Chemical Resistance Chart

Introduction

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When dealing with aggressive fluids the user is continuously faced with the problem of finding compatible materials.

In order to simplify the selection of suitable materials when using HITEGLA products for aggressive fluids, the following tables provide useful information on the optimal choice of housing and gasket materials for a multitude of media.

Since corrosion performance is influenced by several factors, the information contained in this brochure should be treated only as a guide and is not necessarily valid for all op- erating conditions. Increased temperatures, higher concentrations, and the inadvertent ingress of water in originally pure chemicals can all lead to accelerated corrosion.

Dependent on the purity of the fluid as well as the compounding and nature of vulca- nisation of the gasket materials, deviations can result which affect the suitability and durability of the plastics and elastomers.

The information quoted in this guide does not consider the effect of mechanical load- ing, which may also have a bearing on the material performance in the fluid. In cases of doubt when considering our products, we strongly recommend the prior testing of samples with various material combinations, in order to establish and check their suit- ability under the actual operating conditions of the application.

Where liquid food products are involved, the plastics and elastomers employed must normally conform with the local food and hygiene regulations. It is emphasized that these resistance tables are intended only as a guide and that no guarantees can be given in respect of the information contained in this publication.

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2 - Chemical Resistance Chart

# Structure and content of the chemical resistance charts

The following chemical resistance tables are divided into three categories. These are basic chemicals (chapter 2.2), liquid commercial products (chapter 2.3) and liquid food ingredients (chapter 2.4).

The resistance of these fluids is rated in detail for the elastomeric materials, plastics and metallic mate- rials commonly used in HITEGLA products. Rarely used materials such as CSM as well as aluminum are not described in the tables. Epoxy resin, which is commonly used in the construction of our products, but which is not mentioned, is resistant to most common chemicals.

Information regarding the chemical resistance of the unlisted materials is available on request, includ- ing chrome and nickel-plated parts.

Please see the overview in chapter 2.1 for additional information regarding general chemical resis- tance of seal and body materials. For the most commonly used chemical substances the chemical formula is added in the charts. The suffix "pure" means the technical pureness of the fluid, which in most cases exceeds 95% purity. As a rule, organic fluidic or gaseous media have this supplement. "Acetic acid - pure" means for example a 98% acetic acid. The suffix "aqueous" is mostly used for water miscible substances (such as Ethanol) but also for aqueous solutions of inorganic salts.

Due to the great number of possible concentrations, an average concentration is always assumed. Saturated aqueous solutions are described only if explicitly noted and the reference temperature for all statements is room temperature. At higher temperatures a reduced chemical resistance must be con- sidered.

# Interpretation of Symbols

+ material is not affected or is slightly affected by the chemical: suitable

O various attack level depending on prevailing conditions: limited suitability

– material exhibits severe attack: unsuitable

If materials are rated as "limited suitability", the time of impact has to be considered. At a long period of impact these materials can be heavily attacked or even destroyed. There- fore these parts are rated as wear parts and are not included in the standard warranty conditions.

In many cases it is not possible to make a clear statement due to different service condi- tions. In these cases the rating should also be "limited suitability".

# References

All the information quoted in these resistance tables is based on industrial experience. The data of our material and compound manufacturers and HITEGLA's own stringent labo- ratory tests.

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|  | 3 - Chemical Resistance Chart  Chemical resistance properties gasket and housing materials  Overview | | | | | |
|  | Material | Designation | General information on chemical resistance | Permissible temperatures | | |
|  |  |  | Neutral fluids  long-term°C(°F) | Neutral fluids  short-term°C(°F) | Aggressive fluids  long-term°C(°F) |
| Gasket and diaphragm materials | | | | | |
| Ethylene propylene | EPDM | Good resistance to ozone and | -30 (-22) to |  | Dependant on |
| diene rubber |  | weathering. Particularly suitable | +130 (+266) | aggressiveness |
|  |  | for aggressive chemicals.  Unsatisfactory for oils and fats. |  | of the fluid and  on mechanical |
|  |  |  |  | load. |
| Fluorine rubber | FKM | Chemical properties are superior to all | 0 (+32) to | 0 (+32) to |  |
|  |  | other elastomers. | +150 (+302) | +200 (+392) |
| Nitrile rubber | NBR | Fairly resistant to oil and petrol. | -10 (+14) to | -10 (+14) to |  |
|  |  | Unsatisfactory with oxidising fluids. | +90 (+194) | +120 (+248) |
| Chloroprene rubber | CR | The chemical properties are very similar | -10 (+14) to | -10 (+14) to |  |
|  |  | to those of PVC and are between those | +100 (+212) | +110 (+230) |
|  |  | of NBR and EPDM. |  |  |
| Perfluorinated | FFKM | Similar to PTFE | +5 (+41) to | +5 (+41) to |  |
| elastomers |  | (dependent on blend) | +230 (+446) | +230 (446) |
| Polytetrafluorethylene | PTFE | See plastic housing materials |  |  |  |
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| Overview | | | | | |  |
| Material | Designation | General information on chemical resistance | Permissible temperatures | | |  |
| Neutral fluids  long-term°C(°F) | Neutral fluids  short-term°C(°F) | Aggressive fluids  long-term°C(°F) |
| Housing materials - Metal | | | | | |
| Stainless steel | 1.4401 | Also applies for 1.4404, 1.4408, 1.4409 | -20 (-4) to  +400 (+752) |  | -20 (-4) to  +150 (+302) |
| 1.4571 | Also applies for 1.4581 | -20 (-4) to  +400 (+752) |  | -20 (-4) to  +150 (+302) |
| 1.4305 | Also applies for 1.4301, 1.4303 | -20 (-4) to  +400 (+752) |  | -20 (-4) to  +150 (+302) |
| 1.4105 | Also applies for 1.4113 | -20 (-4) to  +400 (+752) |  | -20 (-4) to  +150 (+302) |
| Grey cast iron | GG | For neutral fluids | -20 (-4) to  +180 (+356) |  |  |
| Cast steel | GS | For neutral fluids | -20 (-4) to  +400 (+752) |  |  |
| Brass | MS | See individual resistance | -20 (-4) to  +250 (+482) |  |  |
| Red bronze | RG | See individual resistance | -20 (-4) to  +250 (+482) |  |  |
| Housing materials - Plastic | | | | | |
| Polyvinyl chlorid | PVC | Resistant to most acids, bases and salt solutions. | 0 (+32) to  +60 (+140) | 0 (+32) to  +60 (+140) | 0 (+32) to  +40 (+104) |
| Polypropylene | PP | Resistant to organic solvents as well as aqueous solutions of acids, bases and salts.  Unsuitable for concentrated, oxidising acids | 0 (+32) to  +100 (+212) |  | 0 (+32) to  +60 (+140) |
| Polyamide | PA | Resistant to fats, oils, waxes, fuels, weak bases, aliphatic and aromatic hydrocarbons. | 0 (+32) to  +100 (+212) |  | 0 (+32) to  +60 (+140) |
| Ethylene tetrafluoro- ethylene copolymer | ETFE | Good resistance to many aggressive media (acids, aromatic hydrocarbons), not resistant against fuming nitric acid and sulphuric acid | -20 (-4) to  +200 (+392) | -20 (-4) to  +260 (+500) | -20 (-4) to  +150(+302) |
| Polytetrafluor-  ethylene | PTFE | Resistant to nearly all chemicals. Unsuitable for liquid sodium and fluorine compounds. | -20 (-4) to  +200 (+392) | -20 (-4) to  +260 (+500) | -20 (-4) to  +150(+302) |
| Polyvinylidene-  fluoride | PVDF | Unsuitable for hot solvents as well as for ketones, esters, and strong bases. | -20 (-4) to  +100 (+212) |  |  |
| Polyphenylene  sulfide | PPS | Resistant to dilute mineral acids, bases, aliphatic and aromatic hydrocarbons, oils, fats, water, and to hydrolysis. | -40 (-40) to  +200 (+392) | -40 (-40) to  +260 (+500) |  |
| Polyetherether- ketone | PEEK | Resistant to most chemicals. Unsuit- able for concentrated sulfuric and nitric acid and certain chlorohydrocarbons. | -20 (-4) to  +150 (+302) | -20 (-4) to  +170 (+338) |  |

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|  | 4 - Chemical Resistance Chart  Resistance in basic chemicals | | | | | | | | | | | | | | | | | | | |
|  | Name | Formula | NBR | EPDM | FKM | FFKM | CR | PTFE | ETFE | PVC | PP | PA | PVDF | PPS | PEEK | MS | RG | GG, GS | 1.4401/1.4571 | 1.4305/1.4105 |
| Chemicals | | | | | | | | | | | | | | | | | | | |
| A | | | | | | | | | | | | | | | | | | | |
| Acetaldehyde – aqueous | CH3CHO | - | + | O | O | O | + | + | O | + | O | O | O | + | + | + | O | + | + |
| Acetaldehyde – pure | CH3CHO | - | + | - | O | - | + | + | - | O | O | O | O | + | + | + | O | + | + |
| Acetic acid – pure | CH3COOH | - | O | - | O | - | + | + | O | - | O | + | + | + | - | - | - | O | O |
| Acetic anhydride – pure | CH3COOCOCH3 | - | O | - | O | - | + | + | - | - | - | - | + |  | - | O | O | O | O |
| Acetoacetic ester (acid-free) – pure | CH3COCH2COOC2H5 | - | - | - | + | - | + | O | - | - | + | - | + |  | O | O | O | + | + |
| Acetone – pure | CH3COCH3 | - | + | - | + | - | + | + | - | O | + | - | + | + | + | + | + | + | + |
| Acetophenone – pure | C6H5COCH3 | - |  | - | + | - | + | O | - |  | + | O | O |  | + | + | + | + | + |
| Acetylacetone – pure | CH3COCH2COCH3 | - | - | - | + | - | + |  | - | - | + | - |  |  | - | - | O | + | + |
| Acetylchloride – pure | CH3COCl | - | - | - | + | - | + | + |  |  | - | - | + |  | O | O | O | O | O |
| Acetylene – technical | HCCH | -1 | + 1 | -1 | + 1 | -1 | + | + | O | O | + | + | + | + | +2 | - | + | + | + |
| Acrylonitrile – pure | CH2CHCN | - | - | - | + | - | + | + | - | + | O | O | + | + | + | + | + | + | + |
| Adipic acid – aqueous | HOOC(CH2)4COOH | + | + | + | + | + | + | + | + | + | + | + | + |  |  |  | + | + | + |
| Albumin – pure |  | + | + | + |  | + | + |  | + | + | + |  |  |  | O | O | O | + | + |
| Allyl alcohol – pure | CH2CHCH2OH | + | + | O | + | O | + | + | - | + | + | + | + | + | + | + | + | + | + |
| Alum (potassium aluminium sulphate) – aqueous | KAl(SO4)2 x 12 H2O | + | + | + | + | + | + |  | + | + | + | + | + | + | - | - | - | + | O |
| Aluminium acetate – aqueous | Al(OOCCH3)3 | O | + | + | + | + | + |  | O | + | + | + | + |  | O | O | - | + | + |
| Aluminium chloride – aqueous | AlCl3 | + | + | + | + | + | + | + | + | + | O | + | + | + | O | O | O | O | O |
| Aluminium fluoride – aqueous | AlF3 | + | + | + | + | + | + | + | + | + | + | + | + |  | + | + | O | - | - |

