

Chemical resistance of Tenite™ cellulose acetate butyrate

Tenite™ cellulose acetate butyrate (CAB) has been tested in contact with a number of materials, and the results are presented in this brochure.

Most tests were conducted by immersing injection-molded specimens of Tenite CAB in a chemical for the period of time shown. Most figures given are the result of a single test, and the measured gains in weight and thickness are rounded to the nearest 0.1%. Unless otherwise stated, tests were conducted at 23°C (73°F) and solutions were aqueous (i.e., "Acid, acetic, 5%" indicates a 5% solution of acetic acid in water tested at 23°C). Unless other characteristics are specifically mentioned, the information given under "Observed condition of plastic" refers only to the appearance and feel of the plastic specimen.

The test results presented in this report are intended only as a guide for the general chemical resistance of Tenite cellulose acetate butyrate. In actual applications where chemical resistance is a concern, it is necessary to conduct testing with the specific chemical, reagent, and end-use article involved. No effort is made in this publication to account for specific chemicals or reagents that may no longer be commercially available or may have been modified after test results were obtained.

Certain materials designated in this publication are generally unsatisfactory for use in contact with Tenite CAB. There is no implication that other materials are suited for use with Tenite.

Because results from tests conducted at different temperatures or for different time periods may be different from those shown in this report, users of Tenite CAB must be guided by their own tests under conditions equivalent to or representative of those that the plastic will be subjected to in actual service.

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Chemicals

(Materials generally referred to by chemical name)

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Plastics made from wood pulp—
a renewable resource

Chemicals

(Materials generally referred to by chemical name)

Reagent	Time exposed	Percent increase		Observed condition of plastic
		Weight	Thickness	
Acids				
Acetic, 5%	1 year	3.6	2.1	Slightly softened
Acetic, 10%	2 months	5.2	2.4	Slightly softened
Acetic, 30%*	2 months	13.6	8.6	Softened and swollen
Boric, 5%	2 days	1.3	0.0	Unchanged
Chromic, 6%	8 days, 38°C (100°F)	2.0	0.1	Slightly stained
Citric, 10%	4 months, 60°C (140°F)	1.6	0.8	Slightly softened
Citric, 10%	1 year	1.4	0.6	Unchanged
Citric, 60%*	4 months, 60°C (140°F)	—	—	Surface attacked
Fluosilicic, 10%	2 months	4.5	1.2	Unchanged
Fluosilicic, 28%	2 months	4.7	3.6	Unchanged
Formic, 3%	20 days	—	—	Unchanged
Hydrochloric, 10%	1 year	0.9	0.5	Surface slightly attacked
Hydrofluoric, 10%*	1 month	10.3	5.5	Slightly swollen and softened
Hydrofluoric, 48%*	—	—	—	Dissolved
Lactic, 50%	2 days	1.6	0.5	Unchanged
Nitric, 10%*	8 months	—	—	Decomposed
Oleic	1 year	2.3	1.5	Unchanged
Phosphoric, 30%	2 months	1.3	0.8	Unchanged
Phosphoric, 50%	2 months	1.6	0.8	Unchanged
Phosphoric, 75%*	2 months	—	—	Partially decomposed
Pyrogalllic, 4%	1 week	2.6	1.1	Stained yellow
Stearic	1 week	—	—	Unchanged
Sulfuric, 3%	1 year	1.6	1.0	Slightly discolored
Sulfuric, 10%*	1 year	1.5	0.7	Slightly discolored
Sulfuric, 20%*	1 year	0.9	0.3	Slightly softened, surface attacked
Sulfuric, 30%*	1 year	-0.4	-0.3	Surface attacked
Sulfuric, 94%*	—	—	—	Disintegrated
Tannic, 10%	4 months, 38°C (100°F)	2.8	1.2	Unchanged
Trichloroacetic, 1%	1 month	3.3	0.5	Unchanged
Trichloroacetic, 5%*	1 month	9.3	3.1	Softened

*Indicates that material is generally unsatisfactory for use in contact with Tenite CAB under the conditions of this test.

