

## RESISTANCE TO CHEMICAL AGENTS

|          |                          |
|----------|--------------------------|
| <b>+</b> | <b>RESISTANT</b>         |
| <b>0</b> | <b>NOT RESISTANT</b>     |
| <b>x</b> | <b>LIMITED RESISTANT</b> |
| <b>-</b> | <b>NO INFORMATION</b>    |

| Chemical agents            | CONCENTRATION IN % | RUBBER   | POLYAMIDE | POLYURETHANE |
|----------------------------|--------------------|----------|-----------|--------------|
| Acetaldehyde               | 40                 | <b>x</b> | <b>x</b>  | <b>0</b>     |
| Acetylene                  |                    | <b>+</b> | <b>+</b>  | <b>+</b>     |
| Acetone                    |                    | <b>+</b> | <b>+</b>  | <b>0</b>     |
| Fatty acids                |                    | -        | <b>+</b>  | <b>+</b>     |
| Mixed acids                |                    | <b>0</b> | <b>0</b>  | <b>0</b>     |
| Acetic acid                | 30                 | <b>0</b> | <b>+</b>  | <b>0</b>     |
| Acetic acid glacial        |                    | <b>x</b> | -         | <b>0</b>     |
| Acrylic acid > 30°C        |                    | -        | <b>0</b>  | <b>0</b>     |
| Boric acid solution        | 10                 | <b>+</b> | <b>x</b>  | <b>+</b>     |
| Hydrochloric acid solution | 30                 | <b>x</b> | <b>0</b>  | <b>0</b>     |
| Chromic acid solution      | 10                 | <b>0</b> | <b>x</b>  | <b>x</b>     |
| Formic acid                | 10                 | <b>x</b> | <b>0</b>  | <b>0</b>     |
| Phosphoric acid solution   | 10                 | <b>x</b> | <b>0</b>  | -            |
| Malic acid                 |                    | -        | <b>+</b>  | <b>x</b>     |
| Oleic acid                 |                    | <b>0</b> | <b>+</b>  | <b>+</b>     |
| Oxalic acid solution       | 10                 | -        | <b>x</b>  | -            |
| Palmitic acid              |                    | <b>0</b> | <b>+</b>  | <b>0</b>     |
| Stearic acid               |                    | <b>0</b> | <b>+</b>  | <b>0</b>     |
| Sulphuric acid             |                    | <b>x</b> | <b>x</b>  | <b>0</b>     |
| Tartaric acid solution     | 10                 | <b>+</b> | <b>+</b>  | -            |
| Tannic acid                | 10                 | <b>+</b> | -         | -            |
| Uric acid solution         | 10                 | <b>+</b> | <b>+</b>  | -            |
| Water (seawater)           |                    | <b>+</b> | <b>+</b>  | <b>x</b>     |
| Water up to 80°C           |                    | <b>x</b> | <b>+</b>  | <b>0</b>     |
| Cold water                 |                    | <b>+</b> | <b>+</b>  | <b>+</b>     |
| Nitromuriatic acid         |                    | <b>0</b> | <b>0</b>  | <b>0</b>     |
| Waste water                |                    | -        | <b>+</b>  | <b>x</b>     |
| Alcylbenzoles              |                    | -        | <b>+</b>  | -            |
| Attilic alcohol            |                    | <b>+</b> | <b>x</b>  | <b>0</b>     |
| Ethyl alcohol              |                    | <b>+</b> | <b>x</b>  | <b>0</b>     |
| Methyl alcohol             |                    | <b>x</b> | <b>x</b>  | <b>+</b>     |
| Propyl alcohol             |                    | -        | -         | <b>x</b>     |
| Aluminium acetate          |                    | -        | <b>+</b>  | -            |
| Amyl acetate               |                    | <b>+</b> | <b>+</b>  | <b>0</b>     |
| Amyl alcohol               |                    | <b>+</b> | <b>+</b>  | <b>x</b>     |
| Aliphatic amin             |                    | -        | <b>+</b>  | -            |
