

# Chemical resistance of Tenite™ cellulose acetate

*Tenite™ cellulose acetate (CA), a plastic produced from cellulose acetate, 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 CA in a chemical for the time shown. Most values given are the result of a single test, and the measured gains in weight and thickness are rounded to the nearest 0.1%. Unless stated otherwise, tests were conducted at 23°C (73°F) and solutions were aqueous, i.e., "Acid, acetic, 5%" indicates a 5% solution of acetic acid water tested at 23°C (73°F). 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 to the general chemical resistance of CA. 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 CA. 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 CA must be guided by their own tests under conditions equivalent to or representative of those to which the plastic will be subjected in actual service.

Click below to go to a specific test results table.

## **Chemicals**

*(Materials generally referred to by chemical name)*

[Acids](#)

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## **Commercial and natural products**

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

[Aeronautical and automotive items](#)

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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 |                                     |
| <b>Acids</b>       |                        |                  |           |                                     |
| Acetic, 5%*        | 1 year                 | 5.5              | 3.2       | Slightly softened, surface attacked |
| Acetic, 10%*       | 1 week                 | 5.4              | 3.0       | Slightly softened, surface attacked |
| Acetic, 30%*       | 1 week                 | 17.0             | 22.6      | Softened                            |
| Chromic, 6%*       | 8 days, 38°C (100°F)   | —                | —         | Softened and swollen                |
| Citric, 10%        | 1 year                 | 2.8              | 1.7       | Unchanged                           |
| Citric, 10%*       | 2 months, 60°C (140°F) | —                | —         | Decomposed                          |
| Citric, 30%*       | 1 week, 60°C (140°F)   | —                | —         | Decomposed                          |
| Fluosilicic, 10%*  | 2 months               | -1.3             | 2.0       | Slightly warped                     |
| Fluosilicic, 28%*  | 2 months               | -1.7             | 0.0       | Slightly warped                     |
| Formic, 3%         | 20 days                | —                | —         | Unchanged                           |
| Hydrochloric, 6%   | 2 days                 | 1.3              | 0.1       | Unchanged                           |
| Hydrochloric, 8%*  | 2 days                 | 0.1              | -0.8      | Softened                            |
| Hydrochloric, 10%* | 1 month                | 2.1              | 1.5       | Softened and swollen                |
| Hydrofluoric, 10%* | 1 month                | —                | —         | Softened and swollen                |
| Hydrofluoric, 48%* | 1 month                | —                | —         | Decomposed                          |
| Lactic, 10%        | 2 days                 | 3.1              | 1.5       | Unchanged                           |
| Lactic, 50%*       | 2 days                 | 6.8              | 4.3       | Slightly softened, surface attacked |
| Nitric, 10%*       | 1 week                 | —                | —         | Decomposed                          |
| Oleic              | 1 year                 | -3.3             | -0.8      | Unchanged                           |
| Phosphoric, 30%*   | 2 months               | 2.0              | 0.8       | Unchanged                           |
| Phosphoric, 50%*   | 2 months               | 1.6              | -0.4      | Brittle, surface attacked           |
| Phosphoric, 75%*   | 1 week                 | —                | —         | Decomposed                          |
| Pyrogalllic, 4%    | 1 week                 | 7.9              | 3.6       | Stained yellow                      |
| Stearic            | 1 week                 | —                | —         | Unchanged                           |
| Sulfuric, 3%*      | 1 month                | 3.0              | 2.2       | Softened                            |
| Sulfuric, 10%*     | 1 year                 | —                | —         | Decomposed                          |
| Sulfuric, 20%*     | 8 months               | —                | —         | Decomposed                          |
| Tannic, 10%*       | 4 months, 60°C (140°F) | 7.6              | 1.8       | Softened                            |
| Tartaric           | 2 days                 | 2.9              | 1.6       | Unchanged                           |
| Trichloroacetic*   | 1 month                | —                | —         | Decomposed                          |