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| Resistance in basic chemicals | | | | | | | | | | | | | | | | | | | |  |
| Name | Formula | NBR | EPDM | FKM | FFKM | CR | PTFE | ETFE | PVC | PP | PA | PVDF | PPS | PEEK | MS | RG | GG, GS | 1.4401/1.4571 | 1.4305/1.4105 |  |
| Aluminium sulphate – aqueous | Al(SO4)3 | + | + | + | + | + | + | + | + | + | O | + | + | + | - | - | - | O | O |
| Aminoacetic acid (glycine) – aqueous | NH2CH2COOH | O | + | + |  | + | + | + | + | + | O | + | + |  | O | O | O | + | + |
| Ammonia (gaseous) – pure | NH3 | - | + | O | O | + | + | + | + | + | O | + | O | + | - | - | + | + | + |
| Ammonia (liquid) – pure | NH3 | - | O3 | O | O | + | + | + | O | O | + | - | O | + | O | O | + | + | + |
| Ammonia water (ammonia solution, ammonium hydroxide) | NH4OH | - | + | O | O | + | + | + | + | + | O | O | O | + | - | - | + | + | + |
| Ammonium acetate – aqueous | CH3COONH4 | + | + | + | + | + | + | + | + | + |  | + | + |  | O | O | O | + | + |
| Ammonium carbonate – aqueous | (NH4)2CO3 | + | + | + | + | + | + | + | + | + | + | + | + |  | - | - | O | + | + |
| Ammonium chloride – aqueous | NH4Cl | + | + | + | + | + | + | + | + | + | + | + | + | + | O | O | O | O | O |
| Ammonium citrate – aqueous |  | + | + | + | + | + | + |  | + | + | O |  | + |  | O | O | O | + | + |
| Ammonium fluoride – aqueous | NH4F | + | + | + | O | O | + | + | + | + |  | + | + |  | O | O | O | O | O |
| Ammonium fluosilicate – aqueous |  | + | + | + | + | + | + |  | + | + | O |  | + |  | O | O | O | + | + |
| Ammonium formate – aqueous | HNCOONH4 | + | + | + | + | + | + |  | + | + | + |  | + |  | O | O | O | + | + |
| Ammonium hydroxide (ammonia solution, ammonia water) – aqueous | NH4OH | - | + | O | O | + | + | + | + | + | O | O | O | + | - | - | + | + | + |
| Ammonium nitrate – aqueous | NH4NO3 | + | + | + | + | + | + | + | + | + | + | + | + | + | - | - | O | + | + |
| Ammonium oxalate – aqueous | NH4OOCCOONH4 | + | + | + | + | + | + | + | + | + | O |  |  |  | O | O | O | + | + |
| Ammonium persulphate – aqueous | (NH4)2S2O8 | - | + | + | + | O | + | + | O | + | - |  | + |  | O | O | - | O | O |
| Ammonium phosphate – aqueous | (NH4)2HPO4 | + | + | + | + | + | + | + | + | + | + | + | + |  | O | O | + | + | + |
| Ammonium sulphate – aqueous | (NH4)2SO4 | + | + | + | + | + | + | + | + | + | O | + | + | + | - | - | O | O | O |
| Ammonium sulphide – aqueous | (NH4)2S | + | + | O | + | + | + | + | + | + | + | + | + |  | - | - | O | + | + |
| Ammonium sulphite – aqueous | (NH4)2SO3 | + | + | + | + | + | + | O | + | + | + |  | + |  | - | - | O | + | O |

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|  | 5 - Chemical Resistance Chart  Resistance in basic chemicals | | | | | | | | | | | | | | | | | | | |
|  | Name | Formula | NBR | EPDM | FKM | FFKM | CR | PTFE | ETFE | PVC | PP | PA | PVDF | PPS | PEEK | MS | RG | GG, GS | 1.4401/1.4571 | 1.4305/1.4105 |
| Ammonium thiocyanate – aqueous | NH4NCS | + | + | + |  | + | + | + | + | + | + |  |  |  | - | - | O | + | + |
| Amyl acetate – pure | CH3COO(CH2)4CH3 | - | O | - | + | - | + | + | - | O | + | + | + | + | + | + | O | + | + |
| Amyl alcohol – pure | H3C(CH2)4OH | + | O | + | + | + | + | + | + | + | + | + | + |  | + | + | O | + | + |
| Aniline hydrochloride – aqueous | C6H5NH3Cl | O | + | O5 | + | O | + | O | O | O | - | + |  |  | - | - | - | - | - |
| Aniline – pure | C6H5NH2 | - | O | O | + | - | + | + | - | O | - | + | O | + | - | - | O | + | + |
| Anisole (methoxybenzene) – pure | C6H5OCH3 | O | O | - | + | - | + |  | - | - | + |  | + |  | + | + | + | + | + |
| Anone (cyclohexanone) – pure | C6H10O | - | - | - | + | - | + | + | - | - | + | O | + | + | O | O | O | + | + |
| Anthracene oil – pure |  | - | - | - | + | - | + |  | - | - | + |  |  |  | + | + | + | + | + |
| Anthraquinone sulphonic acid – aqueous | C6H4COCOC6H4SO3H | O | + | + | + | + | + | O | + | + | O |  |  |  | O | O | O | O | O |
| Antimony chloride – aqueous | SbCl3 | O | + | +5 | + | + | + |  | + | + | - | + | + | + | O | O | O | - | - |
| Aqua regia | HNO3 + HCl | - | - | - | + | - | + | O | O | - | - | - | - | - | - | - | - | - | - |
| Arabic acid – aqueous |  | + | + | + | + | + | + |  | + | + |  |  |  |  | - | - | - | + | + |
| Argon – pure | Ar | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Arsenic acid – aqueous | H3AsO4 | + | + | + | + | + | + | O | + | + | O | + |  |  | - | O | - | + | + |
| Arsenic trichloride – aqueous | AsCl3 | + | + | + | + | + | + |  | + | + | - |  |  |  | - | - | O | O | O |
| Arsenious acid – aqueous | H3AsO3 | + | + | + | + | + | + |  | + | + |  |  |  |  | O | O | - | + | + |
| Arylsilicate – aqueous |  | O | O | O | + | O | + |  |  |  |  |  |  |  | + | + | + | + | + |
| Ascorbic acid – aqueous | C6H8O6 | + | + | + | + | + | + |  | + | + |  |  | + |  | - | - | - |  |  |
| Aspartic acid – aqueous | HOOCCHNH2CH2- COOH | + | + | + | + | + | + |  | + | + | + |  | + |  | - | - | O | + | + |

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| Resistance in basic chemicals | | | | | | | | | | | | | | | | | | | |  |
| Name | Formula | NBR | EPDM | FKM | FFKM | CR | PTFE | ETFE | PVC | PP | PA | PVDF | PPS | PEEK | MS | RG | GG, GS | 1.4401/1.4571 | 1.4305/1.4105 |  |
| B | | | | | | | | | | | | | | | | | | | |
| Barium chlorate – aqueous | Ba(ClO3)2 | + | + | + | + | + | + |  | + | + | - |  | + |  | + | + | O | + | + |
| Barium chloride – aqueous | BaCl2 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | O | + | O |
| Barium hydroxide – aqueous | Ba(OH)2 | + | + | + | + | + | + | + | + | + | O | + | + |  | + | + | + | + | + |
| Barium sulphide and polysulfide  – aqueous | BaS | + | + | + | + | + | + | + | + | + | - | + | + | + | O | O | O | + | + |
| Battery acid (sulphuric acid 20%) | H2SO4 | O | + | + | + | O | + | + | + | + | - | + | + | O | - | - | - | + | O |
| Benzaldehyde – aqueous | C6H5CHO | O | + | + | + | - | + | + | - | + | O | O | O | + | O | O | - | + |  |
| Benzene – pure | C6H6 | - | - | - | + | - | + | O | - | - | + | O | O | + | O | O | O | + | + |
| Benzenesulfonic acid – aqueous | C6H5SO3H | + | + | + | + | + | + | + | + | + |  | + | + | - | O | O | O | + | + |
| Benzidine sulphonic acids – aqueous | NH2C6H4C6H3- SO3HNH2 | + | + | + | + | + | + |  | + | + | + |  |  |  | + | + | + | + | + |
| Benzine (heptane, hexane) – pure |  | + | - | + | + | + | + | + | + | O | + | + | + | + | + | + | + | + | + |
| Benzoic acid – aqueous | C6H5COOH | + | + | + | + | + | + | + | + | + | - | + |  | + | O | O | O | + | + |
| Benzyl alcohol – pure | C6H5CH2OH | - | + | O | + | O | + | + |  | + | O | + |  | + | + | + | O | + | + |
| Bergamot oil |  | - | - | - |  | - | + |  | - | - | - |  | + |  | O | O | O | + | + |
| Bisulphite (sodium bisulphite,  sodium hydrogen sulphide) – aqueous | NaHSO3 | O | + | + | + | + | + | + | + | + | O | + | + | + | O | O | - | + | O |
| Borax – aqueous | N2B4O7 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | O | + | + | + |
| Boron hydrofluoric acid (fluoroboric acid) – pure | HBF4 | + | + | + | O | + | + | + | + | + | - | + | + |  | - | - | - | - | - |
| Boric acid – aqueous | H3BO3 | + | + | + | + | + | + | + | + | + | - | + |  | O | O | O | O | O | O |
| Brine (cooling brine) |  | + | + | + | + | + | + | + | + | + | + | + | + | + | O | O | - | O | O |

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|  | 6 - Chemical Resistance Chart  Resistance in basic chemicals | | | | | | | | | | | | | | | | | | | |
|  | Name | Formula | NBR | EPDM | FKM | FFKM | CR | PTFE | ETFE | PVC | PP | PA | PVDF | PPS | PEEK | MS | RG | GG, GS | 1.4401/1.4571 | 1.4305/1.4105 |
| Bromine (liquid) – pure | Br2 | - | - | - | + | - | + | O | O | - | - | + | - | - | - | O | O | O | O |
| Butadiene – pure | CH2(CH)2CH2 | O | O | O | + | + | + | + | + | + | + | + | + |  | + | O | O | + | + |
| Butane (gaseous and liquid) – pure | C4H10 | + | - | + | + | + | + | + | O | O | + | + | + | + | O | O | O | + | + |
| Butanediol – aqueous (10%) | HO(CH2)4OH | + | + | O | O | O | + | + | O | O | + | + | + | + | + | + | + | + | + |
| Butanol (butyl alcohol) – pure | CH3(CH2)3OH | O | + | + | + | O | + | + | O | + | + | + | + | + | + | + | O | + | + |
| Butoxyl (methoxybutyl acetate) – pure | CH3OC4H4O2CCH3 | + | O | O |  | + | + |  | - | + |  |  |  |  | O | O | O | + | + |
| Butyl acetate – pure | CH3(CH2)3O2CCH3 | - | + | - | + | - | + | O | - | - | + | + | + | + | O | + | O | + | + |
| Butyl alcohol (butanol) – pure | CH3(CH2)3OH | O | + | + | + | O | + | + | O | + | + | + | + | + | + | + | O | + | + |
| Butylbenzyl phthalate – aqueous |  | - | - | - | + | - | + |  | - | O | + |  | O |  | + | + | + | + | + |
| Butylene (liquid) – pure | H3CCH2CHCH2 | + | O | + | + | + | + | + | + | + | + | + | + |  | + | + | O | + | + |
| Butyl phthalate – pure | C6H4(CO)2(O(CH2)3CH3)2 | - | - | - | + | - | + |  | - | O | + |  | + |  | + | + | O | + | + |
| Butynediol – pure | HOCH2C2CH2OH | O | O | O |  | O | + |  | O | + | + |  | + | + | + | + | + | O | + |
| Butyric acid – aqueous | H3C(CH2)2COOH | O | O | O | O | O | + | + | O | - | O | + | + | + | O | O | - | + | O |
| C | | | | | | | | | | | | | | | | | | | |
| Calcium chloride – aqueous | CaCl2 | + | + | + | + | + | + | + | O | + | O | + | + | + | - | - | O | O | O |
| Calciumhydrogensulphite – aqueous | Ca(HSO3)2 | + | + | + | + | + | + | + | + | + | - |  | + | + | - | - | - | + | O |
| Calcium hydroxide (lime water) – aqueous | Ca(OH)2 | + | + | + | + | + | + | + | + | + | O | O | + | + | - | - | - | + | + |
| Calcium hypochlorite (chlorinated lime) – aqueous | Ca(OCl)2 | - | + | O | + | O | + | + | O | + | - | + | + | + | - | - | O | O | O |
| Calcium nitrate – aqueous | Ca(NO3)2 | + | + | + | + | + | + | + | + | + | + | + | + | + | O | O | O | O | O |
| Carbitol (2-(2-ethoxyethoxy)ethanol) – pure | CH3CH2O(CH2)2- O(CH2)2OH | O | O | O | + | O | + | + | + |  | + |  | + |  | + | + | + | + | + |

