	3/8	1/16	1		25.0	1	25.0			3/4	29.9	1	20.0	1	15.0	15.0			
	7/16	3/32	3/4	29.9	3/4	29.9	1-1/2	29.9	29.9			3/4	29.9						
	1/2	1/8	5/8	29.9	5/8	29.9						1/2	29.9	3/4	29.9	29.9	3/4	29.9	29.9
	.515	.1325																	
	5/8	3/16																	
5/16	3/8	1/32																	
	7/16	1/16	1-3/8	16.0	1-3/8	16.0						1-3/8	13.0	1-1/4	10.0	10.0			
	1/2	3/32	1		29.9	1	29.9					1	29.9						
	9/16	1/8	7/8	29.9	7/8	29.9						7/8	29.9						
	5/8	5/32				3/4	29.9					3/4	29.9						
	13/16	1/4																	
3/8	1/2	1/16	1-3/4	11.0	1-3/4	11.0				1-1/2	25.0	1-1/2	9.0						
	9/16	3/32	1-3/8	25.0	1-3/8	25.0						1-3/8	21.0						
	5/8	1/8	1-1/8	29.9	1-1/8	29.9	1-1/8	29.9	25.0			1-1/8	29.9	1	29.9	29.9	1-1/4	29.9	20.0
	.687	.156																	
	7/8	1/4																	
	1	5/16																	
7/16	1/2	1/32																	
	9/16	1/16			2-1/4	8.0						2-1/4	7.0						
	5/8	3/32			1-3/4	19.0						1-3/4	15.0						
	11/16	1/8	1-3/8	29.9								1-3/8	28.0						
1/2	5/8	1/16	2-7/8	6.0	2-7/8	6.0						2-7/8	5.0						
	11/16	3/32	2-1/8	14.0	2-1/8	14.0						2-1/4	12.0						
	3/4	1/8	1-3/4	25.0	1-3/4	25.0	2-1/8	29.9	10.0	1-3/4	29.9	1-1/2	21.0	1-1/2	20.0	20.0	2-1/4	25.0	15.0
	13/16	5/32			1-1/2	29.9						1-1/2	29.9						
	.847	.1735																	
	1-1/8	5/16																	
9/16	5/8	1/32																	
	3/4	3/32			2-1/2	11.0						2-1/2	9.0						
	13/16	1/8										2	17.0						
5/8	3/4	1/16																	
	13/16	3/32			3	9.0						3	7.0						
	7/8	1/8	2-3/8	16.0	2-3/8	16.0	2-3/8	25.0	10.0			2-3/8	13.0				2-1/2	20.0	10.0
	.980	.1775																	
	15/16	5/32			2	26.0						2	21.0						
	1-3/8	3/8																	
11/16	3/4	1/32																	
	7/8	3/32										3-1/2	6.0						
	15/16	1/8	2-7/8	13.0															
3/4	7/8	1/16																	
	15/16	3/32																	
	1	1/8	3-1/4	11.0	3-1/4	11.0	3-1/4	20.0	5.0			3-1/4	9.0						
	1-1/16	5/32			2-3/4	18.0						2-3/4	15.0				3-1/4	10.0	5.0
	1-1/8	3/16			2-3/8	26.0						2-3/8	21.0						
	1.150	.200																	
	1-1/4	1/4			2	29.9						2	29.9	1-3/4	29.9	29.9			
	1-1/2	3/8																	
7/8	1	1/16																	
	1-1/8	1/8	4-1/8	8.0	4-1/8	8.0						4-1/8	7.0						
	1-3/16	5/32										3-1/2	11.0						
1	1-1/8	1/16																	
	1-1/4	1/8	5-1/8	6.0	5-1/8	6.0						4-3/4	5.0						
	1-5/16	5/32			4-3/8	10.0													
	1-3/8	3/16	3-3/4	14.0	3-3/4	14.0	3-3/4	20.0	5.0			4	12.0	3-1/4		5.0	5	12.0	7.0
	1.390	.195																	
	1-1/2	1/4	3	25.0	3	25.0						3	21.0						
	2	1/2																	
1-1/8	1-3/8	1/8			6-1/4	5.0													
	1-1/2	3/16	4-1/2	9.0	5-1/2	9.0	5-1/2	10.0	3.0			7-7/8	3.0						
1-1/4	1-1/2	1/8	5-1/2	9.0								5-1/2	7.0						
	1-5/8	3/16	4-3/8	16.0															
	1.636	.193	7-1/4	6.0															
	1-3/4	1/4										7-1/4	5.0						
1-1/2	1-7/8	3/16	5-7/8	11.0	7-1/4	6.0	5-7/8	10.0	2.0										
	1.900	.200	7-1/2	8.0	5-7/8	11.0						5-7/8	9.0						
	2	1/4	9-3/8	6.0								7-1/2	7.0						
1-3/4	2-1/4	1/4			9-3/8	6.0	6-7/8	25.0	10.0			9-3/8	5.0						
2	2-1/2	1/4	5-1/2	25.0															
	2-3/4	3/8	11-1/4	5.0	5-1/2	25.0													
	3	1/2																	
2-1/4	2-3/4	1/4			13-3/8	4.0													
2-1/2	3	1/4			10	9.0													
	3-1/4	3/8			18	2.0	13-1/4	10.0	1.0										
3	3-1/2	1/4																	
	3-3/4	3/8			17	6.0													
	4	1/2			55-3/8	.5													
4	5	1/2																	
6	6-1/2	1/4																	
.010	.030	.010																	
.020	.060	.020																	
.030	.090	.030																	
.040	.070	.015																	
.050	.090	.020																	