\*Indicates that material is generally unsatisfactory for use in contact with Tenite CA 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 |                                       |
| <b>Alcohols—monohydric</b>             |              |                  |           |                                       |
| <i>n</i> -Amyl                         | 2 days       | -0.4             | 0.3       | Unchanged                             |
| <i>tert</i> -Amyl                      | 2 days       | -0.2             | 0.2       | Unchanged                             |
| <i>n</i> -Butyl                        | 2 days       | 1.4              | 1.4       | Unchanged                             |
| <i>sec</i> -Butyl                      | 2 days       | 0.4              | 0.8       | Surface bleached slightly             |
| <i>tert</i> -Butyl                     | 2 days       | -2.0             | 0.3       | Unchanged                             |
| Diacetone*                             | —            | —                | —         | Dissolved                             |
| Ethyl*                                 | 2 days       | 12.7             | 27.9      | Swollen and softened                  |
| Ethyl, 50%*                            | 1 week       | 13.4             | 11.6      | Softened                              |
| Isoamyl                                | 2 days       | -0.4             | 0.1       | Unchanged                             |
| Isobutyl                               | 2 days       | -1.7             | 0.4       | Unchanged                             |
| Isopropyl*                             | 2 days       | 10.9             | 18.4      | Swollen                               |
| Methyl*                                | 2 days       | 22.6             | 51.0      | Blushed, softened, and swollen        |
| Methyl, 5%*                            | 1 year       | 4.0              | 2.6       | Blushed and softened                  |
| <i>n</i> -Propyl*                      | 2 days       | 2.2              | 4.2       | Blushed                               |
| Tetrahydrofurfuryl*                    | 3 days       | —                | —         | Softened and swollen                  |
| <b>Alcohols—dihydric and trihydric</b> |              |                  |           |                                       |
| Glycerin                               | 1 year       | -0.7             | -0.2      | Unchanged                             |
| Ethylene glycol                        | 1 year       | 1.3              | 1.4       | Very slightly softened                |
| Diethylene glycol*                     | 4 months     | 20.8             | 15.9      | Warped and softened, surface attacked |
| Triethylene glycol*                    | 4 months     | 25.4             | 22.9      | Warped and softened, surface attacked |
| Propylene glycol                       | 2 days       | 0.4              | 0.4       | Unchanged                             |
| <b>Bases</b>                           |              |                  |           |                                       |
| Ammonium hydroxide, 10%*               | 1 month      | 3.0              | 12.4      | Softened, surface attacked            |
| Sodium hydroxide, 1%*                  | 1 month      | -1.9             | -0.1      | Softened and warped                   |
| Sodium hydroxide, 10%*                 | 1 week       | —                | —         | Decomposed                            |
| Trimethylbenzylammonium hydroxide, 5%  | 17 days      | -4.9             | 5.9       | Swollen and checked                   |

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# Chemicals

(Materials generally referred to by chemical name)

| Reagent                                   | Time exposed                   | Percent increase |           | Observed condition of plastic             |
|---|--------------------------------|------------------|-----------|---|
|   |                                | Weight           | Thickness |   |
| <b>Esters</b>                             |                                |                  |           |   |
| <i>n</i> -Butyl acetate*                  | 2 days                         | 7.2              | 9.8       | Surface attacked                          |
| sec-Butyl acetate*                        | 2 days                         | 3.7              | 3.6       | Surface attacked                          |
| Ethyl acetate*                            | —                              | —                | —         | Dissolved                                 |
| Ethyl lactate*                            | —                              | —                | —         | Dissolved                                 |
| Ethylene glycol monomethyl ether acetate* | 2 days                         | —                | —         | Surface attacked                          |
| Ethylene glycol monomethyl ether acetate* | —                              | —                | —         | Dissolved                                 |
| Isoamyl acetate*                          | 2 days                         | 1.9              | 0.6       | Surface attacked                          |
| Isobutyl acetate*                         | 2 days                         | 7.8              | 4.3       | Surface attacked                          |
| Isopropyl acetate*                        | 2 days                         | 7.3              | 8.4       | Surface attacked                          |
| Methyl acetate                            | —                              | —                | —         | Dissolved                                 |
| Tetra (2-ethylbutyl) silicate             | 1 month, 50°C (122°F)          | -2.4             | 0.8       | Unchanged                                 |
| <b>Ethers</b>                             |                                |                  |           |   |
| Diethyl ether*                            | 2 days                         | 1.4              | 11.2      | Blushed and swollen                       |
| Diisopropyl ether*                        | 2 days                         | -9.3             | -0.2      | Unchanged                                 |
| 1,4-Dioxane*                              | —                              | —                | —         | Dissolved                                 |
| <b>Ether alcohols</b>                     |                                |                  |           |   |
| Diethylene glycol monobutyl ether*        | 2 days                         | 1.0              | 1.6       | Surface attacked slightly                 |
| Diethylene glycol monoethyl ether*        | 2 days                         | 11.2             | 12.3      | Swollen, surface attacked                 |
| Diethylene glycol monomethyl ether*       | —                              | —                | —         | Dissolved                                 |
| Ethylene glycol monobutyl ether*          | 2 days                         | 2.0              | 2.8       | Surface attacked slightly                 |
| Ethylene glycol monoethyl ether*          | 2 days                         | 23.1             | 25.3      | Swollen and slightly softened             |
| Ethylene glycol monomethyl ether*         | —                              | —                | —         | Dissolved                                 |
| <b>Hydrocarbons</b>                       |                                |                  |           |   |
| Benzene*                                  | 1 week                         | 5.9              | 17.5      | Softened and swollen                      |
| 1,3 Butadiene, liquid*                    | 1 year                         | -9.4             | 8.9       | Warped and shrunken                       |
| 1,3 Butadiene, gas*                       | 1 month                        | 4.2              | 2.8       | Showed exudation                          |
| Heptane                                   | 1 year                         | -5.4             | -1.2      | Unchanged                                 |
| Naphthalene (mothballs)*                  | 48 hours, 38°C (100°F), 80% RH | 1.0              | 0.9       | Showed considerable plasticizer exudation |
| Naphthalene (mothballs)*                  | 24 hours, 60°C (140°F), 88% RH | 8.6              | 2.0       | Showed considerable plasticizer exudation |
| Propane, gas                              | 2 months                       | -0.8             | 0.0       | Unchanged                                 |
| Propane, liquid                           | 1 month                        | -3.9             | 0.00      | Unchanged                                 |
| Toluene*                                  | 1 year                         | -1.7             | 8.9       | Swollen and slightly softened             |
| Xylene                                    | 1 year                         | -5.6             | 2.1       | Unchanged                                 |