| Ammonium bicarbonate       |                    | -        | <b>+</b>  | -            |
| Ammonium hydrate           | 20                 | <b>+</b> | <b>+</b>  | <b>0</b>     |
| Ammonium hydroxide         |                    | -        | -         | <b>0</b>     |
| Carbon dioxide             |                    | -        | -         | <b>+</b>     |
| Aniline                    |                    | <b>0</b> | <b>+</b>  | <b>0</b>     |
| Antraquinone, 85°C         |                    | -        | <b>+</b>  | -            |
| Silver nitrate             |                    | <b>x</b> | -         | <b>+</b>     |
| Gasoline, petroleum ether  |                    | <b>0</b> | <b>+</b>  | <b>+</b>     |
| Mercury bichloride         |                    | -        | <b>0</b>  | <b>+</b>     |
| Beer                       |                    | <b>+</b> | <b>+</b>  | <b>+</b>     |
| Bitumen                    |                    | <b>0</b> | <b>+</b>  | <b>+</b>     |
| Borax                      |                    | <b>+</b> | -         | <b>+</b>     |
| Bromine                    |                    | <b>0</b> | <b>0</b>  | <b>0</b>     |
| Butane                     |                    | <b>0</b> | <b>+</b>  | <b>+</b>     |
| Ammonium carbonate         |                    | <b>+</b> | -         | <b>0</b>     |
| Sodium carbonate solution  | 10                 | <b>+</b> | <b>+</b>  | -            |
| Carbon tetrachloride       |                    | <b>0</b> | <b>+</b>  | <b>0</b>     |

| Chemical agents          | CONCENTRATION IN % | RUBBER   | POLYAMIDE | POLYURETHANE |
|--------------------------|--------------------|----------|-----------|--------------|
| Casein                   |                    | -        | <b>+</b>  | -            |
| Wax, 80°C                |                    | -        | <b>+</b>  | -            |
| Cyclohexanol             |                    | <b>x</b> | <b>+</b>  | <b>x</b>     |
| Clophene                 |                    | <b>0</b> | <b>+</b>  | <b>0</b>     |
| Chlorine solution        |                    | <b>0</b> | <b>0</b>  | <b>0</b>     |
| Methylene chloride       |                    | <b>0</b> | <b>0</b>  | <b>0</b>     |
| Vinyl chloride, 80°C     |                    | -        | <b>+</b>  | -            |
| Glue                     |                    | -        | -         | <b>+</b>     |
| Creosol                  |                    | -        | <b>0</b>  | <b>+</b>     |
| Decalci er solution      | 10                 | -        | <b>+</b>  | -            |
| Dichloroethylene         |                    | <b>0</b> | -         | <b>0</b>     |
| Diphenyl 80°C            |                    | -        | <b>+</b>  | <b>0</b>     |
| Dimethylaniline          |                    | -        | -         | <b>0</b>     |
| Dichlorobenzene          |                    | <b>0</b> | <b>+</b>  | <b>0</b>     |
| Xylene                   |                    | <b>0</b> | <b>+</b>  | <b>0</b>     |
| Dimethylether            |                    | <b>x</b> | <b>+</b>  | <b>+</b>     |
| Dimethylformamide        |                    | <b>x</b> | <b>+</b>  | <b>0</b>     |
| Hexane                   |                    | <b>0</b> | <b>+</b>  | <b>+</b>     |
| Lemon essence            |                    | -        | <b>+</b>  | -            |
| Ethanolamine             |                    | -        | -         | <b>0</b>     |
| Ether                    |                    | -        | <b>+</b>  | <b>+</b>     |
| Ethyl acetate            |                    | <b>x</b> | <b>+</b>  | <b>0</b>     |
| Ethylene                 |                    | -        | -         | <b>+</b>     |
