Plasticizer Performance in Other Resins

PLASTICIZER PERFORMANCE IN ETHYL CELLULOSE FILM

(48 – 49.5% Ethoxy Content)

15 PHR

Plasticizer	Yield Point (p.s.i.)	Tensile Strength (p.s.i.)	Elongation (%)	Hardness Index*	Resistance to Volatilization Loss	Flexibility Retention on Light Exposure
Control (no plasticizer)	6755	8960	30	100	E	E
Dibutyl Phthalate	3625	5120	38	55	G	E
Diphenyl Phthalate	5405	7680	38	80	E	G
Tricresyl Phosphate	4550	7470	48	70	E	E
Santicizer 140	5405	8535	38	80	E	E
Triphenyl Phosphate	4550	6685	30	70	E	E
Santicizer E-15	4265	6685	40	65	G	E
Santicizer B-16	3485	4905	36	50	G	E
Santicizer M-17	4125	7965	38	60	G	E
Santicizer 1-H	5475	7750	32	80	E	E
Santicizer 8	4625	6900	34	70	G	E
Santicizer 9	4625	7325	40	70	G	E
Aroclor 1242	4905	7395	36	75	P	G
Aroclor 1248	5475	7540	30	80	P	G
Aroclor 1254	6185	7825	28	90	G	G
Aroclor 1262	7110	8035	22	105	E	G
Aroclor 4465	8535	9030	22	125	G	P

*$\frac{\text{Yield Point Plasticized Film}}{\text{Yield Point Unplasticized Film}} \times 100$

E = Excellent
G = Good
P = Poor

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PLASTICIZER PERFORMANCE IN NITROCELLULOSE FILM (12 MIL)

Plasticizer	Schopper Fold Cycles		Tensile, p.s.i.		Elongation (%)		Moisture Permeability (%)	
	25 PHR	50 PHR	25 PHR	50 PHR	25 PHR	50 PHR	25 PHR	50 PHR
Control (no plasticizer)	20	20	8533	8533	6	6	100	100
Santicizer 1-H	26	10	——	3270	—	7	45	41
Santicizer 8	22	16	——	2275	—	11	31	63
Santicizer 9	27	—	——	——	—	—	60	—
Santicizer 160	11	14	——	3555	—	10	10	19
Dibutyl Phthalate	25	10	——	2700	—	4	36	65
Triphenyl Phosphate	29	24	——	4410	—	8	52	56
Tricresyl Phosphate	20	—	——	1210	—	24	16	28
Camphor	—	—	——	5405	—	6	—	—

PLASTICIZER PERFORMANCE IN CELLULOSE ACETATE (LOW ACETYL) MOLDING COMPOSITIONS (52.5–53.5%)

(51.5 PHR unless otherwise specified)

Plasticizer	Solution Temp., °C	Hardness at 70° C. Rockwell "M" Scale	Flexural Strength (p.s.i.)	Per Cent Water Absorbed 48 hrs.
Dimethyl phthalate	120	32	5840	1.14
Diethyl phthalate	140	15	5680	1.20
Santicizer M-17	148	65	7110	0.77
Santicizer E-15	148	50	6930	0.97
Santicizer 8	133	75	6860	0.94
Santicizer 9	153	90	9160	0.85
Triphenyl phosphate (42.5 PHR)	180	81	9020	1.17

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