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| Resistance in basic chemicals | | | | | | | | | | | | | | | | | | | |  |
| Name | Formula | NBR | EPDM | FKM | FFKM | CR | PTFE | ETFE | PVC | PP | PA | PVDF | PPS | PEEK | MS | RG | GG, GS | 1.4401/1.4571 | 1.4305/1.4105 |  |
| Carbolineum (creosote) – pure |  | O | O | O | + | O | + |  | + | - | + |  |  |  | + | + | + | + | + |
| Carbolic acid (phenol, hydroxybenzene) – aqueous | C6H5OH | O | O | O | + | O | + | + | + | + | - | + | + | O | O | O | O | + | + |
| Carbon dioxide (dry) – pure | CO2 | + | O | + | + | O | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Carbon dioxide (humid) | CO2 | + | O | O | + | O | + | + | O | O | O | + | + | + | O | O | O | + | + |
| Carbon disulphide – pure | CS2 | - | - | + | + | - | + | + | - | + | O | + | + |  | - | - | - | + | O |
| Carbonic acid – aqueous | H2CO3 | + | + | + | + | + | + | + | O | + | O | + | + | + | O | O | O | + | + |
| Carbonyl chloride (phosgene) [liquid] – pure | COCl2 |  | - | O | + | - | + |  | O | O | O |  |  |  | + | + | + | + | + |
| Carbonyl chloride (phosgene) [gaseous] – pure | COCl2 |  | - | + | + | - | + | + | + | - | O | + |  |  | + | + | + | + | + |
| Carbon monoxide – pure | CO | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Carbon tetrachloride – pure | CCl4 | - | - | + | O | - | + | + | - | - | + | + | O | + | O | O | - | + | + |
| Caustic potash (potassium hydoxide) – aqueous | KOH | - | + | - | + | O | + | + | + | + | O | O | O | + | - | - | O | + | + |
| Cellosolve (glycol ethyl ether) – pure | HO(CH2)2OCH2CH3 | - | - | - | + | - | + | + | - | - | + | + | + |  | + | + | + | + | + |
| Champhor oil – pure |  | + | - | + | O | - | + |  | + | - |  |  | O |  | O | O | O | + | + |
| Chloral hydrate (chloral) – aqueous | CCl3CH(OH)2 | - | O | O | + | - | + | + | - | - | - | - | O |  | O | O | O | O | O |
| Chloric acid – aqueous | HClO3 | - | O | - | + | - | + |  | + | - | - | + |  |  | - | - | - | - | - |
| Chlorinated lime (calcium hypochlorite) – aqueous | Ca(OCl)2 | - | + | O | + | O | + | + | O | + | - | + | + | + | - | - | O | O | O |
| Chlorine bleaching lye  (sodium hypochlorite) – aqueous | NaOCl | - | O | O | + | - | + | + | + | O | - | O | - | + | O | O | O | O | O |
| Chlorine dioxide – aqueous | ClO2 | - | - | O | + | - | + | + | + | O | - | O |  |  | - | - | O | O | O |
| Chlorine (gaseous and dry) | Cl2 | - | - | O | + | O | + | + | O | - | - | + | - | + | - | - | O | O | O |
| Chlorine (gaseous and humid) | Cl2 | - | - | O | O | - | + | + | O | - | - | O | - | - | - | - | - | - | - |

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|  | 7 - Chemical Resistance Chart  Resistance in basic chemicals | | | | | | | | | | | | | | | | | | | |
|  | Name | Formula | NBR | EPDM | FKM | FFKM | CR | PTFE | ETFE | PVC | PP | PA | PVDF | PPS | PEEK | MS | RG | GG, GS | 1.4401/1.4571 | 1.4305/1.4105 |
| Chlorine (liquid) – pure | Cl2 | - | - | O | + | - | + | + | - | - | - | + | - | - | - | - | - | + | + |
| Chlorine water (humid) | Cl2 | - | - | O | O | - | + | + | + | - | - | O | - | - | - | - | - | - | - |
| Chloroacetic acid – aqueous | ClCH2COOH | - | O | - | + | - | + | + | O | - | - | + | + | + | O | - | O | O | - |
| Chlorobenzene – pure | C6H5Cl | - | - | - | + | - | + | + | - | - | + | + | - | + | + | + | + | + | + |
| Chloroethanol (ethylene chlorohydrine) – pure | ClCH2CH2OH | - | - | O | + | - | + | + | - | + | O | + | O | O | + | + | + | + | + |
| Chlorofluorocarbons (frigenes) |  |  |  |  |  |  | + |  |  |  | + | O | O | + |  |  |  |  |  |
| Chloroform (trichloromethane) – pure | CHCl3 | - | - | O | + | - | + | O | - | - | - | + | O | + | + | + | - | + | + |
| Chloromethane (methyl chloride) – pure | CH3Cl | - | - | O | + | - | + | + | - | - | + | + | O | + | O | O | O | + | + |
| Chloronaphthalone – pure | C10H7Cl | - | - | O | + | - | + |  | - | - | + |  | O |  | + | + | + | + | + |
| Chlorophenole – pure | C6H4OHCl | - | - | - | + | - | + | + | O |  |  |  | O |  | + | + | O | + | + |
| Chlorophenoxyacetic acid – aqueous | ClC6H4OCHOOH | + | + | + |  | + | + |  | + | + |  |  |  |  |  |  | O | + | + |
| Chlorosulfonic acid – pure | ClSO3H | - | - | - | + | - | + | O | O | - | - | O | - | - | O | O | O | O | O |
| Chloroxylenol (4-Chloro-3,5-dimethyl- phenol) – pure | C6H2OH(CH3)2Cl | - | - | - | + | - | + |  | O |  |  |  |  |  | + | + | O | + | + |
| Choline chloride – aqueous | [HOCH2CH2N(CH3)3]Cl | + | + | + |  | + | + |  | O | O |  |  |  |  | - | - | O |  |  |
| Chrome alum (chromium(III) – potassium sulphate) – aqueous | KCr(SO4)2 x 12 H2O | + | + | + | + | + | + |  | O | + | O | + |  |  | O | O | - | O | O |
| Chromic acid – aqueous | H2CrO4 | - | O | + | + | O | + | O | + | O | - | + | - | O | - | - | O | O | O |
| Chromium sulphate – aqueous | Cr2(SO4)3 | + | + | + | + | + | + |  | + | + | O |  | + |  | O | O | - | O | O |
| Citral (citronella oil) – pure |  | - | - | - |  | - | + |  |  | - | + |  | + |  | + | + | O | + | + |
| Citric acid – aqueous | C6H8O7 | + | + | + | + | + | + | + | + | + | + | + | + | + | O | + | - | + | O |
| Colophonium (tall oil) (liquid) |  | O | O | O |  | O | + |  | + | + | + | + |  |  | - | - | - | + | O |

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| Resistance in basic chemicals | | | | | | | | | | | | | | | | | | | |  |
| Name | Formula | NBR | EPDM | FKM | FFKM | CR | PTFE | ETFE | PVC | PP | PA | PVDF | PPS | PEEK | MS | RG | GG, GS | 1.4401/1.4571 | 1.4305/1.4105 |  |
| Cooling brine (brine) |  | + | + | + | + | + | + | + | + | + | + | + | + | + | O | O | - | O | O |
| Copper acetate – aqueous | Cu(CH3COO)2 | O | + | + | + | + | + |  | + | + | O | + | + | + | O | - | O | + | + |
| Copper chloride – aqueous | CuCl2 | + | + | + | + | + | + | + | + | + | O | + | + | + | O | O | O | - | - |
| Copper sulphate – aqueous | CuSO4 | + | + | + | + | + | + | + | + | + | O | + | + | + | O | O | O | O | O |
| Creosote (carbolineum) – pure |  | O | O | O | + | O | + |  | + | - | + |  |  |  | + | + | + | + | + |
| Cresol – aqueous | C6H4(OH)(CH3) | - | - | O | + | - | + | + | O | O | - | O | + | + | + | + | O | + | O |
| Cyclohexane – pure | C6H12 | - | - | O | + | - | + | + | + | - | + | + | + | + | + | + | + | + | + |
| Cyclohexanol – pure | C6H11OH | - | - | + | + | + | + | + | O | + | + | + | + | + | + | + | + | + | + |
| Cyclohexanone (anone) – pure | C6H10O | - | - | - | + | - | + | + | - | - | + | O | + | + | O | O | O | + | + |
| Cymene – pure | C6H4(CH3)[CH(CH3)2] | - | - | - |  | - | + |  | - | - | + |  | O |  | + | + | + | + | + |
| D | | | | | | | | | | | | | | | | | | | |
| Decahydronaphthalene (decalin) – pure | C10H18 | - | - | + | + | - | + | + | + | O | + |  | O |  | + | + | + | + | + |
| Dextrose (glycose) – aqueous | C6H12O6 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Diacetone alcohol (anhydrous) – pure | (CH3)2COHCH2COCH3 | - | + | - | + | O | + | + |  |  | O |  | + |  | O | + | O | + | + |
| Dibutyl phthalate – pure | C6H4(COOC4H9)2 | - | O | - | + | - | + | + | O | O | + | - | + |  | + | + | + | + | + |
| Dibutyl sebacate (DBS) – pure | (C4H9COO)(CH2)8-  (OOC4H9) | - | O | - | + | - | + |  | - | + | + | - | + |  | + | + | + | + | + |
| Dichloroethane (ethylene chloride) – pure | ClCH2CH2Cl | - | - | - | + | - | + | + | - | - | + | + | O | + | - | - | - | + | - |
| Dichloroethene – pure | Cl2CHCH3 | - | - | O | + | - | + | + | - | - | + | + | O | + | + | + | O | + | + |
| Dichloromethane (methylene chloride) – pure | CH2Cl2 | - | - | O | + | - | + | + | - | - | - | - | O | O | + | + | - | + | + |
| Dicyclohexylammonium nitrate – pure | [(C6H11)2NH2]NO2 | + | + | + | + | + | + |  |  |  |  |  |  |  | O | O | O | + | + |

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|  | 8 - Chemical Resistance Chart  Resistance in basic chemicals | | | | | | | | | | | | | | | | | | | |
|  | Name | Formula | NBR | EPDM | FKM | FFKM | CR | PTFE | ETFE | PVC | PP | PA | PVDF | PPS | PEEK | MS | RG | GG, GS | 1.4401/1.4571 | 1.4305/1.4105 |
| Diethyl ether (ether) – pure | CH3CH2OCH2CH3 | - | - | - | + | O | + | O | - | - | + | + | + | + | + | + | + | + | + |
| Dimethylamine – pure | (CH3)2NH | - | O | - | + | - | + | + | - | O | - | - | O |  | O | O | O | + | + |
| Dimethylformamide (DMF) – pure | HCON(CH3)2 | - | - | - | + | - | + | O | - | + | - | - | O | + | O | O | O | + | + |
| Dimethyl sulfoxide (DMSO) – pure | (CH3)2SO |  |  |  | + |  | + |  |  |  | O | - | + | O |  |  |  |  |  |
| Dinitrogen monoxide (laughing gas, nitrous oxide) – pure | N2O | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Di-octyl-phthalate (DOP) – pure | C6H4(COOC8H17)2 | - | O | O | + | - | + | + | - | + | + | O | + |  | + | + | + | + | + |
| Dioxane – pure | C4H8O | - | O | - | + | - | + | O | - | - | + | - | + |  | + | + | + | + | + |
| Diphenyl + diphenyl oxide – pure |  | - | - | - | + | - | + | + | - | - | + |  | + |  | + | + | + | + | + |
| Dissous gas (acetylene + acetone) | C2H2+ CH3COCH3 | - | + | - |  | - | + | + | - | O | + |  | + |  | + |  | + | + | + |
| E | | | | | | | | | | | | | | | | | | | |
| Essential oils |  | - | - | - | + | - | + |  | - | - | - |  | O |  | O | O | O | + | + |
| Ethane – pure | CH3CH3 | + | - | + | + | + | + | + | - | - | + | - | + | + | + | + | + | + | + |
| Ethanedioic acid – aqueous (saturated) | HOOCCOOH | O | + | + | + | + | + | + | + | + | - | + | + | + | - | - | - | + | O |
| Ethanol (ethyl alcohol) – pure | CH3CH2OH | O | + | O | + | + | + | + | O | + | O | + | + | + | + | + | + | + | + |
| Ethanolamine – pure | NH2CH2CH2OH | O | O | - | + | O | + |  | O | + | + | O | O |  | - | - | + | + | + |
| Ether (diethyl ether) – pure | CH3CH2OCH2CH3 | - | - | - | + | - | + | O | - | - | + | + | + | + | + | + | + | + | + |
| Ethyl acetate – pure | CH3CO2CH2CH3 | - | O | - | O | - | + | O | - | - | O | O | + | + | - | + | + | + | + |
| Ethyl acrylate – pure | CH2CHCOOC2H5 | - | O | - | + | - | + |  | - |  |  | O | + |  |  |  | + | + | + |
| Ethyl alcohol (ethanol) – pure | CH3CH2OH | O | + | O | + | + | + | + | O | + | O | + | + | + | + | + | + | + | + |
| Ethyl alcohol + acetic acid | CH3CH2OH+ CH3COOH | O | + | O | + | O | + | + | O | + | - | + | + | + | O | O | O | + | + |