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# Chemicals

(Materials generally referred to by chemical name)

| Reagent                          | Time exposed                    | Percent increase |           | Observed condition of plastic           |
|----------------------------------|---------------------------------|------------------|-----------|---|
|                                  |                                 | Weight           | Thickness |   |
| <b>Hydrocarbons, halogenated</b> |                                 |                  |           |   |
| Carbon tetrachloride*            | 2 months                        | 14.9             | 4.1       | Unchanged                               |
| Chlorobenzene*                   | —                               | —                | —         | Dissolved                               |
| Chlorobromomethane*              | —                               | —                | —         | Dissolved                               |
| Chloroform*                      | —                               | —                | —         | Dissolved                               |
| <i>o</i> -Dichlorobenzene*       | 3 days                          | 9.8              | 4.4       | Slightly swollen                        |
| <i>p</i> -Dichlorobenzene        | 3 days                          | 2.2              | 0.7       | Unchanged                               |
| <i>p</i> -Dichlorobenzene*       | 3 days, 38°C (100°F),<br>80% RH | 6.6              | 4.0       | Showed some plasticizer exudation       |
| Ethylene chloride*               | —                               | —                | —         | Dissolved                               |
| Methylene chloride*              | —                               | —                | —         | Dissolved                               |
| Propylene chloride*              | 2 days                          | 25.3             | 2.1       | Blushed and blistered                   |
| <i>sym</i> -Tetrabromoethane*    | 3 days                          | 5.4              | 3.5       | Slightly swollen                        |
| Tetrachloroethane*               | —                               | —                | —         | Dissolved                               |
| Tetrachloroethylene              | 2 weeks                         | —                | —         | Unchanged                               |
| Trichloroethylene*               | 16 hours                        | 32.2             | —         | Surface attacked                        |
| <b>Ketones</b>                   |                                 |                  |           |   |
| Acetone*                         | —                               | —                | —         | Dissolved                               |
| Cyclohexanone*                   | —                               | —                | —         | Dissolved                               |
| Diisopropyl ketone               | 2 days                          | 0.0              | 0.3       | Unchanged                               |
| Methyl <i>n</i> -butyl ketone*   | 2 days                          | 13.4             | 16.2      | Swollen, surface attacked               |
| Methyl ethyl ketone*             | —                               | —                | —         | Dissolved                               |
| Methyl isobutyl ketone*          | 2 days                          | 40.4             | 7.4       | Swollen, surface attacked               |
| Methyl <i>n</i> -propyl ketone*  | 2 days                          | 51.3             | 78.5      | Swollen and warped,<br>surface attacked |
| Phorone                          | 2 days                          | 0.00             | 0.2       | Stained yellow                          |