*Static Vacuum Test @ 23°C, 24-inch-long sample, vacuum applied for 10 minutes.

VACUUM RATINGS* AND BEND RADIUS VALUES

I. D. (inches)	O. D. (inches)	Wall Thickness (inches)	Norprene® A-60-F I.B.			Tygoprene® XL-60		Versilic® SPX-50			Versilic® SPX-70 I.B.		
			Minimum Bend Radius (in.)	Vacuum Rating In. of Mercury at 73°F	Vacuum Rating In. of Mercury at 180°F	Minimum Bend Radius (in.)	Vacuum Rating In. of Mercury at 73°F	Minimum Bend Radius (in.)	Vacuum Rating In. of Mercury at 73°F	Vacuum Rating In. of Mercury at 320°F	Minimum Bend Radius (in.)	Vacuum Rating In. of Mercury at 73°F	Vacuum Rating In. of Mercury at 320°F
.020	.145	.062											
1/32	3/32	1/32						1/8	29.9	29.9			
	5/32	1/16											
1/16	1/8	1/32						1/4	25.0	15.0			
	3/16	1/16				1/2	29.9	1/4	29.9	29.9			
.080	.140	.030											
3/32	5/32	1/32						1/4	20.0	20.0			
	3/16	3/64											
	7/32	1/16						1/4	29.9	29.9			
1/8	3/16	1/32						3/8	15.0	15.0			
	1/4	1/16				1/2	29.9	1/2	29.9	29.9			
	3/8	1/8											
5/32	7/32	1/32						3/4	5.0	5.0			
	1/4	3/64											
	9/32	1/16											
3/16	1/4	1/32						1	5.0	5.0			
	5/16	1/16				3/4	29.9	1/2	5.0	5.0			
	3/8	3/32						3/8	29.9	29.9			
	7/16	1/8						3/8	29.9	29.9			
	.443	.1278									1/4	29.9	29.9
	9/16	3/16											
1/4	5/16	1/32						1-1/2	0.0	0.0			
	3/8	1/16				1	29.9	3/4	20.0	20.0			
	7/16	3/32						5/8	29.9	29.9			
	1/2	1/8	3/4	29.9	29.9			5/8	29.9	29.9			
	.515	.1325									1/2	29.9	29.9
	5/8	3/16											
5/16	3/8	1/32											
	7/16	1/16				1-1/2	20.0	1-1/4	10.0	10.0			
	1/2	3/32						5/8	29.9	29.9			
	9/16	1/8						3/4	29.9	29.9			
	5/8	5/32											
	13/16	1/4											
3/8	1/2	1/16				2	15.0	1-1/2	10.0	5.0			
	9/16	3/32						1	15.0	15.0			
	5/8	1/8	1-1/4	29.9	20.0			1	29.9	29.9			
	.687	.156									3/4	29.9	29.9
	7/8	1/4											
	1	5/16											
7/16	1/2	1/32											
	9/16	1/16											
	5/8	3/32						1-3/4	15.0	10.0			
	11/16	1/8											
1/2	5/8	1/16						3	0.0	0.0			
	11/16	3/32						1-3/4	15.0	15.0			
	3/4	1/8	2-1/4	25.0	15.0	2-1/2	29.9	1-1/2	29.9	20.0			
	13/16	5/32											
	.847	.1735									1	29.9	29.9
	1-1/8	5/16											
9/16	5/8	1/32											
	3/4	3/32											
	13/16	1/8											
5/8	3/4	1/16											
	13/16	3/32						3	5.0	5.0			
	7/8	1/8	2-1/2	20.0	10.0	3	20.0	2-1/2	20.0	20.0			
	.980	.1775									1-1/2	29.9	29.9
	15/16	5/32											
	1-3/8	3/8											
11/16	3/4	1/32											
	7/8	3/32											
	15/16	1/8											
3/4	7/8	1/16											
	15/16	3/32											
	1	1/8				4	20.0	2-1/2	15.0	10.0			
	1-1/16	5/32	3-1/4	10.0	5.0								
	1-1/8	3/16											
	1.150	.200									2-1/4	29.9	29.9
	1-1/4	1/4											
	1-1/2	3/8											
7/8	1	1/16											
	1-1/8	1/8											
	1-3/16	5/32											
1	1-1/8	1/16											
	1-1/4	1/8						5	0.0	0.0			
	1-5/16	5/32											
	1-3/8	3/16	5	12.0	7.0								
	1.390	.195											
	1-1/2	1/4											
	2	1/2									2-1/2	29.9	29.9
1-1/8	1-3/8	1/8											
	1-1/2	3/16											
1-1/4	1-1/2	1/8											
	1-5/8	3/16						6	1.0	0.0			
	1.636	.193											
	1-3/4	1/4									4-1/4	25.0	20.0
1-1/2	1-7/8	3/16											
	1.900	.200											
	2	1/4									5-1/4	10.0	10.0
1-3/4	2-1/4	1/4						7	5.0	5.0			
2	2-1/2	1/4											
	2-3/4	3/8											
	3	1/2											
2-1/4	2-3/4	1/4											
2-1/2	3	1/4											
	3-1/4	3/8											
3	3-1/2	1/4											
	3-3/4	3/8											
	4	1/2											
4	5	1/2											
6	6-1/2	1/4											
.010	.030	.010											
.020	.060	.020											
.030	.090	.030											
.040	.070	.015											
.050	.090	.020											

