

***Spartech Townsend***

*Acrylic Rods & Tubes*

CAST ACRYLIC TUBING • CAST ACRYLIC RODS • CUSTOM LENGTHS

## SPARTECH TOWNSEND

SPARTECH TOWNSEND is located in Pleasant Hill, Iowa and is a new facility, with 65,000 sq. feet dedicated entirely to the manufacture of **Cast Acrylic Tubing and Rods**. The very latest technology in Equipment, Chemistry, and Processes have been incorporated to make it the most advanced operation of its kind.

## CAST ACRYLIC TUBING

SPARTECH TOWNSEND manufactures **Clear Cast Acrylic Tubing** in diameters ranging from 1.25 inches O.D. to 27.625 inches O.D. Wall thickness of .125, .187, .250, .375, and .500 inches are available in most diameter tubes. Special walls are available on request. Tubing is manufactured in standard 6 foot lengths (random 71 to 73 inches). Our tubing and rods are highly polished and crystal clear, manufactured to exact specifications to ensure exceptional quality.

## CAST ACRYLIC ROD

SPARTECH TOWNSEND manufactures **Clear Cast Acrylic Rods** in diameters ranging from .250 to 8.00 inches. Tight tolerances throughout the manufacturing process assure you of getting the highest quality rods in the industry. Standard lengths are 8 feet for rods between .250 and 2.00 inches in diameter, 6 feet for rods between 2.125 and 3.00 inches in diameter, 4 feet for rods between 3.25 and 6.00 inches in diameter, and 3 feet for rods 6.50 to 8.00 inches in diameter.

SPARTECH TOWNSEND manufactures **Cast Acrylic Rods** in a wide variety of colors. Diameters range from .500 to 3.00 inches in standard 4 foot lengths.

STANDARD COLORS:			FLUORESCENT COLORS:
2025 - Black	2111 - Green	2423 - Red	6213 - Red
2030 - Green	2114 - Blue	2424 - Blue	6481 - Green
2037 - Yellow	2146 - Ivory	2444 - Red	6677 - Blue
2050 - Blue	2208 - Yellow	2447 - White	6954 - Amber
2064 - Grey	2370 - Bronze	2473 - Copper	
2069 - Blue	2404 - Bronze	6512 - Green	
2074 - Grey	2412 - Bronze	6738 - Violet	
2092 - Green	2414 - Green	7328 - White	
2108 - Green	2422 - Amber	9702 - Violet	

## THE SPARTECH TOWNSEND ADVANTAGE

SPARTECH TOWNSEND maintains a large tubing and rod inventory to process your order immediately. After inspection, each tube and rod is carefully packaged and labeled with a bar coded tag containing all specifications. It is then immediately entered into inventory, which ensures that our customer service department has up to the minute information. The same level of automation is used to fill your order quickly and accurately.