Chemicals

(Materials generally referred to by chemical name)

Reagent	Time exposed	Percent increase		Observed condition of plastic
		Weight	Thickness	
Alcohols—monohydric				
<i>n</i> -Amyl	2 days	3.1	3.0	Unchanged
<i>tert</i> -Amyl*	2 days	14.0	11.3	Softened, tacky
<i>n</i> -Butyl*	2 days	6.5	7.2	Swollen
<i>sec</i> -Butyl*	2 days	7.2	10.7	Swollen
<i>tert</i> -Butyl*	2 days	3.6	3.3	Slightly softened
Diacetone*	—	—	—	Dissolved
Ethyl (denatured)*	2 days	23.0	24.7	Softened
Ethyl, 50%*	1 week	13.4	11.6	Softened
2-Ethylhexyl*	1 week	—	—	Swollen
Isoamyl*	2 days	2.0	2.1	Very slightly softened
Isopropyl*	2 days	23.4	25.1	Softened, tacky
Methyl*	—	—	—	Dissolved
Methyl, 5%	1 year	2.0	1.2	Slightly softened
<i>n</i> -Propyl*	2 days	15.0	4.4	Slightly softened
Tetrahydrofurfuryl*	—	—	—	Dissolved
Alcohols—dihydric and trihydric				
Diethylene glycol*	2 months	8.2	6.1	Softened
2-Ethyl hexanediol-1,3	2 days, 38°C (100°F)	—	—	Unchanged
Ethylene glycol	1 year	4.2	2.1	Unchanged
Glycerin	1 year	0.0	0.4	Unchanged
Propylene glycol	2 days	0.4	0.0	Unchanged
Triethylene glycol*	2 months	8.6	6.7	Softened
Bases				
Ammonium hydroxide, 10%*	2 months	21.9	12.9	Softened
Calcium hydroxide, saturated solution	1 week	1.7	0.7	Unchanged
Sodium hydroxide, 1%	1 year	1.0	0.6	Unchanged
Sodium hydroxide, 10%*	8 months	3.2	2.2	Brittle
Trimethylbenzylammonium hydroxide, 5%	17 days	1.1	0.0	Unchanged

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Chemicals

(Materials generally referred to by chemical name)

Reagent	Time exposed	Percent increase		Observed condition of plastic
		Weight	Thickness	
Esters				
<i>n</i> -Butyl acetate*	—	—	—	Dissolved
sec-Butyl acetate*	—	—	—	Dissolved
Di-2-ethylhexyl adipate	1 year	0.9	0.3	Unchanged
Di-2-ethylhexyl phthalate	1 month, 50°C (122°F)	Small gain		
Ethyl acetate*	—	—	—	Dissolved
Ethyl lactate*	—	—	—	Dissolved
Ethyl propionate*	—	—	—	Dissolved
Ethylene glycol monoethyl ether acetate*	—	—	—	Dissolved
Ethylene glycol monomethyl ether acetate*	—	—	—	Dissolved
Isoamyl acetate*	—	—	—	Dissolved
Isobutyl acetate*	—	—	—	Dissolved
Isopropyl acetate*	—	—	—	Dissolved
Methyl acetate	—	—	—	Dissolved
<i>n</i> -Propyl acetate*	—	—	—	Dissolved
Ethers				
Dichlorodiethyl ether*	—	—	—	Dissolved
Diethyl ether*	2 days	46.0	50.0	Considerably swollen
Diisopropyl ether	2 days	0.8	1.1	Unchanged
Ether alcohols				
Ethylene glycol monoethyl ether*	—	—	—	Dissolved
Ethylene glycol monomethyl ether*	—	—	—	Dissolved
Hydrocarbons				
Gas, natural, aromatic-free	1 year	—	—	Showed slight decrease in tensile strength and increase in impact strength
Gas, natural, 5% aromatic content	23 days	—	—	Showed slight decrease in tensile strength and increase in impact strength
Heptane	1 year	1.6	2.5	Unchanged
Hexane	1 week	—	—	Unchanged
Propane, gas	2 months	0.3	0.6	Unchanged
Propane, liquid	2 months	1.4	4.6	Unchanged
Toluene*	2 days	39.3	54.9	Softened
Xylene*	1 week	41.5	33.2	Softened

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Chemicals

(Materials generally referred to by chemical name)

