

**STRONGWELL**

# CORROSION RESISTANCE GUIDE

## INDUSTRIAL PRODUCTS



The cover photo shows severe, short-term corrosive effects of 37% sulfuric acid on various materials. All bar samples originally measured 6" long x 1/4" thick x 1/2" wide. Products depicted from left to right are carbon steel, EXTREN® Series 625, aluminum and EXTREN® Series 525. The steel base has deteriorated significantly below the solution line and incurred atmospheric corrosion. The aluminum also deteriorated and developed corrosive aluminum sulfite deposits. Both EXTREN® samples were not affected by the sulfuric acid solution.

# Strongwell Corrosion Resistance Guide

## The Resin Selection Guide for Strongwell Industrial Product Lines:

**EXTREN**  
FIBERGLASS STRUCTURAL SHAPES

**DURA-DEK**  
HIGH STRENGTH GRATING

**DURAGRATE**  
MOLDED FIBERGLASS GRATING

**DURAGRID**  
CUSTOM FIBERGLASS GRIDS AND GRATING

**DURASHIELD**  
FIBERGLASS FOAM CORE BUILDING PANELS

**FIBERGLASS STRUCTURES**  
CUSTOM ENGINEERING AND FABRICATION

**SAF-RAIL**  
FIBERGLASS HANDRAIL SYSTEM

**SAF-PLATE**  
FIBERGLASS GRITTED PLATE

**FIBRE-BOLT**  
FIBERGLASS STUDS AND NUTS

NOTE: Information in this Corrosion Guide is specifically intended for the products manufactured by the Strongwell Corporation and may have little correspondence to other pultruded or molded products.

## How To Use This Guide

Strongwell believes the information and recommendations herein to be accurate and reliable. Any questionable application should be preceded by a small sample or prototype evaluation in the actual chemical environment. Corrosive conditions not specifically discussed in this guide (including lower concentrations than those tested) should be referenced to Strongwell's Customer Service Department for an evaluation of the individual situation.

The specific recommendations in this Corrosion Guide are for immersion applications where good fabrication procedures have been followed. These recommendations should be considered applicable to non-immersion situations regarding the same EXTREN® series and chemical combination without a formal review by Strongwell.

### Special Considerations:

- DURAGRATE® - Corrosion resistance data for polyester resins is applicable only to the PP, premium (isophthalic) polyester resin system. The general purpose orthothalic polyester resin system (GP) is only recommended for corrosion situations such as salt water or mild wastewater.
- DURASHIELD® - Ends must be coated.
- Fiberglass Structures - The standard components of Strongwell FIBERGLASS STRUCTURES are shown in this guide. Good fabrication procedures such as sealing cut holes and ends should be followed to obtain corrosion resistance stated in this guide.

The following definitions will aid readers using this Guide.

|         |   |
|---------|---|
| R.T.    | Room Temperature  |
| H. Temp | Highest Temperature   |
| (TP)    | Thermoplastic   |
| R       | Resistant   |
| NR      | Not Resistant   |
| -       | No Data   |
| C       | Concern (Indicates data is inconclusive. Customer is advised to confirm the corrosion resistance in their applications with pre-shipment sample.) |

EXTREN®  
500/525 Isophthalic Polyester

EXTREN®  
625 Vinyl Ester

DURAGRATE®  
VE Vinyl Ester  
PP Isophthalic Polyester  
GP Orthothalic Polyester \*

\*not referred to in this *Corrosion Resistance Guide*

*Note: Temperature data is not necessarily the maximum service temperature; it is the upper temperature at which a resin has been tested, used or evaluated.*

| CHEMICAL ENVIRONMENT       | VINYL ESTER  | VINYL ESTER   | POLYESTER   | POLYESTER  | POLYESTER                     |
|----------------------------|--|---|---|--|-------------------------------|
|                            | EXTREN®<br>DURADEK®<br>DURAGRID®<br>DURASHIELD®<br>SAFPLATE®<br>SAFRAIL™<br>R.T. | EXTREN®<br>DURADEK®<br>DURAGRID®<br>DURASHIELD®<br>SAFPLATE®<br>SAFRAIL™<br>160°F | EXTREN®<br>DURASHIELD®<br>SAFPLATE®<br>SAFRAIL™<br>R.T. | EXTREN®<br>DURASHIELD®<br>SAFPLATE®<br>SAFRAIL™<br>150°F | DURADEK®<br>DURAGRID®<br>R.T. |
| <b>A</b> Acetic Acid 0-25% | R  | R   | R   | R  | R                             |
| Acetic Acid 25-50%         | R  | R   | R   | NR   | R                             |
| Acetic Anhydride           | NR   | NR  | NR  | NR   | -                             |
| Acetone                    | NR   | NR  | NR  | NR   | NR                            |
| Acrylonitrile              | NR   | NR  | NR  | NR   | NR                            |
| Alcohol, Butyl             | R  | NR  | NR  | NR   | R                             |
| Alcohol, Ethyl 10%         | R  | 150   | NR  | NR   | -                             |
| Alcohol, Ethyl 100%        | R  | NR  | NR  | NR   | -                             |
| Alcohol, Isopropyl 10%     | R  | 150   | NR  | NR   | -                             |
| Alcohol, Isopropyl 100%    | R  | NR  | NR  | NR   | R                             |
| Alcohol, Methyl 10%        | R  | 150   | NR  | NR   | -                             |
| Alcohol, Methyl 100%       | NR   | NR  | NR  | NR   | R                             |
| Alcohol, Methyl Isobutyl   | R  | 150   | NR  | NR   | -                             |
| Alcohol, Secondary Butyl   | R  | 150   | NR  | NR   | R                             |
| Alum                       | R  | R   | R   | R  | R                             |
| Aluminum Chloride          | R  | R   | R   | R  | R                             |
| Aluminum Hydroxide 5%      | R  | 120   | R   | NR   | -                             |
| Aluminum Nitrate           | R  | R   | R   | R  | -                             |
| Aluminum Potassium Sulfate | R  | R   | R   | R  | R                             |
| Ammonia, Aqueous 0-10%     | R  | 100   | NR  | NR   | -                             |
| Ammonia, Gas               | R  | 100   | NR  | NR   | -                             |
| Ammonium Bicarbonate       | R  | 120   | R   | NR   | R                             |
| Ammonium Bisulfite         | R  | 120   | NR  | NR   | -                             |
| Ammonium Carbonate 10%     | R  | 120   | NR  | NR   | -                             |
| Ammonium Citrate           | R  | 120   | R   | NR   | -                             |
| Ammonium Fluoride          | R  | 120   | NR  | NR   | -                             |
| Ammonium Hydroxide 5%      | R  | 120   | R   | NR   | R                             |
| Ammonium Hydroxide 10%     | R  | 120   | R   | NR   | R                             |
| Ammonium Hydroxide 20%     | R  | 120   | NR  | NR   | NR                            |
| Ammonium Nitrate           | R  | R   | R   | R  | R                             |
| Ammonium Persulfate        | R  | 120   | NR  | NR   | R                             |
| Ammonium Phosphate         | R  | 120   | NR  | NR   | R                             |
| Ammonium Sulfate           | R  | R   | R   | R  | R                             |
| Arsenious Acid             | R  | R   | R   | NR   | -                             |
| <b>B</b> Barium Acetate    | R  | R   | NR  | NR   | NR                            |
| Barium Carbonate           | R  | R   | R   | NR   | R                             |
| Barium Chloride            | R  | R   | R   | NR   | R                             |
| Barium Hydroxide           | R  | 120   | NR  | NR   | -                             |
| Barium Sulfate             | R  | R   | R   | R  | R                             |
| Barium Sulfide             | R  | R   | NR  | NR   | NR                            |
| Beer                       | R  | 120   | R   | NR   | NR                            |
| Benzene                    | NR   | NR  | NR  | NR   | R                             |
| 5% Benzene in Kerosene     | R  | R   | R   | NR   | -                             |
| Benzene Sulfonic Acid 30%  | R  | R   | R   | R  | R                             |
| Benzoic Acid               | R  | R   | R   | NR   | R                             |
| O-Benzoyl Benzoic Acid     | R  | R   | NR  | NR   | -                             |