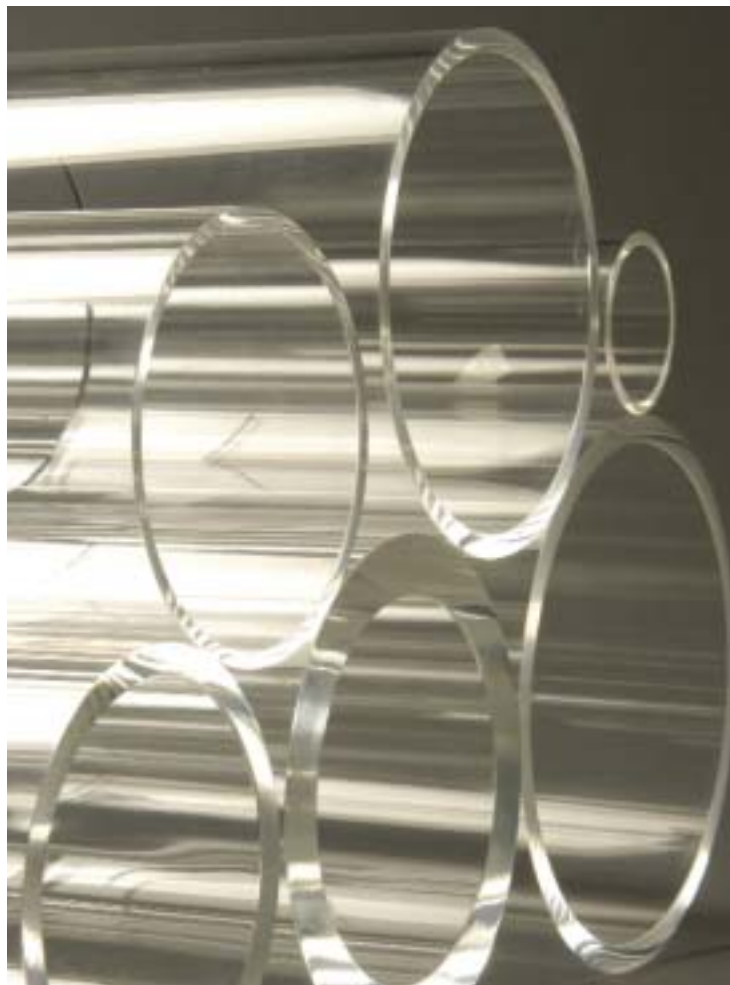
## MACHINING & FABRICATION

### *Have a special request?*

SPARTECH TOWNSEND has a fabrication and machining facility with engineers to handle your exact needs. Available operations include flame polishing, angle cuts, drilling, chamfering, and specialty machining. **While we stock standard lengths, any of our tubes or rods can be cut to meet your specifications.**

## QUALITY & SERVICE

We go to great lengths to provide the outstanding products and service you expect. The quality of our products, friendly customer service, and dependable shipping all let you experience "The SPARTECH TOWNSEND Difference."



*Spartech Townsend has all tube sizes in inventory for quick, efficient service.*



*Spartech Townsend quality acrylic rods are available in many sizes to suit your needs.*

**UL 746A;** Underwriters Laboratories recognized for polymeric materials in electrical applications. Contact inside sales for further information.

**NSF Grade;** Townsend offers tube and rod which meets the requirements for the National Sanitation Foundation.

**FDA;** Food and Drug Administration's regulations concerning food contract applications as described in 21 CFR 177.1010 for all food types, including alcoholic beverages in room temperature or refrigerated applications.

Typical Properties			Cast Acrylic Tubing (ASTM-D-5436)	Cast Acrylic Rods (ASTM-D-5436)
<b>Mechanical Properties</b>				
Specific Gravity	ASTM-D-792		1.19	1.19
Tensile Strength	ASTM-D-638			
Yield		psi	11,250	11,250
Elongation, Rupture		%	6.4	6.4
Modulus of Elasticity		psi	450,000	450,000
Flexural Strength	ASTM-D-790			
(Rupture)		psi	15,250	15,250
Modulus of Elasticity		psi	475,000	475,000
Compressive Strength	ASTM-D-695			
(Yield)		psi	18,000	18,000
Modulus of Elasticity		psi	440,000	440,000
Compressive Deformation (Under Load)	ASTM-D-621			
4000 PSI 122F, 24hr		%	0.75	0.75
Shear Strength	ASTM-D-732	psi	9,000	9,000
Impact Strength				
Izod Milled Notch	ASTM-D-256	ft. lbs/in. of notch	.0375*	.0375*
Falling Steel Ball, 0.5lb. (Breakage drop height (ft.))			18	18
Rockwell Hardness	ASTM-D-785		M98*	M98*
Barcol Hardness	ASTM-D-2583		50*	50*
Residual Shrinkage (Internal Strain)	ASTM-D-4802			
Townsend		%	2.2	2.2
<b>Optical Properties</b>				
Refractive Index	ASTM-D-542		1.49	1.49
Luminous Transmittance (As Cast)	ASTM-D-1003			
Total		%	92	92
Haze			<0.5	<0.5
Yellowness Index	ASTM-D-1925		0.5	
After 1000 hrs. Accelerated Weathering	ASTM-D-1449			
Total		%	92	
Haze			<0.5	
Effect Of Accelerated Weathering-On Appearance	ASTM-D-1449			
Crazing / Discoloration / Warping			none	
Ultraviolet Transmission @ 320nm		%	0	>80
Taber Abrasion (500g. ea. wheel, 100 rev.) ANSI Z26.1	ASTM-D-1044		14	
Mar Resistance	ASTM-D-637		29	
<b>Thermal Properties</b>				
Hot Forming Temperature		deg. Fahrenheit	320 **	320 **
Deflection Temperature under load	ASTM-D-648			
(Heat Distortion Temp.)			230*	230*
66 psi		deg. Fahrenheit	203*	203*
264 psi		deg. Fahrenheit	180	180
Maximum Recommended Continuous Service Temp.		deg. Fahrenheit	0.000042	0.000042
Coefficient of Linear Thermal Expansion	ASTM-D-696	in./in./deg. F	1.3	1.3
Coefficient of Thermal Conductivity	Cento-Fitch <sup>4</sup>	BTU/(Hr.) (Sq.Ft.) (deg. F/in.)	0.65	0.65
Water Absorption	26 day immersion	%	0.2	0.2
	24 hour immersion	%	1.2*	1.2*
Flammability (Burning Rate) UL94HB	ASTM-D-635	in./min.	830*	830*
Self-ignition Temperature	ASTM-D-1929	deg. Fahrenheit	0.35	0.35
Specific Heat @ 77°F	DuPont 900 (Therm.An. Cal.) <sup>4</sup>	BTU/(Lb.) (deg. F)	27**	27**
Smoke Density	ASTM-D-2843	%		
<b>Electrical Properties</b>				
Dielectric Strength	ASTM-D149	volts/mil.	430**	ADDITIONAL DATA CODES AND APPROVALS ARE AVAILABLE UPON REQUEST.  Asterisked (*) values will change with thickness. Difference in length and width, as measured at room temperature, before and after heating above 300 deg. F. **Varies with thickness.
Short Time Test		(1/8" thickness)		
Dielectric Constant	ASTM-D150	-		
60 Cycles			3.5	
1,000 Cycles			3.2	
1,000,000 Cycles			2.7	
Dissipation Factor	ASTM-D150	-		
60 Cycles			0.06	
1,000 Cycles			0.04	
1,000,000 Cycles			0.02	
Power Factor	ASTM-D150	-		
60 Cycles			0.06	
1,000 Cycles			0.04	
1,000,000 Cycles			0.02	
Loss Factor	ASTM-D150	-		
60 Cycles			0.21	
1,000 Cycles			0.13	
1,000,000 Cycles			0.06	
Arc Resistance	ASTM-D495	-	No Tracking	
Volume	ASTM-D257	ohm-cm.	1.6x10 <sup>16</sup>	
Surface Resistivity	ASTM-D257	ohms	1.9x10 <sup>15</sup>	

