# <u>HelixMark</u>





Made in USA & Germany

The world's leading pharmaceutical and medical device companies rely on HelixMark to provide an extensive selection of high-quality silicone tubing and fluid handling products.

All HelixMark products are clean room manufactured in compliance with medtech and pharmaceutical industry requirements.

The following criteria apply to all articles of this program:

- Materials approved in accordance with USP Class VI, ISO 10993-1, FDA 21CFR 177-2600 and EP 3.1.9 or EP 3.1.9 without appearance of solution
- All silicone is platinum cured.
- Production and packaging in ISO Class 8 clean rooms
- Certified manufacturing in compliance with ISO 13485 quality standards
- Sterilizable by Autoclave, Ethylene Oxide and Gamma Irradiation
- Material certification included
- Lot traceability
- Double bagged
- Standard product availability guarantees short delivery times
- Customer-specific solutions available outside the HelixMark standard product portfolio

I July



## **HELIXMARK**<sup>®</sup> **STANDARD TUBING**

HelixMark standard silicone tubing meets the needs of a broad range of applications and is universally applicable for the transfer of fluids under standard requirements. The tubing is offered in four types of silicone elastomer: Dow Corning, Wacker, NuSil, and Momentive. Individually packed in pre-cut lengths of 50 feet.

-	inch	INSIDE DIAMETER		OUTSIDE DIAMETER		(NESS	DOW CORNING ISO, FDA, USP, EP	WACKER ISO, FDA, EP	NUSIL ISO, USP, EP	MOMENTIVE USP, FDA
	men	mm	inch	mm	inch	mm	REF	REF	REF	REF
	.012	0.31	.025	0.64	.006	0.15	60-011-01	60-411-40	60-795-01	60-805-01
	.020	0.51	.037	0.94	.008	0.20	60-011-02	60-411-41	60-795-02	60-805-02
	.025	0.64	.047	1.19	.011	0.28	60-011-03	60-411-42	60-795-03	60-805-03
	.030	0.76	.065	1.65	.018	0.46	60-011-04	60-411-43	60-795-04	60-805-04
	.040	1.02	.085	2.16	.023	0.58	60-011-05	60-411-44	60-795-05	60-805-05
	.058	1.47	.077	1.96	.009	0.23	60-011-06	60-411-45	60-795-06	60-805-06
	.062	1.58	.095	2.41	.016	0.41	60-011-07	60-411-46	60-795-07	60-805-07
	.062	1.58	.125	3.18	.032	0.81	60-011-08	60-411-47	60-795-08	60-805-08
	.078	1.98	.125	3.18	.024	0.61	60-011-09	60-411-48	60-795-09	60-805-09
	.104	2.64	.192	4.88	.044	1.12	60-011-10	60-411-49	60-795-10	60-805-10
	.132	3.35	.183	4.65	.026	0.66	60-011-11	60-411-50	60-795-11	60-805-11
	.125	3.18	.250	6.35	.063	1.59	60-011-21	60-411-51	60-795-21	60-805-21
Values listed are typical and	.188	4.78	.313	7.95	.063	1.59	60-011-22	60-411-52	60-795-22	60-805-22
may vary. Typical hardness: 50 Shore A and 60 Shore A.	.188	4.78	.375	9.53	.094	2.38	60-011-23	60-411-53	60-795-23	60-805-23
50 foot coils (~15 m). Double	.250	6.35	.375	9.53	.063	1.59	60-011-24	60-411-54	60-795-24	60-805-24
bagged. Material certificate and lot traceability included.*	.250	6.35	.438	11.11	.094	2.38	60-011-25	60-411-55	60-795-25	60-805-25
IN ACCORDANCE WITH	.250	6.35	.500	12.70	.125	3.18	60-011-26	60-411-56	60-795-26	60-805-26
ISO: ISO 10993-1	.313	7.94	.500	12.70	.094	2.38	60-011-27	60-411-57	60-795-27	60-805-27
FDA: FDA 21CFR 177-2600 USP: USP-CLASS VI	.375	9.53	.500	12.70	.063	1.59	60-011-28	60-411-58	60-795-28	60-805-28
EP: EP 3.1.9 (EP): EP 3.1.9 without	.375	9.53	.563	14.29	.094	2.38	60-011-29	60-411-59	60-795-29	60-805-29
appearance of solution	.375	9.53	.625	15.88	.125	3.18	60-011-30	60-411-60	60-795-30	60-805-30
	.500	12.70	.688	17.46	.094	2.38	60-011-31	60-411-61	60-795-31	60-805-31
* Individual measured values may differ from	.500	12.70	.750	19.05	.125	3.18	60-011-32	60-411-62	60-795-32	60-805-32
mean values. These values are not to be considered	.625	15.88	.875	22.23	.125	3.18	60-011-33	60-411-63	60-795-33	60-805-33
as product specifications.	.625	15.88	.938	23.82	.156	3.97	60-011-34	60-411-64	60-795-34	60-805-34
Non-implantable, non-sterile.	.750	19.05	1.000	25.40	.125	3.18	N/A	60-411-65	N/A	N/A

ISO: ISO 10993-1
FDA: FDA 21CFR 177-2600
USP: USP-CLASS VI
EP: EP 3.1.9
(EP): EP 3.1.9 without
appearance
of solution
* Individual measured

TYPICAL MATERIAL PROPERTIES AS CURED				
Specific Gravity [g/cm³]	1.16	1.15	1.14	1.15
Durometer Hardness, Shore A	50	60	50	50
Tear Strength, Die B, ppi	262	218	230	270
Tensile Strength, Die C, psi	1473	1385	1350	1400
Elongation [%]	903	771	810	880

## HELIXMARK<sup>®</sup> PERISTALTIC PUMP TUBING

HelixMark peristaltic pump tubing is designed and manufactured for use with peristaltic pumps and other applications with higher effective forces. A special production process designed to meet these requirements ensures that the products provide greater stability and capacity to withstand high stress. Offered in a range of sizes suitable for use with all commonly used pump types. The tubing is individually packaged in pre-cut lengths of 25 feet.