**POLYESTER  
DURADEK®  
DURAGRID®  
150°F**

**FIBREBOLT®  
HEX NUT  
(TP)  
R.T.**

**FIBREBOLT®  
HEX NUT  
(TP)  
150°F**

**DURAGRATE® MOLDED GRATING**

**VINYL ESTER  
R.T.**

**VINYL ESTER  
160°F**

**POLYESTER  
R.T.**

**POLYESTER  
150°F**

|     |    |     |    |     |    |    |     |
|-----|----|-----|----|-----|----|----|-----|
| 125 | R  | R   | R  | R   | R  | R  | 125 |
| NR  | R  | R   | R  | R   | R  | R  | NR  |
| -   | NR | NR  | NR | NR  | NR | -  | -   |
| NR  | NR | NR  | NR | NR  | NR | NR | NR  |
| NR  | NR | NR  | NR | NR  | NR | NR | NR  |
| NR  | R  | NR  | R  | NR  | R  | NR | NR  |
| -   | R  | 150 | -  | 150 | -  | -  | -   |
| -   | R  | NR  | -  | NR  | -  | -  | -   |
| -   | R  | 150 | -  | 150 | -  | -  | -   |
| NR  | R  | NR  | R  | NR  | R  | NR | NR  |
| -   | R  | 150 | -  | 150 | -  | -  | -   |
| NR  | NR | NR  | NR | NR  | R  | NR | NR  |
| -   | R  | 150 | -  | 150 | -  | -  | -   |
| 190 | R  | 150 | R  | 150 | R  | R  | 190 |
| 250 | R  | R   | R  | R   | R  | R  | 250 |
| 120 | R  | R   | R  | R   | R  | R  | 120 |
| -   | R  | 120 | R  | 120 | -  | -  | -   |
| -   | R  | R   | R  | R   | -  | -  | -   |
| 160 | R  | R   | R  | R   | R  | R  | 160 |
| -   | R  | 100 | R  | 100 | -  | -  | -   |
| -   | R  | 100 | R  | 100 | -  | -  | -   |
| 140 | R  | 120 | R  | 120 | R  | R  | 140 |
| -   | R  | 120 | R  | 120 | -  | -  | -   |
| -   | R  | 120 | R  | 120 | -  | -  | -   |
| -   | R  | 120 | R  | 120 | -  | -  | -   |
| -   | R  | 120 | R  | 120 | -  | -  | -   |
| NR  | R  | 120 | R  | 120 | -  | -  | -   |
| NR  | R  | 120 | R  | 120 | R  | NR | NR  |
| NR  | R  | 120 | R  | 120 | R  | R  | NR  |
| NR  | R  | 120 | R  | 120 | NR | NR | NR  |
| 200 | R  | R   | R  | R   | R  | R  | 200 |
| 150 | R  | 120 | R  | 120 | R  | R  | 150 |
| 150 | R  | 120 | R  | 120 | R  | R  | 150 |
| 200 | R  | R   | R  | R   | R  | R  | 200 |
| -   | R  | R   | R  | R   | -  | -  | -   |
| NR  | R  | R   | R  | R   | NR | NR | NR  |
| 180 | R  | R   | R  | R   | R  | R  | 180 |
| 200 | R  | R   | R  | R   | R  | R  | 200 |
| -   | R  | 120 | R  | 120 | -  | -  | -   |
| 150 | R  | R   | R  | R   | R  | R  | 150 |
| NR  | R  | R   | R  | R   | NR | NR | NR  |
| NR  | R  | 120 | R  | 120 | NR | NR | NR  |
| NR  | NR | NR  | NR | NR  | R  | R  | NR  |
| -   | R  | R   | R  | R   | -  | -  | -   |
| 180 | R  | R   | R  | R   | R  | R  | 180 |
| 250 | R  | R   | R  | R   | R  | R  | 250 |
| -   | R  | R   | R  | R   | -  | -  | -   |

| CHEMICAL ENVIRONMENT  | VINYL ESTER  | VINYL ESTER   | POLYESTER   | POLYESTER  | POLYESTER                                |
|---|--|---|---|--|--|
|   | EXTREN®<br>DURADEK®<br>DURAGRID®<br>DURASHIELD®<br>SAFPLATE®<br>SAFRAIL™<br>R.T. | EXTREN®<br>DURADEK®<br>DURAGRID®<br>DURASHIELD®<br>SAFPLATE®<br>SAFRAIL™<br>160°F | EXTREN®<br>DURASHIELD®<br>SAFPLATE®<br>SAFRAIL™<br>R.T. | EXTREN®<br>DURASHIELD®<br>SAFPLATE®<br>SAFRAIL™<br>150°F | EXTREN®<br>DURADEK®<br>DURAGRID®<br>R.T. |
| <b>B</b> Benzyl Alcohol   | R  | NR  | NR  | NR   | NR                                       |
| Benzyl Chloride   | NR   | NR  | NR  | NR   | -  |
| Brass Plating Solution:<br>(3% Copper Cyanide<br>6% Sodium Cyanide<br>1% Zinc Cyanide<br>3% Sodium Carbonate) | R  | R   | NR  | NR   | -  |
| Butyl Acetate   | NR   | NR  | NR  | NR   | R  |
| Butylene Glycol   | R  | R   | R   | R  |  |
| Butyric Acid 0-50%  | R  | R   | R   | NR   | R  |
| <b>C</b> Cadmium Chloride   | R  | R   | R   | NR   | -  |
| Cadmium Cyanide Plating<br>Solution: (3% Cadmium Oxide<br>6% Sodium Cyanide<br>1% Caustic Soda)               | R  | 120   | NR  | NR   | -  |
| Calcium Bisulfite   | R  | R   | R   | R  | R  |
| Calcium Carbonate   | R  | R   | R   | NR   | R  |
| Calcium Chlorate  | R  | R   | R   | R  | R  |
| Calcium Chloride  | R  | R   | R   | R  | R  |
| Calcium Hydroxide   | R  | 120   | R   | NR   | R  |
| Calcium Hypochlorite  | R  | 120   | R   | NR   | R  |
| Calcium Nitrate   | R  | R   | R   | R  | R  |
| Calcium Sulfate   | R  | R   | R   | R  | R  |
| Calcium Sulfite   | R  | R   | R   | R  | R  |
| Caprylic Acid   | R  | R   | R   | NR   | R  |
| Carbon Dioxide  | R  | R   | R   | R  | R  |
| Carbon Disulfide  | NR   | NR  | NR  | NR   | NR                                       |
| Carbon Monoxide   | R  | R   | R   | R  | R  |
| Carbon Tetrachloride  | R  | 100   | NR  | NR   | -  |
| Carbonic Acid   | R  | R   | R   | NR   | R  |
| Carbon Methyl Cellulose   | R  | 120   | NR  | NR   | -  |
| Castor Oil  | R  | R   | R   | R  | -  |
| Chlorinated Wax   | R  | R   | NR  | NR   | -  |
| Chlorine Dioxide/Air  | R  | R   | R   | NR   | R  |
| Chlorine Dioxide, Wet Gas   | R  | R   | NR  | NR   | -  |
| Chlorine, Dry Gas   | R  | R   | NR  | NR   | R  |
| Chlorine, Wet Gas   | R  | R   | NR  | NR   | R  |
| Chlorine, Liquid  | NR   | NR  | NR  | NR   | -  |
| Chlorine, Water   | R  | R   | NR  | NR   | R  |
| Chloroacetic Acid 0-50%   | R  | 100   | NR  | NR   | NR                                       |
| Chlorobenzene   | NR   | NR  | NR  | NR   | NR                                       |
| Chloroform  | NR   | NR  | NR  | NR   | -  |
| Chlorosulfonic Acid   | NR   | NR  | NR  | NR   | -  |
| Chromic Acid 20%  | R  | 120   | NR  | NR   | -  |
| Chromic Acid 30%  | NR   | NR  | NR  | NR   | -  |
| Chromium Sulfate  | R  | R   | R   | R  | -  |