HOME

Reagent	Time exposed	Percent increase		Observed condition of plastic
		Weight	Thickness	
Hydrocarbons, halogenated				
Carbon tetrachloride*	2 days	14.8	6.8	Surface slightly softened
Chlorobenzene*	—	—	—	Dissolved
Chlorobromomethane*	—	—	—	Dissolved
Chloroform*	—	—	—	Dissolved
<i>o</i> -Dichlorobenzene*	3 days	—	—	Softened and swollen
<i>p</i> -Dichlorobenzene*	3 days	11.1	11.7	Swollen
Ethylene chloride*	—	—	—	Dissolved
Methylene chloride*	—	—	—	Dissolved
Propylene chloride*	—	—	—	Dissolved
<i>s</i> -Tetrabromoethane*	3 days	—	—	Softened, swollen, and tacky
Tetrachloroethane*	—	—	—	Dissolved
Tetrachloroethylene*	12 days	—	—	Badly swollen
Trichloroethylene*	1 day	—	—	Badly swollen
Ketones				
Acetone*	—	—	—	Dissolved
Cyclohexanone*	—	—	—	Dissolved
Diisopropyl ketone*	—	—	—	Dissolved
Methyl ethyl ketone*	—	—	—	Dissolved
Methyl <i>n</i> -butyl ketone*	—	—	—	Dissolved
Methyl isobutyl ketone*	—	—	—	Dissolved
Phorone*	—	—	—	Dissolved

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Chemicals

(Materials generally referred to by chemical name)

Reagent	Time exposed	Percent increase		Observed condition of plastic
		Weight	Thickness	
Salts				
Aluminum acetate, basic, 33% water slurry	2 months	1.8	0.6	Unchanged
Aluminum chloride, 10%	2 months	1.5	0.7	Unchanged
Aluminum chloride, saturated solution	2 months	0.1	0.0	Unchanged
Aluminum sulfate, solid	3 months	1.7	1.1	Unchanged
Ammonium bifluoride, saturated solution	1 month	2.3	—	Slightly bleached
Ammonium chloride, saturated solution	1 month	2.1	0.8	Unchanged
Ammonium nitrate, solid	1 week	0.2	0.2	Unchanged
Ammonium nitrate, 10%	1 week	1.7	0.8	Unchanged
Ammonium sulfate, solid	1 year	0.1	0.6	Unchanged
Ammonium sulfate, 10%	1 year	1.3	0.5	Unchanged
Calcium chloride, 2.5%	1 year	1.5	0.9	Unchanged
Calcium chloride, 40%	2 months	0.4	0.0	Unchanged
Calcium hypochlorite, 6%	1 year	6.0	-3.8	Softened and cracked
Calcium hypochlorite, 30%	13 days	0.8	0.0	Unchanged
Calcium phosphate, monobasic, solid	1 year	1.7	0.5	Unchanged
Calcium phosphate, dibasic, solid	1 year	-0.6	0.6	Unchanged
Calcium phosphate, tribasic, solid	1 year	-0.6	0.6	Unchanged
Calcium sulfate (gypsum), solid	1 year	-0.1	0.6	Unchanged
Copper sulfate (cupric), 10%	2 months	1.7	0.6	Unchanged
Copper sulfate, saturated solution	2 months	1.7	0.9	Unchanged
Cuprous chloride, solid	1 week	1.5	—	Unchanged
Ferric ammonium sulfate, solid	1 week, 38°C (100°F), 80% RH	0.3	—	Unchanged
Ferric chloride, 5%	2 months	2.0	0.8	Unchanged
Ferric chloride, 20%	2 months	1.7	1.0	Unchanged
Ferric chloride, 40%	2 months	1.3	0.4	Unchanged
Ferric chloride, saturated solution	1 month	0.9	0.3	Unchanged
Lithium bromide, solid	1 week	-0.7	0.0	Unchanged
Lithium bromide, 50%	1 week	0.0	0.0	Unchanged
Magnesium carbonate, 2.5%	2 days	1.6	1.0	Unchanged
Potassium aluminum sulfate (alum), 21%	4 months, 38°C (100°F)	1.9	0.8	Unchanged
Potassium bromide, 3%	3 days, 38°C (100°F)	1.3	—	Unchanged
Potassium chloride, solid	1 year	0.1	0.5	Unchanged
Potassium chloride, 10%	1 year	1.7	0.4	Unchanged
Potassium chrome alum, 10%	3 days, 38°C (100°F)	1.3	—	Unchanged
Potassium cyanide, 10%	2 months	1.4	0.3	Slightly discolored (brown)
Potassium cyanide, saturated solution	2 months	0.5	0.0	Slightly discolored (brown)
Potassium ferricyanide, 10%	4 days	—	—	Unchanged
Potassium sulfate, solid	1 year	0.1	0.6	Unchanged
Potassium sulfate, 10%	1 year	1.4	0.4	Unchanged
Silver nitrate, 2.5%	2 days	1.5	0.0	Unchanged

