Your guide to...



TOP-QUALITY PLASTICIZERS

Here are plasticizers and resin modifiers for any and every resin system!

No matter what the application or performance specification, one or a combination of the plasticizers offered here will do the job. As shown here, you can select from the widest choice of plasticizers available from any single source. They are recommended for use in compounding:

Flexible Film and Sheeting	Casting Compounds
Adhesives	Extrusions
Lacquers	Plastisols
Sealing Compounds	Fabric & Paper Coatings
Paints	

YOU CAN DEPEND UPON THESE PRODUCTS' QUALITY AND PERFORMANCE

open once for "Compatibility" guide • open fully for a listing of products and properties

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TOWOLDMON0038660
WATER_PCB-00023129

PHTHALATES

		Dibutyl	Dicyclohexyl	Diethyl	Diisodecyl	Diisooctyl	Dimethyl	Di(n-octyl, n-decyl)	Dioctyl	Diphenyl	Ditridecyl	Santicizer® 160	Santicizer 165	Santicizer 213	Santicizer 214	Santicizer 215	Santicizer 262	Santicizer 278	Santicizer 602	Santicizer 603	Santicizer 630	Santicizer 631	Santicizer 632	Santicizer 636	Santicizer 681	Santicizer 683
VINYL TYPE	Polyvinyl Chloride	100	30	I	100	100	I	100	100	80	100	100	100	100	100	100	100	100	100	100	100	100	100	100	90	100
	Polyvinyl Acetate	100	50	100	I	I	100	I	I	70	I	100	I	10	I	I	40	75	I	I	I	I	I	I	I	I
	Polyvinyl Butyral	100	50	50	25	15	50	15	15	50	25	100	10	50	20	30	20	75	25	25	25	25	20	25	5	20
	Polyvinylidene Chloride	75	20	75	10	25	50	25	25	20	10	75	50	25	10	15	25	50	15	20	25	25	10	25	20	10
	Polystyrene	100	20	100	100	100	100	100	50	70	100	100	100	75	75	100	50	75	100	100	100	100	75	100	60	75
CELLULOSIC	Nitrocellulose	100	50	100	100	100	60	100	100	80	100	100	100	40	40	40	100	100	100	100	50	60	40	100	70	40
	Ethyl Cellulose	100	50	100	100	100	100	100	100	30	100	100	100	75	75	100	100	75	100	100	100	100	75	100	80	75
	Cellulose Acetate	25	I	85	I	I	80	I	I	I	I	10	I	I	I	I	I	I	I	I	I	I	I	I	I	I
	Cellulose Acetate Butyrate	100	20	100	50	50	100	50	50	20	50	100	50	40	20	40	50	75	50	40	25	30	20	50	35	20
	Cellulose Acetate Propionate	30	10	100	15	20	100	20	20	10	15	80	50	20	5	I	25	50	20	40	5	10	5	20	5	5
MISCELLANEOUS THERMOPLASTIC	Chlorinated Rubber	100	20	25	100	100	25	50	33	20	100	80	100	25	25	100	30	50	100	50	100	100	25	100	100	25
	High Styrene-Butadiene	50	20	25	50	50	20	50	50	20	50	50	50	40	40	40	50	30	50	50	40	40	40	50	35	40
	Protein Compounds	20	I	20	I	I	20	I	I	I	I	10	I	I	I	I	I	I	I	I	I	I	I	I	I	I
	Shellac	I	I	5	I	I	5	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
	Acrylic Type Resins	70	25	100	25	25	100	25	25	25	25	70	25	15	I	20	70	50	25	25	10	10	I	25	I	I
	Polyamides	25	10	I	20	25	I	25	25	10	20	25	25	I	I	5	20	10	20	20	I	I	I	20	25	I
THERMOSETTING	Polyester	20	20	10	15	20	5	20	20	20	15	20	20	5	5	5	15	10	10	15	5	5	5	10	5	5
	Epoxy	25	10	10	I	I	I	I	I	10	I	25	10	I	I	I	15	15	I	10	I	I	I	I	I	I
	Phenolic	50	25	25	25	25	25	25	25	30	25	50	50	25	25	25	25	30	25	25	25	25	25	25	25	25
	Alkyd	70	25	25	25	25	25	25	25	25	25	50	50	25	25	20	25	30	25	25	25	25	25	25	25	25
	Melamine	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
	Polyurethane	25	10	15	25	25	15	25	25	10	25	25	25	20	20	20	25	15	25	25	20	20	20	25	20	20
	Nitrile & Neoprene Rubbers	100	50	100	33	100	100	100	50	50	33	100	50	50	50	40	70	60	50	50	50	50	50	50	65	50