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| Resistance in basic chemicals | | | | | | | | | | | | | | | | | | | |  |
| Name | Formula | NBR | EPDM | FKM | FFKM | CR | PTFE | ETFE | PVC | PP | PA | PVDF | PPS | PEEK | MS | RG | GG, GS | 1.4401/1.4571 | 1.4305/1.4105 |  |
| Ethyl alcohol – fermented mash |  | + | + | + | + | + | + | + | + | + | O | + | + | + | + | + | O | + | + |
| Ethyl alcohol – methylated (spirit) |  | O | O | O | + | O | + | + | + | + | O |  | + | + | O | O | + | + | + |
| Ethylbenzene – pure | C6H5CH2CH3 | - | - | O | + | - | + | O | - | - | + | + | O |  | + | + | + | + | + |
| Ethyl chloride – pure | CH3CH2Cl | + | + | + | + | + | + | + | - | - | + | + | O |  | - | - | - | + | + |
| Ethylene – pure | CH2CH2 | + | - | + | + | - | + |  | + | + | + | + | + | + | + | + | + | + | + |
| Ethylene bromide (anhydrous) – pure | CH2CHBr | - | - | - | + | - | + | + | - | - | + | + | O | - | + | + | O | + | + |
| Ethylene chlorohydrin (chloroethanol) – pure | ClCH2CH2OH | - | - | O | + | - | + | + | - | + | O | + | O | O | + | + | + | + | + |
| Ethylene chloride (dichloroethane) – pure | ClCH2CH2Cl | - | - | - | + | - | + | + | - | - | + | + | O | + | - | - | - | + | - |
| Ethylenediamine – pure | NH2CH2CH2NH2 | O | + | O | O | + | + | + | - | + | O | + | O |  | - | - | O | + | O |
| Ethylene glycol (glycol) – pure | HOCH2CH2OH | + | + | + | + | + | + | + | + | + | O | + | + | + | O | O | O | + | + |
| Ethylene oxide – pure | CH2CH2O | - | - | - | O | - | + | + | - | - | - | + |  |  | - | - | - | + | + |
| Ethyl formate – pure | HCOOCH2CH3 | - | O | - | + | - | + |  | - | O | + | + | + |  | + | + | O | + | + |
| Exhaust fumes – containing hydrogen  fluoride |  | + | + | + | + | + | + |  | + | + | O | + | - | - | O | O | O | O | O |
| Exhaust fumes – containing carbon dioxide |  | + | + | + | + | + | + |  | + | + | + | + | + | + | + | + | O | + | O |
| Exhaust fumes – containing carbon monoxide |  | + | + | + | + | + | + |  | + | + | + | + | + | + | + | + | + | + | + |
| Exhaust fumes – containing nitrous gases |  | O | + | + | + | + | + |  | + | + | - | + |  | + | - | - | O | + | + |
| Exhaust fumes – containing hydrochloric acid |  | + | + | + | + | + | + |  | + | + | - | + | - | O | O | O | - | O | - |
| Exhaust fumes – containing sulphur dioxide (dry) |  | O | + | + | + | + | + |  | + | + | O | + | + | + | + | + | + | + | + |
| Exhaust fumes – containing sulphuric acid (humid) |  | O | + | + | + | + | + |  | + | + | - | + | O | - | - | - | - | + | O |

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|  | 9 - Chemical Resistance Chart  Resistance in basic chemicals | | | | | | | | | | | | | | | | | | | |
|  | Name | Formula | NBR | EPDM | FKM | FFKM | CR | PTFE | ETFE | PVC | PP | PA | PVDF | PPS | PEEK | MS | RG | GG, GS | 1.4401/1.4571 | 1.4305/1.4105 |
| Exhaust fumes – containing sulphur trioxide (dry) |  | O | + | + | + | + | + |  | + | + | + | + |  | + | O | O | O | + | + |
| F | | | | | | | | | | | | | | | | | | | |
| Fatty alcohols |  | + | O | + | + | + | + | + | + | O | + |  | + |  | + | + | O | + | O |
| Fatty alcohol sulphates – aqueous |  | + | O | + | + | + | + | + | + | + | O | + |  |  | O | O | O | + | + |
| Ferric chloride – aqueous (saturated) | FeCl3 | + | + | + | + | + | + | + | + | + | - | + | + | + | - | - | - | - | - |
| Fluorine (dry) – pure | F2 | - | - | O | O | - | O | O | O | - | - | - | - | - | O | O | - | + | + |
| Fluorine (humid) – pure | F2 | - | - | - | - | - | + | O | O | - | - | O | - | - | - | - | - | O | O |
| Fluoroboric acid  (boron hydrofluoric acid) | HBF4 | + | + | + | O | + | + | + | + | + | - | + | + |  | - | - | - | - | - |
| Fluosilicic acid – aqueous | H2SiF6 | O | O | O | + | O | + |  | + | + | - | + | - |  | - | - | - | O | O |
| Formaldehyde solution (formalin) – aqueous | CH2O | O | O | O | + | O | + | + | + | + | + | + | O | O | - | + | - | + | + |
| Formamide – pure | HCONH2 | + | + | O | O | + | + |  | + | O | O |  | O |  | O | O | O | + | O |
| Formic acid – pure | HCOOH | - | O | - | O | O | + | + | O | O | - | O | O | O | - | - | - | + | O |
| Formic acid – aqueous | HCOOH | - | O | O | O | O | + | + | O | O | - | O | O | + | - | - | - | + | O |
| Frigene 12 (R-12) – pure | CCl2F2 | + | - | O | O | O | + | + | O | O | + | O | O | + | + | + | + | + | + |
| Frigene 13 (R-13) – pure | CClF3 | + | - | O | O | + | + | + | - | - |  | - | + | + | + | + | O | + | + |
| Frigene 13 B 1 (R-13B1; halon 1301) – pure | CBrF3 | + | - | O | + | + | + |  | - | - | + | O |  |  | + | + | + | + | + |
| Frigene 22 (R-22) – pure | CHClF2 | - | - | - | O | - | + | + | - | - | + | - | + | + | + | + | + | + | + |
| Frigene 23 (R-23) – pure | CHF3 | + | - | O | - | + | + |  | - | - |  | O |  |  | + | + | O | + | + |
| Frigene 113 (R-113) – pure | Cl2FCCClF2 | + | - | - | - | + | + | O | - | - | + | + | O | + | + | + | + | + | + |
| Frigene 502 (R-502) – pure | C2F5Cl+CHF2Cl | - | - | - | O | O | + |  | + | O | + | O |  | + | + | + | + | + | + |

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| Resistance in basic chemicals | | | | | | | | | | | | | | | | | | | |  |
| Name | Formula | NBR | EPDM | FKM | FFKM | CR | PTFE | ETFE | PVC | PP | PA | PVDF | PPS | PEEK | MS | RG | GG, GS | 1.4401/1.4571 | 1.4305/1.4105 |  |
| Frigene substitute HFCKW 123 (R-123)  – pure | F3CCHCl2 | - | - | - | - | - | + |  |  |  |  |  |  |  | + | + | + | + | + |
| Frigene substitute HFCKW 134a  (R-134a) – pure | F3CCH2F |  |  | - | - |  | + |  |  |  |  |  | + | + | + | + | + | + | + |
| Fuming sulphuric acid (Oleum) – pure | H2SO4 | - | - | O | + | - | + | + | O | O | - | - | O | - | - | - | O | + | O |
| G | | | | | | | | | | | | | | | | | | | |
| Glycerine – aqueous | HOCH2CH(OH)- CH2OH | + | + | + | + | + | + | + | O | O | + | + | + | + | O | O | O | + | O |
| Glycerine – pure | HOCH2CH(OH)- CH2OH | O | + | + | + | O | + | + | O | O | + | + | + | + | O | O | O | + | O |
| Glycine (aminoacetic acid) – aqueous | NH2CH2COOH | O | + | + |  | + | + | + | + | + | O | + | + |  | O | O | O | + | + |
| Glycol (ethylene glycol) – pure | HOCH2CH2OH | + | + | + | + | + | + | + | + | + | O | + | + | + | O | O | O | + | + |
| Glycol ethyl ether (cellosolve) – pure | HO(CH2)2OCH2CH3 | - | - | - | + | - | + | + | - | - | + | + | + |  | + | + | + | + | + |
| Glycolic acid – aqueous | HOCH2COOH | + | + | + | + | + | + | + | + | + | - | + | + |  | O | O | O | O | O |
| Glycose (dextrose) – aqueous | C6H12O6 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Grid gas (illuminating gas, town gas) |  | + | + | + | + | + | + | + | + |  | + | + |  |  | + | + | + | + | + |
| H | | | | | | | | | | | | | | | | | | | |
| Helium – pure | He | + | + | + | + | + | + | + | + | + | + | + | + | + | O | O | O | + | + |
| Heptane (hexane, benzine) – pure |  | + | - | + | + | + | + | + | + | O | + | + | + | + | + | + | + | + | + |
| Hexamethylene tetramine (Urotropin)  – aqueous | C6H12 N4 | + | + | + | + | + | + | + | + | + | + |  | O |  | O | O | O | + | + |
| Humic acids |  | + | + | + |  | + | + | + | + | + | - |  |  |  | + | + | O | + | + |
| Hydrazine hydrate – aqueous | NH2NH2 x 2H2O | - | + | + | + | - | + | + | + | - |  | O |  | + | - | - | - | - | O |
| Hydrobromid acid – aqueous | HBr | - | + | + | + | O | + | + | + | + | - | + | - | - | - | - | O | - | - |
| Hydrochloric acid – aqueous (36%) | HCl | - | O | +5 | + | - | + | + | + | + | - | + | - | O | - | - | - | O | O |