0.200.511.463.710.631.60#11260-825-150.0310.791.573.990.631.60#1360-825-230.0390.990.631.600.120.3160-825-370.0591.500.992.520.200.51#1460-825-430.631.60.1894.800.631.60#1460-825-430.631.60.2516.380.942.39#11960-825-510.792.01.1193.020.200.5160-825-631.183.00.1584.010.200.5160-825-701.253.18.2516.380.631.60#1660-825-711.253.18.3137.95.0942.39#12060-825-1021.884.78.3147.98.0631.60#2560-825-1031.884.78.3769.55.0631.60#1760-825-1101.884.78.3769.55.0631.60#1760-825-1332.506.35.3769.55.0631.60#1760-825-1342.506.35.5001.273.18#22460-825-1342.506.35.5001.273.18#2360-825-1342.506.35.5001.273.18#12360-825-1342.506.35.5001.273.18#2460-825-134 <tr< th=""><th>ISO, FDA, USP</th><th>FITS PUMP TUBE SIZE</th><th colspan="2">WALL THICKNESS</th><th></th><th>OUT DIAN</th><th></th><th>INS DIAN</th></tr<>	ISO, FDA, USP	FITS PUMP TUBE SIZE	WALL THICKNESS			OUT DIAN		INS DIAN
0.0110.791.573.990.631.6041360-825-230.030.990.631.600.120.3160-825-370.0511.500.992.520.200.5141460-825-430.031.60.2516.380.942.39#11960-825-510.092.52.1393.530.200.5160-825-630.1183.00.1584.010.200.5160-825-701.253.18.2516.380.631.60#1660-825-731.253.18.3137.950.942.39#12060-825-821.584.01.2145.440.280.7160-825-1041.884.78.3147.980.631.60#2560-825-1031.884.78.3147.980.631.60#1560-825-1041.884.78.3769.55.0942.39#1560-825-1031.884.78.3769.55.0631.60#1760-825-1131.884.78.3769.55.0631.60#1760-825-1331.884.78.3769.55.0631.60#1760-825-1331.884.78.3769.55.0631.60#1760-825-1331.896.35.5001.270.1253.18#12360-825-1331.506.35.5001.270.1253.18 <th>REF</th> <th></th> <th>mm</th> <th>inch</th> <th>mm</th> <th>inch</th> <th>mm</th> <th>inch</th>	REF		mm	inch	mm	inch	mm	inch
0.990.631.600.0120.3160-825-770.0591.500.992.520.200.514.4060-825-430.0631.60.1894.800.631.60#1460-825-430.0631.60.2516.380.942.39#11960-825-510.0792.01.1193.020.200.5160-825-630.0992.52.1393.530.200.5160-825-701.253.18.2516.380.631.60#1660-825-791.253.18.3137.95.0942.39#12060-825-131.884.78.3147.98.0631.60#2560-825-1041.884.78.3769.55.0942.39#1560-825-1031.884.78.3769.55.0942.39#12060-825-1031.884.78.3769.55.0631.60#1760-825-1131.884.78.3769.55.0631.60#1760-825-1301.2506.35.5011.43.1002.54#24TW60-825-1311.2506.35.50012.701.253.18#2660-825-1311.2506.35.50112.73.1042.39#35/12160-825-1311.3137.95.50112.73.158.401#18560-825-1311.3137.95.50112.73.14	60-825-15	#112	1.60	.063	3.71	.146	0.51	.020
0.0991.500.0992.520.0200.51(0.000)<	60-825-23	#13	1.60	.063	3.99	.157	0.79	.031
0.631.60.1894.80.0631.60#1460-825-430.631.60.2516.38.0942.39#11960-825-510.092.52.1393.53.0200.5160-825-631.183.00.1584.01.0200.5160-825-701.253.18.2516.38.0631.60#1660-825-791.253.18.313.795.0942.39#12060-825-331.884.71.2145.44.0280.7160-825-1041.884.78.314.798.0631.60#2560-825-1041.884.78.314.798.0631.60#1560-825-1101.884.78.376.9.55.0942.39#1560-825-1301.884.78.388.9.66.1002.54#15TW60-825-1301.884.78.3481.113.1253.18#12360-825-1301.2506.35.376.9.55.0631.60#1760-825-1301.2506.35.5001.270.1253.18#2660-825-1301.2506.35.5001.270.1253.18#2660-825-1301.2506.35.5001.271.1353.43#26TW60-825-1301.350.5011.273.0942.39#35/12160-825-1361.313.7.95.5011.273	60-825-27		0.31	.012	1.60	.063	0.99	.039
0.63 1.60 2.51 6.38 0.94 2.39 #119 60-825-45   0.079 2.01 1.19 3.02 0.20 0.51 60-825-53   0.099 2.52 1.39 3.53 0.20 0.51 60-825-70   1.125 3.18 .251 6.38 0.63 1.60 #16 60-825-79   1.25 3.18 .313 7.95 .094 2.39 #120 60-825-79   1.88 4.01 .214 5.44 .028 0.71 60-825-103   1.88 4.78 .314 7.98 .063 1.60 #25 60-825-103   1.88 4.78 .388 9.86 1.00 2.54 #115TW 60-825-133   1.88 4.78 .388 9.86 1.00 2.54 #124 60-825-133   1.88 4.78 .438 11.13 .094 2.39 #24 60-825-133   2.50 6.35 .500 12.70	60-825-37		0.51	.020	2.52	.099	1.50	.059
0.792.011.193.020.200.5160*825-510.992.521.393.530.200.5160*825-631.183.001.584.010.200.5160*825-791.253.18.3137.950.942.39#12060*825-821.584.01.2145.440.280.7160*825-931.884.78.3147.98.0631.60#2560*825-1041.884.78.3147.98.0631.60#1560*825-1041.884.78.3889.55.0942.39#11560*825-1041.884.78.3889.55.0631.60#1760*825-1301.884.78.3889.55.0631.60#1760*825-1301.884.78.3769.55.0631.60#1760*825-1331.884.78.34811.13.1042.39#2460*825-1332.506.35.50012.70.1253.18#2660*825-1362.506.35.50012.70.1253.18#2660*825-1363.137.95.50112.73.0942.39#35/12160*825-1613.137.95.5631.58.1253.18#17360*825-1913.759.53.64515.88.1253.18#7360*825-1913.759.53.64515.8.126	60-825-43	#14	1.60	.063	4.80	.189	1.60	.063
0.0992.521.1393.530.200.5160-825-631.1183.00.1584.010.2000.5160-825-701.253.18.2516.38.0631.60#11060-825-821.1253.18.3137.95.0942.39#12060-825-821.1584.01.2145.44.0280.7160-825-1041.1884.78.3147.98.0631.60#2560-825-1041.1884.78.3769.55.0942.39#11560-825-1031.1884.78.3889.86.1002.54#15TW60-825-1301.1884.78.3889.86.1002.54#12360-825-1301.256.35.3769.55.0631.60#1760-825-1301.256.35.3769.55.0631.60#1760-825-1331.256.35.43811.13.0042.39#2460-825-1361.256.35.50012.70.1253.18#26TW60-825-1361.25.50112.73.0942.39#35/12160-825-1943.137.95.56314.30.0942.39#35/12160-825-1963.137.95.56314.30.0942.39#35/12160-825-1973.759.53.64515.88.1353.43#73TW60-825-1973.759.53.645	60-825-45	#119	2.39	.094	6.38	.251	1.60	.063