| POLYESTER<br>DURADEK®<br>DURAGRID®<br>150°F | FIBREBOLT®<br>HEX NUT<br>(TP)<br>R.T. | FIBREBOLT®<br>HEX NUT<br>(TP)<br>150°F | DURAGRATE® MOLDED GRATING      |                                  |                             |                                 |
|---|---------------------------------------|--|--------------------------------|----------------------------------|-----------------------------|---------------------------------|
|   |                                       |  | VINYL ESTER<br>R.T.            | VINYL ESTER<br>160°F             | POLYESTER<br>R.T.           | POLYESTER<br>150°F              |
| NR<br>-<br>-                                | R<br>NR<br>R                          | NR<br>NR<br>R                          | R<br>NR<br>R                   | NR<br>NR<br>R                    | NR<br>-<br>-                | NR<br>-<br>-                    |
| NR<br>160<br>150                            | NR<br>R<br>R                          | NR<br>R<br>R                           | NR<br>R<br>R                   | NR<br>R<br>R                     | R<br>R<br>R                 | NR<br>160<br>150                |
| -<br>-                                      | R<br>R                                | R<br>120                               | R<br>R                         | R<br>120                         | -<br>-                      | -<br>-                          |
| 170<br>160<br>180<br>250<br>160             | R<br>R<br>R<br>R<br>R                 | R<br>R<br>R<br>R<br>120                | R<br>R<br>R<br>R<br>R          | R<br>R<br>R<br>R<br>120          | R<br>R<br>R<br>R<br>R       | 170<br>160<br>180<br>250<br>160 |
| 100<br>180<br>200<br>-<br>160               | C<br>R<br>R<br>R<br>R                 | C<br>R<br>R<br>R<br>R                  | R<br>R<br>R<br>R<br>R          | 120<br>R<br>R<br>R<br>R          | R<br>R<br>R<br>R<br>R       | 100<br>180<br>200<br>-<br>160   |
| 250<br>NR<br>200<br>-<br>160                | R<br>NR<br>R<br>NR<br>R               | R<br>NR<br>R<br>NR<br>R                | R<br>NR<br>R<br>R<br>R         | R<br>NR<br>R<br>100<br>R         | R<br>NR<br>R<br>-<br>R      | 250<br>NR<br>200<br>-<br>160    |
| -<br>-<br>-<br>NR<br>-                      | R<br>R<br>R<br>R<br>R                 | 120<br>R<br>R<br>R<br>R                | R<br>R<br>R<br>R<br>R          | 120<br>R<br>R<br>R<br>R          | -<br>-<br>-<br>R<br>-       | -<br>-<br>-<br>NR<br>-          |
| 200<br>NR<br>-<br>125<br>NR                 | C<br>C<br>NR<br>C<br>R                | C<br>C<br>NR<br>C<br>100               | R<br>R<br>NR<br>R<br>R         | R<br>R<br>NR<br>R<br>100         | R<br>R<br>-<br>R<br>NR      | 200<br>NR<br>-<br>125<br>NR     |
| NR<br>-<br>-<br>-<br>-<br>-                 | NR<br>NR<br>NR<br>R<br>NR<br>R        | NR<br>NR<br>NR<br>120<br>NR<br>R       | NR<br>NR<br>NR<br>R<br>NR<br>R | NR<br>NR<br>NR<br>120<br>NR<br>R | NR<br>-<br>-<br>-<br>-<br>- | NR<br>-<br>-<br>-<br>-<br>-     |

| CHEMICAL ENVIRONMENT   | VINYL ESTER  | VINYL ESTER   | POLYESTER   | POLYESTER  | POLYESTER   |
|--|--|---|---|--|---|
|  | EXTREN®<br>DURADEK®<br>DURAGRID®<br>DURASHIELD®<br>SAFPLATE®<br>SAFRAIL™<br>R.T. | EXTREN®<br>DURADEK®<br>DURAGRID®<br>DURASHIELD®<br>SAFPLATE®<br>SAFRAIL™<br>160°F | EXTREN®<br>DURASHIELD®<br>SAFPLATE®<br>SAFRAIL™<br>R.T. | EXTREN®<br>DURASHIELD®<br>SAFPLATE®<br>SAFRAIL™<br>150°F | EXTREN®<br>DURASHIELD®<br>SAFPLATE®<br>SAFRAIL™<br>R.T. |
| <b>C</b> Citric Acid   | R  | R   | R   | R  | R   |
| Coconut Oil  | R  | R   | R   | NR   | -   |
| Copper Chloride  | R  | R   | R   | R  | R   |
| Copper Cyanide   | R  | R   | NR  | NR   | R   |
| Copper Fluoride  | R  | R   | NR  | NR   | NR  |
| Copper Nitrate   | R  | -   | R   | R  | R   |
| Copper Plating Solution:<br>(Copper Cyanide<br>10.5% Copper<br>4% Copper Cyanide<br>6% Rochelle Salts) | R  | R   | NR  | NR   | -   |
| Copper Brite Plating:<br>(Caustic Cyanide)   | R  | 120   | NR  | NR   | -   |
| Copper Plating Solution:<br>(45% Copper Fluoborate<br>19% Copper Sulfate<br>8% Sulfuric Acid)          | R  | R   | NR  | NR   | -   |
| Copper Matte Dipping Bath:<br>(30% Ferric Chloride<br>19% Hydrochloric Acid)                           | R  | R   | NR  | NR   | -   |
| Copper Pickling Bath:<br>(10% Ferric Sulfate<br>10% Sulfuric Acid)                                     | R  | R   | NR  | NR   | -   |
| Copper Sulfate   | R  | R   | R   | R  | R   |
| Corn Oil   | R  | R   | R   | NR   | -   |
| Corn Starch-Slurry   | R  | R   | R   | NR   | -   |
| Corn Sugar   | R  | R   | R   | NR   | -   |
| Cottonseed Oil   | R  | R   | R   | NR   | -   |
| Crude Oil, Sour  | R  | R   | R   | NR   | -   |
| Crude Oil, Sweet   | R  | R   | R   | NR   | -   |
| Cyclohexane  | R  | 120   | R   | NR   | -   |
| <b>D</b> Detergents, Sulfonated  | R  | R   | R   | NR   | -   |
| Di-Ammonium Phosphate  | R  | R   | NR  | NR   | R   |
| Dibromophenol  | NR   | NR  | NR  | NR   | -   |
| Dibutyl Ether  | R  | 120   | NR  | NR   | R   |
| Dichloro Benzene   | NR   | NR  | NR  | NR   | -   |
| Dichloroethylene   | NR   | NR  | NR  | NR   | -   |
| Diesel Fuel  | R  | R   | R   | NR   | -   |
| Diethylene Glycol  | R  | R   | R   | NR   | R   |
| Dimethyl Phthalate   | R  | R   | NR  | NR   | NR  |
| Diethyl Phthalate  | R  | R   | NR  | NR   | NR  |
| Dipropylene Glycol   | R  | R   | R   | NR   | R   |
| Dodecyl Alcohol  | R  | R   | NR  | NR   | -   |
| <b>E</b> Esters, Fatty Acids   | R  | R   | R   | R  | -   |
| Ethyl Acetate  | NR   | NR  | NR  | NR   | NR  |
| Ethyl Benzene  | NR   | NR  | NR  | NR   | -   |