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# Chemicals

(Materials generally referred to by chemical name)

| Reagent                                    | Time exposed           | Percent increase |           | Observed condition of plastic |
|--|------------------------|------------------|-----------|-------------------------------|
|  |                        | Weight           | Thickness |                               |
| <b>Salts</b>                               |                        |                  |           |                               |
| Aluminum acetate, basic, 33% water slurry  | 2 months               | 4.0              | 2.1       | Unchanged                     |
| Aluminum chloride, 10%                     | 2 months               | 3.3              | 1.9       | Unchanged                     |
| Aluminum chloride, saturated solution      | 2 months               | 0.3              | 0.0       | Unchanged                     |
| Aluminum sulfate, 30%                      | 3 months               | 3.0              | 2.0       | Unchanged                     |
| Ammonium bifluoride, saturated solution    | 1 month                | 3.6              | —         | Slightly bleached             |
| Ammonium chloride, saturated solution      | 1 month                | 1.4              | 0.4       | Unchanged                     |
| Ammonium nitrate, solid                    | 1 week                 | 0.1              | 0.1       | Unchanged                     |
| Ammonium nitrate, 10%                      | 1 week                 | 2.9              | 1.6       | Unchanged                     |
| Ammonium sulfate, solid                    | 1 year                 | 0.0              | 0.6       | Unchanged                     |
| Ammonium sulfate, 10%                      | 1 year                 | 3.7              | 1.6       | Unchanged                     |
| Calcium chloride, solid                    | 2 days                 | 2.9              | 0.6       | Unchanged                     |
| Calcium chloride, 2.5%                     | 1 year                 | 2.9              | 2.1       | Unchanged                     |
| Calcium chloride, 40%                      | 2 months               | 0.6              | 0.2       | Unchanged                     |
| Calcium hypochlorite, 6%                   | 3 months               | 2.9              | 2.0       | Slightly softened             |
| Calcium phosphate, monobasic, solid*       | 1 year                 | -1.1             | 1.4       | Brittle, surface attacked     |
| Calcium phosphate, dibasic, solid          | 1 year                 | -3.3             | -0.6      | Unchanged                     |
| Calcium phosphate, tribasic, solid         | 1 year                 | -3.7             | -0.9      | Unchanged                     |
| Calcium sulfate, solid                     | 1 year                 | -0.2             | -0.4      | Unchanged                     |
| Cupric sulfate, 10%                        | 2 months               | 3.5              | 1.8       | Unchanged                     |
| Cupric sulfate, saturated solution         | 2 months               | 3.1              | 1.7       | Unchanged                     |
| Cuprous chloride, saturated solution       | 1 week                 | 2.3              | 2.8       | Unchanged                     |
| Ferric chloride, 5%                        | 2 months               | 2.9              | 2.1       | Unchanged                     |
| Ferric chloride, 20%                       | 2 months               | 2.5              | 1.9       | Unchanged                     |
| Ferric chloride, 40%                       | 2 months               | 2.8              | 0.5       | Unchanged                     |
| Ferric chloride, saturated solution*       | 1 week                 | —                | —         | Surface tacky                 |
| Magnesium chloride, solid                  | 2 days                 | 2.9              | 1.6       | Unchanged                     |
| Magnesium sulfate, solid                   | 2 days                 | 3.1              | 1.8       | Unchanged                     |
| Mercuric chloride, 5%                      | 2 says                 | 5.9              | 1.8       | Unchanged                     |
| Potassium aluminum sulfate, 21%            | 4 months, 38°C (100°F) | 3.9              | 2.6       | Surface attacked slightly     |
| Potassium chloride, solid                  | 1 year                 | 0.0              | 0.8       | Unchanged                     |
| Potassium chloride, 10%                    | 1 year                 | 3.3              | 1.3       | Unchanged                     |
| Potassium cyanide, 10%*                    | 2 months               | -5.8             | -4.8      | Discolored and softened       |
| Potassium cyanide, saturated solution*     | 2 months               | -1.2             | -2.9      | Discolored and softened       |
| Potassium iodide, saturated solution       | 3 days                 | —                | —         | Stained yellow                |
| Potassium permanganate, saturated solution | 2 says                 | 3.3              | 1.4       | Stained black                 |
| Potassium sulfate, solid                   | 1 year                 | 0.1              | 0.4       | Unchanged                     |
| Potassium sulfate, 10%                     | 1 year                 | 2.6              | 1.5       | Unchanged                     |
| Silver nitrate, 3%                         | 2 days                 | 2.0              | 0.6       | Slightly softened             |