*Static Vacuum Test @ 23°C, 24-inch-long sample, vacuum applied for 10 minutes.

VACUUM RATINGS* AND BEND RADIUS VALUES

I. D. (inches)	O. D. (inches)	Wall Thickness (inches)	Tygon® 2375		Tygon® 2001		Tygothane® C-210-A			Tygothane® C-544-A		
			Minimum Bend Radius (inches)	Vacuum Rating In. of Mercury at 73°F	Minimum Bend Radius (inches)	Vacuum Rating In. of Mercury at 73°F	Minimum Bend Radius (inches)	Vacuum Rating In. of Mercury at 73°F	Vacuum Rating In. of Mercury at 180°F	Minimum Bend Radius (inches)	Vacuum Rating In. of Mercury at 73°F	Vacuum Rating In. of Mercury at 180°F
.020	.145	.062										
1/32	3/32	1/32										
	5/32	1/16										
1/16	1/8	1/32					3/16	29.9	29.9			
	3/16	1/16	1/4	29.9	1/4	29.9						
.080	.140	.030										
3/32	5/32	1/32										
	3/16	3/64										
	7/32	1/16										
1/8	3/16	1/32					1/2	29.9	29.9			
	1/4	1/16	1/4	29.9	1/2	29.9	5/16	29.9	29.9			
	3/8	1/8								1/4	29.9	29.9
5/32	7/32	1/32										
	1/4	3/64										
	9/32	1/16										
3/16	1/4	1/32					1	29.9	20.0			
	5/16	1/16	1/2	29.9	1/2	29.9	5/8	29.9	29.9			
	3/8	3/32					7/16	29.9	29.9			
	7/16	1/8										
	.443	.1278										
	9/16	3/16										
1/4	5/16	1/32					1-9/16	20.0	5.0			
	3/8	1/16	3/4	29.9	1	29.9	15/16	29.9	29.9			
	7/16	3/32					11/16	29.9	29.9			
	1/2	1/8					9/16	29.9	29.9	3/4	29.9	29.9
	.515	.1325										
	5/8	3/16										
5/16	3/8	1/32										
	7/16	1/16	1-1/4	29.9	1-1/2	25.0	1-15/16	29.9	29.9			
	1/2	3/32										
	9/16	1/8										
	5/8	5/32										
	13/16	1/4										
3/8	1/2	1/16	1-1/2	20.0	2	15.0	1-3/4	29.9	25.0			
	9/16	3/32					1-5/16	29.9	29.9			
	5/8	1/8					1-1/16	29.9	29.9	1-1/2	29.9	29.9
	.687	.156										
	7/8	1/4										
	1	5/16										
7/16	1/2	1/32										
	9/16	1/16										
	5/8	3/32					1-11/16	29.9	29.9			
	11/16	1/8					1-3/8	29.9	29.9			
1/2	5/8	1/16					2-7/8	20.0	5.0			
	11/16	3/32					2-1/8	29.9	29.9			
	3/4	1/8	1-1/2	29.9	1-1/2	29.9	1-3/4	29.9	29.9	2	29.9	29.9
	13/16	5/32										
	.847	.1735										
	1-1/8	5/16										
9/16	5/8	1/32										
	3/4	3/32										
	13/16	1/8										
5/8	3/4	1/16					4-1/8	10.0	5.0			
	13/16	3/32					3	29.9	15.0			
	7/8	1/8	2-1/2	29.9	2-1/2	25.0	2-3/8	29.9	29.9	3	29.9	25.0
	.980	.1775										
	15/16	5/32										
	1-3/8	3/8										
11/16	3/4	1/32										
	7/8	3/32										
	15/16	1/8										
3/4	7/8	1/16										
	15/16	3/32					4	15.0	5.0			
	1	1/8	2-3/4	20.0	3	15.0	3-1/4	29.9	25.0			
	1-1/16	5/32								3-1/2	29.9	25.0
	1-1/8	3/16										
	1.150	.200										
	1-1/4	1/4										
	1-1/2	3/8										
7/8	1	1/16										
	1-1/8	1/8										
	1-3/16	5/32										
1	1-1/8	1/16										
	1-1/4	1/8					5-1/8	15.0	10.0			
	1-5/16	5/32										
	1-3/8	3/16	3-1/4	25.0	3-3/4	17.0				4-3/4	29.9	15.0
	1.390	.195										
	1-1/2	1/4										
	2	1/2										
1-1/8	1-3/8	1/8										
	1-1/2	3/16										
1-1/4	1-1/2	1/8										
	1-5/8	3/16										
	1.636	.193								6	29.9	20.0
	1-3/4	1/4										
1-1/2	1-7/8	3/16										
	1.900	.200								7-1/2	29.9	15.0
	2	1/4										
1-3/4	2-1/4	1/4								13	15.0	10.0
2	2-1/2	1/4										
	2-3/4	3/8										
	3	1/2										
2-1/4	2-3/4	1/4										
2-1/2	3	1/4										
	3-1/4	3/8										
3	3-1/2	1/4										
	3-3/4	3/8										
	4	1/2										
4	5	1/2										
6	6-1/2	1/4										
.010	.030	.010										
.020	.060	.020										
.030	.090	.030										
.040	.070	.015										
.050	.090	.020										

*Static Vacuum Test @ 23°C, 24-inch-long sample, vacuum applied for 10 minutes.