| CHEMICAL ENVIRONMENT   | VINYL ESTER  | VINYL ESTER   | POLYESTER   | POLYESTER  | POLYESTER   |
|--|--|---|---|--|---|
|  | EXTREN®<br>DURADEK®<br>DURAGRID®<br>DURASHIELD®<br>SAFPLATE®<br>SAFRAIL™<br>R.T. | EXTREN®<br>DURADEK®<br>DURAGRID®<br>DURASHIELD®<br>SAFPLATE®<br>SAFRAIL™<br>160°F | EXTREN®<br>DURASHIELD®<br>SAFPLATE®<br>SAFRAIL™<br>R.T. | EXTREN®<br>DURASHIELD®<br>SAFPLATE®<br>SAFRAIL™<br>150°F | EXTREN®<br>DURASHIELD®<br>SAFPLATE®<br>SAFRAIL™<br>R.T. |
| <b>E</b> Ethyl Ether   | NR   | NR  | NR  | NR   | -   |
| Ethylene Glycol  | R  | R   | R   | R  | R   |
| Ethylene Dichloride  | NR   | NR  | NR  | NR   | -   |
| <b>F</b> Fatty Acids   | R  | R   | R   | R  | R   |
| Ferric Chloride  | R  | R   | R   | R  | R   |
| Ferric Nitrate   | R  | R   | R   | R  | R   |
| Ferric Sulfate   | R  | R   | R   | R  | R   |
| Ferrous Chloride   | R  | R   | R   | R  | R   |
| Ferrous Nitrate  | R  | R   | R   | R  | R   |
| Ferrous Sulfate  | R  | R   | R   | R  | R   |
| 8-8-8 Fertilizer   | R  | R   | R   | NR   | -   |
| Fertilizer:<br>(Urea Ammonium Nitrate)   | R  | 120   | NR  | NR   | -   |
| Flue Gas   | R  | R   | NR  | NR   | -   |
| Fluoboric Acid 10%   | R  | 120   | NR  | NR   | R   |
| Fluosilicic Acid 0-20%   | R  | R   | NR  | NR   | R   |
| Formaldehyde   | R  | R   | R   | NR   | R   |
| Formic Acid 10%  | R  | R   | R   | NR   | R   |
| Fuel Oil   | R  | R   | R   | NR   | -   |
| <b>G</b> Gas, Natural  | R  | R   | R   | NR   | -   |
| Gasoline, Auto   | R  | R   | R   | NR   | -   |
| Gasoline, Aviation   | R  | R   | R   | NR   | -   |
| Gasoline, Ethyl  | R  | R   | R   | NR   | -   |
| Gasoline, Sour   | R  | R   | R   | NR   | -   |
| Glyconic Acid  | R  | R   | R   | NR   | R   |
| Glucose  | R  | R   | R   | R  | R   |
| Glycerine  | R  | R   | R   | R  | R   |
| Glycol, Propylene  | R  | R   | R   | R  | R   |
| Glycolic Acid 70%  | R  | R   | R   | NR   | R   |
| Gold Plating Solution:<br>(63% Potassium Ferrocyanide<br>2% Potassium Gold Cyanide<br>8% Sodium Cyanide) | R  | R   | NR  | NR   | -   |
| <b>H</b> Heptane   | R  | R   | R   | NR   | R   |
| Hexane   | R  | R   | R   | NR   | -   |
| Hexalene Glycol  | R  | R   | R   | R  | -   |
| Hydraulic Fluid  | R  | R   | R   | NR   | -   |
| Hydrobromic Acid 0-25%   | R  | R   | R   | NR   | R   |
| Hydrochloric Acid 0-37%  | R  | R   | R   | NR   | -   |
| Hydrocyanic Acid   | R  | R   | R   | NR   | R   |
| Hydrofluoric Acid 10%  | NR   | NR  | NR  | NR   | NR  |
| Hydrofluosilicic Acid 10%  | R  | R   | NR  | NR   | R   |
| Hydrogen Bromide, Wet Gas  | R  | R   | NR  | NR   | -   |
| Hydrogen Chloride, Dry Gas   | R  | R   | NR  | NR   | -   |
| Hydrogen Chloride, Wet Gas   | R  | R   | NR  | NR   | R   |

| POLYESTER<br>DURADEK®<br>DURAGRID®<br>150°F | FIBREBOLT®<br>HEX NUT<br>(TP)<br>R.T. | FIBREBOLT®<br>HEX NUT<br>(TP)<br>150°F | DURAGRATE® MOLDED GRATING |                      |                   |                    |
|---|---------------------------------------|--|---------------------------|----------------------|-------------------|--------------------|
|   |                                       |  | VINYL ESTER<br>R.T.       | VINYL ESTER<br>160°F | POLYESTER<br>R.T. | POLYESTER<br>150°F |
| -   | NR                                    | NR                                     | NR                        | NR                   | -                 | -                  |
| 250   | R                                     | R                                      | R                         | R                    | R                 | 250                |
| -   | NR                                    | NR                                     | NR                        | NR                   | -                 | -                  |
| 250   | R                                     | R                                      | R                         | R                    | R                 | 250                |
| 250   | R                                     | R                                      | R                         | R                    | R                 | 250                |
| 250   | R                                     | R                                      | R                         | R                    | R                 | 250                |
| 220   | R                                     | R                                      | R                         | R                    | R                 | 220                |
| 220   | R                                     | R                                      | R                         | R                    | R                 | 220                |
| 160   | R                                     | R                                      | R                         | R                    | R                 | 160                |
| 220   | R                                     | R                                      | R                         | R                    | R                 | 220                |
| -   | R                                     | 120                                    | R                         | R                    | -                 | -                  |
| -   | R                                     | 120                                    | R                         | 120                  | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| 180   | R                                     | 120                                    | R                         | 120                  | R                 | 180                |
| NR  | R                                     | R                                      | R                         | R                    | R                 | NR                 |
| NR  | R                                     | R                                      | R                         | R                    | R                 | NR                 |
| 200   | C                                     | C                                      | R                         | R                    | R                 | 200                |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| 120   | R                                     | R                                      | R                         | R                    | R                 | 120                |
| 180   | R                                     | R                                      | R                         | R                    | R                 | 180                |
| 200   | R                                     | R                                      | R                         | R                    | R                 | 200                |
| 170   | R                                     | R                                      | R                         | R                    | R                 | 170                |
| 120   | R                                     | R                                      | R                         | R                    | R                 | 120                |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| 120   | R                                     | R                                      | R                         | R                    | R                 | 120                |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| 160   | NR                                    | NR                                     | R                         | R                    | R                 | 160                |
| -   | NR                                    | NR                                     | R                         | R                    | -                 | -                  |
| 200   | R                                     | R                                      | R                         | R                    | R                 | 200                |
| NR  | NR                                    | NR                                     | NR                        | NR                   | NR                | NR                 |
| 100   | NR                                    | NR                                     | R                         | R                    | R                 | 100                |
| -   | NR                                    | NR                                     | R                         | R                    | -                 | -                  |
| -   | NR                                    | NR                                     | R                         | R                    | -                 | -                  |
| 120   | NR                                    | NR                                     | R                         | R                    | R                 | 120                |