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|  | 10 - Chemical Resistance Chart  Resistance in basic chemicals | | | | | | | | | | | | | | | | | | | |
|  | Name | Formula | NBR | EPDM | FKM | FFKM | CR | PTFE | ETFE | PVC | PP | PA | PVDF | PPS | PEEK | MS | RG | GG, GS | 1.4401/1.4571 | 1.4305/1.4105 |
| Hydrocyanic acid – aqueous | HCN | O | O | + | + | + | + | + | + | + | - | + | + |  | + | + | O | + | O |
| Hydrofluoric acid – aqueous | HF | - | - | - | - | - | + | + | O | O | - | + | - | - | - | - | - | O | - |
| Hydrogen chloride gas – pure | HCl | O | + | + | + | O | + | + | + | + | - | + | - | + | - | - | - | + | O |
| Hydrogen peroxide 0.5% | H2O2 | O | + | + | + | + | + | + | - | - | + | + | O | + | - | - | - | + | O |
| Hydrogen peroxide 30% | H2O2 | - | O | +5 | + | - | + | + | - | - | - | + | O | + | - | - | - | O | - |
| Hydrogen – pure | H2 | + | + | + | + | + | + | + | + | + | + | + | + | + | +7 | +7 | +7 | +7 | +7 |
| Hydrogen sulphide – aqueous | H2S | O | + | - | O | O | + | + | O | O | - | + | O | + | O | O | O | + | + |
| Hydroquinone – aqueous | C6H4(OH)2 | + | + | + | + | O | + |  | + | + | - | + | O |  |  |  | O | O | + |
| Hydroxybenzene (carbolic acid, phenol)  – aqueous | C6H5OH | O | O | O | + | O | + | + | + | + | - | + | + | O | O | O | O | + | + |
| Hydroxylamine sulphate – aqueous | (NH3OH)2SO4 | + | + | + | + | O | + |  | + | + | + |  |  |  | - | - | + | + | + |
| I | | | | | | | | | | | | | | | | | | | |
| Illuminating gas (town gas, grid gas) |  | + | + | + | + | + | + | + | + |  | + | + |  |  | + | + | + | + | + |
| Inert gases – pure |  | + | + | + | + | + | + | + | + | + | + | + | + | + | O | O | O | O | + |
| Iodine + potassium iodine – aqueous | I2+ KI | O | O | O | + | O | + |  | O | O | - | + | - | O | - | - | O | O | O |
| Iron sulphate – aqueous | FeSO4 | + | + | + | + | + | + | + | + | + | + | + | + | + | O | O | - | + | + |
| Isobutanol – pure | (CH3)2CHCH2OH | O | + | + | + | + | + | + | - | + | + | + | + | + | + | + | + | + | + |
| Isooctane – pure | CH3C(CH3)2CH2CH (CH3)CH3 | + | - | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Isopropanol (2-propanol) – pure | CH3CH(OH)CH3 | O | + | + | + | + | + | + | + | + | O | + | + | + | + | + | + | + | + |
| K | | | | | | | | | | | | | | | | | | | |
| Kerosene |  | + | - | + | + | + | + | + | + | O | + | + | + | + | + | + | O | + | + |

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| Resistance in basic chemicals | | | | | | | | | | | | | | | | | | | |  |
| Name | Formula | NBR | EPDM | FKM | FFKM | CR | PTFE | ETFE | PVC | PP | PA | PVDF | PPS | PEEK | MS | RG | GG, GS | 1.4401/1.4571 | 1.4305/1.4105 |  |
| L | | | | | | | | | | | | | | | | | | | |
| Lactic acid – aqueous | HOOCCH(OH)CH3 | O | O | +5 | + | + | + | + | O | + | O | + | + | + | O | O | O | O | O |
| Laughing gas (dinitrogen monoxide, nitrous oxide) – pure | N2O | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Lead acetate – aqueous | Pb(CH3COO)2 | O | + | + | + | + | + | + | + | + | + | + | + | + | O | O | - | + | + |
| Lead nitrate – aqueous | Pb(NO3)2 | + | + | + | + | + | + | + | + | + |  |  | + |  | - | - | O | + | + |
| Lead tetraethyl (tetraethyl lead) – pure | Pb(CH2CH3)4 | O | O | + | + | O | + | + | + | + | + | + |  | + | O | O | + | + | + |
| Light petroleum (petroleum spirit) |  | + | - | + | + | + | + | + | + | O | + | + | + | + | + | + | O | + | + |
| Lime water (calcium hydroxide) – aqueous | Ca(OH)2 | + | + | + | + | + | + | + | + | + | O | O | + | + | - | - | - | + | + |
| Linoleic acid – pure | C18H32O | O | - | O | + | - | + |  | + | - |  | + | + |  | O | O | O | + | O |
| Lithium chloride – aqueous | LiCl | + | + | + | + | O | + | + | + | + | O | + | + |  | O | O | O | O | O |
| M | | | | | | | | | | | | | | | | | | | |
| Magnesium chloride – aqueous | MgCl2 | + | + | + | + | + | + | + | + | + | O | + | + | + | O | O | O | O | O |
| Magnesium sulphate – aqueous | MgSO4 | + | + | + | + | + | + | + | O | O | O | + | + | + | + | + | - | + | + |
| Maleic acid – aqueous | HOOCCHCHCOOH | + | + | + | + | + | + | + | + | + | O | + | + | + | O | O | O | + | O |
| Malic acid – aqueous | HOOCCH2CHOH- COOH | + | + | + | + | + | + |  | + | + | + | + | + |  | - | - | - | + | + |
| Manganese chloride – aqueous | MnCl2 | + | + | + | + | + | + |  | + | + | + |  | + |  | O | O | O | O | O |
| Manganese sulphate – aqueous | MnSO4 | + | + | + | + | + | + |  | + | + | + | + | + |  | O | + | O | + | O |
| Marsh gas (methane, mine gas) | CH4 | + | - | + | + | - | + | + | O | O | + | O | + | + | + | + | + | + | + |
| Mercaptane |  | - | - | O | + | - | + |  | + |  | + | O |  |  | O | O | - | + | + |
| Mercury – pure | Hg | + | + | + | + | + | + | + | + | + | + | + | + | + | - | - | + | O | + |

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|  | 11- Chemical Resistance Chart  Resistance in basic chemicals | | | | | | | | | | | | | | | | | | | |
|  | Name | Formula | NBR | EPDM | FKM | FFKM | CR | PTFE | ETFE | PVC | PP | PA | PVDF | PPS | PEEK | MS | RG | GG, GS | 1.4401/1.4571 | 1.4305/1.4105 |
| Mercury chloride – aqueous | HgCl2 | + | + | + | + | + | + |  | O | + | - | + | + | + | - | - | - | O | O |
| Mercury salts – aqueous |  | + | + | + | + | + | + | + | + | + | - | + | + | + | - | - | - | + | + |
| Methane (mine gas, marsh gas) | CH4 | + | - | + | + | - | + | + | O | O | + | O | + | + | + | + | + | + | + |
| Methanol (methyl alcohol) – pure | CH3OH | - | + | - | + | + | + | + | + | O | O | O | + | + | O | O | O | + | O |
| Methoxybenzene (Anisole) – pure | C6H5OCH3 | O | O | - | + | - | + |  | - | - | + |  | + |  | + | + | + | + | + |
| Methoxybutanol – pure | CH3O(CH2)3CH2OH | + | + | + | + | O | + |  | + | + |  |  | + |  | + | + | + | + | + |
| Methoxybutyl acetate (butoxyl) – pure | CH3OC4H4O2CCH3 | + | O | O |  | + | + |  | - | + |  |  |  |  | O | O | O | + | + |
| Methyl acetate – pure | CH3COOCH3 | - | O | - | + | - | + | O | - | + | + | O | + | + | O | + | O | O | O |
| Methyl alcohol (methanol) – pure | CH3OH | - | + | - | + | + | + | + | + | O | O | O | + | + | O | O | O | + | O |
| Methylamine – aqueous | CH3NH2 | - | O | O | - | O | + | + | O | + | O | - | O | + | - | - | O | O | O |
| Methyl chloride (chloromethane) – pure | CH3Cl | - | - | + | + | - | + | + | - | - | O | - | O | + | O | O | O | + | + |
| Methylene chloride (dichloromethane) – pure | CH2Cl2 | - | - | O | + | - | + | O | - | - | - | - | O | O | + | + | - | + | + |
| Methyl ethyl ketone (2-butanon) – pure | CH3COCH2CH3 | - | O | - | + | - | + | + | - | - | O | - | O | O | + | + | O | + | + |
| Mine gas (methane, marsh gas) | CH4 | + | - | + | + | - | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Monosodium glutamate – aqueous | C5H8NNaO4 | + | + | + | + | + | + | + | + | + |  |  |  |  |  |  | O | + | + |
| Morpholine – pure | C4H9NO | - | O | O | O | O | + | + | - | + |  | + | O |  | + | + | + | + | + |
| N | | | | | | | | | | | | | | | | | | | |
| Natural gas |  | + | - | + | + | + | + | + | O | O | + | + | + | + | O | O | O | + | + |
| Nickel sulphate – aqueous | NiSO4 | + | + | + | + | + | + | + | + | + | + | + | + | + | - | O | - | O | O |
| Nitrogen oxides (nitrous fumes) | (NO, NO2, N2O3 , N2O4,  etc.) | - | O | - | O | - | + | O | O | O | - | O |  | + | - | - | - | O | - |

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| Resistance in basic chemicals | | | | | | | | | | | | | | | | | | | |  |
| Name | Formula | NBR | EPDM | FKM | FFKM | CR | PTFE | ETFE | PVC | PP | PA | PVDF | PPS | PEEK | MS | RG | GG, GS | 1.4401/1.4571 | 1.4305/1.4105 |  |
| Nitrogen – pure | N2 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Nitrous oxide (laughing gas, dinitrogen monoxide) – pure | N2O | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Nitric acid – aqueous (40%) | HNO3 | - | - | +5 | + | - | + | O | O | O | - | + | - | O | - | - | - | + | - |
| Nitrobenzene – pure | C6H5NO2 | - | - | O | + | - | + | + | - | O | - | O | O | O | + | + | O | + | + |
| Nitrobenzoic acids – aqueous | C7H5NO4 | + | + | + | + | + | + |  | + | + | + |  | + |  | + | + | O | + | + |
| Nitrous fumes (nitrogen oxides) | (NO, NO2, N2O3 , N2O4,  etc.) | - | O | - | O | - | + | O | O | O | - | O |  | + | - | - | - | O | - |
| Nitrotoluenes (o-, m-, p) – pure | C6H4(NO3)(CH3) | O | - | O | O | - | + |  | - | + | - | + | O | O | + | + | + | + | + |
| O | | | | | | | | | | | | | | | | | | | |
| Oleum (fuming sulphuric acid) – pure | H2SO4 | - | - | O | + | - | + | + | O | O | - | - | O | - | - | - | O | + | O |
| Oxygen – pure | O2 | O | O | +6 | + | O | + | + | O | - | + | - | +6 | + | + | + | - | + | + |
| Ozone (humid and dry) | O3 | -4 | O4 | O4 | O4 | -4 | + | + | + | -4 | -4 | + | -4 | O4 | O | O | O | + | + |
| P | | | | | | | | | | | | | | | | | | | |
| Paraffin oil |  | + | - | + | + | O | + | + | O | + | + | + | + | + | + | + | + | + | + |
| Peracetic acid – aqueous (6%) | CH3CO3H | - | O | - | + |  | + |  | + |  | - | O | - |  | - | - | - | + | + |
| Perchloroethylene (tetrachloroethylene) – pure | Cl2CCCl2 | - | - | O | O | - | + | + | - | - | O | + | O | + | O | O | O | + | + |
| Peroxomonosulphuric acid – aqueous | H2SO5 | - | - | - |  | - | + |  | + | - | - |  |  |  | - | - | - | - | - |
| Petroleum spirit (light petroleum) |  | + | - | + | + | + | + | + | + | O | + | + | + | + | + | + | O | + | + |
| Phenol (hydroxybenzene, carbolic acid) – aqueous | C6H5OH | O | O | O | + | O | + | + | + | + | - | + | + | O | O | O | O | + | + |
| Phosgene (carbonyl chloride) [liquid] – pure | COCl2 |  | - | O | + | - | + |  | O | O | O |  |  |  | + | + | + | + | + |