| Phenylbenzol             |                    | <b>0</b> | -         | <b>0</b>     |
| Phenylether              |                    | <b>0</b> | -         | <b>+</b>     |
| Iron chloride acid       | 10                 | <b>x</b> | <b>0</b>  | <b>x</b>     |
| Iron sulphate            |                    | -        | -         | <b>+</b>     |
| Fluoride                 |                    | <b>0</b> | <b>0</b>  | <b>0</b>     |
| Uranium uoride           |                    | -        | <b>0</b>  | -            |
| Formaldehyde             | 30                 | <b>+</b> | <b>+</b>  | <b>x</b>     |
| Pure formaldehyde        |                    | <b>+</b> | <b>+</b>  | <b>x</b>     |
| Furfuraldehyde           |                    | -        | <b>+</b>  | <b>0</b>     |
| Combust gas              |                    | -        | -         | <b>0</b>     |
| Noble gas                |                    | -        | <b>+</b>  | -            |
| Glycerine                |                    | <b>+</b> | <b>+</b>  | <b>+</b>     |
| Glycol                   |                    | <b>+</b> | <b>x</b>  | <b>x</b>     |
| Diethylenic glycol       |                    | <b>+</b> | <b>+</b>  | <b>+</b>     |
| Glucose                  |                    | <b>+</b> | -         | <b>+</b>     |
| China ink                |                    | <b>+</b> | <b>+</b>  | <b>+</b>     |
| Isopropylchloride        |                    | <b>0</b> | -         | <b>0</b>     |
| Isopropylether           |                    | <b>+</b> | -         | <b>+</b>     |
| Milk                     |                    | <b>+</b> | <b>+</b>  | <b>+</b>     |
| Hydraulic liquids        |                    | <b>0</b> | <b>+</b>  | <b>0</b>     |
| Mortar, cement, lime     |                    | <b>+</b> | <b>+</b>  | -            |
| Mercury                  |                    | <b>+</b> | <b>+</b>  | <b>+</b>     |
| Methylethylketone        |                    | <b>0</b> | <b>+</b>  | <b>0</b>     |
| Methylpyrrolidone        |                    | -        | -         | <b>0</b>     |
| Mixtures of amino acids  |                    | -        | <b>+</b>  | -            |
| Monobromobenzol          |                    | <b>0</b> | -         | <b>0</b>     |
| Carbon monoxide          |                    | -        | <b>+</b>  | <b>0</b>     |
| Naphthalene              |                    | <b>0</b> | <b>+</b>  | <b>0</b>     |
| Nickel chloride solution | 10                 | <b>+</b> | <b>x</b>  | <b>+</b>     |
| Nickel sulphate solution | 10                 | <b>x</b> | <b>x</b>  | <b>+</b>     |

| Chemical agents           | CONCENTRATION IN % | RUBBER   | POLYAMIDE | POLYURETHANE |
|---------------------------|--------------------|----------|-----------|--------------|
| Ammonium nitrate          |                    | <b>x</b> | -         | <b>+</b>     |
| Coconut oil               |                    | <b>0</b> | <b>+</b>  | <b>+</b>     |
| Castor oil                |                    | -        | -         | <b>+</b>     |
| Cottonseed oil            |                    | -        | -         | <b>+</b>     |
| Turpentine oil            |                    | <b>0</b> | <b>+</b>  | <b>x</b>     |
| Essential citrus oils     | 10                 | <b>+</b> | <b>+</b>  | -            |
| Essential pine oils       |                    | <b>0</b> | -         | <b>+</b>     |
| Mineral oils              |                    | <b>0</b> | <b>+</b>  | <b>+</b>     |
| Vegetable oils            |                    | <b>0</b> | <b>+</b>  | <b>+</b>     |
| Ozone                     |                    | <b>0</b> | <b>x</b>  | <b>+</b>     |