I = Incompatible Figures = Compatibility, PHR

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Compatibility Guide

ADIPATES			PHOSPHATES					PHOSPHATES				PHTHALYL GLYCOLLATES				Permanent								MISCELLANEOUS				
Disodecyl	Dioctyl	Di(n-octyl, n-decyl)	Santicizer 140	Santicizer 141	Tributoxyethyl	Tricresyl	Triphenyl	Santicizer 1-H	Santicizer 3	Santicizer 8	Santicizer 9	Santolite® MHP	Santolite MS-80%	Santicizer E-15	Santicizer B-16	Santicizer M-17	Santicizer 405	Santicizer 406	Santicizer 409	Santicizer 411	Santicizer 462	Santicizer 480	Santicizer 481	Santicizer 482	Santicizer 483	Aroclor®	HB-40®	Mod-Epox®	Monlar®	Triphenyl Phosphite
50	75	75	100	100	60	100	20	1	1	1	1	15	15	25	100	20	100	100	100	100	100	100	100	100	100	35	40	10	10	10
1	1	1	40	50	40	40	80	50	50	100	50	50	50	100	100	100	75	80	100	75	1	20	50	100	1	50	1	1	10	1
1	25	1	100	100	50	100	50	50	50	100	50	50	50	100	100	100	40	40	75	40	15	30	30	50	15	50	50	1	10	1
10	15	15	75	75	50	75	20	20	25	50	20	25	25	75	75	75	10	10	25	10	25	10	10	15	25	50	20	1	10	1
25	100	20	15	50	100	15	20	10	10	20	10	10	10	30	30	30	1	1	50	1	50	40	20	1	50	100	100	1	10	1
35	35	35	100	100	100	100	75	75	80	80	50	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	10	1	10	1
100	100	50	70	100	50	70	30	80	60	60	75	75	75	75	75	75	10	10	33	10	100	50	75	25	100	75	100	5	15	5
1	1	1	35	20	10	15	35	20	45	90	30	25	25	100	50	100	1	1	1	1	1	1	1	1	1	1	1	1	1	1
50	25	25	30	80	25	30	50	40	40	50	25	50	50	100	50	100	100	100	100	100	50	70	80	80	50	50	30	5	10	5
1	1	1	40	100	40	40	50	50	50	100	50	50	50	100	50	100	50	50	10	50	20	40	40	50	20	10	1	1	1	1
100	100	100	100	100	100	100	50	25	25	50	25	50	50	80	80	100	50	50	50	50	50	70	50	50	50	100	100	5	10	5
20	20	20	50	50	50	50	20	25	25	25	25	25	25	50	50	50	15	15	25	10	33	30	20	20	40	50	25	1	20	1
1	1	1	20	25	10	30	10	30	30	50	40	25	25	25	40	20	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	25	25	40	60	25	25	10	30	10	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	25	100	25	25	25	25	25	25	25	25	25	50	70	60	1	1	1	1	70	10	10	10	50	10	20	1	1	1
25	25	25	25	25	15	25	10	50	50	50	25	50	50	1	20	1	1	1	1	1	25	20	15	1	25	25	1	1	10	1
1	1	1	20	20	20	20	10	5	5	10	5	20	20	5	20	5	5	5	10	5	20	15	20	10	20	25	1	5	10	1
1	1	1	25	25	25	25	10	20	20	50	50	25	25	25	25	25	1	1	1	1	1	1	1	1	50	1	100	25	100	
25	25	25	50	50	50	50	50	50	50	50	50	50	50	50	50	50	15	15	25	15	25	25	15	15	25	25	25	25	25	25
25	50	25	70	70	50	70	50	40	30	25	25	25	25	70	70	70	20	20	25	20	25	20	25	20	25	25	15	5	25	0.5
1	1	1	1	1	1	1	1	25	25	50	80	25	25	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
15	15	15	25	25	25	25	10	10	10	20	10	25	25	25	25	25	10	10	15	10	25	25	15	10	25	25	15	1	10	1
33	20	33	33	40	50	55	50	50	50	50	50	50	50	50	50	50	25	25	50	25	50	25	25	30	50	50	50	25	50	25

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2-2248-1066-92 LITHO IN U.S.A.