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|  | 12 - Chemical Resistance Chart  Resistance in basic chemicals | | | | | | | | | | | | | | | | | | | |
|  | Name | Formula | NBR | EPDM | FKM | FFKM | CR | PTFE | ETFE | PVC | PP | PA | PVDF | PPS | PEEK | MS | RG | GG, GS | 1.4401/1.4571 | 1.4305/1.4105 |
| Phosgene (carbonyl chloride) [gaseous] – pure | COCl2 |  | - | + | + | - | + | + | + | - | O | + |  |  | + | + | + | + | + |
| Phosphoric acid – aqueous | H3PO4 | O | O | + | + | - | + | + | + | + | - | + | + | + | - | - | - | + | - |
| Phosphorus chlorides – pure | PCl2, PCl3, PCl5 | - | - | O | + | - | + | + | - | + | - | + |  | + |  | O | O | O | O |
| Picric acid (trinitrophenol) – pure | C6H2(OH)(NO2)3 | O | - | O | + | - | + | + | - | + |  | + |  | + | + | + | + | + | + |
| Pinene (turpentine oil) – pure |  | O | - | O | + | - | + |  | O | - | + | + | + | + | O | O | + | + | + |
| Potash (potassium carbonate) – aqueous | K2CO3 | + | + | + | + | O | + | + | + | + | O | O | + | + | O | O | O | + | + |
| Potassium aluminium sulphate (alum) – aqueous | KAl(SO4)2 x 12 H2O | + | + | + | + | + | + |  | + | + | + | + | + | + | - | - | - | + | O |
| Potassium bromate – aqueous | KBrO3 | + | + | + | + | + | + | + | + | + |  | + | - |  | - | O | O | + | O |
| Potassium bromide – aqueous | KBr | + | + | + | + | + | + | + | + | + | - | + | + | + | + | + | O | O | O |
| Potassium carbonate (potash) – aqueous | K2CO3 | + | + | + | + | O | + | + | + | + | O | O | + | + | O | O | O | + | + |
| Potassium chlorate – aqueous | KClO3 | O | O | O | + | O | + | + | + | + | O | O | - | + | O | O | O | O | O |
| Potassium chloride – aqueous | KCl | + | + | + | + | + | + | + | + | + | + | + | + | + | O | O | O | O | O |
| Potassium chromate – aqueous | K2CrO4 | O | + | O | + | O | + | + | + | + | - | + | + |  | + | + | O | O | O |
| Potassium cyanide – aqueous | KCN | + | + | + | + | + | + | + | + | + | + | + |  | + | - | - | O | + | + |
| Potassium dichromate – aqueous | K2Cr2O7 | O | O | O | + | O | + |  | + | + | - | + | - | + | O | O | O | + | + |
| Potassium ferrocyanide (II) (yellow prussiate of potash) – aqueous | K4[Fe(CN)6] | + | + | + | + | + | + |  | + | + | + | + |  | + | + | + | O | O | - |
| Potassium ferrocyanide (III) (red prussiate of potash) – aqueous | K3[Fe(CN)6] | + | + | + | + | + | + |  | + | + | + | + | O | + | - | - | O | + | + |
| Potassium hydrogen fluoride – aqueous | KHF2 | + | + | + |  | + | + |  | + | + | - |  |  |  | O | O | O | + | + |

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| Resistance in basic chemicals | | | | | | | | | | | | | | | | | | | |  |
| Name | Formula | NBR | EPDM | FKM | FFKM | CR | PTFE | ETFE | PVC | PP | PA | PVDF | PPS | PEEK | MS | RG | GG, GS | 1.4401/1.4571 | 1.4305/1.4105 |  |
| Potassium hydroxide (caustic potash) – aqueous | KOH | - | + | - | + | O | + | + | + | + | O | O | O | + | - | - | O | + | + |
| Potassium hypochlorite – aqueous | KOCl | - | + | O | + | - | + | + | + | O | - | + | - | + | O | O | O | O | O |
| Potassium iodide – aqueous | KI | + | + | + | + | + | + | + | O | + |  | + |  |  | O | O | O | O | O |
| Potassium nitrate – aqueous | KNO3 | + | + | + | + | O | + | + | O | + | + | + | + | + | O | O | O | O | O |
| Potassium nitrite – aqueous | KNO2 | + | + | + | + | + | + |  | + | + | + | + |  | + | + | + | + | + | + |
| Potassium permanganate – aqueous | KMnO4 | - | - | - | + | O | + | + | + | O | - | + | - | + | O | O | O | + | O |
| Potassium peroxide – aqueous | K2O2 | - | - | - | + | - | + |  | O | O | - |  | - | + | - | - | O | + | + |
| Potassium persulphate – aqueous | K2S2O8 | - | + | O | + | O | + | + | + | + | - | O | - | + | - | - | - | + | + |
| Potassium phosphate – aqueous | K3PO4 | + | + | + | + | + | + |  | + | + | O | + |  | + | O | O | O | + | + |
| Potassium sulphate – aqueous | K2SO4 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | O | + | + |
| Potassium sulphide – aqueous | K2S | + | + | + | + | + | + | + | + | + | O | O | + | + | O | - | O | + | + |
| Potassium sulphite – aqueous | K2SO3 | + | + | + | + | + | + |  | O | + | + |  |  | + | O | + | O | + | O |
| Propane (liquid and gaseous) – pure | C3H8 | + | - | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Propanol – pure | CH3CH2CH2OH | - | + | + | + | + | + | + | + | + | O | + | + | + | + | + | + | + | + |
| Propylene glycol – pure | HOCH2CH2CH2OH | + | + | + | + | + | + | + | + | + | O | + | + | + | + | O | + | + | + |
| Protein solutions |  | + | + | + |  | + | + |  | + | + | + |  |  |  | O | O | O | + | + |
| Pyridine – pure | C5H5N | - | - | - | + | - | + | + | - | O | + | O | O | + | + | + | + | + | O |
| R | | | | | | | | | | | | | | | | | | | |
| Red prussiate of potash  (Potassium ferrocyanide (III)) – aqueous | K3[Fe(CN)6] | + | + | + | + | + | + |  | + | + | + | + | O | + | - | - | O | + | + |

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|  | 13 - Chemical Resistance Chart  Resistance in basic chemicals | | | | | | | | | | | | | | | | | | | |
|  | Name | Formula | NBR | EPDM | FKM | FFKM | CR | PTFE | ETFE | PVC | PP | PA | PVDF | PPS | PEEK | MS | RG | GG, GS | 1.4401/1.4571 | 1.4305/1.4105 |
| S | | | | | | | | | | | | | | | | | | | |
| Shellsol D (turpentine substitute, white spirit) – pure |  | O | - | O | + | O | + |  | O | O | + | + | + | + | + | + | + | + | + |
| Silicone oil |  | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Silver nitrate – aqueous | AgNO3 | O | + | + | + | + | + | + | O | + | + | + | + | + | - | - | - | + | + |
| Soda lye (sodium hydroxide) – aqueous | NaOH | O | + | O | + | + | + | + | + | + | O | - | O | + | - | - | O | O | O |
| Sodium arsenate – aqueous | Na3AsO4 | + | + | + | + | + | + | + | + | + |  |  |  |  | + | + | + | + | + |
| Sodium arsenite – aqueous | Na3AsO3 | + | + | + | + | + | + | + | + | + |  |  |  |  | + | + | + | + | + |
| Sodium benzoate – aqueous | C6H5COONa | + | + | + | + | + | + | + | + | + | + | + |  |  | + | + | + | + | + |
| Sodium bicarbonate (sodium hydrogen carbonate) – aqueous | NaHCO3 | + | + | + | + | + | + | + | + | + | + | + | + | + | O | + | O | + | + |
| Sodium bisulphate (sodium hydrogen sulphate) – aqueous | NaHSO4 | + | + | + | + | + | + | + | + | + | + | + |  |  | O | O | O | O | O |
| Sodium bisulphite (bisulphite, sodium hydrogen sulphide) – aqueous | NaHSO3 | O | + | + | + | + | + | + | + | + | O | + | + | + | O | O | - | + | O |
| Sodium bromate – aqueous | NaBrO3 | + | + | + | + | + | + | + | + | + | O | + | + | + | - | O | O | + | O |
| Sodium bromide – aqueous | NaBr | + | + | + | + | + | + | + | + | + | - | + | + | + | O | O | O | O | O |
| Sodium carbonate (soda) – aqueous | Na2CO3 | + | + | + | + | O | + | + | + | + | + | O | + | + | O | O | O | + | + |
| Sodium chlorate – aqueous | NaClO3 | O | O | O | + | O | + | + | + | + | O | + | - | + | O | O | O | O | O |
| Sodium chloride (table salt) – aqueous | NaCl | + | + | + | + | + | + | + | + | + | + | + | + | + | - | O | - | O | O |
| Sodium chlorite – aqueous | NaClO2 | - | O | O | + | - | + | + | O | O | - | + |  |  | O | O | - | O | - |
| Sodium chloroacetate – aqueous | NaCH2ClCOO | + | + | + | + | + | + |  | + | + |  |  |  |  | O | + | O | + | + |
| Sodium chromate – aqueous | NaCrO4 | O | + | O | + | O | + | + | + | + | - | + | + | O | + | + | O | O | O |
| Sodium cyanide – aqueous | NaCN | + | + | + | + | + | + | + | + | + | + | + |  | + | - | - | O | + | + |

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| Resistance in basic chemicals | | | | | | | | | | | | | | | | | | | |  |
| Name | Formula | NBR | EPDM | FKM | FFKM | CR | PTFE | ETFE | PVC | PP | PA | PVDF | PPS | PEEK | MS | RG | GG, GS | 1.4401/1.4571 | 1.4305/1.4105 |  |
| Sodium disulphite  (sodium metabisulphite) – aqueous | Na2S2O5 | O | + | + |  | + | + | + | + | + | + |  |  |  | O | O | - | + | O |
| Sodium dodecylbenzenesulfonate – aqueous | C18H29NaO3S | + | + | + |  | + | + |  | + | O | + |  |  |  | O | O | O | + | + |
| Sodium fluoride – aqueous | NaF | + | + | + | + | + | + | + | + | + | + | + |  |  | + | + | O | + | O |
| Sodium hydrogen carbonate (sodium bicarbonate) – aqueous | NaHCO3 | + | + | + | + | + | + | + | + | + | + | + | + | + | O | + | O | + | + |
| Sodium hydrogen sulphate (sodium bisulphate) – aqueous | NaHSO4 | + | + | + | + | + | + | + | + | + | + | + |  |  | O | O | O | O | O |
| Sodium hydrogen sulphide  (sodium bisulphite, bisulphite) – aqueous | NaHSO3 | O | + | + | + | + | + | + | + | + | O | + | + | + | O | O | - | + | O |
| Sodium hydroxide (soda lye) – aqueous | NaOH | O | + | O | + | + | + | + | + | + | O | - | O | + | - | - | O | O | O |
| Sodium hypochlorite  (chlorine bleaching lye) – aqueous | NaOCl | - | O | O | + | - | + | + | + | O | - | O | - | + | O | O | O | O | O |
| Sodium iodide – aqueous | NaI | + | + | + | + | + | + | + | O | + |  | + | O |  | O | O | O | O | O |
| Sodium mercaptobenzothiazole – pure | C7H5NS2 | O | O | + | + | O | + |  | + | + |  |  |  |  | + | + | + | + | + |
| Sodium metabisulphite (sodium disulphite) – aqueous | Na2S2O5 | O | + | + |  | + | + | + | + | + | + |  |  |  | O | O | - | + | O |
| Sodium nitrate – aqueous | NaNO3 | + | + | + | + | + | + | + | O | O | + | + | + | + | - | - | - | + | - |
| Sodium nitrite – aqueous | NaNO2 | + | + | + | + | + | + | + | + | + | + | + |  | + | + | + | + | + | + |
| Sodium pentachlorophenolate – aqueous | C6Cl5NaO | + | + | + |  | + | + |  | + | + | + |  |  |  | + | + | O | + | + |
| Sodium perborate – aqueous | NaBO3 x nH2O | O | + | + | + | + | + | + | + | + |  | + | - |  | O | O | O | + | + |
| Sodium peroxodisulphate – aqueous | Na2S2O4 | O | + | + | + | + | + |  | + | + | - | + | - |  | - | - | - | + | O |
| Sodium phosphate – aqueous | Na3PO4 | + | + | + | + | + | + | + | + | + | + | + |  |  | O | O | O | O | O |
| Sodium propionate – aqueous | CH3CH2COONa | + | + | + |  | + | + |  | + | + | + | + |  |  | + | + | + | + | + |
| Sodium silicate (soluble glass) – aqueous |  | + | + | + | + | + | + | + | + | + | + | + | + | + | O | O | + | + | + |