118 3.00 .158 4.01 .020 0.51 6.0825-70   .125 3.18 .313 7.95 .094 2.39 #120 60-825-82   .125 3.18 .313 7.95 .094 2.39 #120 60-825-93   .128 4.01 .214 5.44 .028 0.71 60-825-93   .188 4.78 .314 7.98 .063 1.60 #25 60-825-104   .188 4.78 .314 7.98 .063 1.60 #15 60-825-102   .188 4.78 .338 9.86 .100 2.54 #15TW 60-825-103   .188 4.78 .338 9.86 .100 2.54 #174 60-825-130   .250 6.35 .376 9.55 .063 1.60 #17 60-825-133   .250 6.35 .430 1.143 .100 2.54 #24TW 60-825-136   .250 6.35 .500	60-825-51		0.51	.020	3.02	.119	2.01	.079
1.253.18.2516.38.0631.60#1660-825-791.253.18.3137.95.0942.39#12060-825-821.184.01.2145.44.0280.7160-825-931.884.78.3147.98.0631.60#2560-825-1041.884.78.3769.55.0942.39#1560-825-1021.884.78.3889.86.1002.54#15TW60-825-1121.884.78.3769.55.0631.60#1760-825-1301.884.78.3769.55.0631.60#1760-825-1361.2506.35.3769.55.0631.60#1760-825-1332.506.35.50012.70.1253.18#2460-825-1362.506.35.50012.70.1253.18#26TW60-825-141.3137.95.50112.73.0942.39#35/12160-825-160.3137.95.50112.73.0942.39#35/12160-825-161.3759.53.62515.88.1584.01#18560-825-192.3759.53.56314.30.0942.39#35/12160-825-193.3759.53.64515.88.1583.43#73TW60-825-194.3759.53.64515.88.158.401#18660-825-205.375	60-825-63		0.51	.020	3.53	.139	2.52	.099
1.1253.18.3137.95.0942.39#12060-825-821.1584.01.2145.44.0280.7160-825-931.1884.78.3147.98.0631.60#2560-825-1041.1884.78.3769.55.0942.39#11560-825-1021.1884.78.3889.86.1002.54#15TW60-825-1121.1884.78.3889.86.1002.54#12360-825-1301.1884.78.3769.55.0631.60#1760-825-1301.2506.35.3769.55.0631.60#1760-825-1331.2506.35.3769.55.0631.60#1760-825-1361.2506.35.50012.70.1253.18#2460-825-1361.2506.35.50012.70.1253.18#26TW60-825-1601.3137.95.50112.73.0942.39#35/12160-825-1633.1317.95.50112.73.0942.39#36/12260-825-1643.3137.95.56314.30.0942.39#36/12260-825-1973.3759.53.64516.38.1353.43#73TW60-825-1973.3759.53.64516.38.1253.18#7360-825-1933.3759.53.64516.38.1353.43#73TW60-825-203 <th>60-825-70</th> <td></td> <td>0.51</td> <td>.020</td> <td>4.01</td> <td>.158</td> <td>3.00</td> <td>.118</td>	60-825-70		0.51	.020	4.01	.158	3.00	.118
1.1584.012.2145.44.0280.71(0)(0)(0)825-931.1884.78.3147.98.0631.60#2560-825-1041.1884.78.3769.55.0942.39#11560-825-1031.1884.78.3889.86.1002.54#15TW60-825-1121.1884.78.3769.55.0631.60#1760-825-1301.2506.35.3769.55.0631.60#1760-825-1332.506.35.45011.43.1002.54#24TW60-825-1362.506.35.50012.70.1253.18#26TW60-825-1392.506.35.50012.70.1253.18#26TW60-825-136.2506.35.50112.73.0942.39#35/12160-825-169.3137.95.50112.73.0942.39#35/12160-825-194.3137.95.50112.73.0942.39#36/12260-825-197.3759.53.62515.88.1253.18#7360-825-197.3759.53.64516.38.1353.43#73TW60-825-197.3759.53.64516.38.1353.43#73TW60-825-197.3759.53.64516.38.1353.43#82TW60-825-197.3759.53.64516.38.1353.43 <td< td=""><th>60-825-79</th><td>#16</td><td>1.60</td><td>.063</td><td>6.38</td><td>.251</td><td>3.18</td><td>.125</td></td<>	60-825-79	#16	1.60	.063	6.38	.251	3.18	.125
1884.78.3147.98.0631.60#2560-825-104.1884.78.3769.55.0942.39#11560-825-108.1884.78.3889.86.1002.54#15TW60-825-112.1884.78.43811.13.1253.18#12360-825-130.2506.35.3769.55.0631.60#1760-825-133.2506.35.43811.13.0942.39#24460-825-136.2506.35.45011.43.1002.54#24TW60-825-136.2506.35.50012.70.1253.18#2660-825-136.2506.35.50012.70.1253.18#26TW60-825-141.3137.95.50112.73.0942.39#35/12160-825-166.3137.95.50112.73.0942.39#35/12160-825-164.3137.95.50112.73.0942.39#35/12160-825-164.3137.95.50112.73.0942.39#35/12160-825-164.3759.53.64516.38.1353.43#73TW60-825-194.3759.53.64516.38.1353.43#73TW60-825-200.3759.53.64516.38.1353.43#73TW60-825-203.50012.70.77019.05.1253.18#8260-825-2	60-825-82	#120	2.39	.094	7.95	.313	3.18	.125
1884.78.3769.55.0942.39#1560-825-108.1884.78.3889.86.1002.54#15TW60-825-112.1884.78.43811.13.1253.18#12360-825-130.2506.35.3769.55.0631.60#1760-825-133.2506.35.43811.13.0942.39#2460-825-133.2506.35.45011.43.1002.54#24TW60-825-136.2506.35.50012.70.1253.18#2660-825-139.2506.35.50012.70.1253.18#26TW60-825-141.3137.95.50112.73.0942.39#35/12160-825-166.3137.95.50112.73.0942.39#35/12160-825-161.3137.95.50112.73.0942.39#36/12260-825-191.3759.53.62515.88.1584.01#18560-825-191.3759.53.64516.38.1353.43#73TW60-825-191.3759.53.64516.38.1353.43#73TW60-825-193.3759.53.74919.03.1874.75#70/19060-825-200.47312.01.78920.03.1584.01#18660-825-230.50012.70.77019.56.1353.43#82TW60-825	60-825-93		0.71	.028	5.44	.214	4.01	.158
1.1884.78.3889.86.1002.54#115TW60-825-1101.1884.78.43811.13.1253.18#12360-825-1322.2506.35.3769.55.0631.60#1760-825-1332.2506.35.43811.13.0942.39#2460-825-1332.2506.35.45011.43.1002.54#24TW60-825-136.2506.35.50012.70.1253.18#2660-825-139.2506.35.50012.70.1253.18#26TW60-825-141.3137.95.50112.73.0942.39#35/12160-825-163.3137.95.50112.73.0942.39#36/12260-825-161.3137.95.50112.73.0942.39#36/12260-825-191.3759.53.62515.88.1253.18#7360-825-191.3759.53.64516.38.1353.43#73TW60-825-191.3759.53.64516.38.1353.43#73TW60-825-191.3759.53.74919.03.1874.75#70/19060-825-243.50012.70.75019.05.1253.18#8260-825-243.50012.70.77019.56.1353.43#82TW60-825-243.50012.70.77019.56.1353.18#184 <t< td=""><th>60-825-104</th><td>#25</td><td>1.60</td><td>.063</td><td>7.98</td><td>.314</td><td>4.78</td><td>.188</td></t<>	60-825-104	#25	1.60	.063	7.98	.314	4.78	.188
