



# ELASTIC PROPERTIES



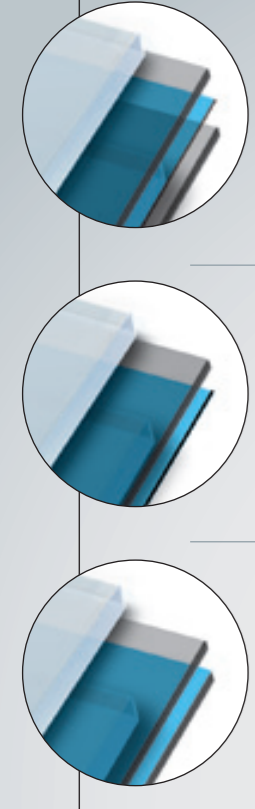


Young Relaxation Modulus E(t)/MPa

Table with columns: Temperature, Product type, Load duration (1 sec to 50 years), and rows for temperatures from -20°C to 80°C.

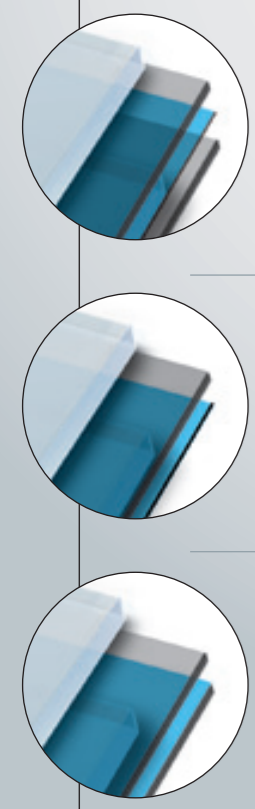
E(t) was calculated according E(t) = 2 x G(t) x (1+v) for isotropic materials with: v = 0.47 (Trosifol® Extra Stiff), v = 0.49 (Trosifol® Clear, Trosifol® SC Monolayer); v = 0.48 (SentryGlas®, SentryGlas® Xtra™). The Poisson ratio v was measured in accordance to EN ISO 527 (23°C, 30% r. H.).