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Chemicals

(Materials generally referred to by chemical name)

Reagent	Time exposed	Percent increase		Observed condition of plastic
		Weight	Thickness	
Salts (continued)				
Sodium acetate, 3%	3 days, 38°C (100°F)	1.3	—	Unchanged
Sodium aluminum sulfate, solid	1 week	1.6	0.4	Unchanged
Sodium bicarbonate, 2.5%	2 days	1.7	0.5	Unchanged
Sodium bisulfate, solid	1 week, 38°C (100°F), 80% RH	0.1	—	Unchanged
Sodium bisulfate, 1%	3 days, 38°C (100°F)	1.3	—	Unchanged
Sodium bisulfite, 20%	1 week	2.1	0.8	Unchanged
Sodium borate, 2.5%	2 days	1.5	0.5	Unchanged
Sodium carbonate, solid	1 week, 38°C (100°F), 80% RH	3.9	—	Unchanged
Sodium carbonate, 2.5%	1 year	1.3	0.9	Unchanged
Sodium carbonate, 6%	3 days, 38°C (100°F)	1.2	—	Unchanged
Sodium carbonate, 10%	1 year	—	—	Unchanged
Sodium chloride, 2.5%	1 year	—	—	Unchanged
Sodium chloride, 10%	1 year	1.3	0.5	Unchanged
Sodium chloride, saturated solution	2 months	0.8	0.3	Unchanged
Sodium chloride, saturated solution	2 months, 60°C (140°F)	0.9	0.9	Unchanged
Sodium chromate, saturated solution	1 week	0.6	0.2	Unchanged
Sodium cyanide, 10%	2 months	1.0	0.3	Unchanged
Sodium cyanide, saturated solution	2 months	-0.2	-0.4	Unchanged
Sodium ferrocyanide, solid	1 week	0.8	—	Unchanged
Sodium fluoride, 4%	1 month	2.5	—	Unchanged
Sodium hypochlorite, 30%	13 days	1.1	-2.1	Unchanged
Sodium nitrate, solid	2 months	0.1	0.1	Unchanged
Sodium nitrate, 10%	1 year	1.2	0.4	Unchanged
Sodium nitrate, saturated solution	2 months	0.9	0.4	Unchanged
Sodium silicate, solid	2 months	0.3	0.2	Unchanged
Sodium silicate, saturated solution	2 months	1.2	0.1	Unchanged
Sodium sulfite, 10%	1 week	2.1	0.9	Unchanged
Sodium thiosulfate, 20%	13 days	1.1	0.0	Unchanged
Sodium thiosulfate, 24%	3 days, 38°C (100°F)	1.2	—	Unchanged
Tetra(2-ethylbutyl) silicate	1 month, 50°C (122°F)	-0.7	-0.1	Unchanged
Trimethyl benzyl ammonium chloride, 5%	17 days	1.1	0.1	Unchanged
Zinc chloride (hydrous salt)	1 week	0.5	0.0	Unchanged
Zinc chloride, saturated solution	1 week	1.4	0.8	Slightly etched
Zinc oxide, solid	1 week	—	—	Unchanged

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Chemicals

(Materials generally referred to by chemical name)