| CHEMICAL ENVIRONMENT   | VINYL ESTER  | VINYL ESTER   | POLYESTER   | POLYESTER  | POLYESTER                                |
|--|--|---|---|--|--|
|  | EXTREN®<br>DURADEK®<br>DURAGRID®<br>DURASHIELD®<br>SAFPLATE®<br>SAFRAIL™<br>R.T. | EXTREN®<br>DURADEK®<br>DURAGRID®<br>DURASHIELD®<br>SAFPLATE®<br>SAFRAIL™<br>160°F | EXTREN®<br>DURASHIELD®<br>SAFPLATE®<br>SAFRAIL™<br>R.T. | EXTREN®<br>DURASHIELD®<br>SAFPLATE®<br>SAFRAIL™<br>150°F | EXTREN®<br>DURADEK®<br>DURAGRID®<br>R.T. |
| <b>H</b> Hydrogen Fluoride, Vapor  | R  | NR  | NR  | NR   | R  |
| Hydrogen Peroxide 35%  | R  | 120   | NR  | NR   | R  |
| Hydrogen Sulfide Dry   | R  | R   | R   | NR   | R  |
| Hydrogen Sulfide, Aqueous  | R  | R   | R   | NR   | -  |
| Hydrosulfite Bleach  | R  | 120   | NR  | NR   | -  |
| Hypochlorous Acid 0-10%  | R  | R   | NR  | NR   | R  |
| <b>I</b> Iron Plating Solution:<br>(45% FeCl <sub>2</sub> ; 15% CaCl <sub>2</sub><br>20% FeSO <sub>4</sub> ; 11% (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> ) | R  | R   | NR  | NR   | -  |
| Iron and Steel Cleaning Bath:<br>(9% Hydrochloric, 23% Sulfuric)   | R  | R   | NR  | NR   | -  |
| Isopropyl Amine  | R  | 100   | NR  | NR   | -  |
| Isopropyl Palmitate  | R  | R   | R   | R  | R  |
| <b>J</b> Jet Fuel  | R  | R   | R   | NR   | -  |
| <b>K</b> Kerosene  | R  | R   | R   | NR   | R  |
| <b>L</b> Lactic Acid   | R  | R   | R   | NR   | R  |
| Lauroyl Chloride   | R  | R   | NR  | NR   | -  |
| Lauric Acid  | R  | R   | R   | NR   | -  |
| Lead Acetate   | R  | R   | R   | NR   | R  |
| Lead Chloride  | R  | R   | R   | NR   | -  |
| Lead Nitrate   | R  | R   | R   | NR   | -  |
| Lead Plating Solution:<br>(0.8% Fluoboric Acid<br>0.4% Boric Acid)   | R  | R   | NR  | NR   | -  |
| Levulinic Acid   | R  | R   | R   | NR   | -  |
| Linseed Oil  | R  | R   | R   | R  | -  |
| Lithium Bromide  | R  | R   | R   | R  | -  |
| Lithium Sulfate  | R  | R   | R   | R  | -  |
| <b>M</b> Magnesium Bisulfite   | R  | R   | R   | NR   | -  |
| Magnesium Carbonate  | R  | R   | R   | NR   | R  |
| Magnesium Chloride   | R  | R   | R   | R  | R  |
| Magnesium Hydroxide  | R  | 140   | NR  | NR   | -  |
| Magnesium Nitrate  | R  | R   | R   | NR   | R  |
| Magnesium Sulfate  | R  | R   | R   | R  | R  |
| Maleic Acid  | R  | R   | R   | R  | -  |
| Mercuric Chloride  | R  | R   | R   | NR   | R  |
| Mercurous Chloride   | R  | R   | R   | NR   | R  |
| Methanol (see alcohol)   | R  | R   | R   | NR   | -  |
| Methylene Chloride   | NR   | NR  | NR  | NR   | NR                                       |
| Methyl Ethyl Ketone @ 120F   | NR   | NR  | NR  | NR   | NR                                       |
| Methyl Isobutyl Carbitol   | NR   | NR  | NR  | NR   | -  |
| Methyl Isobutyl Ketone   | NR   | NR  | NR  | NR   | -  |
| Methyl Styrene   | NR   | NR  | NR  | NR   | -  |
| Mineral Oils   | R  | R   | R   | R  | R  |
| Molybdenum Disulfide   | R  | R   | R   | NR   | -  |

| POLYESTER<br>DURADEK®<br>DURAGRID®<br>150°F | FIBREBOLT®<br>HEX NUT<br>(TP)<br>R.T. | FIBREBOLT®<br>HEX NUT<br>(TP)<br>150°F | DURAGRATE® MOLDED GRATING |                      |                   |                    |
|---|---------------------------------------|--|---------------------------|----------------------|-------------------|--------------------|
|   |                                       |  | VINYL ESTER<br>R.T.       | VINYL ESTER<br>160°F | POLYESTER<br>R.T. | POLYESTER<br>150°F |
| 95  | C                                     | C                                      | R                         | NR                   | R                 | 95                 |
| 120   | C                                     | C                                      | R                         | 120                  | R                 | 120                |
| 250   | R                                     | R                                      | R                         | R                    | R                 | 250                |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | C                                     | C                                      | R                         | 120                  | -                 | -                  |
| 104   | C                                     | C                                      | R                         | R                    | R                 | 104                |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | C                                     | C                                      | R                         | R                    | -                 | -                  |
| -   | R                                     | 100                                    | R                         | 100                  | -                 | -                  |
| 180   | R                                     | R                                      | R                         | R                    | R                 | 180                |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| 120   | R                                     | R                                      | R                         | R                    | R                 | 120                |
| 200   | R                                     | R                                      | R                         | R                    | R                 | 200                |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| 160   | R                                     | R                                      | R                         | R                    | R                 | 160                |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| 160   | R                                     | R                                      | R                         | R                    | R                 | 160                |
| 220   | R                                     | R                                      | R                         | R                    | R                 | 220                |
| -   | R                                     | 140                                    | R                         | 140                  | -                 | -                  |
| 160   | R                                     | R                                      | R                         | R                    | R                 | 160                |
| 200   | R                                     | R                                      | R                         | R                    | R                 | 200                |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| 212   | R                                     | R                                      | R                         | R                    | R                 | 212                |
| 212   | R                                     | R                                      | R                         | R                    | R                 | 212                |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| NR  | NR                                    | NR                                     | NR                        | NR                   | NR                | NR                 |
| NR  | NR                                    | NR                                     | NR                        | NR                   | NR                | NR                 |
| -   | NR                                    | NR                                     | NR                        | NR                   | -                 | -                  |
| -   | NR                                    | NR                                     | NR                        | NR                   | -                 | -                  |
| -   | NR                                    | NR                                     | NR                        | NR                   | -                 | -                  |
| 180   | R                                     | R                                      | R                         | R                    | R                 | 180                |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |

| CHEMICAL ENVIRONMENT  | VINYL ESTER  | VINYL ESTER   | POLYESTER   | POLYESTER  | POLYESTER                     |
|---|--|---|---|--|-------------------------------|
|   | EXTREN®<br>DURADEK®<br>DURAGRID®<br>DURASHIELD®<br>SAFPLATE®<br>SAFRAIL™<br>R.T. | EXTREN®<br>DURADEK®<br>DURAGRID®<br>DURASHIELD®<br>SAFPLATE®<br>SAFRAIL™<br>160°F | EXTREN®<br>DURASHIELD®<br>SAFPLATE®<br>SAFRAIL™<br>R.T. | EXTREN®<br>DURASHIELD®<br>SAFPLATE®<br>SAFRAIL™<br>150°F | DURADEK®<br>DURAGRID®<br>R.T. |
| <b>M</b> Monochloric Acetic Acid  | NR   | NR  | NR  | NR   | -                             |
| Monoethanolamine  | NR   | NR  | NR  | NR   | -                             |
| Motor Oil   | R  | R   | R   | R  | -                             |
| Myristic Acid   | R  | R   | -   | -  | -                             |
| <b>N</b> Naphtha  | R  | R   | R   | R  | R                             |
| Naphthalene   | R  | R   | R   | NR   | R                             |
| Nickel Chloride   | R  | R   | R   | R  | R                             |
| Nickel Nitrate  | R  | R   | R   | R  | R                             |
| Nickel Plating:<br>(8% Lead, 0.8% Fluoboric Acid<br>0.4% Boric Acid)  | R  | R   | NR  | NR   | -                             |
| Nickel Plating:<br>(11% Nickel Sulfate<br>2% Nickel Chloride<br>1% Boric Acid)  | R  | R   | R   | NR   | -                             |
| Nickel Plating:<br>(44% Nickel Sulfate<br>4% Ammonium Chloride<br>4% Boric Acid)  | R  | R   | R   | NR   | -                             |
| Nickel Sulfate  | R  | R   | R   | R  | R                             |
| Nitric Acid 0-5%  | R  | R   | R   | R  | R                             |
| Nitric Acid 20%   | R  | 120   | NR  | NR   | -                             |
| Nitric Acid Fumes   | NR   | NR  | NR  | NR   | -                             |
| Nitrobenzene  | NR   | NR  | NR  | NR   | -                             |
| <b>O</b> Octanoic Acid  | R  | R   | R   | NR   | -                             |
| Oil, Sour Crude   | R  | R   | R   | R  | -                             |
| Oil, Sweet Crude  | R  | R   | R   | R  | -                             |
| Oleic Acid  | R  | R   | R   | R  | R                             |
| Oleum (Fuming Sulfuric)   | NR   | NR  | NR  | NR   | NR                            |
| Olive Oil   | R  | R   | R   | R  | -                             |
| Oxalic Acid   | R  | R   | R   | R  | R                             |
| <b>P</b> Peroxide Bleach:<br>(2% Sodium Peroxide 96%<br>0.025% Epsom Salts,<br>5% Sodium Silicate 42° Be,<br>1.4% Sulfuric Acid 66° Be) | R  | R   | R   | R  | -                             |
| Phenol  | NR   | NR  | NR  | NR   | -                             |
| Phenol Sulfonic Acid  | NR   | NR  | NR  | NR   | -                             |
| Phosphoric Acid   | R  | R   | R   | R  | R                             |
| Phosphoric Acid Fumes   | R  | R   | R   | R  | -                             |
| Phosphorous Pentoxide   | R  | R   | R   | R  | -                             |
| Phosphorous Trichloride   | NR   | NR  | NR  | NR   | -                             |
| Phthalic Acid   | R  | R   | R   | R  | -                             |
| Pickling Acids:<br>(Sulfuric and Hydrochloric)  | R  | R   | R   | R  | -                             |