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

*Continued on next page*

# Chemicals

(Materials generally referred to by chemical name)

HOME

| Reagent                               | Time exposed           | Percent increase |           | Observed condition of plastic |
|---------------------------------------|------------------------|------------------|-----------|-------------------------------|
|                                       |                        | Weight           | Thickness |                               |
| <b>Salts (continued)</b>              |                        |                  |           |                               |
| Sodium bicarbonate, solid             | 2 days                 | 3.0              | 1.6       | Unchanged                     |
| Sodium bisulfate, 20%                 | 1 week                 | 4.0              | 2.4       | Unchanged                     |
| Sodium borate, 2.5%                   | 2 days                 | 2.9              | 1.6       | Unchanged                     |
| Sodium carbonate, solid               | 4 days                 | -0.1             | -0.1      | Unchanged                     |
| Sodium carbonate, 2.5%                | 1 year                 | -8.7             | -2.3      | Slightly softened             |
| Sodium chloride, 10%                  | 1 year                 | 2.5              | 1.5       | Unchanged                     |
| Sodium chloride, saturated solution   | 2 months               | 1.3              | 0.5       | Unchanged                     |
| Sodium chloride, saturated solution   | 2 months, 60°C (140°F) | 1.0              | 0.5       | Unchanged                     |
| Sodium cyanide, 10%*                  | 2 months               | -4.2             | -5.6      | Discolored, softened          |
| Sodium cyanide, saturated solution*   | 2 months               | -0.8             | -2.6      | Discolored, softened          |
| Sodium ferrocyanide, solid            | 1 week                 | 0.4              | 0.00      | Unchanged                     |
| Sodium fluoride, 4%                   | 1 month                | 3.6              | —         | Unchanged                     |
| Sodium hypochlorite, 5%*              | 2 days                 | 0.9              | 0.4       | Softened, surface attacked    |
| Sodium nitrate, solid                 | 2 months               | -0.3             | -0.2      | Unchanged                     |
| Sodium nitrate, 10%                   | 1 year                 | 2.6              | 1.5       | Unchanged                     |
| Sodium nitrate, saturated solution    | 2 months               | 1.5              | 0.9       | Unchanged                     |
| Sodium nitrite, solid                 | 2 months               | -0.4             | -0.4      | Unchanged                     |
| Sodium nitrite, saturated solution    | 2 months               | 0.8              | 0.3       | Unchanged                     |
| Sodium silicate, solid*               | 2 months               | 0.6              | 0.2       | Etched                        |
| Sodium silicate, saturated solution*  | 2 months               | -0.3             | -2.6      | Softened                      |
| Trimethylbenzyl ammonium chloride, 5% | 17 days                | 0.6              | 3.2       | Unchanged                     |
| Zinc chloride, hydrous salt           | 1 week                 | 0.9              | 0.0       | Unchanged                     |
| Zinc chloride, saturated solution*    | 1 week                 | —                | —         | Dissolved                     |

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# Chemicals

(Materials generally referred to by chemical name)