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|  | 14 - Chemical Resistance Chart  Resistance in basic chemicals | | | | | | | | | | | | | | | | | | | |
|  | Name | Formula | NBR | EPDM | FKM | FFKM | CR | PTFE | ETFE | PVC | PP | PA | PVDF | PPS | PEEK | MS | RG | GG, GS | 1.4401/1.4571 | 1.4305/1.4105 |
| Sodium stannate – aqueous | Na2SnO3 | + | + | + | + | + | + |  | + | + | O |  |  |  | O | O | + | + | + |
| Sodium sulphate – aqueous | Na2SO4 | + | + | + | + | + | + | + | + | + | + | + | + | + | - | - | - | + | + |
| Sodium sulphide – aqueous | Na2S | + | + | + | + | + | + | + | + | + | + | O | + | + | O | - | O | + | + |
| Sodium sulphite – aqueous | Na2SO3 | + | + | + | + | + | + | + | O | + | + | + |  | + | O | + | O | + | O |
| Sodium tartrate – aqueous | C₄H₄O₆Na₂ | + | + | + | + | + | + | + | + | + | + |  |  |  | + | + | O | + | + |
| Sodium thiosulphate – aqueous | Na2S2O3 | + | + | + | + | + | + | + | + | + | + | + | + |  | O | - | O | O | O |
| Sodium zincate – aqueous | Na2[Zn(OH)4] | O | + | + |  | + | + |  |  |  |  |  |  |  |  |  | + | + | + |
| Spirit (ethyl alcohol) |  | O | O | O | + | O | + | + | + | + | O |  | + | + | O | O | + | + | + |
| Starch solution – aqueous |  | + | + | + | + | + | + | + | + | + | + | + | + | + | O | O | O | + | + |
| Stearic acid – pure | C18H37COOH | + | + | + | + | + | + | + | + | + | + | + | + |  | O | + | - | + | + |
| Styrene – pure | C6H5CHCH2 | - | - | O | + | - | + | + | - | O | + | + |  | + | O | O | O | + | + |
| Succinic acid – aqueous | HOOCCH2CH2COOH | + | + | + | + | + | + |  | + | + |  | + | + |  | + | + | O | + | + |
| Sulphur chloride – pure | S2Cl2, SCl2, SCl4 | - | - | + | + | - | + | + | - | - | - | + |  | + | O | O | O | + | - |
| Sulphur dioxide (liquid) – pure | SO2 | - | + | + | + | - | + | + | - | - | - | + | + | + | + | + | + | + | + |
| Sulphur dioxide (gaseous and humid) | SO2 | - | + | + | + | - | + | + | O | O | O | + | O | + | - | - | - | + | O |
| Sulphur dioxide (gaseous and dry) – pure | SO2 | - | + | + | + | - | + | + | O | O | O | + | + | + | O | O | O | + | O |
| Sulphur hexafluoride – pure | SF6 | O | + | O | O | + | + |  | + | + |  | + |  | + | + | + | + | + | + |
| Sulphuric acid – concentrated (96%) | H2SO4 | - | - | O | + | - | + | + | O | O | - | + | O | - | - | - | - | - | - |
| Sulphuric acid – aqueous (30%) | H2SO4 | O | + | + | + | O | + | + | O | + | - | + | O | O | - | - | - | - | - |
| Sulphurous acid – aqueous | H2SO3 | - | + | + | + | + | + | + | + | + | - | + | O | + | - | - | - | + | - |

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| Resistance in basic chemicals | | | | | | | | | | | | | | | | | | | |  |
| Name | Formula | NBR | EPDM | FKM | FFKM | CR | PTFE | ETFE | PVC | PP | PA | PVDF | PPS | PEEK | MS | RG | GG, GS | 1.4401/1.4571 | 1.4305/1.4105 |  |
| T | | | | | | | | | | | | | | | | | | | |
| Table salt (sodium chloride) – aqueous | NaCl | + | + | + | + | + | + | + | + | + | + | + | + | + | - | O | - | O | O |
| Tall oil (colophonium) (liquid) |  | O | O | O |  | O | + |  | + | + | + | + |  |  | - | - | - | + | O |
| Tannic acid (tannin) – aqueous |  | + | + | + | + | + | + | + | + | + | + | + | + | + | O | O | O | + | + |
| Tartaric acid – aqueous | C4H6O6 | + | + | + | + | + | + | + | + | + | O | + | + | + | - | - | - | + | + |
| Tetrachloroethylene (perchloroethylene) – pure | Cl2CCCl2 | - | - | O | O | - | + | + | - | - | O | + | O | + | O | O | O | + | + |
| Tetraethyl lead (lead tetraethyl) – pure | Pb(CH2CH3)4 | O | O | + | + | O | + | + | + | + | + | + |  | + | O | O | + | + | + |
| Tetrahydrofuran – pure | C4H8O | - | - | - | + | - | + | + | - | - | + | - | O | + |  |  |  | + | + |
| Tetrahydronaphthalene (tetralin) – pure | C10H12 | - | - | + | + | - | + | + | - | - | + |  | O |  | + | + | + | + | + |
| Thiophene – pure | C4H4S | - | - | - | + | - | + |  | - | O |  |  |  |  | O | O | O | + | + |
| Tin chlorides – aqueous | SnCl2, SnCl4 | + | + | + | + | + | + | + | + | + | O | + | + | + | - | - | O | O | - |
| Toluene – pure | C6H5CH3 | - | - | O | + | - | + | + | - | - | + | O | O | + | + | + | + | + | + |
| Town gas (grid gas, illuminating gas) |  | + | + | + | + | + | + | + | + |  | + | + |  |  | + | + | + | + | + |
| Tributyl phosphate – pure | (C4H9O)3PO | - | - | - | O | - | + | + | - | - |  | - | + |  | + | + | - | + | + |
| Trichloroacetic acid – aqueous | Cl3CCOOH | O | O | - | O | O | + | + | + | O | - | O | + |  | - | - | - | - | - |
| Trichloroethylene – pure | C2HCl3 | - | - | O | O | - | + | + | - | - | - | + | O | + | - | - | - | + | + |
| Trichloromethane (chloroform) – pure | CHCl3 | - | - | O | + | - | + | O | - | - | - | + | O | + | + | + | - | + | + |
| Tricresylphosphate – pure | C21H21O4P | - | - | - | + | - | + |  | - | O | + | - | + |  | O | O | O | + | + |
| Triethanolamine – pure | (CH2CH2OH)3N | - | - | - | + | + | + | + | - | + | O | + |  |  | O | O | O | + | + |
| Trinitrophenol (picric acid) – pure | C6H2(OH)(NO2)3 | O | - | O | + | - | + | + | - | + |  | + |  | + | + | + | + | + | + |

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|  | 15 - Chemical Resistance Chart  Resistance in basic chemicals | | | | | | | | | | | | | | | | | | | |
|  | Name | Formula | NBR | EPDM | FKM | FFKM | CR | PTFE | ETFE | PVC | PP | PA | PVDF | PPS | PEEK | MS | RG | GG, GS | 1.4401/1.4571 | 1.4305/1.4105 |
| U | | | | | | | | | | | | | | | | | | | |
| Uranium hexafluoride – pure | UF6 | + | + | + | O | + | + |  | + | + | - |  |  |  |  |  | - | + | O |
| Urea – aqueous | NH2CONH2 | + | + | + | + | + | + | + | + | + | + | + | + | + | O | O | O | O | O |
| Urotropin (hexamethylene tetramine) – aqueous | C6H12 N4 | + | + | + | + | + | + | + | + | + | + |  | O |  | O | O | O | + | + |
| V | | | | | | | | | | | | | | | | | | | |
| Vinyl acetate – pure | CH2CHOOCH2CH3 | + | + | + | + | + | + | + | - | + |  | O | + |  | O | O | O | + | + |
| Vinyl chloride – pure | CH2CHCl | - | O | + | + | - | + | + | - | O | + | + | O |  | - | - | O | O | O |
| W | | | | | | | | | | | | | | | | | | | |
| Water – distilled | H2O | + | + | + | + | + | + | + | + | + | + | + | O | + | O | + | - | + | O |
| Water (seawater) | H2O | + | + | + | + | + | + | + | + | + | + | + | + | + | O | O | O | O | O |
| Water vapour (130 °C) | H2O | O | + | +5 | + | O | + | + | - | - | - | + | O | + | O | + | + | + | + |
| White spirit (Shellsol D, turpentine  substitute) – pure |  | O | - | O | + | O | + |  | O | O | + | + | + | + | + | + | + | + | + |
| Wood tar (impregnating oils) |  | - | - | - | + | - | + |  | O | - |  |  | + |  | + | + | O | + | + |
| X | | | | | | | | | | | | | | | | | | | |
| Xenon – pure | Xe | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Xylene – pure | C6H4(CH3)2 | - | - | O | + | - | + | + | - | - | + | O | O | + | + | + | + | + | + |
| Y | | | | | | | | | | | | | | | | | | | |
| Yeast – aqueous |  | + | + | + | + | + | + | + | + | + | + | + |  | + | O | O | O | + | + |
| Yellow prussiate of potash (Potassium ferrocyanide (II)) – aqueous | K4[Fe(CN)6] | + | + | + | + | + | + |  | + | + | + | + |  | + | + | + | O | O | - |

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| Resistance in basic chemicals | | | | | | | | | | | | | | | | | | | |  |
| Name | Formula | NBR | EPDM | FKM | FFKM | CR | PTFE | ETFE | PVC | PP | PA | PVDF | PPS | PEEK | MS | RG | GG, GS | 1.4401/1.4571 | 1.4305/1.4105 |  |
| Z | | | | | | | | | | | | | | | | | | | |
| Zinc chloride – aqueous | ZnCl2 | + | + | + | + | + | + | + | + | + | - | + | + | + | - | - | - | O | - |
| Zinc sulphate – aqueous | ZnSO4 | + | + | + | + | + | + | + | + | + |  | + | + | + | - | - | - | + | - |
|  | | | | | | | | | | | | | | | | | | | |  |