Reagent	Time exposed	Percent increase		Observed condition of plastic
		Weight	Thickness	
Miscellaneous chemicals and gases				
Ammoniated mercury	1 week, 60°C (140°F)	—	—	Unchanged
Aniline*	—	—	—	Dissolved
Benzaldehyde*	—	—	—	Dissolved
Butadiene-1,3, liquid*	6 months	19.3	26.4	Swollen and softened
Butadiene-1,3, gas	1 month	2.7	2.3	Unchanged
Carbon disulfide*	1 week	25.8	1.6	Softened and swollen
Carbon disulfide, saturated atmosphere*	2 days	17.4	11.8	Warped
Chlorine, dry*	1 week	8.8	2.2	Crazed and brittle
Chlorine, moist*	1 week	7.8	0.1	Crazed and brittle
Chlorine, saturated solution*	1 week	—	—	Considerably softened and swollen
1,4-Dioxane*	—	—	—	Dissolved
Ethylene oxide, gas	10 minutes, 41°C (105°F)	—	—	Unchanged
Ethylene oxide, gas*	1 day	20.9	25.6	Swollen and softened
Formaldehyde, 4%	10 min per day for 5 days	0.2	—	Unchanged
Formaldehyde, 35%*	2 months	13.0	6.7	Swollen and softened
Furfural*	—	—	—	Dissolved
Hydrogen peroxide, 3%	1 year	1.1	1.7	Unchanged
Hydrogen peroxide, 5%	2 days	1.4	1.3	Unchanged
Hydrogen sulfide, dry	2 months	2.3	0.8	Unchanged
Hydrogen sulfide, moist	2 months	3.0	1.7	Unchanged
Hydrogen sulfide, saturated solution	2 months	5.9	2.3	Unchanged
Hydroquinone, 20 g per gallon	1 week	2.4	1.0	Slightly stained yellow
Methyl methacrylate monomer*	—	—	—	Dissolved
Nitrobenzene*	—	—	—	Dissolved
Ozone, 0.05–0.15 ppm	45 days (outdoors)	—	—	Unchanged
Ozone, 0.7 ppm	45 days, 49°C (120°F)	—	—	Yellowed
Phenol*	1 week	—	—	Decomposed
Styrene monomer*	—	—	—	Dissolved
Sulfur, solid	1 week	—	—	Unchanged
Sulfur dioxide, dry*	2 months	19.4	8.6	Swollen, slightly warped
Sulfur dioxide, moist*	2 months	31.9	10.2	Considerably swollen and warped
Sulfur dioxide, saturated*	2 months	23.2	18.1	Swollen and warped
Sulfur dioxide in hydrocarbons*	—	—	—	Dissolved
Sulfur dioxide and hydrocarbon vapor*	2 months	19.2	11.5	Swollen
Titanium tetrachloride*	3 days	—	—	Very brittle
Trinitrotoluene (TNT), water slurry*	4 weeks	—	—	Stained

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Commercial and natural products

(Materials generally referred to by common name or trade name)

Reagent	Time exposed	Percent increase		Observed condition of plastic
		Weight	Thickness	
Aeronautical and automotive items				
Gasolines				
— Aviation, 100 octane	1 year	3.0	3.2	Slightly discolored
— British Petroleum regular*	1 year	7.7	5.5	Swollen and stained yellow
— British Petroleum premium*	1 year	18.4	9.5	Swollen
— ExxonMobil extra*	1 year	13.9	9.8	Swollen and stained pink
— ExxonMobil regular*	1 year	5.2	5.8	Swollen and stained pink
— Shell premium*	1 year	11.9	7.5	Swollen and stained pink
— Shell regular*	1 year	9.9	8.1	Swollen and stained yellow
Hydraulic fluids				
— Skydrol™ aviation hydraulic fluid*	—	—	—	Dissolved
— Skydrol™ 500B-4 aviation hydraulic fluid*	—	—	—	Dissolved
— Wagner 21B™ brake fluid*	1 week	—	—	Swollen and softened
Jet propulsion fuel				
— Jet propulsion fuel 1A	8 months	3.4	3.0	Unchanged
— Jet propulsion fuel 3	8 months	3.9	3.2	Unchanged
— Jet propulsion fuel 4	8 months	3.4	3.2	Unchanged
— Jet propulsion fuel 5	8 months	0.3	0.3	Unchanged
Kerosene				
— Kerosene	1 week	0.4	1.3	Unchanged
Oils				
— AeroShell™ Turbine Oil 2	2 months	0.3	0.0	Unchanged
— AeroShell™ Turbine Oil 12	1 year	0.6	0.3	Unchanged
— AeroShell™ Turbine Oil 300	3 days, 49°C (120°F)	0.0	0.0	
— Bearing guard oil	4 weeks	0.0	—	Unchanged
— Houghto-Safe™ 1120 lubricating oil	1 week	<1	<1	Unchanged
— MIL-L-7808 oil	Screwdriver handle dipped in oil and allowed to stand 3 days passed torsional requirement of Federal Specification GGG-S-121d.			
— Shell Diala oil AX	2 months	-0.1	0.0	Unchanged
— STP™	2 weeks	-0.2	0.1	
— Winsor Lube™	30 minutes, 66°C (150°F)	—	—	Unchanged