# CAST ACRYLIC TUBING

Clear, Polished, Random 71" - 73" Lengths  
Weight (Lbs./Foot)

O. D.	.125"	.187"	.250"	.375"	.500"
1.250	.215	.306	.378		
1.500	.277	.397	.504		
1.625	.303	.435	.555		
1.750	.328	.473	.605		
1.875	.355	.489	.630		
2.000	.370	.548	.706	.889	1.075
2.250	.429	.624	.807	1.060	1.353
2.375	.453	.662	.857	1.145	1.431
2.500	.479	.699	.908	1.233	1.499
2.625	.483	.703	.950	1.297	1.635
2.750	.529	.775	1.008	1.437	1.703
2.875	.545	.813	1.059	1.513	1.806
3.000	.580	.851	1.109	1.588	1.932
3.125	.605	.889	1.168	1.664	2.030
3.250	.630	.926	1.210	1.740	2.126
3.375	.655	.964	1.260	1.815	2.223
3.500	.681	1.002	1.311	1.891	2.420
3.625	.705	1.039	1.362	1.967	2.520
3.750	.731	1.078	1.412	2.043	2.622
3.875	.757	1.115	1.462	2.119	2.724
4.000	.781	1.154	1.512	2.193	2.824
4.125	.807	1.191	1.564	2.269	2.925
4.250	.833	1.230	1.614	2.344	3.025
4.375	.860	1.275	1.664	2.420	3.125
4.500	.883	1.305	1.715	2.496	3.227
4.625	.908	1.342	1.765	2.572	3.329
4.750	.933	1.381	1.815	2.648	3.429
4.875	.957	1.417	1.865	2.722	3.529
5.000	.983	1.455	1.915	2.798	3.630
5.250	1.034	1.533	2.17	2.950	3.832
5.500	1.084	1.609	2.092	3.101	4.033
5.625	1.108	1.644	2.168	3.177	4.134
5.750	1.134	1.683	2.219	3.253	4.235
6.000	1.184	1.759	2.319	3.403	4.437
6.093	1.204	1.786	2.357	3.459	4.513
6.250	1.255	1.831	2.388	3.583	4.677
6.500	1.280	1.910	2.522	3.706	4.841
6.750	1.340	1.963	2.575	3.864	5.077
7.000	1.380	2.060	2.722	4.008	5.244
7.250	1.450	2.115	2.800	4.047	5.395
7.500	1.488	2.214	2.925	4.311	5.647
7.625	1.502	2.234	2.950	4.359	5.730
8.000	1.588	2.364	3.125	4.613	6.051
8.250	1.639	2.440	3.227	4.765	6.252
8.500	1.689	2.515	3.329	4.916	6.454
8.750	1.739	2.591	3.445	5.068	6.656
9.000	1.789	2.659	3.529	5.218	6.857
9.125	1.800	2.705	3.560	5.280	6.902
9.250	1.841	2.743	3.360	5.370	7.059
9.500	1.891	2.819	3.732	5.505	7.261
10.000	1.989	2.969	3.932	5.823	7.661
10.500	2.090	3.120	4.134	6.125	8.201
10.625	2.140	3.186	4.152	6.155	8.402
11.000	2.193	3.271	4.336	6.428	8.741
11.500	2.294	3.424	4.539	6.732	8.874
11.750	2.398	3.499	4.641	6.882	9.074
12.000	2.421	3.574	4.739	7.033	9.278
12.500	2.540	3.720	4.930	7.310	9.650
13.625	2.620	3.924	5.207	7.718	10.149
14.000	2.800	4.235	5.550	8.245	10.891
15.000	3.001	4.485	5.953	8.858	11.698
16.000	3.187	4.600	6.221	9.077	12.023
18.000	3.610	5.201	7.026	10.209	13.886
24.000	4.650	7.126	9.395	13.701	18.463
27.625	5.380	7.836	10.585	16.007	22.601

