

Selector chart

Tenite™ cellulose acetate

Formula 105

Property ^a	Unit	ASTM method										
Plasticizer	%	—	19	21	23	25	27	29	33	35	37	
Flow designation		D569	H5	H4	H3	H2	H	MH	M	MS	S	
Flow temperature	°C	D569	175	170	165	160	155	150	145	140	135	
	°F		347	338	329	320	311	302	293	284	275	
Specific gravity		D792	1.29	1.29	1.28	1.28	1.28	1.27	1.27	1.26	1.26	
Mechanical												
Tensile stress @ yield 50 mm/min (2 in./min)	MPa	D638	52.1	46.9	41.3	37.2	33.1	29.6	26.2	22.8	19.3	
	psi		7,600	6,800	6,000	5,400	4,800	4,300	3,800	3,300	2,800	
Tensile stress @ break 50 mm/min (2 in./min)	MPa	D638	55.2	50.3	45.5	40.7	36.5	33.1	29.6	26.9	24.1	
	psi		8,000	7,300	6,600	5,900	5,300	4,800	4,300	3,900	3,500	
Elongation @ break 50 mm/min (2 in./min)	%	D638	20	20	20	25	25	30	30	30	30	
Flexural modulus 1.27 mm/min (0.05 in./min)	MPa	D790	2,896	2,689	2,551	2,344	2,137	1,931	1,655	1,310	1,034	
	10 ⁵ psi		4.2	3.9	3.7	3.4	3.1	2.8	2.4	1.9	1.5	
Flexural yield strength 1.27 mm/min (0.05 in./min)	MPa	D790	91.7	81.4	71.0	62.7	54.5	46.9	40.0	33.1	27.6	
	psi		13,300	11,800	10,300	9,100	7,900	6,800	5,800	4,800	4,000	
Rockwell hardness	R scale	D785	110	106	98	80	82	71	59	45	23	
Izod impact strength, notched	23°C	J/m	D256	117	139	149	160	187	203	219	235	257
	73°F	ft•lbf/in.		2.2	2.6	2.8	3.0	3.5	3.8	4.1	4.4	4.8
	-40°C	J/m		37	43	43	48	48	53	53	59	59
	-40°F	ft•lbf/in.		0.7	0.8	0.8	0.9	0.9	1.0	1.0	1.1	1.1
Thermal												
Deflection temperature (Conditioned 4 hr @ 70°C [158°F])	1.82 MPa	°C	D648	87	84	81	77	73	68	63	57	50
	264 psi	°F		189	183	178	171	163	154	145	135	122
	0.455 MPa	°C		95	92	89	86	83	79	74	70	65
	66 psi	°F		203	198	192	187	181	174	165	158	149
Vicat softening temperature (Conditioned 4 hr @ 70°C [158°F])	°C	D1525	126	122	118	113	109	105	100	95	90	
	°F		259	252	244	235	228	221	212	203	194	
Permanence												
Water absorption (24 hr immersion)	%	D570	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.6	
Soluble matter loss	%		0.1	0.1	0.2	0.2	0.3	0.4	0.6	0.7	1.0	
Weight loss on heating (72 hr @ 80°C [176°F])	%	D706	0.3	0.5	.08	1.2	1.8	2.6	3.6	4.8	6.0	

^aUnless noted otherwise, all tests are run @ 23°C (73°F) and 50% relative humidity.

Formula 105—heat stabilized

**Plastics made from wood pulp—
a renewable resource**

Miscellaneous butyrate properties

Refractive index (ASTM D542)	1.46–1.49
Light transmission (1.52 mm [0.06 in.] thickness) (ASTM E308)	>90%
UV light screening (>99% absorbed) (ASTM E308)	Formulations available on request
Haze (1.52 mm [0.06 in.] thickness) (ASTM D1003)	<8.5%
Specific heat @ 23°C (73°F) (DSC)	1.26–1.67 kJ/kg•K (0.301–0.399 Btu/lb•°F)
Thermal conductivity (ASTM C177)	0.17–0.33 W/m•K (1.2–2.3 Btu•in./h•ft ² •°F)
Coefficient of linear thermal expansion (ASTM D696)	11–17 x 10 ⁻⁵ mm/mm•°C (6–9 x 10 ⁻⁵ in./in.•°F)
Mold shrinkage (ASTM D955)	0.2%–0.6%
Dielectric strength (ASTM D149)	11.8–18.7 kV/mm (300–475 V/mil)
Dielectric constant @ 1 MHz (ASTM D150)	3.3–3.8
Dissipation factor @ 1 MHz (ASTM D150)	0.01–0.15
Volume resistivity (ASTM D257)	10 ¹³ –10 ¹⁵ ohm•cm

Properties reported here are typical of average lots. Eastman makes no representation that the material in any particular shipment will conform exactly to the values given.

Conversions of metric/U.S. customary values may have been rounded off and therefore may not be exact.



Eastman Corporate Headquarters

P.O. Box 431
Kingsport, TN 37662-5280 U.S.A.

U.S.A. and Canada, 800-EASTMAN (800-327-8626)
Other Locations, +(1) 423-229-2000

www.eastman.com/locations

Although the information and recommendations set forth herein are presented in good faith, Eastman Chemical Company ("Eastman") and its subsidiaries make no representations or warranties as to the completeness or accuracy thereof. You must make your own determination of its suitability and completeness for your own use, for the protection of the environment, and for the health and safety of your employees and purchasers of your products. Nothing contained herein is to be construed as a recommendation to use any product, process, equipment, or formulation in conflict with any patent, and we make no representations or warranties, express or implied, that the use thereof will not infringe any patent. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS AND NOTHING HEREIN WAIVES ANY OF THE SELLER'S CONDITIONS OF SALE.

Safety Data Sheets providing safety precautions that should be observed when handling and storing our products are available online or by request. You should obtain and review available material safety information before handling our products. If any materials mentioned are not our products, appropriate industrial hygiene and other safety precautions recommended by their manufacturers should be observed.

© 2020 Eastman. Eastman brands referenced herein are trademarks of Eastman or one of its subsidiaries or are being used under license. The ® symbol denotes registered trademark status in the U.S.; marks may also be registered internationally. Non-Eastman brands referenced herein are trademarks of their respective owners.