VACUUM RATINGS* AND BEND RADIUS VALUES

I. D. (inches)	O. D. (inches)	Wall Thickness (inches)	Norprene® A-60-G			Tygon® F-4040-A		Tygon® R-3400		Fluran® F-5500-A			Tygon® SE-200		Chemfluor® FEP		Chemfluor® PFA		Chemfluor® PTFE	
			Minimum Bend Radius (inches)	Vacuum Rating In. of Mercury at 73°F	Vacuum Rating In. of Mercury at 180°F	Minimum Bend Radius (inches)	Vacuum Rating In. of Mercury at 73°F	Minimum Bend Radius (inches)	Vacuum Rating In. of Mercury at 73°F	Minimum Bend Radius (inches)	Vacuum Rating In. of Mercury at 73°F	Vacuum Rating In. of Mercury at 275°F	Minimum Bend Radius (inches)	Vacuum Rating In. of Mercury at 73°F	Minimum Bend Radius (inches)	Vacuum Rating In. of Mercury at 73°F	Minimum Bend Radius (inches)	Vacuum Rating In. of Mercury at 73°F	Minimum Bend Radius (inches)	Vacuum Rating In. of Mercury at 73°F
.020	.145	.062																		
1/32	3/32	1/32																		
	5/32	1/16																		
1/16	1/8	1/32						1/4	29.9	1/4	29.9	29.9	1/2		1/2	29.9	1/2	29.9	1/2	29.9
	3/16	1/16	1/4	29.9	29.9															
.080	.140	.030				1/4	29.9													
3/32	5/32	1/32						3/8	29.9											
	3/16	3/64				1/4	29.9													
	7/32	1/16						1/4	29.9											
1/8	3/16	1/32																		
	1/4	1/16	1/2	29.9	29.9	3/8	29.9	3/8	29.9	1/2	29.9	29.9	1		1/2	29.9	1/2	29.9	1/2	29.9
	3/8	1/8	1/2	29.9	29.9															
5/32	7/32	1/32																		
	1/4	3/64													3/4	29.9	3/4	29.9	3/4	29.9
	9/32	1/16						1/2	29.9											
3/16	1/4	1/32						1	11.0						1	29.9	1	29.9	1	29.9
	5/16	1/16	3/4	29.9	29.9	5/8	29.9	5/8	29.9	3/4	29.9	29.9	1-1/2		1-1/2	29.9	1-1/2	29.9	1-1/2	29.9
	3/8	3/32	1/2	29.9	29.9			1/2	29.9											
	7/16	1/8																		
	.443	.1278																		
	9/16	3/16	1/4	29.9	29.9															
1/4	5/16	1/32													1-3/4	29.9	1-3/4	29.9	1-3/4	29.9
	3/8	1/16	7/8	29.9	15.8	1	22.0	1	25.0	1	25.0	20.0	2		1	29.9	1	29.9	1	29.9
	7/16	3/32	3/4	29.9	29.9			3/4	29.9											
	1/2	1/8	3/4	29.9	29.9															
	.515	.1325																		
	5/8	3/16	1/2	29.9	29.9															
5/16	3/8	1/32													2-1/2	29.9	2-1/2	29.9	2-1/2	29.9
	7/16	1/16	1-1/4	20.2	10.1	1-3/8	14.0	1-3/8	16.0	1-1/4	15.0	10.0								
	1/2	3/32	1	29.9	25.0															
	9/16	1/8																		
	5/8	5/32																		
	13/16	1/4	1/2	29.9	29.9															
3/8	1/2	1/16	1-3/8	14.1	7.0	1-7/8	10.0	1-3/4	11.0	2	10.0	5.0			2	29.9	2	29.9	2	29.9