| POLYESTER<br>DURADEK®<br>DURAGRID®<br>150°F | FIBREBOLT®<br>HEX NUT<br>(TP)<br>R.T. | FIBREBOLT®<br>HEX NUT<br>(TP)<br>150°F | DURAGRATE® MOLDED GRATING |                      |                   |                    |
|---|---------------------------------------|--|---------------------------|----------------------|-------------------|--------------------|
|   |                                       |  | VINYL ESTER<br>R.T.       | VINYL ESTER<br>160°F | POLYESTER<br>R.T. | POLYESTER<br>150°F |
| -   | NR                                    | NR                                     | NR                        | NR                   | -                 | -                  |
| -   | NR                                    | NR                                     | NR                        | NR                   | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| 200   | R                                     | R                                      | R                         | R                    | R                 | 200                |
| 130   | R                                     | R                                      | R                         | R                    | R                 | 130                |
| 220   | R                                     | R                                      | R                         | R                    | R                 | 220                |
| 220   | R                                     | R                                      | R                         | R                    | R                 | 220                |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| 220   | R                                     | R                                      | R                         | R                    | R                 | 220                |
| 200   | NR                                    | NR                                     | R                         | R                    | R                 | 200                |
| -   | NR                                    | NR                                     | R                         | 120                  | -                 | -                  |
| -   | NR                                    | NR                                     | NR                        | NR                   | -                 | -                  |
| -   | NR                                    | NR                                     | NR                        | NR                   | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| 200   | R                                     | R                                      | R                         | R                    | R                 | 200                |
| NR  | NR                                    | NR                                     | NR                        | NR                   | NR                | NR                 |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| 220   | R                                     | R                                      | R                         | R                    | R                 | 220                |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | NR                                    | NR                                     | NR                        | NR                   | -                 | -                  |
| -   | NR                                    | NR                                     | NR                        | NR                   | -                 | -                  |
| 220   | C                                     | C                                      | R                         | R                    | R                 | 220                |
| -   | C                                     | C                                      | R                         | R                    | -                 | -                  |
| -   | C                                     | C                                      | R                         | R                    | -                 | -                  |
| -   | NR                                    | NR                                     | NR                        | NR                   | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | C                                     | C                                      | R                         | R                    | -                 | -                  |

| CHEMICAL ENVIRONMENT   | VINYL ESTER  | VINYL ESTER   | POLYESTER   | POLYESTER  | POLYESTER                                |
|--|--|---|---|--|--|
|  | EXTREN®<br>DURADEK®<br>DURAGRID®<br>DURASHIELD®<br>SAFPLATE®<br>SAFRAIL™<br>R.T. | EXTREN®<br>DURADEK®<br>DURAGRID®<br>DURASHIELD®<br>SAFPLATE®<br>SAFRAIL™<br>160°F | EXTREN®<br>DURASHIELD®<br>SAFPLATE®<br>SAFRAIL™<br>R.T. | EXTREN®<br>DURASHIELD®<br>SAFPLATE®<br>SAFRAIL™<br>150°F | EXTREN®<br>DURADEK®<br>DURAGRID®<br>R.T. |
| <b>P</b> Picric Acid, Alcoholic  | R  | R   | R   | R  | -  |
| Polyvinyl Acetate Latex  | R  | R   | R   | NR   | -  |
| Polyvinyl Alcohol  | R  | 100   | R   | NR   | R  |
| Polyvinyl Chloride Latex with 35 (Parts DOP)   | R  | 120   | NR  | NR   | -  |
| Potassium Aluminum Sulfate   | R  | R   | R   | R  | R  |
| Potassium Bicarbonate  | R  | 140   | R   | NR   | R  |
| Potassium Bromide  | R  | 100   | R   | NR   | -  |
| Potassium Carbonate  | R  | 140   | R   | NR   | R  |
| Potassium Chloride   | R  | R   | R   | R  | R  |
| Potassium Dichromate   | R  | 140   | R   | NR   | -  |
| Potassium Ferricyanide   | R  | R   | R   | R  | R  |
| Potassium Ferrocyanide   | R  | R   | R   | R  | R  |
| Potassium Hydroxide  | R  | 150   | NR  | NR   | -  |
| Potassium Nitrate  | R  | R   | R   | R  | R  |
| Potassium Permanganate   | R  | 140   | R   | NR   | R  |
| Potassium Persulfate   | R  | R   | R   | NR   | R  |
| Potassium Sulfate  | R  | R   | R   | R  | R  |
| Propionic Acid 1-50% (50% - 100%)  | R<br>NR  | 120<br>NR   | NR<br>NR  | NR<br>NR   | -<br>-                                   |
| Propylene Glycol   | R  | R   | R   | R  | R  |
| Pulp Paper Mill Effluent   | R  | R   | R   | NR   | -  |
| Pyridine   | NR   | NR  | NR  | NR   | NR                                       |
| <b>S</b> Salicylic Acid  | R  | 140   | NR  | NR   | -  |
| Sebacic Acid   | R  | R   | NR  | NR   | -  |
| Selenious Acid   | R  | R   | NR  | NR   | -  |
| Silver Nitrate   | R  | R   | R   | R  | R  |
| Silver Plating Solution: (4% Silver Cyanide 7% Potassium Cyanide 5% Sodium Cyanide 2% Potassium Carbonate) | R  | R   | NR  | NR   | -  |
| Soaps  | R  | R   | R   | NR   | -  |
| Sodium Acetate   | R  | R   | R   | NR   | R  |
| Sodium Benzoate  | R  | R   | R   | NR   | R  |
| Sodium Bicarbonate   | R  | R   | R   | R  | -  |
| Sodium Bifluoride  | R  | 120   | R   | NR   | -  |
| Sodium Bisulfate   | R  | R   | R   | R  | R  |
| Sodium Bisulfite   | R  | R   | R   | R  | R  |
| Sodium Bromate   | R  | 140   | R   | R  | -  |
| Sodium Bromide   | R  | R   | R   | R  | R  |
| Sodium Carbonate 0-25%   | R  | R   | R   | NR   | -  |
| Sodium Chlorate  | R  | R   | R   | NR   | R  |
| Sodium Chloride  | R  | R   | R   | R  | R  |
| Sodium Chlorite 25%  | R  | R   | R   | NR   | R  |
| Sodium Chromate  | R  | R   | R   | R  | -  |



