

DuPont™ Liveo™ Pharma Tubing & Molded Assemblies

Purity Product Selection Guide

Exacting purity

Advancing single-use solutions for
end-to-end purity, reliability and security.





Liveo™ Tubing and Molded Assemblies Selection Guide

DuPont's portfolio of tubing and molded assemblies consists of high-purity, biomedical grade, platinum-catalyzed silicone products designed for ultra-pure fluid transfer applications for upstream and downstream processes of pharma and biopharma drug products.

Liveo™ Pharma Tubing and Molded Assemblies are critical components of single-use systems. These products help to minimize cleaning validation and labor costs and reduce risk of contamination when transferring ultra-pure liquids, air or steam.

As tubing represents one of the largest surface areas in direct contact with drug substances during the drug manufacturing process, tubing and molded assemblies need to meet strict regulatory and quality requirements. DuPont provides high purity solutions resulting from the cleanliness (low extractables, no by-products and no additives) and biocompatibility of the silicone formulations used to produce the tubing and molded assemblies products and through its full vertical integration across the supply chain.

Products are rigorously tested, fully traceable, comprehensively documented and thoroughly managed for contamination and change control, including customer notification of change. To learn more, read our [Exacting Purity Brochure](#).

Product Name	Specific Benefits	Product Description	Typical Applications	Product Regulatory Information
Liveo™ Pharma Tubing	<ul style="list-style-type: none"> High resiliency Easily sterilizable Kink resistant 	<p>Translucent, platinum-cured silicone tubing for safe and secure fluid transfer. It is available in three durometers.</p> <ul style="list-style-type: none"> High purity 50 Sh.A durometer/hardness: Suitable for most applications and for short term pumping operations High purity 65 Sh.A durometer/hardness: Offers kinking resistance and higher pressure resistance. High purity 80 Sh.A durometer/hardness: Cost effective alternative to Reinforced Tubing for moderate to high pressure or vacuum applications and offering highest kink resistance. 	<ul style="list-style-type: none"> Ultra-pure fluid transfer Filling machines 	<p>Compliance with:</p> <ul style="list-style-type: none"> EP 3.1.9 Silicone Elastomers for Closures & Tubing USP <661> Physicochemical tests - Plastics FDA 21 CFR 177.2600 Rubber articles intended for repeated use JP XIV Section 11 - Plastic Containers for Pharmaceutical Products ISO 11737-Part 1 Bioburden
Liveo™ Pharma Advanced Pump Tubing	<ul style="list-style-type: none"> Increased tubing pump life, up to four times compared to standard 50 durometer tubing Superior resiliency Easily sterilizable Kink resistant 	<p>High purity 50 Sh.A. durometer translucent silicone tubing made from a proprietary platinum-cured elastomer. This elastomer contains "low hysteresis" technology that translates into tubing with extended peristaltic pump performance, long pump life and outstanding filling accuracy.</p>	<ul style="list-style-type: none"> Ultra-pure fluid transfer Peristaltic pumps Filling machines Pumping applications which require long-term delivery transfer of fluids 	<ul style="list-style-type: none"> USP <788> Particulate Matter in Injections USP <88> Class VI (Biological reactivity tests, in vivo) USP <85> Bacterial Endotoxins USP <151> Pyrogen test
Liveo™ Pharma-65 Reinforced Tubing	<ul style="list-style-type: none"> Reinforced for improved burst strength Resistant to collapse under vacuum Superior kink-resistance High resiliency Easily sterilizable 	<p>Polyester fiber-reinforced pharmaceutical grade silicone tubing for applications requiring high kink, high pressure or high vacuum resistance.</p>	<ul style="list-style-type: none"> Ultra-pure fluid transfer Filling machines 	<ul style="list-style-type: none"> ISO 10993-3 Tests for genotoxicity, carcinogenicity and reproductive toxicity ISO 10993-4 Selection of tests for interactions with blood (related to hemolysis) ISO 10993-5 Tests for in vitro cytotoxicity (equivalent to USP <87> Biological reactivity tests, in vitro)
Liveo™ Pharma Molded Assemblies	<ul style="list-style-type: none"> Customizable Reduces the risk of leakage Helps reduce risk of contaminating ultra-pure fluids Reduces in-house assembly and set up time and costs 	<p>Molded assemblies are made from Silastic™ BioMedical Grade Elastomer and customized to meet specific design requirements for fluid transfer applications which require integrated premium quality silicone tubing, molded silicone connections and customer specified components.</p>	<ul style="list-style-type: none"> Leak-free connection High value for critical applications such as fill and finish 	<ul style="list-style-type: none"> ISO 10993-6 Tests for local effects after implantation ISO 10993-10 Tests for irritation and skin sensitization ISO 10993-11 Tests for systemic toxicity BPOG extractable testing⁶

Liveo™ Pharma Tubing Portfolio:

Offers solutions for a wide range of process conditions and allows customers to adapt to their needs for increased productivity and customized specifications, including:

- Durometer (hardness): ranging from Shore A 50 to Shore A 80
- ID and OD: from small bore (.011"x.024") to large bore (1.25"x1.625")
- Customization options include: ID, OD, length, tolerances, marking and packaging

Liveo™ Pharma Molded Assemblies:

Designed and custom molded for ultra-pure fluid transfer applications.

Made-to-order customization options include:

- Wide range of dimensions for connections
- Designs such as: Wyes, Tees, TC Ends, Crosses, Reducers, Unions, Sanitary flange, Stoppers
- Various tubing types and lengths
- Attachment of non-silicone components according to each customer's design such as filters, thermoplastic connectors, pinch clamps, etc.
- Gamma-irradiation option

Product Regulatory Information	Typical Properties							Pull-Apart Strength (lbs) ⁴ ASTM D412	Leak Test ⁵ ASTM D380-94 ISO1402
	Durometer (Sh.A) ¹ ASTM D2240	Elongation at Break % ² ASTM D412	Modulus at 200% MPa (psi) ² ASTM D412	Tensile Strength at Break MPa (psi) ² ASTM D412	Burst Pressure for ID 0.375" x OD 0.625" bar (psi) ³ ASTM D380-94	Tear Strength kN/m (ppi) ¹ ASTM D624	Specific Gravity ASTM D 792		
	50	795	2.1 (310)	8.7 (1265)	4.1 (59)	47.3 (270)	1.14		
	65	775	2.8 (415)	6.8 (990)	7.7 (112)	45.5 (260)	1.22		
	80	570	3.9 (570)	7.0 (1025)	13.2 (192)	42 (240)	1.22		
	50	590	3.0 (435)	8.9 (1290)	3.4 (50)	40.3 (230)	1.14		
	65	890 ¹	2.82 (409) ¹	7.94 (1151) ¹	41.2 (597)	45.5 (260) ¹	1.22 ¹		
					Burst testing information available upon request			≥ 30 (>3/8" ID) ≥ 15 (<3/8" ID)	Pass

Specifications Writers: These values are not intended for use in preparing specifications. Please contact your local Supplier sales office prior to writing specifications on these products.

¹Based on Elastomer

²On Extruded Tubing (Die D)

³Burst pressure for other tubing dimension is available in Product Information sheet

⁴Limit depends on the dimensions of the assembly

⁵Water immersion - Pass if no streaming bubbles appear at the overmolded connector held at 15 psi for 15 min.

⁶Available upon request



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Form Number: 001-20373-CDP0820