| Para n Petroleum          |                    | <b>0</b> | <b>+</b>  | <b>+</b>     |
| Lead acetate solution     |                    | <b>0</b> | <b>+</b>  | <b>+</b>     |
| Lead nitrate              | 10                 | <b>x</b> | <b>+</b>  | <b>+</b>     |
| Potassium cyanide         |                    | <b>+</b> | -         | <b>+</b>     |
| Potassium chloride        |                    | -        | -         | <b>x</b>     |
| Potassium hydroxide       | 10                 | <b>x</b> | <b>+</b>  | <b>+</b>     |
| Potassium sulphate        |                    | <b>+</b> | <b>+</b>  | <b>0</b>     |
| Propane                   |                    | <b>+</b> | -         | <b>+</b>     |
| Copper chloride           |                    | <b>0</b> | <b>+</b>  | <b>+</b>     |
| Copper sulphate           |                    | <b>+</b> | -         | <b>+</b>     |
| Ammonium salt rhodamines  |                    | <b>x</b> | <b>x</b>  | -            |
| Zinc salt rhodamines      |                    | -        | <b>+</b>  | -            |
| Road salt solution        | 30                 | -        | <b>0</b>  | -            |
| Ammonium salts            |                    | -        | <b>+</b>  | -            |
| Barium salts              |                    | -        | <b>+</b>  | -            |
| Cobalt salts solution     |                    | <b>+</b> | <b>x</b>  | <b>+</b>     |
| Manganese salts           | 20                 | -        | <b>x</b>  | -            |
| Magnesium salts solution  | 10                 | -        | <b>x</b>  | -            |
| Nickel salts solution     | 10                 | -        | <b>+</b>  | <b>+</b>     |
| Potassium salts           | 10                 | -        | <b>x</b>  | <b>+</b>     |
| Copper salts solution     |                    | -        | -         | <b>x</b>     |
| Mustard                   | 10                 | -        | <b>0</b>  | <b>+</b>     |
| Sodium carbonate solution |                    | -        | -         | <b>+</b>     |
| Sodium cyanide solution   | 10                 | -        | <b>+</b>  | <b>0</b>     |
| Sodium chloride solution  | 10                 | -        | <b>+</b>  | <b>0</b>     |
| Sodium phosphate solution | 10                 | <b>x</b> | <b>0</b>  | <b>+</b>     |
| Sodium hydroxide          | 10                 | <b>+</b> | <b>+</b>  | <b>+</b>     |
| Sodium hydroxide solution | 50                 | <b>+</b> | <b>x</b>  | <b>0</b>     |
| Sodium nitrate solution   |                    | -        | -         | <b>0</b>     |
| Sodium silicate solution  | 10                 | <b>+</b> | <b>+</b>  | <b>+</b>     |
| Sodium sulphate solution  | 10                 | <b>+</b> | <b>+</b>  | <b>x</b>     |
| Sodium sulphide solution  | 10                 | <b>+</b> | <b>+</b>  | <b>+</b>     |
| Sodium trisulphate        | 10                 | <b>x</b> | <b>+</b>  | <b>x</b>     |
| Ammonium sulphate         | 10                 | <b>+</b> | <b>+</b>  | <b>x</b>     |
| Alkaline solutions, 80°C  |                    | <b>x</b> | -         | <b>+</b>     |
| Tincture of iodine        |                    | <b>+</b> | <b>+</b>  | -            |
| Toluene Trichloroethylene |                    | <b>+</b> | <b>0</b>  | <b>0</b>     |
| Urine                     |                    | <b>0</b> | <b>+</b>  | <b>0</b>     |
| Vaseline                  |                    | <b>0</b> | <b>x</b>  | <b>0</b>     |
| Zinc chloride solution    |                    | <b>+</b> | <b>+</b>  | -            |
| Vaselina                  |                    | -        | <b>+</b>  | -            |
| Zinc cloruro, soluzione   | 10                 | <b>+</b> | <b>x</b>  | <b>0</b>     |