| POLYESTER<br>DURADEK®<br>DURAGRID®<br>150°F | FIBREBOLT®<br>HEX NUT<br>(TP)<br>R.T. | FIBREBOLT®<br>HEX NUT<br>(TP)<br>150°F | DURAGRATE® MOLDED GRATING |                      |                   |                    |
|---|---------------------------------------|--|---------------------------|----------------------|-------------------|--------------------|
|   |                                       |  | VINYL ESTER<br>R.T.       | VINYL ESTER<br>160°F | POLYESTER<br>R.T. | POLYESTER<br>150°F |
| -   | -                                     | -                                      | R                         | R                    | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| NR  | R                                     | 100                                    | R                         | 100                  | R                 | NR                 |
| -   | R                                     | 120                                    | R                         | 120                  | -                 | -                  |
| 160   | R                                     | R                                      | R                         | R                    | R                 | 160                |
| NR  | R                                     | 140                                    | R                         | 140                  | R                 | NR                 |
| -   | R                                     | 100                                    | R                         | 100                  | -                 | -                  |
| NR  | R                                     | 140                                    | R                         | 140                  | R                 | NR                 |
| 200   | R                                     | R                                      | R                         | R                    | R                 | 200                |
| -   | R                                     | 140                                    | R                         | 140                  | -                 | -                  |
| 200   | R                                     | R                                      | R                         | R                    | R                 | 200                |
| 200   | R                                     | R                                      | R                         | R                    | R                 | 200                |
| -   | R                                     | 150                                    | R                         | 150                  | -                 | -                  |
| 200   | R                                     | R                                      | R                         | R                    | R                 | 200                |
| 150   | R                                     | 140                                    | R                         | 140                  | R                 | 150                |
| NR  | R                                     | R                                      | R                         | R                    | R                 | NR                 |
| 200   | R                                     | R                                      | R                         | R                    | R                 | 200                |
| -   | R                                     | 120                                    | R                         | 120                  | -                 | -                  |
| -   | NR                                    | NR                                     | NR                        | NR                   | -                 | -                  |
| 170   | R                                     | R                                      | R                         | R                    | R                 | 170                |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| NR  | NR                                    | NR                                     | NR                        | NR                   | NR                | NR                 |
| -   | R                                     | 140                                    | R                         | 140                  | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| 200   | R                                     | R                                      | R                         | R                    | R                 | 200                |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| 150   | R                                     | R                                      | R                         | R                    | R                 | 150                |
| 176   | R                                     | R                                      | R                         | R                    | R                 | 176                |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | R                                     | 120                                    | R                         | 120                  | -                 | -                  |
| 200   | R                                     | R                                      | R                         | R                    | R                 | 200                |
| 200   | R                                     | R                                      | R                         | R                    | R                 | 200                |
| -   | R                                     | 140                                    | R                         | 140                  | -                 | -                  |
| 220   | R                                     | R                                      | R                         | R                    | R                 | 220                |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| NR  | R                                     | R                                      | R                         | R                    | R                 | NR                 |
| 200   | R                                     | R                                      | R                         | R                    | R                 | 200                |
| 175   | R                                     | R                                      | R                         | R                    | R                 | 175                |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |

| CHEMICAL ENVIRONMENT   | VINYL ESTER  | VINYL ESTER   | POLYESTER   | POLYESTER  | POLYESTER                     |    |
|--|--|---|---|--|-------------------------------|----|
|  | EXTREN®<br>DURADEK®<br>DURAGRID®<br>DURASHIELD®<br>SAFPLATE®<br>SAFRAIL™<br>R.T. | EXTREN®<br>DURADEK®<br>DURAGRID®<br>DURASHIELD®<br>SAFPLATE®<br>SAFRAIL™<br>160°F | EXTREN®<br>DURASHIELD®<br>SAFPLATE®<br>SAFRAIL™<br>R.T. | EXTREN®<br>DURASHIELD®<br>SAFPLATE®<br>SAFRAIL™<br>150°F | DURADEK®<br>DURAGRID®<br>R.T. |    |
| <b>S</b>   | Sodium Cyanide   | R   | R   | R  | NR                            | R  |
|  | Sodium Dichromate  | R   | R   | R  | R                             | -  |
|  | Sodium Di-Phosphate  | R   | R   | R  | R                             | -  |
|  | Sodium Ferricyanide  | R   | R   | R  | R                             | R  |
|  | Sodium Fluoride  | R   | 120   | NR   | NR                            | -  |
|  | Sodium Fluoro Silicate   | R   | 120   | NR   | NR                            | -  |
|  | Sodium Hexametaphosphates  | R   | 100   | NR   | NR                            | -  |
|  | Sodium Hydroxide 0-5%  | R   | 150   | NR   | NR                            | R  |
|  | Sodium Hydroxide 5-25%   | R   | 150   | NR   | NR                            | -  |
|  | Sodium Hydroxide 50%   | R   | 150   | NR   | NR                            | -  |
|  | Sodium Hydrosulfide  | R   | R   | R  | NR                            | -  |
|  | Sodium Hypochlorite  | R   | 150   | R  | NR                            | NR |
|  | Sodium Lauryl Sulfate  | R   | R   | R  | R                             | -  |
|  | Sodium Mono-Phosphate  | R   | R   | R  | R                             | R  |
|  | Sodium Nitrate   | R   | R   | R  | R                             | R  |
|  | Sodium Silicate  | R   | R   | R  | NR                            | -  |
|  | Sodium Sulfate   | R   | R   | R  | R                             | R  |
|  | Sodium Sulfide   | R   | R   | R  | NR                            | R  |
|  | Sodium Sulfite   | R   | R   | R  | NR                            | -  |
|  | Sodium Tetra Borate  | R   | R   | R  | R                             | R  |
| Sodium Thiocyanate   | R  | R   | NR  | NR   | -                             |    |
| Sodium Thiosulfate   | R  | R   | R   | NR   | R                             |    |
| Sodium Tripolyphosphate                                      | R  | R   | R   | NR   | R                             |    |
| Sodium Xylene Sulfonate                                      | R  | R   | R   | NR   | -                             |    |
| Sodium Solutions   | R  | R   | R   | NR   | -                             |    |
| Sodium Crude Oil   | R  | R   | R   | R  | -                             |    |
| Soya Oil   | R  | R   | R   | R  | -                             |    |
| Stannic Chloride   | R  | R   | R   | R  | R                             |    |
| Stannous Chloride  | R  | R   | R   | R  | R                             |    |
| Stearic Acid   | R  | R   | R   | R  | R                             |    |
| Styrene  | NR   | NR  | NR  | NR   | NR                            |    |
| Sugar, Beet and Cane Liquor                                  | R  | R   | R   | NR   | -                             |    |
| Sugar, Sucrose   | R  | R   | R   | R  | -                             |    |
| Sulfamic Acid  | R  | R   | R   | NR   | R                             |    |
| Sulfanilic Acid  | R  | R   | R   | NR   | -                             |    |
| Sulfated Detergents  | R  | R   | R   | NR   | -                             |    |
| Sulfur Dioxide, Dry or Wet                                   | R  | R   | NR  | NR   | -                             |    |
| Sulfur, Trioxide/Air   | R  | R   | NR  | NR   | -                             |    |
| Sulfuric Acid 0-30%  | R  | R   | R   | R  | R                             |    |
| Sulfuric Acid 30-50%   | R  | R   | NR  | NR   | R                             |    |
| Sulfuric Acid 50-70%   | R  | 120   | NR  | NR   | R                             |    |
| Sulfurous Acid 10%   | R  | 100   | NR  | NR   | R                             |    |
| Superphosphoric Acid<br>(76% P <sub>2</sub> O <sub>5</sub> ) | R  | R   | R   | NR   | -                             |    |
| <b>T</b>   | Tall Oil   | R   | 150   | R  | NR                            | -  |
|  | Tannic Acid  | R   | 120   | R  | NR                            | R  |