1.1884.78.43811.13.1253.18#12360-825-112.2506.35.3769.55.0631.60#1760-825-130.2506.35.43811.13.0942.39#2460-825-136.2506.35.45011.43.1002.54#24TW60-825-136.2506.35.50012.70.1253.18#2660-825-139.2506.35.50012.70.1253.43#26TW60-825-141.3137.95.50112.73.0942.39#35/12160-825-166.3137.95.50112.73.0942.39#36/12260-825-161.3137.95.62915.98.1584.01#18560-825-191.3759.53.64516.38.1253.18#7360-825-191.3759.53.64516.38.1353.43#73TW60-825-130.3759.53.74919.03.1874.75#70/19060-825-230.50012.70.75019.05.1253.18#8260-825-243.50012.70.77019.56.1353.43#82TW60-825-243.50012.70.77019.56.1353.18#18460-825-243.50012.70.77019.56.1353.18#18460-825-243.50012.70.77019.56.1353.18#18460-82	60-825-108	#15	2.39	.094	9.55	.376	4.78	.188
2506.35.3769.55.0631.60#1760-825-130.2506.35.43811.13.0942.39#2460-825-133.2506.35.45011.43.1002.54#24TW60-825-136.2506.35.50012.70.1253.18#2660-825-139.2506.35.50012.70.1253.13#26TW60-825-141.3137.95.50112.73.0942.39#35/12160-825-163.3137.95.50112.73.0942.39#35/12160-825-163.3137.95.50112.73.0942.39#35/12160-825-166.3759.53.66314.30.0942.39#36/12260-825-191.3759.53.66515.88.1253.18#7360-825-194.3759.53.64516.38.1353.43#7019060-825-194.3759.53.74919.03.1584.01#18660-825-205.47312.01.78920.03.1584.01#18660-825-245.50012.70.75019.05.1253.18#82TW60-825-245.50012.70.87422.20.1874.75#18460-825-245.50012.70.87422.20.1874.75#18460-825-245.50012.70.87422.23.1253.18#18460	60-825-110	#15TW	2.54	.100	9.86	.388	4.78	.188
2506.35.43811.13.0942.39#2460-825-133.2506.35.45011.43.1002.54#24TW60-825-136.2506.35.50012.70.1253.18#2660-825-139.2506.35.52013.21.1353.43#26TW60-825-141.3137.95.43911.15.0631.60#1860-825-160.3137.95.50112.73.0942.39#35/12160-825-166.3137.95.50112.73.0942.39#36/12260-825-166.3137.95.62915.98.1584.01#18560-825-191.3759.53.66314.30.0942.39#36/12260-825-191.3759.53.66515.88.1253.18#7360-825-197.3759.53.64516.38.1353.43#73TW60-825-197.3759.53.74919.03.1874.75#70/19060-825-240.47312.01.78920.03.1584.01#18660-825-243.50012.70.77019.56.1353.43#82TW60-825-243.50012.70.87422.20.1874.75#18460-825-245.50012.70.87422.20.1874.75#18460-825-245.50012.70.87422.23.1253.18#18460	60-825-112	#123	3.18	.125	11.13	.438	4.78	.188
2506.35.45011.43.1002.54#24TW60-825-136.2506.35.50012.70.1253.18#2660-825-139.2506.35.52013.21.1353.43#26TW60-825-141.3137.95.43911.15.0631.60#1860-825-160.3137.95.50112.73.0942.39#35/12160-825-163.3137.95.62915.98.1584.01#18560-825-191.3759.53.56314.30.0942.39#36/12260-825-191.3759.53.64516.38.1353.43#73TW60-825-197.3759.53.64516.38.1353.43#70/19060-825-200.47312.01.78920.03.1584.01#18660-825-230.50012.70.77019.56.1353.43#82TW60-825-243.50012.70.87422.20.1874.75#18860-825-245.50012.70.87422.20.1874.75#18460-825-245.62515.88.87522.23.1253.18#18460-825-245.62515.88.99925.38.1874.75#19160-825-310.62515.88.99925.38.1874.75#19160-825-310.60025.401.37434.90.1874.75#191 <td< td=""><th>60-825-130</th><td>#17</td><td>1.60</td><td>.063</td><td>9.55</td><td>.376</td><td>6.35</td><td>.250</td></td<>	60-825-130	#17	1.60	.063	9.55	.376	6.35	.250
2506.35.50012.70.1253.18#2660-825-139.2506.35.52013.21.1353.43#26TW60-825-141.3137.95.43911.15.0631.60#1860-825-160.3137.95.50112.73.0942.39#35/12160-825-163.3137.95.50115.98.1584.01#18560-825-166.3759.53.56314.30.0942.39#36/12260-825-191.3759.53.62515.88.1253.18#7360-825-194.3759.53.64516.38.1353.43#73TW60-825-197.3759.53.74919.03.1874.75#70/19060-825-230.50012.70.75019.05.1253.18#8260-825-243.50012.70.77019.56.1353.43#82TW60-825-243.50012.70.77019.56.1353.43#82TW60-825-243.50012.70.77019.56.1353.43#82TW60-825-242.62515.88.87522.23.1253.18#18460-825-242.62515.88.99925.38.1874.75#19160-825-310.60025.401.37434.90.1874.75#19160-825-310	60-825-133	#24	2.39	.094	11.13	.438	6.35	.250
2506.35.52013.21.1353.43#26TW60-825-141.3137.95.43911.15.0631.60#1860-825-160.3137.95.50112.73.0942.39#35/12160-825-163.3137.95.50112.73.0942.39#35/12160-825-166.3137.95.62915.98.1584.01#18560-825-191.3759.53.56314.30.0942.39#36/12260-825-191.3759.53.62515.88.1253.18#7360-825-197.3759.53.64516.38.1353.43#73TW60-825-197.3759.53.64516.38.1353.43#771/19060-825-200.47312.01.78920.03.1584.01#18660-825-230.50012.70.75019.05.1253.18#82TW60-825-248.50012.70.87422.20.1874.75#8860-825-248.62515.88.87522.33.1253.18#18460-825-248.62515.88.99925.38.1874.75#18960-825-310.75019.05.112428.55.1874.75#19160-825-310.75019.051.12428.55.1874.75#19160-825-310.75019.051.12428.55.1874.75#191 <th>60-825-136</th> <td>#24TW</td> <td>2.54</td> <td>.100</td> <td>11.43</td> <td>.450</td> <td>6.35</td> <td>.250</td>	60-825-136	#24TW	2.54	.100	11.43	.450	6.35	.250
3137.95.43911.15.0631.60#1860-825-160.3137.95.50112.73.0942.39#35/12160-825-163.3137.95.62915.98.1584.01#18560-825-166.3759.53.56314.30.0942.39#36/12260-825-191.3759.53.66515.88.1253.18#7360-825-194.3759.53.64516.38.1353.43#73TW60-825-197.3759.53.74919.03.1874.75#70/19060-825-200.47312.01.78920.03.1584.01#18660-825-230.50012.70.77019.56.1353.43#82TW60-825-245.50012.70.87422.20.1874.75#18860-825-245.62515.88.87522.23.1253.18#18460-825-245.62515.88.99925.38.1874.75#19160-825-310.75019.051.12428.55.1874.75#19160-825-310.75019.051.12428.55.1874.75#19160-825-310.75019.051.12428.55.1874.75#19160-825-310.75019.051.12428.55.1874.75#19160-825-310.75019.051.12428.55.1874.75#191 <th>60-825-139</th> <td>#26</td> <td>3.18</td> <td>.125</td> <td>12.70</td> <td>.500</td> <td>6.35</td> <td>.250</td>	60-825-139	#26	3.18	.125	12.70	.500	6.35	.250