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Commercial and natural products

(Materials generally referred to by common name or trade name)

Reagent	Time exposed	Percent increase		Observed condition of plastic
		Weight	Thickness	
Nonautomotive greases and oils				
Essential oils				
— Bitter almonds*	—	—	—	Dissolved
— Citronella*	2 days	6.1	4.2	Slightly softened
— Eucalyptus*	2 days	0.5	1.0	Slightly softened
— Lavender	2 days	0.9	0.5	Unchanged
— Lemon	2 days	0.4	0.0	Unchanged
— Palmarosa*	2 days	5.4	4.5	Slightly softened
— Pennyroyal*	—	—	—	Dissolved
— Spearmint*	—	—	—	Dissolved
— Sweet orange	2 days	0.3	0.9	Unchanged
— Terpeneol	2 days	0.6	0.0	Unchanged
— Thyme*	—	—	—	Dissolved
— Turpentine*	1 year	99.2	62.6	Softened, swollen, surface attacked
— Vanilla (imitation)*	2 days	11.8	9.7	Unchanged
— Wintergreen*	—	—	—	Dissolved
Fuel oil #1	1 week	—	—	Unchanged
Fuel oil #2	1 week	—	—	Unchanged
Heavy machine oil	1 day	—	—	Unchanged
Light machine oil	1 day	—	—	Unchanged
Linseed oil	1 month	—	—	Unchanged
Mineral oil	4 months	-0.4	-0.2	Unchanged
Neatsfoot oil	6 weeks	—	—	Unchanged
NO-OX-ID™ grease	3 days, 60°C (140°F)	—	—	Slightly stained
Pine bath oil	1 week	3.9	3.1	Unchanged
Sour crude oil	6 months	6.4	2.2	Unchanged
Soya oil	1 week	—	—	Unchanged
Sperm oil	1 week	-0.8	0.0	Unchanged
Sperm oil	1 week, 90°C (194°F)	-0.5	0.0	Unchanged
Transformer oil, G.E. No. 10-C	1 week, 82°C (180°F)	-0.9	0.2	Unchanged
Transformer oil	1 week, 25°C (77°F)	-0.9	0.0	Unchanged
Wesson™ oil	1 week	0.2	3.6	Unchanged
XIAMETER™ PMX-200 Silicone Fluid 50 cSt	3 months	0.8	0.2	Unchanged
3-in-1 oil	2 days	0.1	0.0	Unchanged

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Commercial and natural products

(Materials generally referred to by common name or trade name)

Reagent	Time exposed	Percent increase		Observed condition of plastic
		Weight	Thickness	
Household items				
Air Wick™ odor neutralizer*	2 months	12.6	12.4	Swollen and slightly softened
Bon Ami™ saturated solution	2 days	1.4	0.5	Unchanged
Borax, 2.5%	2 days	1.5	0.5	Unchanged
Bubble bath oil	1 week	1.7	0.5	Unchanged
Butter	3 days	—	—	Unchanged
Campbell's™ tomato juice	1 week	1.8	1.4	Unchanged
Carbolic acid, 5%*	1 week	—	—	Decomposed
Clorox™ solution	6 weeks	—	—	Unchanged
Coffee grounds	3 days	—	—	Unchanged
Cologne sticks*	—	—	—	Dissolved
Dole™ frozen pineapple juice concentrate	1 week	1.5	0.5	Unchanged
Dreft™ detergent, 5%	2 months	1.3	0.5	Unchanged
Hershey's™ chocolate syrup	1 week	1.3	0.5	Unchanged
Horseradish	3 days	—	—	Unchanged
Iced coffee	1 week	1.5	0.8	Stained
Iced tea	1 week	1.5	1.1	Unchanged
Insect repellent "6-12"	2 days, 38°C (100°F)	—	—	Unchanged
Joy™ detergent	2 months	3.5	4.1	Slightly warped
Joy™ detergent, 10%	2 months	1.7	0.8	Unchanged
Ketchup	1 week	—	—	Slightly discolored
Lard	3 days	—	—	Unchanged
Lava™ soap, saturated solution	2 days	1.4	0.0	Unchanged
Lemonade	1 week	1.6	1.0	Unchanged
Lemon juice	2 days	2.4	0.2	Unchanged
Lighter fluids				
— Ronsonol™	1 year	0.3	1.0	Unchanged
— Zippo™	2 months	2.2	2.1	Unchanged
Lysol™ disinfectant, 5 tablespoons per gallon of water	2 months	7.0	4.4	Slightly softened
Malathion insecticide, 50% spray*	1 week	8.7	4.5	Softened, swollen, surface pitted, cloudy when wet

