



Liveo™ Pharma Advanced Pump Tubing

Silicone Tubing and Assemblies

Translucent pharmaceutical grade silicone tubing designed for pumping of ultrapure liquids in pharmaceutical and biotechnological manufacturing processes.

Made from biomedical grade tear resistant platinum-cured elastomer.

APPLICATIONS

For use in peristaltic pumps where durability is required. DuPont Advanced Pump Tubing offers up to four times the pump life of standard platinum cure silicone tubing

FEATURES & BENEFITS

- Up to four times the pump life of standard platinum cured silicone tubing
- Excellent flexibility
- Superior resiliency
- Low extractables
- Contains no organic plasticizers, phthalates or latex additives
- No peroxide by-products, chlorophenyls or PCBs
- Easily sterilized
- Non-wetting (hydrophobic) surface
- Made from BioMedical Grade elastomer that exceeds United States Pharmacopeia (USP®) Class VI Plastics Test requirements
- Meets European Pharmacopoeia monograph 3.1.9. "Silicone elastomer for closures and tubing"
- Manufactured to the principles of FDA 21 CFR 210/211 cGMPs for Pharmaceutical products
- Produced in a FDA registered (CFN 1816403) and inspected healthcare facility
- High purity quality (USP 788 Particulate matter for Injection, USP 85 Bacterial Endotoxins, ISO 11737-1 Bioburden)
- FDA 21 CFR 177.2600 and USP 661 Physico-chemical tests - Plastics
- Added pump life can reduce material usage and process shut downs
- Reduces risk of contaminating ultra-pure liquids
- Complete traceability
- Consistent performance
- Rigorous change control
- Outstanding filling accuracy

Common tubing product sizes (capability exists for these and many other sizes) and Burst properties:

Inside Diameter [mm]	Outside Diameter [mm]	Wall [mm]	Burst Pressure [bar]
3.2	6.4	1.6	5.4
4.8	8.0	1.6	3.8*
4.8	9.5	2.4	4.8

Revised: 2021-06-17

Page: 1 of 4

DuPont



Liveo™ Pharma Advanced Pump Tubing

Silicone Tubing and Assemblies

6.4	9.5	1.6	2.8*
6.4	11.1	2.4	4.1*
6.4	12.7	3.2	5.2
8.0	12.7	2.4	3.4*
9.5	12.7	1.6	1.6*
9.5	14.3	2.4	2.9*
9.5	15.9	3.2	3.4
12.7	17.5	2.4	2.0*
12.7	19.1	3.2	2.6
15.9	22.2	3.2	2.3
19.1	25.4	3.2	1.7

Note: Burst pressure values are typical values not intended for writing specifications. Test method is based on ASTM D380-14.

* Predicted burst pressure : a regression formula was used to calculate burst pressure of these tubing sizes not actually tested for burst strength.

Quality information

The FDA registered and ISO 9001:2015 certified Healthcare Industries Materials Site (HIMS site) is responsible for ensuring consistent product quality.

Regulatory and Biocompatibility information

Product Regulatory Information document as well as Summary of health data are available from our DuPont website or upon request.

PACKAGING

To serve our customers better, we can provide Pharma Advanced Pump Tubing in a variety of dimensions, including the most commonly used sizes shown in Table above. Standard package is a 15-meter coil, double bagged in separately sealed polyethylene bags contained in a cardboard box.

Typical mechanical properties

Modulus at 200% strain	3 ^[1] MPa	ASTM D 412
Tensile Strength	8.9 MPa	ASTM D 412
Elongation at break	590 %	ASTM D 412
Shore A hardness	50	ASTM D 2240
Tear strength, die B	40.0 kN/m	ASTM D 624

[1]: die D



Liveo™ Pharma Advanced Pump Tubing

Silicone Tubing and Assemblies

Storage and stability

Shelf life 60^[2] months

[2]: * From the date of manufacture when stored in the original unopened containers

Characteristics

Food contact FDA 21 CFR

Additional information

How to use Information from "Chemical Resistance Guide For Elastomers IV", published by Compass Publications, La Jolla, California, can be used as a reference. It is however recommended that the DuPont product be evaluated in the real conditions of use.

LIMITATIONS

This product is neither tested nor approved for any hospital or patient care use such as for temporary insertion or any in vivo procedures. This product is not to be used in human implantation, or human contraceptive, reproductive, obstetrical or gynecological applications. The user shall hold DuPont harmless from any and all damages resulting from use of this product. It is the sole responsibility of the user to determine the safety and efficacy of this product for any specific use. This product is not tested for specific pharmaceutical or medical device use(s). Should you wish to use this product in a specific pharmaceutical or medical device application, please contact DuPont to discuss such potential use. It remains the User's responsibility to ensure the safety, efficacy and legal and regulatory compliance in each relevant jurisdiction (including targeted geographic regions of manufacture and supply) of these materials for its intended uses. DuPont makes no representation concerning the suitability of these products for any particular medical or pharmaceutical application. Under no circumstances should these materials be considered for implantation into the human body for periods that exceed 30 days in duration.

Safety warning

Before handling, please consult the corresponding material safety data sheets. These are available upon request or can be downloaded from our DuPont website : www.DuPont.com



Liveo™ Pharma Advanced Pump Tubing

Silicone Tubing and Assemblies

Chemical Media Resistance

Sterilisation methods

- ✓ Ethylene Oxide
- ✓ Autoclave Steam, 30min at 120°C
- ✓ Gamma Radiation, 50 kGy

Symbols used:

- ✓ possibly resistant
Defined as: Supplier has sufficient indication that contact with chemical can be potentially accepted under the intended use conditions and expected service life. Criteria for assessment have to be indicated (e.g. surface aspect, volume change, property change).
- ✗ not recommended - see explanation
Defined as: Not recommended for general use. However, short-term exposure under certain restricted conditions could be acceptable (e.g. fast cleaning with thorough rinsing, spills, wiping, vapor exposure).

Revised: 2021-06-17

Page: 4 of 4

DuPont

The information set forth herein is furnished free of charge, is based on technical data that DuPont believes to be reliable, and represents typical values that fall within the normal range of properties. This information relates only to the specific material designated and may not be valid for such material used in combination with other materials or in other processes. It is intended for use by persons having technical skill, at their own discretion and risk. This information should not be used to establish specification limits nor used alone as the basis of design. Handling precaution information is given with the understanding that those using it will satisfy themselves that their particular conditions of use present no health or safety hazards and comply with applicable law. Since conditions of product use and disposal are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information. As with any product, evaluation under end-use conditions prior to specification is essential. Nothing herein is to be taken as a license to operate or a recommendation to infringe on patents.

CAUTION: Do not use DuPont materials in medical applications involving implantation in the human body or contact with internal body fluids or tissues unless the material has been provided from DuPont under a written contract or other acknowledgement that is consistent with the DuPont policy regarding medical applications and expressly acknowledges the contemplated use. For further information, please contact your DuPont representative.

DuPont's sole warranty is that our products will meet our standard sales specifications in effect at the time of shipment. Your exclusive remedy for breach of such warranty is limited to refund of purchase price or replacement of any product shown to be other than as warranted. TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, DUPONT SPECIFICALLY DISCLAIMS ANY OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, OR NON-INFRINGEMENT. DUPONT DISCLAIMS LIABILITY FOR ANY SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES.

DuPont™, the DuPont Oval Logo, and all trademarks and service marks denoted with ™, SM or ® are owned by affiliates of DuPont de Nemours, Inc. unless otherwise noted.

© 2022 DuPont. All rights reserved.