	9/16	3/32	1-1/2	29.9	15.0								3-1/2							
	5/8	1/8	1-1/8	29.9	27.7	1-1/8	29.9	1-1/8	29.9											
	.687	.156																		
	7/8	1/4																		
	1	5/16																		
7/16	1/2	1/32													4	29.9	4	29.9	4	29.9
	9/16	1/16	2-1/4	5.0	0.0	2-3/8	7.0	2-1/4	8.0											
	5/8	3/32																		
	11/16	1/8																		
1/2	5/8	1/16	3	15.0	0.0	2-7/8	5.0								3	29.9	3	29.9	3	29.9
	11/16	3/32	2-1/4	20.0	10.0															
	3/4	1/8	1-1/8	29.6	15.6	1-3/4	22.0	1-3/4	25.0				4							
	13/16	5/32																		
	.847	.1735																		
	1-1/8	5/16																		
9/16	5/8	1/32																		
	3/4	3/32																		
	13/16	1/8													6	29.9	6	29.9	6	29.9
5/8	3/4	1/16																		
	13/16	3/32	3-1/4	10.0	5.0															
	7/8	1/8	2-3/4	20.0	9.9	2-1/2	14.0	2-3/8	16.0											
	.980	.1775																		
	15/16	5/32																		
	1-3/8	3/8																		
11/16	3/4	1/32													8	29.9	8	29.9	8	29.9
	7/8	3/32																		
	15/16	1/8																		
3/4	7/8	1/16																		
	15/16	3/32																		
	1	1/8	3-1/2	13.9	6.9	3-1./4	10.0	3-1/4	11.0				4-1/2							
	1-1/16	5/32																		
	1-1/8	3/16																		
	1.150	.200																		
	1-1/4	1/4																		
	1-1/2	3/8																		
7/8	1	1/16																		
	1-1/8	1/8																		
	1-3/16	5/32																		
1	1-1/8	1/16																		
	1-1/4	1/8	5	5.0	5.0															
	1-5/16	5/32																		
	1-3/8	3/16																		
	1.390	.195																		
	1-1/2	1/4																		
	2	1/2																		
1-1/8	1-3/8	1/8																		
	1-1/2	3/16																		
1-1/4	1-1/2	1/8																		
	1-5/8	3/16																		
	1.636	.193																		
	1-3/4	1/4																		
1-1/2	1-7/8	3/16																		
	1.900	.200																		
	2	1/4																		
1-3/4	2-1/4	1/4																		
2	2-1/2	1/4																		
	2-3/4	3/8																		
	3	1/2																		
2-1/4	2-3/4	1/4																		
2-1/2	3	1/4																		
	3-1/4	3/8																		
3	3-1/2	1/4																		
	3-3/4	3/8																		
	4	1/2																		
4	5	1/2																		
6	6-1/2	1/4																		
.010	.030	.010																		
.020	.060	.020																		
.030	.090	.030																		
.040	.070	.015																		
.050	.090	.020																		