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Commercial and natural products

(Materials generally referred to by common name or trade name)

Reagent	Time exposed	Percent increase		Observed condition of plastic
		Weight	Thickness	
Household items (continued)				
Mayonnaise	3 days	—	—	Unchanged
Milk	3 days	—	—	Unchanged
Minute Maid™ frozen concentrates				
— Orange juice	1 week	1.5	0.6	Unchanged
— Grapefruit juice	1 week	1.3	0.6	Unchanged
— Lemonade	1 week	1.4	0.6	Unchanged
— Tangerine juice	1 week	1.4	0.5	Unchanged
Mr. Clean™ detergent	1 year	3.4	2.7	Slightly yellowed
Mustard	11 days	2.3	0.5	Stained
O'Cedar™ furniture polish	2 days	0.1	0.5	Unchanged
Oleomargarine	3 days	—	—	Unchanged
Peanut butter	3 days	—	—	Unchanged
Penicillin (powder)	1 week, 38°C (100°F), 80% RH	—	—	Unchanged
Perfume*	2 days	34.8	29.1	Swollen
Pine bath oil	1 week	3.9	3.1	Unchanged
Potassium bromate solution	3 days	2.2	0.8	Unchanged
Quinine	4 days, 49°C (120°F)	—	—	Unchanged
Stanley™ floor cleaner	1 week	1.8	0.1	Unchanged
Tide™ detergent, 5%	2 months	1.6	0.2	Unchanged
Vicks Sinex™ decongestant*	2 days, 50°C (122°F)	—	—	Swollen and stained
Vicks VapoRub™ salve	2 days	0.1	0.0	Unchanged
Vitalis™ hair tonic*	3 days	—	33.9	Swollen and softened
Welch's™ frozen grape juice concentrate	1 week	1.3	0.5	Unchanged
Welch's™ grape juice	1 week	1.5	0.6	Unchanged
Wesson™ oil	1 week	0.2	3.6	Unchanged
Wisk™ detergent	1 year	1.1	1.0	Discolored
Polymers and plastics				
Polycarbonate	3 days, 38°C (100°F), 80% RH	—	—	Unchanged
Polyurethane foam	3 days, 38°C (100°F), 80% RH	—	—	Unchanged
Vinyl plastisol (cured)	2 days, 60°C (140°F)	—	—	Softened and distorted
Vinyl plastic, semirigid	3 days, 38°C (100°F), 80% RH	—	—	Unchanged

*Indicates that material is generally unsatisfactory for use in contact with Tenite CAB under the conditions of this test.

Commercial and natural products

(Materials generally referred to by common name or trade name)

Reagent	Time exposed	Percent increase		Observed condition of plastic
		Weight	Thickness	
Miscellaneous				
Amway L.O.C.™ detergent concentrate	30 days, 50°C (122°F)	—	—	Unchanged
Bitumastic™ 50*	3 days	32.6	24.9	Softened, swollen
Blood	1 week	—	—	Unchanged
Budweiser™ lager beer	1 week	2.7	0.8	Unchanged
Canada balsam	3 weeks	0.9	0.3	
Caulking compound (average of five brands)	1 week	1.0	0.8	Unchanged
Creosote*	1 year	11.7	5.5	Softened
2,4-D (amine type), undiluted (14% free acid)*	4 months	5.0	3.6	Slightly swollen and softened
2,4-D, four tbsps per gal	4 months	1.5	7.6	Very slightly swollen
Epoxy hardener*	—	—	—	Dissolved
Epoxy resin	1 month, 50°C (122°F)	-0.1		
Fertilizer (20% disodium phosphate)	3 days, 38°C (100°F)	—	—	Stained yellow
Fertilizer, liquid	3 days	1.4	1.6	Unchanged
Fountain syrups				
— Cherry	1 year	3.0	1.8	Unchanged
— Coca-Cola™ concentrate	1 year	1.7	1.2	Stained slightly yellow
— Grape	1 year	1.6	0.0	Unchanged
— Lemon	1 year	3.3	1.1	Unchanged
— Maple	1 year	1.3	0.1	Unchanged
— Orange	1 year	3.4	1.4	Unchanged
— Pepsi™	1 year	3.9	3.1	Unchanged
— Pineapple	1 year	1.2	0.2	Unchanged
— Root beer	1 year	5.0	1.2	Discolored and blistered
— Strawberry	1 year	2.0	0.7	Unchanged
— Vanilla	1 year	1.7	0.3	Unchanged
Gas odorizers				
— Spotleak 1008™ (concentrate)*	1 week	—	—	Badly swollen
— Spotleak 1009™ (concentrate)*	1 week	—	—	Badly swollen
Inks				
— Diagraph-Bradley™ stencil ink*	1 week	60.7	30.5	Softened, stained
— Quick drying (Formulab, Inc., blue No. 353)	18 days	2.0	0.5	
— Sheaffer Skrip® ink	1 month	4.1	2.4	Unchanged
Latex emulsion	1 year	1.1	0.3	Unchanged
Mineral spirits	10 days	2.0	2.1	Unchanged
Naphtha, industrial	1 month	3.6	2.7	Unchanged
Paint remover (CPC 400)	Used as suggested by manufacturer	—	—	Distorted, surface attacked