3137.95.50112.73.0942.39#35/12160-825-163.3137.95.62915.98.1584.01#18560-825-166.3759.53.56314.30.0942.39#36/12260-825-191.3759.53.62515.88.1253.18#7360-825-194.3759.53.64516.38.1353.43#73TW60-825-197.3759.53.74919.03.1874.75#70/19060-825-200.47312.01.78920.03.1584.01#18660-825-230.50012.70.75019.05.1253.18#8260-825-245.50012.70.87422.20.1874.75#8860-825-245.62515.88.87522.23.1253.18#18460-825-246.62515.88.99925.38.1874.75#18960-825-240.62515.88.37522.23.1253.18#18460-825-245.62515.88.99925.38.1874.75#18960-825-240.62515.88.99925.38.1874.75#19160-825-310.60025.401.37434.90.1874.75#19160-825-310	60-825-141	#26TW	3.43	.135	13.21	.520	6.35	.250
3137.95.62915.98.1584.01#18560-825-166.3759.53.56314.30.0942.39#36/12260-825-191.3759.53.62515.88.1253.18#7360-825-194.3759.53.64516.38.1353.43#73TW60-825-197.3759.53.64516.38.1353.43#70/19060-825-200.47312.01.78920.03.1584.01#18660-825-230.50012.70.75019.05.1253.18#8260-825-243.50012.70.77019.56.1353.43#82TW60-825-248.62515.88.87522.23.1253.18#18460-825-262.62515.88.87522.23.1253.18#18460-825-262.62515.88.99925.38.1874.75#18960-825-310.75019.051.12428.55.1874.75#19160-825-310.00025.401.37434.90.1874.75#19260-825-420	60-825-160	#18	1.60	.063	11.15	.439	7.95	.313
3759.53.56314.30.0942.39#36/12260-825-191.3759.53.62515.88.1253.18#7360-825-194.3759.53.64516.38.1353.43#73TW60-825-197.3759.53.64516.38.1353.43#7019060-825-200.47312.01.78920.03.1584.01#18660-825-230.50012.70.75019.05.1253.18#82TW60-825-248.50012.70.87422.20.1874.75#8860-825-248.62515.88.87522.23.1253.18#18460-825-262.62515.88.99925.38.1874.75#18960-825-310.75019.051.12428.55.1874.75#19160-825-310.00025.401.37434.90.1874.75#9260-825-448	60-825-163	#35/121	2.39	.094	12.73	.501	7.95	.313
3759.53.62515.88.1253.18#7360-825-194.3759.53.64516.38.1353.43#73TW60-825-197.3759.53.74919.03.1874.75#70/19060-825-200.47312.01.78920.03.1584.01#18660-825-230.50012.70.75019.05.1253.18#8260-825-243.50012.70.77019.56.1353.43#82TW60-825-248.62515.88.87522.23.1253.18#18460-825-262.62515.88.99925.38.1874.75#18960-825-270.75019.051.12428.55.1874.75#19160-825-310.00025.401.37434.90.1874.75#9260-825-424	60-825-166	#185	4.01	.158	15.98	.629	7.95	.313
3759.53.64516.38.1353.43#73TW60-825-197.3759.53.74919.03.1874.75#70/19060-825-200.47312.01.78920.03.1584.01#18660-825-230.50012.70.75019.05.1253.18#8260-825-243.50012.70.77019.56.1353.43#82TW60-825-245.50012.70.87422.20.1874.75#8860-825-248.62515.88.87522.23.1253.18#18460-825-262.62515.88.99925.38.1874.75#18960-825-310.75019.051.12428.55.1874.75#19160-825-310.00025.401.37434.90.1874.75#9260-825-428	60-825-191	#36/122	2.39	.094	14.30	.563	9.53	.375
3759.53.74919.03.1874.75#70/19060-825-200.47312.01.78920.03.1584.01#18660-825-230.50012.70.75019.05.1253.18#8260-825-243.50012.70.77019.56.1353.43#82TW60-825-248.50012.70.87422.20.1874.75#8860-825-248.62515.88.87522.23.1253.18#18460-825-262.62515.88.99925.38.1874.75#18960-825-310.75019.05.112428.55.1874.75#19160-825-310.00025.401.37434.90.1874.75#9260-825-420	60-825-194	#73	3.18	.125	15.88	.625	9.53	.375
447312.01.78920.03.1584.01#18660-825-230.50012.70.75019.05.1253.18#8260-825-243.50012.70.77019.56.1353.43#82TW60-825-245.50012.70.87422.20.1874.75#8860-825-248.62515.88.87522.23.1253.18#18460-825-262.62515.88.99925.38.1874.75#18960-825-310.75019.051.12428.55.1874.75#19160-825-310.00025.401.37434.90.1874.75#9260-825-428	60-825-197	#73TW	3.43	.135	16.38	.645	9.53	.375
50012.70.75019.05.1253.18#8260-825-243.50012.70.77019.56.1353.43#82TW60-825-245.50012.70.87422.20.1874.75#8860-825-248.62515.88.87522.23.1253.18#18460-825-262.62515.88.99925.38.1874.75#18960-825-270.75019.051.12428.55.1874.75#19160-825-310.00025.401.37434.90.1874.75#9260-825-420	60-825-200	#70/190	4.75	.187	19.03	.749	9.53	.375
5.0012.70.77019.56.1353.43#82TW60-825-2455.0012.70.87422.20.1874.75#8860-825-2486.62515.88.87522.23.1253.18#18460-825-2626.62515.88.99925.38.1874.75#18960-825-2707.7019.051.12428.55.1874.75#19160-825-3106.00025.401.37434.90.1874.75#9260-825-420	60-825-230	#186	4.01	.158	20.03	.789	12.01	.473
50012.70.87422.20.1874.75#8860-825-248.62515.88.87522.23.1253.18#18460-825-262.62515.88.99925.38.1874.75#18960-825-270.75019.051.12428.55.1874.75#19160-825-310.00025.401.37434.90.1874.75#9260-825-420	60-825-243	#82	3.18	.125	19.05	.750	12.70	.500
.62515.88.87522.23.1253.18#18460-825-262.62515.88.99925.38.1874.75#18960-825-270.75019.051.12428.55.1874.75#19160-825-310.00025.401.37434.90.1874.75#9260-825-420	60-825-245	#82TW	3.43	.135	19.56	.770	12.70	.500
.62515.88.99925.38.1874.75#18960-825-270.75019.051.12428.55.1874.75#19160-825-310.00025.401.37434.90.1874.75#9260-825-420	60-825-248	#88	4.75	.187	22.20	.874	12.70	.500
75019.051.12428.55.1874.75#19160-825-3101.00025.401.37434.90.1874.75#9260-825-420	60-825-262	#184	3.18	.125	22.23	.875	15.88	.625
1.000 25.40 1.374 34.90 .187 4.75 #92 60-825-420	60-825-270	#189	4.75	.187	25.38	.999	15.88	.625
	60-825-310	#191	4.75	.187	28.55	1.124	19.05	.750
L.000 25.40 1.400 35.56 .200 5.08 #92TW <b>60-825-428</b>	60-825-420	#92	4.75	.187	34.90	1.374	25.40	1.000
	60-825-428	#92TW	5.08	.200	35.56	1.400	25.40	1.000