HOME

| Reagent  | Time exposed         | Percent increase |           | Observed condition of plastic       |
|--|----------------------|------------------|-----------|-------------------------------------|
|  |                      | Weight           | Thickness |                                     |
| <b>Miscellaneous chemicals, compounds, and gases</b> |                      |                  |           |                                     |
| Ammoniated mercury                                   | 1 week, 60°C (140°F) | —                | —         | Unchanged                           |
| Aniline*   | —                    | —                | —         | Dissolved                           |
| Carbon disulfide                                     | 1 month              | 0.6              | 1.9       | Unchanged                           |
| Carbon disulfide, saturated atmosphere               | 2 days               | 5.9              | 2.4       | Unchanged                           |
| Chlorine, dry*                                       | 1 week               | 3.6              | 0.8       | Crazed and brittle                  |
| Chlorine, moist*                                     | 1 week               | 3.0              | 0.1       | Crazed and brittle                  |
| Chlorine, saturated solution*                        | 1 week               | —                | —         | Softened and considerably swollen   |
| Ethylene oxide, gas*                                 | 1 day                | 18.5             | 39.7      | Softened and swollen                |
| Eugenol*   | —                    | —                | —         | Dissolved                           |
| Formaldehyde, 35%*                                   | 1 week               | 11.8             | 0.9       | Softened and swollen                |
| Hydrogen sulfide, dry                                | 1 month              | 1.1              | 0.8       | Unchanged                           |
| Hydrogen sulfide, moist                              | 2 months             | 4.0              | 2.3       | Unchanged                           |
| Hydrogen sulfide, saturated solution                 | 2 months             | 1.6              | 2.2       | Unchanged                           |
| Hydroquinone, 20 g/gal*                              | 1 week               | 5.6              | 3.1       | Stained light yellow                |
| Iodine, saturated solution*                          | 2 days               | 2.5              | 0.8       | Stained light brown                 |
| Nitrobenzene*  | 3 days               | —                | —         | Softened, swollen, and badly warped |
| Phenol, 5%*  | 1 week               | —                | —         | Decomposed                          |
| Sulfur dioxide, dry*                                 | 2 months             | 17.3             | 11.6      | Swollen and warped                  |
| Sulfur dioxide, moist*                               | 2 months             | 13.5             | 9.7       | Swollen and warped                  |
| Sulfur dioxide, saturated solution*                  | 2 months             | 10.6             | 13.5      | Swollen and considerably warped     |
| Titanium tetrachloride*                              | 3 days               | —                | —         | Very brittle                        |
| Triethanolamine*                                     | 1 week               | 11.7             | 24.9      | Badly softened                      |
| Triethanolamine, 10%*                                | 1 week               | -5.2             | 0.7       | Softened, surface attacked          |