ORDERING NOTE: Acrylic tubing is manufactured in random 71" - 73" lengths. We will cut any diameter tube or rod to any length you customer needs at an up charge. SPARTECH TOWNSEND has a fully equipped machine shop with the capability of fabricating tubing and rod to your specifications. We cut to size, drill, rout, and many other operations. UVA tube is standard. SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE

# CAST ACRYLIC RODS

Clear, Polished\*

Dia .	Lengths (Ft)	Wt. (Lbs./Ft)	Tolerance
.250	8	.026	±.005
.312	8	.039	±.005
.375	8	.056	±.005
.500	8	.100	±.005
.625	8	.158	±.010
.750	8	.227	±.010
.875	8	.309	±.010
1.000	8	.403	±.010
1.125	8	.511	±.015
1.250	8	.630	±.015
1.375	8	.762	±.015
1.500	8	.907	±.015
1.625	8	1.070	±.015
1.750	8	1.240	±.015
1.875	8	1.420	±.015
2.000	8	1.610	±.015
2.125	6	1.820	±.030
2.250	6	2.040	±.030
2.500	6	2.520	±.030
2.750	6	3.050	±.030
3.000	6	3.630	±.030
3.250	4	4.260	±.045
3.500	4	4.940	±.045
3.750	4	5.670	±.045
4.000	4	6.450	±.045
4.250	4	7.280	±.045
4.500	4	8.200	±.045
4.750	4	9.100	±.045
5.000	4	10.100	±.045
5.250	4	11.100	±.045
5.500	4	12.200	±.045
5.750	4	13.300	±.045
6.000	4	14.600	±.045
6.500	3	17.200	±.050
7.000	3	20.000	±.050
7.500	3	22.800	±.050
8.000	3	26.000	±.050

\*Machine grade rod is available upon request.

## TUBING TOLERANCES

Normal Outside Dia.	Plus	Minus
1.250" - 3.000"	.025	.025
3.125" - 3.875"	.030	.030
4.000" - 6.250"	.045	.045
6.500" - 8.700"	.050	.050
9.000" - 12.500"	.065	.065
13.625" - 15.000"	.100	.100
16.000" - 27.625"	.125	.125

Normal Wall Thickness	Plus	Minus
1/8"	.020	.020
3/16"	.020	.020
1/4"	.025	.025
3/8"	.035	.035
1/2"	.045	.045



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4400 VANDALIA ROAD • PLEASANT HILL, IA 50327  
800-882-4401 • (515) 265-4157 • FAX (515) 265-0710  
TOWNSEND.MARKETING@SPARTECH.COM  
WWW.SPARTECH.COM



For more information on SPARTECH TOWNSEND or any other products manufactured by Spartech, contact us by phone, e-mail, or visit our website.