TOWOLDMON0038663
WATER_PCB-00023132

Plasticizer	Molecular Weight	Acidity (meq/100 gm max)	Appearance	Color (APHA) (maximum)	Moisture (KF in methanol) (% maximum)	Odor	Refractive Index (at 25°C)	Specific Gravity (25°/25°C)	Density (at 25°C) (lb/gal)	Crystallizing Point (°C)
PHTHALATES										
Dibutyl	278.34	* 0.07	* Clear, oily liquid	* 20	* 0.05	* Slight, characteristic	1.4395 to 1.4515	* 1.044 to 1.048	8.72	< -35
Dicyclohexyl	330.43	* 0.07	* White lumps or granules	* 300 (molten)	* 0.1	* Moderate aromatic, slight phthalic, characteristic	—	1.19	—	—
Diethyl	222.11	* 0.07	* Clear, oily liquid	* 10	* 0.15	* Slight, aromatic, mild	1.4990 to 1.5010	* 1.1176 to 1.119	9.35	< -0.1
Dihexadecyl	446.65	* 0.07	* Clear, oily liquid	* 50	* 0.10	* Slight, characteristic	1.4784 to 1.4864	* 0.863 to 0.869	6.29	53 (still clear gel)
Dimethyl	180.16	* 0.07	* Clear, oily liquid	* 15	* 0.10	* Slight, characteristic, mild	1.5110 to 1.5180	* 1.180 to 1.185	9.87	43
Dimethyl	194.18	* 0.07	* Clear, oily liquid	* 10	* 0.25	* Slight, aromatic, mild	1.5123 to 1.5142	* 1.1368 to 1.192	9.92	0.0 (at -2°C both)
Dioctyl-n-octyl decyl	418 (average)	* 0.05	* Clear, oily liquid	* 50	* 0.10	* Slight, characteristic	* 1.4810 to 1.4840	* 0.9686 to 0.9770	8.1	30
Dioctyl	390.53	* 0.07	* Clear, oily liquid	* 25	* 0.10	* Slight, characteristic, mild	1.4845 to 1.4858	* 0.980 to 0.985	8.21	55 (very still gel)
Diphenyl	313.31	* 1.20	* Essentially white, fused solid with a slightly yellow or brown cast	* 140 (20ml 50ml acetone)	0.25	—	1.577 @ 74°C	1.28	—	—
Ditridecyl	530	* 0.12	* Clear, oily liquid	* 100	* 0.1	* Clear, characteristic	* 1.4813 to 1.4850	* 0.848 to 0.853	7.10	—
Santicizer® 160	312.36	* 0.07	* Clear, oily liquid	* 40	* 0.15	* Slight, characteristic, mild	* 1.5125 to 1.5140	* 1.1170 to 1.123	9.3	< -35
Santicizer 160	—	* 0.12	* Clear, oily liquid	* 40	* 0.12	* Slight, similar to DOP's	* 1.484 to 1.487	* 0.980 to 0.986	8.18	—
Santicizer 213	—	* 0.25	* Clear, oily liquid	* 75	* 0.15	Characteristic, very low	* 1.501 to 1.504	* 1.065 to 1.065	8.68	—
Santicizer 214	—	* 0.15	* Clear, oily liquid	* 100	* 0.15	Characteristic, very low	* 1.481 to 1.486	* 0.968 to 0.966	7.8	—
Santicizer 215	—	* 0.12	* Clear, oily liquid	* 100	* 0.10	Characteristic	* 1.506 to 1.516	* 0.974 to 0.980	8.14	—
Santicizer 262	386.5	* 0.03	* Clear, oily liquid	* 100	* 0.15	—	* 1.518 to 1.523	* 1.048 to 1.057	8.7	—
Santicizer 278	471	* 0.04	* Clear, oily liquid	* 100	* 0.15	Slight characteristic	* 1.5110 to 1.5203	* 1.0196 to 1.031	9.18	below -23