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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 |                               |
| <b>Aeronautical and automotive items</b>    |                      |                  |           |                               |
| Gasolines                                   |                      |                  |           |                               |
| — Aviation, 100 octane                      | 1 year               | -4.4             | -1.1      | Slightly stained              |
| — British Petroleum regular                 | 1 year               | -2.8             | -0.2      | Stained light yellow          |
| — British Petroleum premium                 | 1 year               | -2.9             | -0.1      | Unchanged                     |
| — ExxonMobil extra                          | 1 year               | -2.6             | 0.0       | Stained yellow                |
| — ExxonMobil regular                        | 1 year               | -2.3             | -0.2      | Stained yellow                |
| — Shell premium                             | 1 year               | -2.3             | -0.0      | Stained yellow                |
| — Shell regular                             | 1 year               | -1.9             | -0.1      | Stained yellow                |
| Hydraulic fluids                            |                      |                  |           |                               |
| — Skydrol™ aviation hydraulic fluid         | 1 year               | -1.1             | -0.2      | Unchanged                     |
| — Skydrol™ 500B-4 hydraulic aviation fluid* | 1 year               | 1.2              | 0.4       | Surface dulled                |
| Jet propulsion fuel 3                       | 1 year               | -6.0             | -1.6      | Unchanged                     |
| Kerosene                                    | 1 week               | -0.8             | -1.9      | Unchanged                     |
| Oils  |                      |                  |           |                               |
| — Aeroshell™ Turbine Oil 12                 | 1 year               | -6.0             | -2.0      | Unchanged                     |
| — Shell Diala oil AX                        | 2 months             | -1.7             | -0.8      | No change                     |
| <b>Nonautomotive greases and oils</b>       |                      |                  |           |                               |
| Essential oils                              |                      |                  |           |                               |
| — Bitter almonds*                           |                      | —                | —         | Dissolved                     |
| — Borneol, 50% in <i>n</i> -butanol         | 2 days               | 0.1              | 0.3       | Unchanged                     |
| — Citronella                                | 2 days               | 0.6              | 0.3       | Unchanged                     |
| — Cloves*                                   |                      | —                | —         | Dissolved                     |
| — Eucalyptus                                | 2 days               | 0.3              | 0.1       | Unchanged                     |
| — Lemon                                     | 2 days               | 0.3              | 0.1       | Unchanged                     |
| — Menthol, 50% in <i>n</i> -Butanol         | 2 days               | 0.0              | 0.2       | Unchanged                     |
| — Palmarosa                                 | 2 days               | 1.0              | 0.5       | Unchanged                     |
| — Pennyroyal                                | 2 days               | 1.0              | 0.6       | Unchanged                     |
| — Spearmint                                 | 7 days               | —                | —         | Unchanged                     |
| — Terpineol                                 | 2 days               | 0.1              | 0.1       | Unchanged                     |
| — Thyme (white)                             | 2 days               | 0.4              | 0.1       | Unchanged                     |
| — Turpentine                                | 1 year               | -0.9             | 0.2       | Unchanged                     |
| — Wintergreen*                              | 2 days               | 2.7              | 1.6       | Surface attacked slightly     |
| Mineral oil                                 | 4 months             | -2.2             | -1.0      | Unchanged                     |
| Sour crude oil                              | 1 year               | -3.2             | -1.3      | Slightly stained              |
| Sperm oil                                   | 1 week, 90°C (194°F) | -4.0             | 0.0       | Slightly warped               |
| Transformer oil, G.E., No. 10-C             | 1 week, 82°C (180°F) | -2.9             | 0.6       | 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 |                               |
| <b>Household items</b>       |                           |                  |           |                               |
| Bacon                        | 3 weeks (in refrigerator) | —                | —         | Unchanged                     |
| Butter                       | 3 days                    | —                | —         | Unchanged                     |
| Carbolic acid, 5%*           | 1 week                    | —                | —         | Decomposed                    |
| Clorox™ solution*            | 2 days                    | —                | —         | Badly softened                |
| Coffee grounds               | 3 days                    | —                | —         | Unchanged                     |
| Colgate® toothpaste          | 2 days                    | —                | —         | Unchanged                     |
| Cologne sticks*              | 1 day                     | —                | —         | Badly warped                  |
| Coty bath salts*             | 1 day                     | —                | —         | Softened and swollen          |
| Dole™ frozen pineapple juice | 1 week                    | 1.9              | 1.0       | Unchanged                     |
| Dreft™ detergent, 5%         | 2 months                  | 0.9              | 1.3       | Unchanged                     |
| Hershey's™ chocolate syrup   | 1 week                    | 1.7              | 0.7       | Unchanged                     |
| Horseradish                  | 3 days                    | —                | —         | Unchanged                     |
| Hydrogen peroxide, 3%*       | 1 year                    | 4.5              | 3.0       | Bleached and softened         |
| Hydrogen peroxide, 5%        | 2 days                    | 3.1              | 1.7       | Slightly bleached             |
| Iced coffee                  | 1 week                    | 1.9              | 0.9       | Stained                       |
| Iced tea                     | 1 week                    | 2.0              | 1.0       | Unchanged                     |
| Joy™ detergent*              | 2 months                  | -3.3             | 10.1      | Swollen and slightly warped   |
| Joy™ detergent, 10%          | 2 months                  | -0.3             | 1.8       | Unchanged                     |
| Ketchup                      | 1 week                    | —                | —         | Slightly stained              |
| Kool-Aid™ drink mix          | 3 days                    | —                | —         | Surface attacked slightly     |
| Lard                         | 3 days                    | —                | —         | Unchanged                     |
| Lemon juice                  | 1 week                    | 4.3              | 4.0       | Unchanged                     |
| Lemonade                     | 1 week                    | 2.5              | 1.4       | Unchanged                     |
| Lysol™*                      | 1 year                    | —                | —         | Badly softened                |
| Max Factor powder face cream | 3 days                    | —                | —         | Unchanged                     |
| Mayonnaise                   | 3 days                    | —                | —         | Unchanged                     |
| Mercurochrome                | 2 days                    | 3.3              | 1.5       | Stained light pink            |
| Milk                         | 3 days                    | —                | —         | Unchanged                     |