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Continued on next page

Commercial and natural products

(Materials generally referred to by common name or trade name)

Reagent	Time exposed	Percent increase		Observed condition of plastic
		Weight	Thickness	
Miscellaneous (continued)				
Paints				
— Pittsburgh™ semi-gloss white (oil base)	1 week	0.8	0.6	Unchanged
Penetrox™ A lubricant	4 weeks, 50°C (122°F)	-0.9	-0.1	Unchanged
Photographic products				
— Acid fixer	1 week	2.2	0.9	Unchanged
— Developer D-72	1 week	2.2	0.9	Unchanged
— Developer DK-50	1 week	2.3	0.8	Unchanged
— Ektachrome™ processing kit No. E2:				
— First developer	1 week	3.1	0.6	Stained yellow
— Hardener	1 week	1.6	0.3	Unchanged
— Color developer	1 week	1.6	0.8	Stained dark amber
— Clearing and fixing solution	1 week	1.6	0.3	Unchanged
— Bleach	1 week	1.5	0.3	Stained light amber
— Stabilizer	1 week	2.3	0.3	Unchanged
Refrigerants				
— Freon™ 12, gas	1 month	0.9	0.2	Unchanged
— Freon™ 12, liquid*	1 month	18.8	9.5	Slightly swollen
— Freon™ 22, gas	1 month	4.3	1.2	Unchanged
— Freon™ 22, liquid*	—	—	—	Dissolved
— Freon™ 113 (S2 flow)	3 days	49.3	24.5	—
— Freon™ 113 (H3 flow)	3 days	0.5	0.2	—
— Freon™ 114, gas	1 month	0.8	0.0	Unchanged
— Freon™ 114, liquid	1 month	7.8	2.4	Unchanged
Steel pickling bath	1 year	1.6	0.6	Unchanged
— (3% sulfuric acid and 8% ferrous sulfate)	1 year, 60°C (140°F)	1.5	1.1	Slightly softened
Steel pickling bath	1 year	1.5	0.4	Unchanged
— (8% sulfuric acid and 14% ferrous sulfate)	8 months, 71°C (160°F)	-5.9	-4.5	Softened
Stoddard solvent, liquid	3 days	0.5	0.0	Unchanged
Stoddard solvent, vapor	2 months, 38°C (100°F)	9.6	8.8	Slightly stained
Supermarket fly spray	1 week	0.5	0.4	Slightly stained
Toxaphene insecticide, 12% solution	3 days	3.1	1.6	Unchanged
Urine	1 week	1.5	0.4	Unchanged
Varsol™ No. 2 solvent	1 week	1.1	0.9	Unchanged
Water, distilled	1 year	1.7	0.7	Unchanged
Ortho® Weed-B-Gon® weed killer, (ester type), undiluted (13.8% as free acid)*	1 month	13.4	6.6	Softened, swollen, discolored, and warped
Ortho® Weed-B-Gon® weed killer, 2½ tablespoons per gallon of water	1 month	2.7	1.1	Softened, swollen, discolored, and warped
Wine (12% ethyl alcohol)	2 months	7.9	5.2	Unchanged

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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

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