NOT TO BE USED IN VACUUM APPLICATIONS

*Static Vacuum Test @ 23°C, 24-inch-long sample, vacuum applied for 10 minutes.

STORAGE, CLEANING & STERILIZATION PROCEDURES

> STORAGE

Storing Tygon® tubing is simple and presents no unusual problems. Whenever possible, it is desirable to store the tubing in a carton or box to eliminate or minimize its collecting dust. It is a good idea to dry store the tubing after cleaning, with ends open to permit thorough drying. If it is impossible to store Tygon® tubing in cartons, place it loosely coiled or laid out straight on a clean dry shelf, free from contact with painted surfaces, rubber, oils and greases. In any case, avoid kinking by not hanging the tubing over a nail or sharp edge.

> CLEANING

Generally, cleaning Tygon® tubing is as simple as the flushing of the bore with soap and water, followed by a clear water rinse. Its low surface tension facilitates complete drainage. In addition, Tygon® tubing will withstand virtually all commercial cleaning agents and bactericides without danger of corrosion (as with metals) or oxidation (as with rubber). When using these preparations, do not increase the temperature or the concentration of the solution beyond that recommended by the manufacturer. If the tubing shows excessive swelling during cleaning, reduce pressure and temperature. Contact with paint, rubber, oils, greases, hand creams and perspiration, or prolonged exposure to strong sunlight will also affect clarity. Certain strong sanitizing agents, such as those containing iodine or bromine, also have a tendency to cause some staining. However, these are surface discolorations and in no way affect the performance or life of the tubing. After exposure to moisture, a slight cloudiness will be noted. This is simply a surface film of moisture, and clarity will return shortly if the tubing is allowed to dry and air thoroughly.

> STERILIZATION

Listed to the right are commonly used methods of sterilization and tubing compatibility. It is required that the user conduct tests using the conditions of the application prior to specifying a particular tubing formulation.

Tubing Formulations	STERILIZATION METHODS		
	Autoclavable[1]	Gas[2]	Radiation[3]
Tygon S3™ B-44-3	Yes	Yes	No
Tygon S3™ B-44-4X	Yes	Yes	No
Tygon S3™ B-44-4X I.B.	No	Yes	No
Tygon S3™ Silver	No	Yes	No
Tygon S3™ E-3603	Yes	Yes	No
Tygon S3™ E-LFL	Yes	Yes	No
Norprene® A-60-F	Yes	Yes	Yes
Norprene® A-60-F I.B.	Yes	Yes	Yes
Tygoprene® XL-60	Yes	Yes	Yes
Versilic® SPX-50	Yes	Yes	Yes
Versilic® SPX-70 I.B.	Yes	Yes	Yes
Tygon® 2375	Yes	Yes	Yes
Tygon® 2001	Yes	Yes	Yes
Tygothane® C-210-A	N.A.	N.A.	N.A.
Tygothane® C-544-A I.B.	N.A.	N.A.	N.A.
Norprene® A-60-G	N.A.	N.A.	N.A.
Tygon® F-4040-A	N.A.	N.A.	N.A.
Tygon® R-3400	N.A.	N.A.	N.A.
Fluran® F-5500-A	N.A.	N.A.	N.A.
Tygon® SE-200	No	Yes	No
Chemfluor® FEP	Yes	Yes	No
Chemfluor® PFA	Yes	Yes	No
Chemfluor® PTFE	Yes	Yes	No

Tygon® Manufacturing Facilities

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