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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 |                               |
| <b>Household items (continued)</b>    |                      |                  |           |                               |
| Minute Maid™ frozen concentrates      |                      |                  |           |                               |
| — Grapefruit                          | 1 week               | 1.9              | 0.6       | Unchanged                     |
| — Orange                              | 1 week               | 2.0              | 0.9       | Unchanged                     |
| — Tangerine                           | 1 week               | 1.9              | 0.7       | Unchanged                     |
| — Lemonade                            | 1 week               | 1.8              | 0.9       | Unchanged                     |
| Mustard                               | 2 days               | 2.8              | 1.4       | Stained                       |
| Oleomargarine                         | 3 days               | —                | —         | Unchanged                     |
| Orange juice concentrate              | 3 days               | —                | —         | Unchanged                     |
| Peanut butter                         | 3 days               | —                | —         | Unchanged                     |
| Ronsonol™ lighter fluid*              | 1 year               | -5.9             | -1.3      | Softened and etched           |
| Shaving cream                         | 2 days               | —                | —         | Unchanged                     |
| Stanley Home Products floor cleaner*  | 1 week               | 1.0              | 0.1       | Softened                      |
| Tide™ detergent, 5%                   | 2 months             | 0.1              | 1.2       | Slightly warped               |
| Vicks Sinex™ decongestant*            | 2 days, 50°C (122°F) | 1.1              | 2.2       | Badly stained                 |
| Welch's™ 100% grape juice concentrate | 1 week               | 1.7              | 1.0       | Unchanged                     |
| Welch's™ 100% grape juice             | 1 week               | 2.3              | 1.0       | 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 |   |
| <b>Miscellaneous</b>                              |                               |                  |           |   |
| Blood   | 1 week                        | —                | —         | Unchanged   |
| Budweiser™ lager beer*                            | 1 week                        | 5.3              | 3.9       | Swollen   |
| Caulking compound (average of five brands)        | 1 week, 60°C (140°F)          | -2.7             | -0.1      | Unchanged   |
| Coca-Cola™ syrup concentrate                      | 1 year                        | 0.3              | 1.3       | Stained slightly  |
| Creosote  | 8 months                      | -2.7             | 0.7       | Unchanged   |
| 2,4-D (amine type, 14% free acid)*                | 2 months                      | 1.6              | 3.0       | Swollen, softened, and warped                           |
| 2,4-D, 4 tbsp/gal                                 | 2 months                      | 2.8              | 1.9       | Very slightly softened                                  |
| DDT, solid  | 1 week                        | 0.2              | 0.0       | Unchanged   |
| DDT, 6% in Flit™ (insect spray)                   | 1 week                        | 0.4              | 0.4       | Unchanged   |
| Latex emulsion                                    | 1 year                        | -6.0             | -2.2      | Unchanged   |
| Mineral spirits                                   | 10 days                       | -6.5             | -1.4      | Unchanged   |
| Naphtha, industrial                               | 1 month                       | -3.2             | -0.8      | Unchanged   |
| Ortho® Weed-B-Gon® (ester type, 13.8% free acid)* | 1 month                       | 1.9              | 1.7       | Unchanged   |
| Ortho® Weed-B-Gon® weed killer, 2½ tbsp/gal       | 1 month                       | 3.3              | 1.6       | Unchanged   |
| <b>Photographic products</b>                      |                               |                  |           |   |
| — Acid fixer                                      | 1 week                        | 4.5              | 2.6       | Unchanged   |
| — D-72 developer*                                 | 1 week                        | 3.4              | 2.5       | Slightly softened                                       |
| — DK-50 developer                                 | 1 week                        | 4.6              | 2.9       | Stained light amber                                     |
| PPG Industries semigloss white paint (oil base)   | 1 week                        | -1.2             | -0.4      | Unchanged   |
| Polycarbonate plastic (Lexan)                     | 3 days, 38°C (100°F)<br>80 RH | —                | —         | Unchanged (polycarbonate softened, cracked when flexed) |
| Quinine   | 2 days, 49°C (120°F)          | —                | —         | Unchanged   |
| <b>Refrigerants</b>                               |                               |                  |           |   |
| — Freon™ 11                                       | 2 hours                       | —                | —         | Showed exudation  |
| — Freon™12, gas                                   | 1 month                       | 0.3              | 0.2       | Unchanged   |
| — Freon™ 12, liquid                               | 1 month                       | -3.4             | -1.1      | Unchanged   |
| — Freon™ 22, gas                                  | 1 month                       | 2.7              | 0.7       | Unchanged   |
| — Freon™ 22, liquid*                              |                               | —                | —         | Dissolved   |
| — Freon™ 114, gas                                 | 1 month                       | 0.4              | 0.1       | Unchanged   |
| — Freon™ 114, liquid                              | 1 month                       | 0.6              | 0.6       | Unchanged   |
| Sheaffer Skrip® ink                               | 1 month                       | 1.1              | 5.8       | Stained   |
| Stoddard solvent                                  | 3 days                        | -0.1             | 0.0       | Unchanged   |
| Supermarket fly spray                             | 1 week                        | 0.1              | 0.0       | Unchanged   |
| Toxaphene, 61% (12% solution)                     | 3 days, 38°C (100°F)          | 1.9              | 2.5       | Unchanged   |
| Water   | 1 year                        | 3.1              | 2.0       | Unchanged   |

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**EASTMAN**

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