Santicizer 601	—	* 0.10	* Clear, oily liquid	* 50	* 0.10	* Characteristic, mild	* 1.482 to 1.486	0.971 to 0.977	8.1	—
Santicizer 603	—	* 0.12	* Clear, oily liquid	* 100	* 0.10	Characteristic	* 1.4825 to 1.4895	* 0.9771 to 0.981	8.18	—
Santicizer 650	—	* 0.12	* Clear, oily liquid	* 70	* 0.10	—	* 1.5005 to 1.5160	* 0.9871 to 0.994	8.25	—
Santicizer 651	—	* 0.12	* Clear, oily liquid	* 40	* 0.10	—	* 1.4900 to 1.5045	* 0.984 to 0.990	8.22	—
Santicizer 652	—	* 0.12	* Clear, oily liquid	* 100	* 0.15	—	* 1.484 to 1.487	* 0.976 to 0.987	8.15	—
Santicizer 654	—	* 0.12	* Clear, oily liquid	* 75	* 0.10	—	* 1.478 to 1.488	* 0.968 to 0.977	8.12	—
Santicizer 661	—	* 0.12	* Clear, oily liquid	* 40	* 0.10	—	* 1.4770 to 1.4778	* 0.9631 to 0.9705	8.05	—
Santicizer 662	—	* 0.12	* Clear, oily liquid	* 40	* 0.10	—	* 1.4900 to 1.4909	* 0.9731 to 0.981	8.09	—
ADIPATES										
Dioctyl	444.0	* 0.50	* Clear, oily liquid	* 50	* 0.10	* Mild	1.4445 to 1.4525	* 0.9162 to 0.9173	7.65	< -50
Octyl decyl (n-decyl)	398 (average)	* 0.35	* Clear, oily liquid	* 50	* 0.10	Characteristic	* 1.441 to 1.450	* 0.9114 to 0.917	7.63	-5
Dioctyl	370.56	* 0.75	* Clear, oily liquid	* 25	* 0.10	* Mild	1.444 to 1.448	* 0.921 to 0.927	7.72	-70
PHOSPHATES										
Trioctyl	364.18	* 0.20	* Clear, oily liquid	* 75	* 0.15	* No foreign odor	1.446	* 1.157 to 1.173	9.7	< -35
Triphenyl	326.31	* 0.06	* White flakes	20 (molten)	—	* Very faint aromatic, mild	1.590 (46.80°C)	1.264 (80°/25°C)	10.5	49
Santicizer 140	360.2	* 0.20	* Clear, oily liquid	* 40	* 0.15	* Essentially odorless	1.550 to 1.570	* 1.1303 to 1.213	10	< -35
Santicizer 141	362.40	* 0.20	* Clear, oily liquid	* 60	* 0.10	* Slight, sweet	1.507 to 1.510	* 1.0686 to 1.043	9.1	< -35
Tributoxyethyl	—	* 1.0	* Clear, oily liquid	* 75	* 0.20	* Characteristic, mild	* 1.434 to 1.438	* 1.017 to 1.023	8.50	-70
Trihexyl	368.53	* 0.61	* Clear, oily liquid	* 75	* 0.20	* Characteristic	* 1.437 to 1.474	* 0.9673 to 0.974	8.14	< -60
GLYCOLATES										
Santicizer 1-19	280.27	* 0.17	* Clear, oily liquid	* 25	* 0.15	* Slight, mint	1.486 to 1.500	* 1.180 to 1.195	9.85	70 (supercools readily)
Santicizer 8-16	336.37	* 0.33	* Clear, oily liquid	* 45	* 0.15	* Slight, characteristic	1.488 to 1.492	* 1.095 to 1.105	9.15	< -35
Santicizer M-17	294.24	* 0.33	* Clear, oily liquid	* 25	* 0.15	* Slight, characteristic, mild	1.504	* 1.217 to 1.227	10.20	< -35
SULFONAMIDES										
Santicizer 1-M	251.36	—	* Yellow brown fused mass	* 300 (molten)	* 0.15	—	—	1.125	—	— (in vacuum jacket, 82.3 min)