Values listed are typical. Typical hardness: 60 Shore A. TW=Thick Wall (variance between competition pump numbers), 25 foot coils (~7 m). Double bagged. Material certification and lot traceability included.\*

IN ACCORDANCE WITH ISO: ISO 10993-1 FDA: FDA 21CFR 177-2600 USP: USP-CLASS VI EP: EP 3.1.9 (EP): EP 3.1.9 without appearance of solution

\* Individual measured values may differ from mean values. These values are not to be considered as product specifications. Non-implantable, non-sterile.

## HELIXMARK<sup>®</sup> BRAIDED REINFORCED TUBING

HelixMark braided reinforced tubing is designed and manufactured for increased pressure and high temperature applications. Pressure-proof polyester braiding, firmly embedded between two layers of silicone, lends this tubing its particular durability and resistance to pressure. The tubing is individually packaged in pre-cut lengths of 25 feet.



	SIDE METER	OUTSIDE DIAMETER		MAX PRESSURE	ISO, FDA, USP, EP
inch	mm	inch	mm	PSI	REF
.125	3.18	.365	9.27	705	60-664-20
.187	4.76	.447	11.35	655	60-664-30
.250	6.35	.520	13.21	630	60-664-40
.312	7.92	.592	15.04	555	60-664-45
.375	9.53	.655	16.64	505	60-664-50
.500	12.70	.800	20.32	430	60-664-60
.625	15.88	.965	24.51	355	60-664-70
.750	15.88	1.100	27.94	280	60-664-80
.875	22.23	1.235	31.37	255	60-664-90
1.000	25.40	1.360	27.94	230	60-664-100

Values listed are typical. Typical hardness: 65 Shore A. 25 foot coils (~7 m). Double bagged. Material certification and lot traceability included.\* Minimum burst pressure measured at 70°F (21°C).

#### IN ACCORDANCE WITH ISO: ISO 10993-1 FDA: FDA 21CFR 177-2600 USP: USP-CLASS VI EP: EP 3.1.9 (EP): EP 3.1.9 without appearance of solution

\* Individual measured values may differ from mean values. These values are not to be considered as product specifications. Non-implantable, non-sterile.



## HELIXMARK<sup>®</sup> COLOR STRIPE TUBING

HelixMark color stripe tubing helps to maintain a clear overview in complex tubing systems and enables quick and easy identification of individual applications, sizes or functional configurations. The tubing is available with stripes in red, green and white, individually packaged in pre-cut lengths of 50 feet.

Values listed are typical. Typical hardness: 60 Shore A. 50 foot coils (~15 m).		IDE AETER		SIDE NETER	W/ THICK		RED STRIPE ISO, FDA, USP	GREEN STRIPE ISO, FDA, USP	WHITE STRIPE ISO, FDA, USP
Double bagged. Material certification and lot	inch	mm	inch	mm	inch	mm	REF	REF	REF
traceability included.*	.125	3.18	.250	6.35	.063	1.59	61-078-21	61-079-21	61-080-21
IN ACCORDANCE WITH	.188	4.76	.375	9.53	.094	2.38	61-078-23	61-079-23	61-080-23
ISO: ISO 10993-1 FDA: FDA 21CFR 177-2600	.250	6.35	.500	12.70	.125	3.18	61-078-26	61-079-26	61-080-26
USP: USP-CLASS VI EP: EP 3.1.9	.313	7.94	.500	12.70	.094	2.38	61-078-27	61-079-27	61-080-27
(EP): EP 3.1.9 without appearance of	.375	9.53	.625	15.88	.125	3.18	61-078-30	61-079-30	61-080-30
solution	.500	12.70	.750	19.05	.125	3.18	61-078-32	61-079-32	61-080-32



IN CORD

## HELIXMARK<sup>®</sup> CLOSE TOLERANCE TUBING

HelixMark close tolerance silicone tubing maintains particularly tight tolerances with regard to inner diameter and wall thickness and is subjected to stringent quality assurance measures in production. This ensures increased dosing precision in demanding applications. The tubing is individually packaged in pre-cut lengths of 50 feet.

14/411

Values listed are typical. Typical hardness: 50 Shore A. 50 foot coils (~15 m). Double bagged.\* Material certification and lot traceability included.

IN ACCORDANCE WITH ISO: ISO 10993-1 FDA: FDA 21CFR 177-2600 USP: USP-CLASS VI EP: EP 3.1.9

EP: EP 3.1.9 (EP): EP 3.1.9 without appearance of solutio

\* Individual measured values may differ from mean values. These values are not to be considered as product specifications. Nonimplantable, non-sterile.

ical. Shore A.		AETER			THICKNESS	ISO, FDA, USP, EP
Iterial	inch	mm	inch	mm	bar	REF
	.125	3.18	.250	6.35	1.59	60-111-21
l.	.188	4.76	.313	7.95	1.60	60-111-22
WITH	.250	6.35	.375	9.53	1.59	60-111-24
7-2600	.250	6.35	.438	11.13	2.39	60-111-25
	.375	9.53	.563	14.29	2.38	60-111-29
out f solution	.375	9.53	.625	15.88	3.18	60-111-30
values	.500	12.70	.688	17.48	2.39	60-111-31
in	.500	12.70	.750	19.05	3.18	60-111-32
are – las	.625	15.88	.875	22.23	3.18	60-111-33
ns Non-						



#### HELIXMARK<sup>®</sup> CLAMP GASKETS

HelixMark clamp gaskets ensure reliable sealing of radial plugin connectors. The gaskets are suitable for all commonly used diameters and sizes and are supplied in packages of 25.