**Trosifol® Extra Stiff 0.38 mm (15 mil) and 0.76 mm (30 mil) combinations - Shear Relaxation Modulus G(t)/MPa**

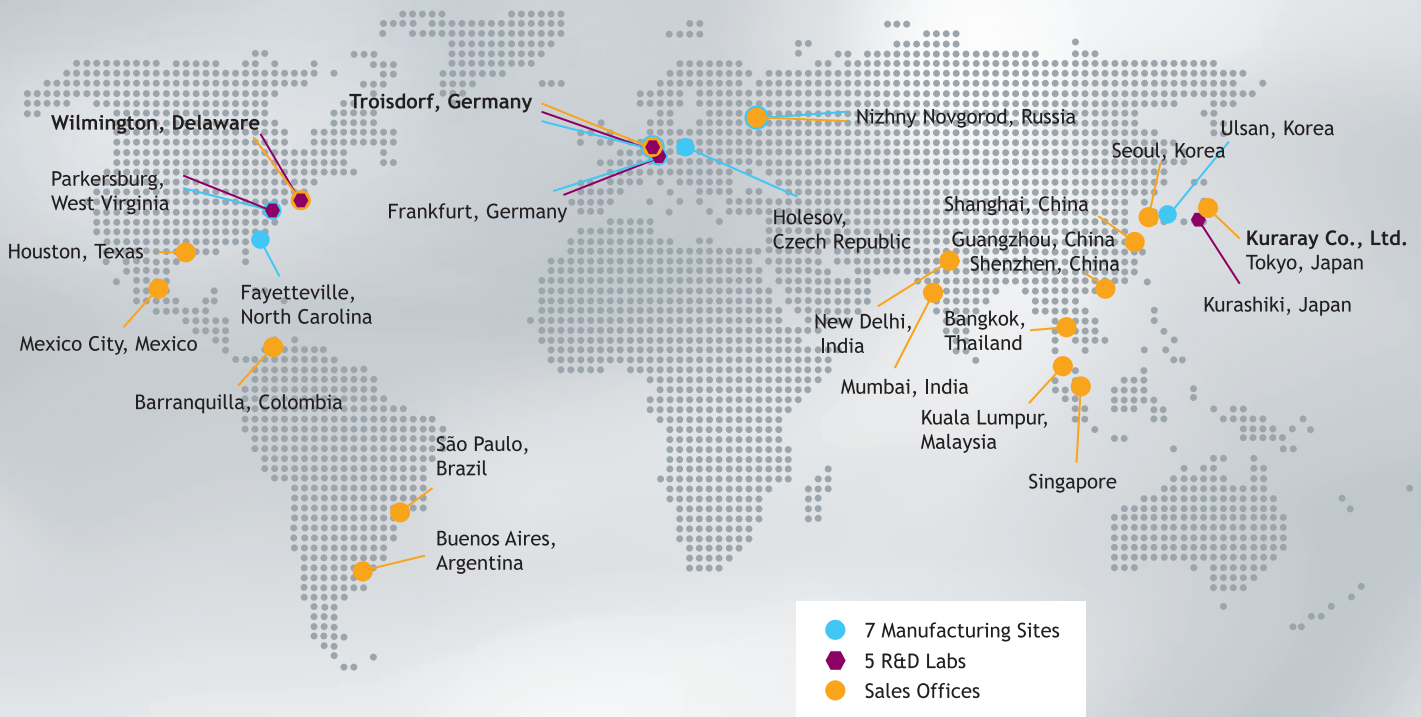


Combination	Temperature	Load duration																				
		1 sec	3 sec	5 sec	10 sec	30 sec	1 min	5 min	10 min	30 min	1 hour	6 hours	12 hours	1 day	2 days	5 days	1 week	3 weeks	1 month	1 year	10 years	50 years
Trosifol® Extra Stiff 0.76 mm (30 mil)	10°C (50 °F)	370	330	310	280	240	210	140	120	81	61	23	15	10	6.4	3.7	3.1	1.7	1.5	0.82	0.66	0.58
Trosifol® PVB 0.38 mm (15 mil)	20°C (68 °F)	220	180	160	130	92	71	33	22	11	7.0	2.5	1.8	1.4	1.2	0.97	0.92	0.80	0.77	0.63	0.52	0.42
Trosifol® Extra Stiff 0.76 mm (30 mil)	25°C (77 °F)	98	65	51	36	19	12	4.5	3.0	1.8	1.4	0.93	0.84	0.78	0.73	0.68	0.67	0.62	0.60	0.46	0.31	0.19
	30°C (86 °F)	23	12	8.4	5.5	2.9	2.1	1.2	1.0	0.86	0.79	0.68	0.64	0.61	0.58	0.53	0.51	0.45	0.43	0.25	0.11	
	35°C (95 °F)	4.3	2.4	1.9	1.5	1.1	0.95	0.77	0.73	0.67	0.64	0.55	0.51	0.47	0.43	0.36	0.34	0.26	0.24	0.09		
	40°C (104 °F)	1.5	1.1	0.99	0.88	0.77	0.73	0.65	0.61	0.56	0.52	0.41	0.36	0.32	0.27	0.20	0.18	0.12	0.11			
	50°C (122 °F)	0.76	0.69	0.67	0.63	0.58	0.55	0.45	0.41	0.33	0.28	0.16	0.12	0.093								
	60°C (140 °F)	0.62	0.57	0.54	0.50	0.44	0.39	0.28	0.23	0.16	0.12											
	70°C (158 °F)	0.51	0.44	0.41	0.36	0.29	0.24	0.14	0.10													
	80°C (176 °F)	0.41	0.33	0.29	0.24	0.17	0.13															

**Trosifol® Extra Stiff 0.38 mm (15 mil) and 0.76 mm (30 mil) combinations - Youngs Relaxation Modulus E(t)/MPa**



Combination	Temperature	Load duration																				
		1 sec	3 sec	5 sec	10 sec	30 sec	1 min	5 min	10 min	30 min	1 hour	6 hours	12 hours	1 day	2 days	5 days	1 week	3 weeks	1 month	1 year	10 years	50 years
Trosifol® Extra Stiff 0.76 mm (30 mil)	10°C (50 °F)	1100	970	910	830	700	610	420	350	240	180	68	44	29	19	11	9.1	4.9	4.3	2.4	1.9	1.7
Trosifol® PVB 0.38 mm (15 mil)	20°C (68 °F)	660	520	460	390	270	210	96	64	32	21	7.3	5.4	4.2	3.5	2.9	2.7	2.3	2.3	1.9	1.5	1.2
Trosifol® Extra Stiff 0.76 mm (30 mil)	25°C (77 °F)	290	190	150	110	56	36	13	9.0	5.4	4.2	2.7	2.5	2.3	2.2	2.0	2.0	1.8	1.8	1.4	0.90	0.57
	30°C (86 °F)	69	34	25	16	8.6	6.2	3.5	3.0	2.5	2.3	2.0	1.9	1.8	1.7	1.6	1.5	1.3	1.3	0.74	0.33	
	35°C (95 °F)	13	7.1	5.6	4.3	3.2	2.8	2.3	2.1	2.0	1.9	1.6	1.5	1.4	1.2	1.1	1.00	0.77	0.71	0.28		
	40°C (104 °F)	4.4	3.2	2.9	2.6	2.3	2.1	1.9	1.8	1.6	1.5	1.2	1.1	0.93	0.78	0.60	0.54	0.36	0.31			
	50°C (122 °F)	2.2	2.0	2.0	1.9	1.7	1.6	1.3	1.2	0.98	0.83	0.47	0.36	0.27								
	60°C (140 °F)	1.8	1.7	1.6	1.5	1.3	1.2	0.82	0.68	0.47	0.36											
	70°C (158 °F)	1.5	1.3	1.2	1.1	0.84	0.70	0.40	0.30													
	80°C (176 °F)	1.2	0.97	0.86	0.72	0.51	0.39															



For further information on products of Kuraray, please visit [www.kuraray.com](http://www.kuraray.com).  
 You can find further information on our Trosifol® products at [www.trosifol.com](http://www.trosifol.com).

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