Santicizer 3	199.23	* 1.60	* Practically white solid	* 50 (molten)	* 0.25	—	1.552 to 1.532 (55°C)	1.166 to 1.116 (45° 45°C	—	* 58.0 min
Santicizer 8	199.22	* 0.80	* Light yellow viscous liquid free of turbidity or extraneous matter	* 300 (molten)	—	* Slight, characteristic	1.540	1.190	9.92	< -40
Santicizer 9	213.1	ph 4.0 min	* Fine white to light cream granular particles	* 85 -33% wt. % in acetone	* 1.0	Essentially none	—	1.350 solid	—	105
Santicizer® MHP	—	max. KOH g	* Hard, practically colorless resin	* 50 -25g 75g butyl acetate)	—	Faint formaldehyde	1.4715 to 1.4725 -25g 75g butyl acetate	1.35	—	62
Santicizer MS-80%	—	—	* Light colored viscous liquid. Free flowing above 20°C	* 80 -25g 35g butyl acetate)	—	—	—	1.236	10.3	—
PERMANENT										
Santicizer 405	—	* 2.0	* Clear, viscous liquid	* 250 -50ml 50ml 95% ethanol	* 0.15	* Character-ize	1.474	* 1.1278 to 1.132	9.41	—
Santicizer 406	—	* 1.0	* Clear, oily liquid	* 200 -50ml 50ml 95% ethanol	* 0.15	* Very characteristic	1.470	* 1.1088 to 1.096	9.08	—
Santicizer 408	—	* 1.5	* Clear, liquid	* 150 -50ml 50ml 95% ethanol	* 0.15	Very faint ester	1.4654	* 1.1060 to 1.066	9.01	—
Santicizer 411	—	* 2.0	* Slightly yellow viscous liquid, some solids on standing	* 175 -50ml 50ml 95% ethanol	* 0.15	* Slight characteristic	1.4772	* 1.1044 to 1.110	9.20	—
Santicizer 467	—	* 0.24	* Clear, oily liquid	* 150	* 0.15	Characteristic	* 1.500 to 1.510	* 1.0972 to 1.077	8.95	—
Santicizer 480	—	* 0.80	* Clear, oily liquid	* 200	* 0.15	Slight, characteristic	1.4967	* 1.0139 to 1.046	8.72	—
Santicizer 101	—	* 0.85	* Clear, oily liquid	* 300	* 0.15	Slight, characteristic	1.4795	* 1.0772 to 1.0918	8.96	—
Santicizer 102	—	* 1.1	* Clear, liquid	* 325	* 0.15	Slight, characteristic	1.4731	* 1.0797 to 1.263	8.16	—
Santicizer 103	—	* 0.74	* Clear, oily liquid	* 125	* 0.15	Slight, characteristic	* 1.5015 to 1.5050	* 1.0845 to 1.092	8.16	—
OTHER										
HB 40®	—	—	Practically odorless, oily liquid	* 150	* 125 ppm	Faint characteristic	1.5600 to 1.5750	* 1.1001 to 1.1007 (25° 25°C)	8.37	—
Mod Ipex®	—	0.05 mg KOH g	* Oily liquid or light yellow solid	* 50	—	—	* 1.547 to 1.590	* 1.174 to 1.182 (30° 15.5°C)	9.83	25
Phosgard® C 22 R	610.5	* .5	* Clear, viscous liquid	* 50	—	Essentially none	* 1.490 to 1.494	* 1.029 to 1.445	11.9	None glassy
Tricresyl Phosphate	310.28	* 0.10 mg KOH g	* Oily liquid to light yellow solid	* 50	—	—	* 1.557 to 1.560	* 1.16 to 1.187 (30° 15.5°C)	9.81	25