ТҮРЕ		SIDE METER	ISO, FDA, USP, EP
	inch	mm	REF
Mini	0.5	12.70	70-400-05
Mini	0.75	19.05	70-400-07
Standard	1.0	25.40	70-400-10
Standard	1.5	38.10	70-400-15
Standard	2.0	50.80	70-400-20
Standard	2.5	63.50	70-400-25
Standard	3.0	76.20	70-400-30
Standard	4.0	101.60	70-400-40
Standard	6.0	152.40	70-400-60

Values listed are typical. Typical hardness: 80 Shore A. Please contact customer service for tolerances and for custom size requests. Packaged 25 per zip bag in crush-resistant boxes." Material Certification and lot traceability included.

#### IN ACCORDANCE WITH ISO: ISO 10993-1 FDA: FDA 21CFR 177-2600 USP: USP-CLASS VI EP: EP 3.1.9 (EP): EP 3.1.9 without appearance of solution

\* Individual measured values may differ from mean values. These values are not to be considered as product specifications. Non-implantable, non-sterile.



#### HELIXMARK<sup>®</sup> STOPPERS

HelixMark silicone stoppers enable reliable sealing of glass tubes, vials and flasks. The stoppers are suitable for all commonly used diameters and sizes and are supplied in packages of 12.

Values listed are typical. Typical hardness: 50 Shore A. Please contact customer service for tolerances and custom size requests. Packaged 12 per zip bag in crush-resistant boxes.\* Material certification and lot traceability included.

#### IN ACCORDANCE WITH ISO: ISO 10993-1 FDA: FDA 21CFR 177-2600 USP: USP-CLASS VI EP: EP 3.1.9 (EP): EP 3.1.9 without appearance of solution

 Individual measured values may differ from mean values These values are not to be considered as product specifications. Non-implantable, non-sterile.

	SZ		TOP BOTTOM METER DIAMETER		BOTTOM DIAMETER		энт	ISO, FDA, USP, EP
A.		inch	mm	inch	mm	inch	mm	REF
	000	.512	13	.315	8	.984	25	70-416-99
I	00	.519	15	.394	10	.984	25	70-416-90
	0	.669	17	.669	13	.984	25	70-416-00
	1	.748	19	.787	14	.984	25	70-416-01
ł	2	.787	20	.945	16	.984	25	70-416-02
0	3	.945	24	1.024	18	.984	25	70-416-03
	4	1.024	26	1.063	20	.984	25	70-416-04
	5	1.063	27	1.260	23	.984	25	70-416-05
	6	1.260	32	1.457	30	.984	25	70-416-06
25	7	1.457	37	1.457	30	.984	25	70-416-07
ies.	8	1.614	41	1.614	33	.984	25	70-416-08
C-	9	1.772	45	1.772	37	.984	25	70-416-09
le,	10	1.969	50	1.969	42	.984	25	70-416-10
	12	2.520	64	2.520	54	.984	25	70-416-12
	13	2.677	68	2.284	58	.984	25	70-416-13



## HELIXMARK<sup>®</sup> TWO-HOLE STOPPERS

Pharmaceutical grade silicone stoppers are platinum-cured and ideal for a tight, reliable seal. Two-Hole Stoppers have full traceability down to the raw material, contain no peroxide residues, and are autoclavable. Available in 16 standard sizes, hole diameter ranges from 3mm to 16mm.

Values listed are typical. Typical hardness: 50 Shore A. Please contact customer service for tolerances and custom size requests. Packaged 12 per zip bag in crush-resistant boxes.\* Material certification and lot traceability included.

#### IN ACCORDANCE WITH ISO: ISO 10993-1 FDA: FDA 21CFR 177-2600 USP: USP-CLASS VI EP: EP 3.1.9 (EP): EP 3.1.9 without appearance of solution

Individual measured values may differ from mean values. These values are not to be considered as product specifications. Non-implantable, non-sterile.

al.	SZ	SZ TOP DIAMETER		BOTTOM DIAMETER		HEIGHT		HOLE DIAMETER		ISO, FDA, USP, EP
Shore A. ner		inch	mm	inch	mm	inch	mm	inch	mm	REF
and	000	.512	13	.315	8	.984	25	.118	3	70-619-99
agin	00	.591	15	.394	10	.984	25	.118	3	70-619-90
.* and	0	.669	17	.512	13	.984	25	.118	3	70-619-00
ed.	1	.748	19	.551	14	.984	25	.157	4	70-619-01
итн	2	.787	20	.630	16	.984	25	.196	5	70-619-02
-2600	3	.945	24	.709	18	.984	25	.196	5	70-619-03
	4	1.024	26	.787	20	.984	25	.196	5	70-619-04
ıt	5	1.063	27	.906	23	.984	25	.236	6	70-619-05
	6	1.260	32	1.024	26	.984	25	.314	8	70-619-06
values	7	1.457	37	1.181	30	.984	25	.354	9	70-619-07
n values. to be	8	1.614	41	1.299	33	.984	25	.393	10	70-619-08
t spec-	9	1.772	45	1.457	37	.984	25	.472	12	70-619-09
ntable,	10	1.969	50	1.654	42	.984	25	.551	14	70-619-10
	12	2.520	64	2.127	54	.984	25	.623	16	70-619-12
	13	2.677	68	2.284	58	.984	25	.623	16	70-619-13

## HELIXMARK<sup>®</sup> CUSTOM SERVICES

In addition to the products for the general needs of the medtech and pharmaceutical industry shown in our catalog, we also offer a wide range of options for customer-specific silicone tubing solutions. This allows the configuration of made-to-measure solutions to meet the customer's precise requirements.



MULTI-LUMEN TUBING



**CUSTOM COLORS** 



UV-LIGHT SHIELDING TUBING



RADIOPAQUE TUBING



PACKAGING ON SPOOLS







BOTTLE CAP ASSEMBLIES







**TUBING SYSTEMS** 



#### ADDITIONAL SERVICES

- Precision cut-to-length
- Tip trimming
- Hole Punching
- Skiving
- Overmolding





Freudenberg Medical manufactures products exclusively for the medical and pharmaceutical industry. This focus enables us to understand and rapidly and efficiently fulfill our customers' precise requirements. Our capabilities as a supplier and partner in the development of products and solutions are distinguished by exceptional flexibility and innovation.

We are your global partner for the design, development and production of innovative medical technology and combination products. Our portfolio is comprised of complex medical components and catheter solutions for minimally invasive devices. We are a leading manufacturer not only in the field of precision molded components and tubing in silicone and thermoplastics, but also in coating technologies and the production of metal hypotubes.

Freudenberg Medical is a part of the Freudenberg Group, a technology group with a tradition reaching back over 170 years and a provider of innovative products for more than 30 market segments around the globe. In our daily work, both our corporation and individual employees are committed to upholding the values for which we all stand:

- Value for customers
- Innovation
- Leadership
- People
- Responsibility and
- Long term orientation

As a development partner, we ensure that every innovation project our customers entrust to us is realized and led to commercial success by our unique combination of technical expertise, a global R & D network, financial stability and enormous flexibility.