| POLYESTER<br>DURADEK®<br>DURAGRID®<br>150°F | FIBREBOLT®<br>HEX NUT<br>(TP)<br>R.T. | FIBREBOLT®<br>HEX NUT<br>(TP)<br>150°F | DURAGRATE® MOLDED GRATING |                      |                   |                    |
|---|---------------------------------------|--|---------------------------|----------------------|-------------------|--------------------|
|   |                                       |  | VINYL ESTER<br>R.T.       | VINYL ESTER<br>160°F | POLYESTER<br>R.T. | POLYESTER<br>150°F |
| 100   | R                                     | R                                      | R                         | R                    | R                 | 100                |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| 220   | R                                     | R                                      | R                         | R                    | R                 | 220                |
| -   | R                                     | 120                                    | R                         | 120                  | -                 | -                  |
| -   | R                                     | 120                                    | R                         | 120                  | -                 | -                  |
| -   | R                                     | 100                                    | R                         | 100                  | -                 | -                  |
| 180   | R                                     | 150                                    | R                         | 150                  | R                 | 180                |
| -   | R                                     | 150                                    | R                         | 150                  | -                 | -                  |
| -   | R                                     | 150                                    | R                         | 150                  | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| NR  | C                                     | C                                      | R                         | 150                  | NR                | NR                 |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| 150   | R                                     | R                                      | R                         | R                    | R                 | 150                |
| 220   | R                                     | R                                      | R                         | R                    | R                 | 220                |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| 180   | R                                     | R                                      | R                         | R                    | R                 | 180                |
| NR  | R                                     | R                                      | R                         | R                    | R                 | NR                 |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| 180   | R                                     | R                                      | R                         | R                    | R                 | 180                |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| NR  | R                                     | R                                      | R                         | R                    | R                 | NR                 |
| 125   | R                                     | R                                      | R                         | R                    | R                 | 125                |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| 180   | R                                     | R                                      | R                         | R                    | R                 | 180                |
| 200   | R                                     | R                                      | R                         | R                    | R                 | 200                |
| 200   | R                                     | R                                      | R                         | R                    | R                 | 200                |
| NR  | NR                                    | NR                                     | NR                        | NR                   | NR                | NR                 |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| 160   | R                                     | R                                      | R                         | R                    | R                 | 160                |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| 200   | R                                     | C                                      | R                         | R                    | R                 | 200                |
| 200   | C                                     | C                                      | R                         | R                    | R                 | 200                |
| 150   | C                                     | C                                      | R                         | 120                  | R                 | 150                |
| NR  | R                                     | 100                                    | R                         | 100                  | R                 | NR                 |
| -   | C                                     | C                                      | R                         | R                    | -                 | -                  |
| -   | R                                     | 140                                    | R                         | 150                  | -                 | -                  |
| 200   | R                                     | 150                                    | R                         | 120                  | R                 | 200                |

| CHEMICAL ENVIRONMENT  | VINYL ESTER  | VINYL ESTER   | POLYESTER   | POLYESTER  | POLYESTER                     |
|---|--|---|---|--|-------------------------------|
|   | EXTREN®<br>DURADEK®<br>DURAGRID®<br>DURASHIELD®<br>SAFPLATE®<br>SAFRAIL™<br>R.T. | EXTREN®<br>DURADEK®<br>DURAGRID®<br>DURASHIELD®<br>SAFPLATE®<br>SAFRAIL™<br>160°F | EXTREN®<br>DURASHIELD®<br>SAFPLATE®<br>SAFRAIL™<br>R.T. | EXTREN®<br>DURASHIELD®<br>SAFPLATE®<br>SAFRAIL™<br>150°F | DURADEK®<br>DURAGRID®<br>R.T. |
| <b>T</b> Tartaric Acid  | R  | R   | R   | R  | R                             |
| Thionyl Chloride  | NR   | NR  | NR  | NR   | -                             |
| Tin Plating:<br>(18% Stannous Fluoborate<br>7% Tin<br>9% Fluoboric Acid<br>2% Boric Acid)         | R  | R   | NR  | NR   | -                             |
| Toluene   | NR   | NR  | NR  | NR   | R                             |
| Toluene Sulfonic Acid   | R  | R   | NR  | NR   | -                             |
| Transformer Oils:<br>(Mineral Oil Types<br>Chloro-Phenyl Types)                                   | R<br>NR  | R<br>NR   | R<br>NR   | R<br>NR  | -<br>-                        |
| Trichloro Acetic Acid 50%   | R  | R   | R   | NR   | R                             |
| Trichlorethylene  | NR   | NR  | NR  | NR   | -                             |
| Trichloropentol   | NR   | NR  | NR  | NR   | -                             |
| Tricresyl Phosphate   | R  | 120   | NR  | NR   | -                             |
| Tridecylbenzene Sulfonate   | R  | R   | R   | NR   | -                             |
| Trisodium Phosphate   | R  | R   | R   | NR   | -                             |
| Turpentine  | R  | 100   | NR  | NR   | -                             |
| <b>U</b> Urea   | R  | 140   | R   | NR   | R                             |
| <b>V</b> Vegetable Oils   | R  | R   | R   | R  | -                             |
| Vinegar   | R  | R   | R   | R  | -                             |
| Vinyl Acetate   | NR   | NR  | NR  | NR   | -                             |
| <b>W</b> Water:   |  |   |   |  |                               |
| Deionized   | R  | R   | R   | R  | -                             |
| Demineralized   | R  | R   | R   | R  | -                             |
| Distilled   | R  | R   | R   | R  | -                             |
| Fresh   | R  | R   | R   | R  | -                             |
| Salt  | R  | R   | R   | R  | -                             |
| Sea   | R  | R   | R   | R  | -                             |
| White Liquor (Pulp Mill)  | R  | R   | R   | NR   | -                             |
| <b>X</b> Xylene   | NR   | NR  | NR  | NR   | R                             |
| <b>Z</b> Zinc Chlorate  | R  | R   | R   | R  | -                             |
| Zinc Nitrate  | R  | R   | R   | R  | R                             |
| Zinc Plating Solution:<br>(9% Zinc Cyanide<br>4% Sodium Cyanide<br>9% Sodium Hydroxide)           | R  | 120   | NR  | NR   | -                             |
| Zinc Plating Solution:<br>(49% Zinc Fluoborate<br>5% Ammonium Chloride<br>6% Ammonium Fluoborate) | R  | R   | R   | NR   | -                             |
| Zinc Sulfate  | R  | R   | R   | R  | R                             |

| POLYESTER<br>DURADEK®<br>DURAGRID®<br>150°F | FIBREBOLT®<br>HEX NUT<br>(TP)<br>R.T. | FIBREBOLT®<br>HEX NUT<br>(TP)<br>150°F | DURAGRATE® MOLDED GRATING |                      |                   |                    |
|---|---------------------------------------|--|---------------------------|----------------------|-------------------|--------------------|
|   |                                       |  | VINYL ESTER<br>R.T.       | VINYL ESTER<br>160°F | POLYESTER<br>R.T. | POLYESTER<br>150°F |
| 220   | R                                     | R                                      | R                         | R                    | R                 | 220                |
| -   | NR                                    | NR                                     | NR                        | NR                   | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| NR  | NR                                    | NR                                     | NR                        | NR                   | R                 | NR                 |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | C                                     | C                                      | R                         | R                    | -                 | -                  |
| -   | NR                                    | NR                                     | NR                        | NR                   | -                 | -                  |
| NR  | C                                     | C                                      | R                         | R                    | R                 | NR                 |
| -   | NR                                    | NR                                     | NR                        | NR                   | -                 | -                  |
| -   | NR                                    | NR                                     | NR                        | NR                   | -                 | -                  |
| -   | R                                     | 120                                    | R                         | 120                  | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | R                                     | 100                                    | R                         | 100                  | -                 | -                  |
| -   | R                                     | 100                                    | R                         | 100                  | -                 | -                  |
| NR  | R                                     | 100                                    | R                         | 140                  | R                 | NR                 |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | NR                                    | NR                                     | NR                        | NR                   | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| NR  | NR                                    | NR                                     | NR                        | NR                   | R                 | NR                 |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| 180   | R                                     | R                                      | R                         | R                    | R                 | 180                |
| -   | R                                     | 120                                    | R                         | 120                  | -                 | -                  |
| -   | R                                     | R                                      | R                         | R                    | -                 | -                  |
| 200   | R                                     | R                                      | R                         | R                    | R                 | 200                |



**STRONGWELL**

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**BRISTOL DIVISION**

400 Commonwealth Ave., P. O. Box 580, Bristol, VA 24203-0580  
(540) 645-8000 FAX (540) 645-8132

**CHATFIELD DIVISION**

1610 Highway 52 South, Chatfield, MN 55923-9799  
(507) 867-3479, FAX (507) 867-4031

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