GENERAL PROPERTIES OF REPRESENTATIVE AROCLOR® PLASTICIZERS AND RESINS (*MONSANTO SPECIFICATIONS)

PROPERTY	AROCLOR 1221	AROCLOR 1232	AROCLOR 1242	AROCLOR 1248	AROCLOR 1254	AROCLOR 1260	AROCLOR 1262	AROCLOR 5442	AROCLOR 4465	AROCLOR 5460	AROCLOR 1268
Appearance	Clear, mobile oil	Clear, mobile oil	*Color, mobile oil	*Clear, mobile oil	*Light yellow viscous oil	*Light yellow soft sticky resin	*Light yellow sticky viscous resin	*Yellow, clear sticky resin	*Light yellow, clear brittle resin	*Clear, yellow to amber brittle resin or flakes	*White to off white powder
Color, maximum	*50 APHA	*100 APHA	*100 APHA	*100 APHA	*100 APHA	*150 APHA	*250 APHA	*2 NPA (molten)	*2 NPA (molten)	*2 NPA (molten)	1.5 NPA (molten)
Chlorine, per cent	20.5-21.5	31.5-32.5	42	48	54	60	61.5-62.5	42	65	58.5-60.5	68
Acidity, mg KOH g, maximum	*0.014	*0.014	*0.015	*0.010	*0.10	*0.014	*0.014	0.05	0.5	0.5	0.05
Moisture, ppm, maximum	—	—	*30	*30	150	150	—	—	—	—	—
Avg. Coefficient of Expansion cc./cc./°C	0.00078 (15°-60°C)	0.00073 (25°-100°C)	0.00068 (25°-65°C)	0.00010 25°-65°C)	0.00066 (25°-65°C	0.00063 (25°-100°C)	0.00064 (25°-65°C)	0.00063 (25°-95°C)	0.00061 (25°-65°C)	0.00079 (25°-124°C)	0.00067 (25°-100°C)
Specific Gravity	*1.382-1.387 (25°-25°C)	*1.470-1.490 (25°-25.5°C)	*1.381-1.392 (25°-25.5°C)	*1.495-1.505 (25°-25.5°C)	*1.655-1.668 (25°-25.5°C)	*1.337-1.343 (40°-25.5°C)	1.470 (25°-25°C)	1.410 (25°-25°C)	1.410 (25°-25°C)	1.470 (25°-25°C)	*1.804-1.807 (25°-25°C)
Density, pounds per gallon, 25°C	9.25	10.55	11.50	12.04	12.82	13.56	13.72	12.24	13.91	13.91	15.26
Distillation Range °C, corrected (ASTM D 2), modified	275-370	290-325	325-366	340-375	365-390	385-420	390-425	215-300 (4 mm Hg)	230-320 (4 mm hg)	280-335 (5 mm Hg)	435-450
Evaporation Loss %, 105°C 6 hours (ASTM D 6), mod., 163°C 5 hours	1.0-1.5	1.0-1.5	0.0-4 3.0-3.6	0.0-3 1.0-4.5	0.0-1 1.1-1.5	0.0-1 0.5-0.8	0.0-1 0.5-0.6	0.99 2.7	0.0-22 0.0-0.3	0.00	0.0-0.8 0.1-0.7
Flash Point (Cleveland Open Cup), °C °F	160 / 150 / 290-302	152-154 / 305-309	176-180 / 348-356	193-196 / 379-384	NONE	NONE	NONE	241 / 466	NONE	NONE	NONE
Fire Point (Cleveland Open Cup), °C °F	176 / 348	238 / 460	NONE**	NONE	NONE	NONE	NONE	350 / 662	NONE	NONE	NONE
Pour Point (ASTM D-97), °C °F	— (crystalline) / 34 (crystalline)	-33.5 / -32	-19 / -2	-12 / 10.4	-12 / 10	-35.38 / -31	-46 / -51	-46 / -51.5	*50-58 / 140-151	*58-105.5 / 200-222	—
Softening Point (ASTM E-28) °C °F	—	—	—	—	—	—	—	*46-57 / 115-134	*50-58 / 140-151	*58-105.5 / 200-222	*150-170 (ball and ring) 302-338 (ball and ring)
Refractive Index, n $^{25}_{D}$ @ 20°C	1.611-1.618	1.620-1.622	1.627-1.629	1.630-1.631	1.639-1.641	1.647-1.649	1.650-1.6517	—	1.604-1.607	1.600-1.605	—
Viscosity, Saybolt Seconds Universal (ASTM D 88)	100°F (37.78°C) / 130°F (54.4°C) / 210°F (98.9°C)	*34-41 / 33-37 / 30-33	*44-51 / 39-43 / 31-32	*81-92 / 61-68 / 31-35	185-240 / *73-86 / 36-37	3200-4500 / *772-1118	600-750 (100°F 37.8°C) / 195-220	300-400	— / 90-150 (210°F 100°C)	—	—

*Monsanto Company specifications
**NONE indication no flash or fire up to boiling point.