# SILICONE CHEMICAL COMPATIBILITIES

• Ethylene Diamine

• Ethylene Glycol

• Ethylene Oxide

• Ferric Chloride

• Fluorobenzene

• Formaldehyde

Formic Acid

• Fumaric Acid

• Fuel Oil

• Gasoline

• Gelatin

Glucose

Glycerin

Glycols

Hexane

Hydrazine

Hot 37%

Acid

• Halowax Oil

Hexaldehyde

• Hydrobromic Acid

Hydrochloric Acid,

3 Molar to 158°F

Hydrochloric Acid,

• Hydrocyanic Acid

• Hydrofluoric Acid,

Hydrofluorosilicic

Hydrogen Peroxide

Hydrogen Sulfide,

• Hydrogen Sulfide,

Isobutyl Alcohol

Isopropyl Acetate

• Lactic Acid, Cold

• Lithium Hydroxide

Lubricating Oils,

Magnesium Salts

Magnesium Sulfate

Manganese Sulfate

Petroleum

Magnesium

Chloride

Mercury

Methane

Methanol

Mesityl Oxide

• Methyl Bromide

• Lead Acetate

Lead Nitrate

• Linseed Oil

Hydrogen Gas

Dry Cold

Wet Cold

Isooctane

• Kerosene

I ard

Lve

Isopropanol

Concentrated Hot

• Green Sulfate Liquor

• Ferric Sulfate

• Fatty Acids

• Ethylene Dichloride

• Ethylene Trichloride

Methyl Chloride

Di-P-Phenylene

Methyl Ethyl Ketone

• Methyl Methacrylate

• Methylene Chloride

Monochlorobenzene

• Nitric Acid, 50–100%

Methylene

Isocyanate

Ketone

• Naphtha

Milk

•

•

•

•

•

• Ozone

•

•

•

•

Pinene

•

•

•

•

•

• Pyrrole

•

Methyl Isobutyl

Mineral Oils

Naphthalene

Natural Gas

• Nickel Chloride

• Nitrobenzene

Nitrogen Oxides

• Lubricating Oils,

Petroleum

Mineral Oils

Vegetable Oils

Oleic Acid

Paraffins

Petrol

• Phenol

Oxalic Acid

Oxygen, Cold

Perchloric Acid

Perchloroethylene

Phosphoric Acid

Phthalic Acid

Picric Acid

Potassium

Carbonate

Potassium

Potassium

Hydroxide

Dichromate

• Potassium Chlorate

Potassium Cyanide

Potassium lodide

Potassium Nitrate

Potassium Salts

Producer Gas

• Propane

• Pyridine

Sea Water

• Silicone Oils

Silver Nitrate

Soap Solutions

Sodium Bisulfate

Sodium Bicarbonate

Sewage

Soda Ash

• Nitroethane

Nitrogen

• Animal Oil

Nickel Salts

• Sodium Bisulfide

• Sodium Chloride

• Sodium Cyanide

Hypochlorite

Sodium Nitrate

• Sodium Perborate

Sodium Phosphate,

• Sodium Peroxide

Sodium Sulfate

• Sodium Sulfide

• Sodium Sulfite

Stannic Chloride • Stannous Chloride

• Stoddard Solvent

• Sulfur Chloride

• Sulfur Dioxide Sulfur Hexafluoride

Sulfur Dioxide

• Sulfur Trioxide

Concentrated

Concentrated

Sulfurous Acid

• Tar, Bituminous

• Tributyl Mercaptan

• Trichloroethylene

• Tricresyl Phosphate

Room Temp

• Sulfuric Acid,

to 158°F

Tannic Acid

Tartaric Acid

Tin Chloride

Turpentine

Vinegar

Whiskey

Water

Wine

Xylol

Xylene

• Vegetable Oils

Yeast, Aqueous

Note: Volume swell is only

one indicator of elastomer

fluid compatibility and may

on the backbone of the polymer

may show up as change a in

physical properties such as

Tensile Strength, Elongation at

Break, and Hardness. Elevated

temperature and extended exposure times may create

more aggressive conditions

than cited in this guide.

be based on the solubility parameter alone. Fluid attack

 Toluene • Trichloroethane

• Sulfuric Acid,

• Stearic Acid

Styrene

 Sodium Thiosulfate • Soybean Oil

• Sodium

Dibasic

• Sodium Hydroxide

Sodium Borate

- Little or no effect (Volume swell <10%)
- Possible loss of physical properties (Volume swell 10-20%)
- Noticeable change (Volume swell 20-40%)
- Not suitable for service

#### **Chemical Medium**

- Acetaldehyde
- Acetamide
- Acetic Acid, 25% to 60%
- Acetic Anhydride
- Acetone
- Acetylene
- Acrylonitrile
- Alums
- Aluminum Chloride
- Aluminum Salts
- Aluminum Sulfate
- Ammonia Gas, Cold
- Ammonia Gas, Hot
- Ammonium Hydroxide, Concentrated
- Ammonium Nitrate
- Ammonium Phosphate
- Ammonium Salts
- Ammonium Sulfate
- Amyl Acetate
- Amyl Alcohol
- Amyl Borate
- Amyl Chloride • Amyl
- Chloronaphthalene
- Amyl Naphthalene
- Aniline
- Aniline
- Hydrochloride
- Asphalt
- Barium Chloride
- Barium Hydroxide
- Barium Salts
- Beer
- Beet Sugar Liquors
- Benzaldehyde
- Benzene
- Benzoic Acid
- Bleach Liquor
- Borax
- Boric Acid
- Bromine
- Bromobenzene
- Butane
- Butyl Acetate
- Butyl Alcohol

- Butyraldehyde
- Calcium Bisulfide •
- Calcium Chloride
- Calcium Hydroxide
- Calcium
- Hypochlorite • Calcium Nitrate
- Calcium Salts
- Cane Sugar Liquors
- Carbitol
- Carbolic Acid
- Carbon Dioxide
- Carbon Monoxide
  - Carbon Tetrachloride
  - Carbonic Acid
  - Castor Oil
  - Caustic Soda
- Chlorinated Solvents
- Chlorinated
  - Solvents, Dry
- Chlorinated
- Solvents, Wet
- Chlorobenzene
- Chlorobromo-
- methane
- Chloroform
- Chloronaphthalene
- Chlorosulfonic Acid
- Chlorotoluene
- Chrome Plating
- Solution
  - Chromic Acid
  - Citric Acid
  - Coconut Oil
  - Cod Liver Oil
  - Copper Salts
  - Corn Oil
    - Creosote, Coal Tar
    - Creosote, Wood
    - Cresol
    - Cyclohexane
    - Detergent Solutions
    - Dextrose
    - Diacetone Alcohol
    - Dichlorobenzene
    - Diethyl Ether
    - Diethylamine
    - Diethylene Glycol •
    - Dimethyl Formamide ۲ ٠

Ethanolamine

• Ethyl Acetoacetate

• Ethyl Acetate

Ethyl Alcohol

Ethyl Cellulose

• Ethyl Chloride

Chlorohydrin

• Ethylene

• Ethylene

- **Dioctyl Phthalate**
- Dioxane Diphenyl

• Ethers

• Ethers

Editorial Information

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