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WATER_PCB-00023133

Specifications

Pour Point (°C)	Boiling Point (at 760 mm. Hg) (°C)	Vapor Pressure (mm Hg) at 150°C	at 200°C	at 300°C	Viscosity (centistokes) at 0°C	at 25°C	at 98.9°C	Surface Tension at 20°C (dynes/cm.)	Thermal Expansion Coefficient (at 10°C to 40°C) (cc/cc/°C)	Flash-Point (C.O.C.) (°F.)	Fire Point (C.O.C.) (°F.)	Assay (Ester Content) (%)	Sulfur (Copper-ating test)	Solubility in water (at 25°C) (%)
-60	360 D	-	9	200	55 0	15 6	2 4	35	0 00078	340	395	99 min	-	0 001 - 30°C
	220 to 228 (4 mm. Hg.)	0 09	1 1	-	-	-	-	36 4 (25°C ± 1°)		405	445	* 99 0 min	-	< 0 01
-60 (approx.)	296	0	90	-	31 0	8 6	1 8	31 3 (20 5°C)		365	375	99 min	Negative	0 1 - 32°C
-60	230 to 237 (4 mm. Hg.)	0 018	0 35	-	441 0	91 0	5 6	29	0 00074	450	530	-	-	< 0 005
-60	228 to 237 (4 mm. Hg.)	< 0 05	1 0	-	327 0	55 0	4 3		0 00073	430	480	99 min to 101	Negative	< 0 01
-55 (approx.)	282	13	78	-	54	11 4	3 6	32	0 00092 - 0° to 30°C	300	315	99 0 min	Negative	0 4 - 32°C
-55	237 to 282 (4 mm. Hg.)	0 01	0 25	-	-	138	34	31	0 00071	435	-	-	-	-
-47	286	0 06	1 7	-	148 0	34 0	4 3	33 - 25°C	0 00074	427	480	99 to 101	Negative	< 0 005
	420	0 15	1 7	55	-	-	-	-	-	435	-	-	-	< 0 01
-37	285 - 33 mm. Hg.	-	-	-	1500	160	8	-	-	450	-	-	-	-
-45	310	0 16	2	90	-	41 5	-	39 9 - 25°C	0 00080	390	-	-	-	0 0003 - 30°C
-51	-	0 04	0 8	-	250 0	45 0	3 9	-	-	390	-	-	Negative	< 0 005
-45	-	11 6	70 4	-	-	17 0	-	33 6 - 24°C	-	315	335	-	-	Practically insoluble
-41	-	11 0	53 1	-	-	29 6 - 37 8°C	4 5	31 0 - 24°C	0 00051	372	399	-	-	Practically insoluble
-36	-	-	-	-	-	75	4 5	-	-	491	-	-	-	Practically insoluble
-31 F	29	-	0 31	34	900	8 2	3 2	34 3 - 25°C	0 0005 8	420	515	-	-	-
-63	-	-	0 29	80	above 1 000	860	11 7	34 8 - 25°C	0 00073	444	535	-	-	-
-49	-	-	-	-	-	34 5 - 37 8°C	5 0	-	-	442	-	-	-	-
-51	-	-	-	-	400 D	60 0	4 6	-	0 00078	395	-	-	-	-
-60	-	-	-	-	150 D	40 2	4 3	-	0 00074	370	-	-	-	-
-45	-	-	-	-	250 D	50 0	4 8	-	0 00074	385	-	-	-	-
-65	240 (4 mm. Hg.)	0 02	0 56	-	-	14 5 - 37 8°C	3 6	30	0 00077	-	-	-	-	< 0 001
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-8	-	0 04	0 86	-	-	9 5 - 37 8°C	2 8	29	0 00078	401	480	-	Negative	< 0 01
-55	214 - 5 mm. Hg.	< 0 13	2 5	-	-	8 7 - 37 8°C	2 6	29	0 00078	377	450	-	-	< 0 01
	430	-	0 5	28	1256 D	89 0	6 0	44 5	0 00061	470	595	-	-	< 0 002 g m - 100 ml
	370	0 13	1 9	-	-	7 8 - 55°C	2 9	-	-	437	-	-	-	0 001 - 24°C
-37	390	0 08	1	760 (390°C)	700 D	33 0	2 8	42	0 00057	450	none at 625	-	-	< 0 005
-34	315	0 065	1 3	-	61 0	16 6	3 3	36 7 - 25°C	-	405	485	-	-	0 003
-10	315 220	< 0 10	1 6	-	-	17 0 - 30°C	-	30	0 00081	435	485	-	-	0 1
-30	137 145	1 3	> 500	-	-	3 6 - 20°C	-	29	0 00095	380	400	-	-	0 1
	326	0 47	7	480	616 0	54 0	2 9	-	-	386	-	-	Negative	0 0175 - 30°C
-40	343	0 1	1 8	130	239 0	46 0	3 6	-	-	390	-	-	Negative	0 0012 - 30°C
-28	350	0 3	6	400	1476 0	82 0	2 8	43 6 - 25°C	-	390	-	-	Negative	0 04 - 30°C
	350	-	-	-	-	-	-	-	-	-	-	-	-	0 00041 - 30°C
80	-	0 8 (166°C)	-	-	-	-	-	-	-	371	-	-	-	Slight
	340	0 45	5 5	-	10 000	358 0	8 0	44 5 - 25°C	-	345	-	-	-	0 13 - 23°C
	360 approx.	0 29	3 2	-	-	-	-	-	-	420	-	-	-	1 - 24°C
													-	Practically insoluble
													-	Nil
-3					-	10 500 to 11 500	-	-		555				Practically insoluble
+15						6 800 to 7 500	-	-		535	-			Practically insoluble
9						7 800 to 8 500	-	-	0 00071	530	570			Practically insoluble
+11 F						9 000 to 9 800	-	-		540	-			Practically insoluble
-28						291	-	-		-	-			Practically insoluble
1						556	-	-		471	525			Practically insoluble
10						5 870	-	-		491	575			Practically insoluble
18						6 427	-	-		525	580	-	-	Practically insoluble
36						156	-	-		485	525	-	-	Practically insoluble
75	345 to 396	2	15	230	70 0	29 0 (37 8°C)	3 9	40 L (25°C)	-	345	380	-	-	-
	360	-	11 (270°C)	-	-	-	-	-	-	370	525	-	-	Hygroscopic
5	Not distillable	-	-	-	-	-	* 40 to 60	-	-	No self-supporting combustion	-	-	-	Nil
	360	-	11 (270°C)	-	-	17 5	-	-	-	375	525	-	-	Hygroscopic

FLAME-RETARDANT PLASTICIZERS

If you want products that resist burning, build your formulations with one or a combination of flame-retardant plasticizers. Monsanto's liquid and solid flame-retardant plasticizers offer a wide range of compatibilities. Other beneficial properties include permanence, chemical resistance, extraction resistance, flexibility and weatherability.

Santicizer® 140
Santicizer 141
Tricresyl Phosphate
Triphenyl Phosphate
11 Aroclor® Plasticizers
6 Montar® Compounds
Phosgard® C-22-R

FDA REGULATED PLASTICIZERS

Monsanto offers more FDA regulated plasticizers than any supplier for use in compositions related to food packaging and handling, and for articles that come into close contact with the human body. The following list of plasticizers offer you high specification standards of purity, low odor, minimum taste, flexibility, clearness and water resistance for applications such as: food-wrapping paper coatings, packaging films, label adhesives and inks, beverage and blood tubing:

Dioctyl Phthalate
(high-water content foods only)
Dibapoctyl Phthalate
(high-water content foods only)
Diethyl Phthalate
Dioctyl (2-ethylhexyl) Adipate
Santicizer® 141
Santicizer E-15
Santicizer B-16
Santicizer 160

SOLID PLASTICIZERS

Choose from a variety of plasticizers for use in adhesives, coatings and lacquers, foams, rigid compositions and films. Solid plasticizers decrease your hot processing time at reduced cost. During solvent processing, they require fewer surface-building coats and at less cost. For use such as delayed-tack and heat-seal adhesives and coatings for non-blocking films, easier processing of rigid plastics products, toughness of rigid foams, for even flow and uniform filling of resinous impregnants, choose from the following:

	Melting Point (°C)	Softening Range (°C)
Aroclor® 5442	-	46-52
Triphenyl Phosphate	48.5	-
Montar® 1	-	54-160
Santicizer® 3	58	-
Aroclor 4465	-	60-66
Santolite® MHP	62	-
Dicyclohexyl Phthalate	63	-
Diphenyl Phthalate	69	-
Montar 2	-	70-170
Santicizer 1-H	82.5	-
Montar 3	-	86-168
Montar 4	-	92-206
Aroclor 5460	-	98-105
Santicizer 9	105	-
Montar 9	-	130-175
Aroclor 1268	-	150-170
Montar 5	-	155-195

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