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|  | 16 - Chemical Resistance Chart  Resistance in commercial products | | | | | | | | | | | | | | | | | | |
|  | Name | NBR | EPDM | FKM | FFKM | CR | PTFE | ETFE | PVC | PP | PA | PVDF | PPS | PEEK | MS | RG | GG, GS | 1.4401/1.4571 | 1.4305/1.4105 |
| Commercial products | | | | | | | | | | | | | | | | | | |
| A | | | | | | | | | | | | | | | | | | |
| Acronal dispersions (polyacrylates) | - | + | + |  | + | + |  | - | + | O |  | + |  | O | O | O | + | + |
| Acronal solutions | - | O | - |  | - | + |  | - | O | O |  | + |  | O | O | O | + | + |
| Alkane sulfonic acid chlorides (mersoles) | + | O | + |  | + | + |  | + | O |  |  |  |  | O | O | O | O | O |
| Anise oil | O |  |  |  | - | + |  | - | - | + |  | O |  | + | + | O | + | + |
| Antifrogen-N | + | + | + |  | + | + |  | + | + | + |  | O |  | O | O | O | + | + |
| ASTM fuel A | O | - | O | + | O | + |  | + | O | + |  |  |  | + | + | + | + | + |
| ASTM fuel B | O | - | O | + | - | + |  | O | O | + |  |  |  | + | + | + | + | + |
| ASTM fuel C | O | - | O | + | - | + |  | O | O | + |  | + |  | + | + | + | + | + |
| ASTM oil IRM 901 | + | - | + | + | + | + |  | + | O | + |  |  |  | + | + | + | + | + |
| ASTM oil IRM 902 | O | - | + | + | + | + |  | + | O | + |  |  |  | + | + | + | + | + |
| ASTM oil IRM 903 | O | - | O | + | + | + |  | + | O | + |  | + |  | + | + | + | + | + |
| ATE brake fluid (brake fluid) | - | + | - | + | O | + |  | O | O | + |  | + | + | O | O | + | + | + |
| B | | | | | | | | | | | | | | | | | | |
| Beeswax | + | + | + |  | + | + |  | + | + | - |  | + |  | + | + | O | + | + |
| Biodiesel (fatty acid methyl ester) | O | - | + | + | O | + | + | + | O | O | + | + | + | - | - | - | + | + |
| Bone oil | O | - | + | + | O | + |  | O | + | + |  | + |  | + | + | + | + | + |
| Brake fluid (ATE brake fluids) | - | + | - | + | O | + |  | O | O | + |  | + | + | O | O | + | + | + |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Resistance in commercial products | | | | | | | | | | | | | | | | | | |  |
| Name | NBR | EPDM | FKM | FFKM | CR | PTFE | ETFE | PVC | PP | PA | PVDF | PPS | PEEK | MS | RG | GG, GS | 1.4401/1.4571 | 1.4305/1.4105 |  |
| C | | | | | | | | | | | | | | | | | | |
| Car antifreeze | O | + | + | + | + | + |  | + | + |  | + | O | + | + | O | + |  |  |
| Cellulose lacquers | - | O | - | + | - | + |  | - | O | + |  | + |  | O | O | O | + | + |
| Chlophene (chlorodiphenyl) | + | O | + |  | - | + |  | - | + |  |  |  |  | + | + | O | + | + |
| Coconut oil | O | - | O | + | O | + | + | O | O | + | + | + | + | O | O | O | + | + |
| Cotton seed oil | O | - | + | + | O | + |  | + | - |  | + | + |  | + | + |  | + | + |
| Cutting oil (drilling oil) | O | - | O | + | O | + |  | + | O | O |  |  |  | + | + | + | + | + |
| Cyclanone (fatty alcohol sulfonate) | + | + | + |  | + | + |  | + | + | + |  |  |  |  |  | O | + | + |
| D | | | | | | | | | | | | | | | | | | |
| Desmodur T | - | - | + |  | - | + |  |  |  |  |  |  |  | + | + | + | + | + |
| Desmophen | + | + | + |  | + | + |  |  |  |  |  |  |  |  |  | + | + | + |
| Detergent (synth. laundry detergent) | O | + | O | + | + | + |  | + | O | O | + | + |  | O | O | O | + | + |
| Dextrin – aqueous | + | + | + | + | + | + | + | + | + | + | + | + |  | + | + | + | + | + |
| Diesel oil – pure | O | - | + | + | - | + | + | O | O | + | + | + | + | + | + | + | + | + |
| Drilling oil (cutting oil) | O | - | O | + | O | + |  | + | O | O |  |  |  | + | + | + | + | + |
| Dyeworks wetting agent (Nekal BX) | + | + | + | O | + | + |  | + | + |  |  | O |  | O | O | O | + | + |
| E | | | | | | | | | | | | | | | | | | |
| Engine oils (machine oils, paraffin oils, mineral oils) | + | - | + | + | O | + | + | O | + | + | + | + | + | + | + | + | + | + |
| F | | | | | | | | | | | | | | | | | | |
| Fatty acid methyl ester (biodiesel) | O | - | + | + | O | + | + | + | O | O | + | + | + | - | - | - | + | + |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 17 - Chemical Resistance Chart  Resistance in commercial products | | | | | | | | | | | | | | | | | | |
|  | Name | NBR | EPDM | FKM | FFKM | CR | PTFE | ETFE | PVC | PP | PA | PVDF | PPS | PEEK | MS | RG | GG, GS | 1.4401/1.4571 | 1.4305/1.4105 |
| Fatty alcohol sulfonate (cyclanone) | + | + | + |  | + | + |  | + | + | + |  |  |  |  |  | O | + | + |
| Fatty oils (greases) | O | - | O | + | O | + | + | O | O | + | + | + | + | O | O | O | + | + |
| Fish liver oil | O | O | + | + | + | + |  | + | + |  |  | + |  | O | O | O | + | + |
| Fruit tree carbolineum | O | O | O | + | O | + |  | + | - | + |  | O |  | + | + | + | + | + |
| Fuel oils | O | - | + | + | O | + |  | O | O | + | + | + |  | + | + | + | + | + |
| G | | | | | | | | | | | | | | | | | | |
| Gelatine – aqueous | + | + | + | + | + | + |  | + | + | + | + |  | + | O | O | O | + | + |
| Greases (fatty oils) | O | - | O | + | O | + | + | O | O | + | + | + | + | O | O | O | + | + |
| H | | | | | | | | | | | | | | | | | | |
| Hair shampoo | O | O | O |  | O | + |  | + | O | + |  | + |  | O | O | O | + | + |
| Hydraulic fluid (Skydrol 500) | - | + | O | + | - | + |  | - |  | O |  | + | + | - | O | O | + | + |
| Hydraulic fluid (Skydrol 7000) | - | + | - | + | - | + |  | - |  | O |  |  |  | - | O | O | + | + |
| Hydraulic fluids – chlorinated hydrocarbons | - | O | + |  | - | + |  |  |  | + |  |  |  | - | O | O | + |  |
| Hydraulic fluids – mineral oil based (H, H-L, H-LP) | O | - | O | + | O | + |  | + | + | + |  | + |  | + | + | + | + | + |
| Hydraulic fluids – phosphoric acid ester (HSD) | - | O | - | + | - | + |  | - | - | + |  | + |  | + | + | + | + |  |
| Hydraulic fluid – polyglykol water (HSC) | + | + | + | + | O | + |  | + | + | + |  |  |  | + | + | + | + | + |
| Hydraulic fluids – water in oil (HSB) | O | - | + | + | O | + |  | + | + | + |  | + |  | + | + | + | + | + |
| Hydraulic fluids – water-oil emulsions (HSA) | O | - | + | + | O | + |  | + | + | + |  | + |  | + | + | + | + | + |
| I | | | | | | | | | | | | | | | | | | |
| Impregnating oils (wood tar) | - | - | - | + | - | + |  | O | - |  |  | + |  | + | + | O | + | + |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Resistance in commercial products | | | | | | | | | | | | | | | | | | |  |
| Name | NBR | EPDM | FKM | FFKM | CR | PTFE | ETFE | PVC | PP | PA | PVDF | PPS | PEEK | MS | RG | GG, GS | 1.4401/1.4571 | 1.4305/1.4105 |  |
| Iodine tincture | O | O | O | O | O | + |  | - | O | - | + |  | O | O | O | O | O | O |
| L | | | | | | | | | | | | | | | | | | |
| Linseed oil | O | - | O | + | O | + |  | O | O | + | + | + | + | O | O | O | + | + |
| Lubricating oils | + | - | + | + | O | + | + | O | + | + | + | + | + | + | + | + | + | + |
| Lysol | - | - | O | + | - | + |  | O | O | - | O | + | + | + | + | O | + | O |
| M | | | | | | | | | | | | | | | | | | |
| Machine oils (paraffin oils, mineral oils, engine oils) | + | - | + | + | O | + | + | O | + | + | + | + | + | + | + | + | + | + |
| Mersoles (alkane sulfonic acid chlorides) | + | O | + |  | + | + |  | + | O |  |  |  |  | O | O | O | O | O |
| Mineral oils (paraffin oils, machine oils, engine oils) | + | - | + | + | O | + | + | O | + | + | + | + | + | + | + | + | + | + |
| Molasses (molasses-based flavour) | + | + | + | + | + | + | + | + | + | + | + | + | + | O | O | O | + | + |
| N | | | | | | | | | | | | | | | | | | |
| Nekal BX (dyeworks wetting agent) – aqueous | + | + | + | O | + | + |  | + | + |  |  | O |  | O | O | O | + | + |
| Nickel baths | + | + | + |  | + | + |  | + | + | + |  |  |  | - | - | - | + | O |
| P | | | | | | | | | | | | | | | | | | |
| Paraffin oils (machine oils, mineral oils, engine oils) | + | - | + | + | O | + | + | O | + | + | + | + | + | + | + | + | + | + |
| Petroleum – pure | + | - | + | + | O | + |  | + | + | + | + | + | + | + | + | + | + | + |
| Petroleum benzole spirit (premium grade petrol-ethanol mixture) | - | - | O | + | - | + | + | - | - | O |  | + | + | O | O | + | + | + |
| Photograph emulsions, developers, fixing baths | O | O | O | + | O | + |  | + | + |  | + | O |  |  |  |  |  |  |
| Pine needle oil (spruce needle oil) | O | - | + | + | - | + |  | O | + |  |  | O |  | O | O |  | + | + |
| Polyacrylates (acronal dispersions) | - | + | + |  | + | + |  | - | + | O |  | + |  | O | O | O | + | + |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 18 - Chemical Resistance Chart  Resistance in commercial products | | | | | | | | | | | | | | | | | | |
|  | Name | NBR | EPDM | FKM | FFKM | CR | PTFE | ETFE | PVC | PP | PA | PVDF | PPS | PEEK | MS | RG | GG, GS | 1.4401/1.4571 | 1.4305/1.4105 |
| Premium grade petrol-ethanol mixture (petroleum benzole spirit) | - | - | O | + | - | + | + | - | - | O |  | + | + | O | O | + | + | + |
| S | | | | | | | | | | | | | | | | | | |
| Skydrol 500 (hydraulic fluid) | - | + | O | + | - | + |  | - |  | O |  | + | + | - | O | O | + | + |
| Skydrol 7000 (hydraulic fluid) | - | + | - | + | - | + |  | - |  | O |  |  |  | - | O | O | + | + |
| Soap solution – aqueous | O | O | O | + | O | + | + | O | O | O | + | + |  | O | + | O | + | + |
| Soda (sodium carbonate) – aqueous | + | + | + | + | O | + | + | + | + | + | O | + | + | O | O | O | + | + |
| Soluble glass (sodium silicates) | + | + | + | + | + | + | + | + | + | + | + | + | + | O | O | + | + | + |
| Spindle oils | + | - | + | + | O | + | + | O | + | + | + | + | + | + | + | + | + | + |
| Spruce needle oil | O | - | + | + | - | + |  | O | + |  |  | O |  | O | O |  | + | + |
| Synth. Laundry detergent (detergent) | O | + | O | + | + | + |  | + | O | O | + | + |  | O | O | O | + | + |
| T | | | | | | | | | | | | | | | | | | |
| Table salt (sodium chloride) | + | + | + | + | + | + | + | + | + | + | + | + | + | - | O | - | O | O |
| Transformer oil | + | - | + | + | O | + |  | O | O | + | + | + | + | + | + | + | + | + |
| Turpentine oil (pinene) – pure | O | - | O | + | - | + |  | O | - | + | + | + | + | O | O | + | + | + |
| Turpentine substitute (white spirit, Shellsol D) – pure | O | - | O | + | O | + |  | O | O | + | + | + | + | + | + | + | + | + |
| U | | | | | | | | | | | | | | | | | | |
| UV paint | - | + | - |  | - | + |  |  |  |  |  |  |  |  |  |  |  |  |
| V | | | | | | | | | | | | | | | | | | |
| Varnishes | O | - | + | + | + | + |  | + | - | + |  | + |  | + | + | O | + | + |
| Vinegar 5% (grape vinegar) | - | + | O | O | - | + | + | O | + | O | + | + | + | - | O | O | O | + |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Resistance in liquid foods and beverages  Resistance in liquid foods and beverages | | | | | | | | | | | | | | | | | | |  |
| Name | NBR | EPDM | FKM | FFKM | CR | PTFE | ETFE | PVC | PP | PA | PVDF | PPS | PEEK | MS | RG | GG, GS | 1.4401/1.4571 | 1.4305/1.4105 |  |
| Foodstuff | | | | | | | | | | | | | | | | | | |
| A | | | | | | | | | | | | | | | | | | |
| Apple juice (apple sauce) |  |  |  |  |  | + |  | + | + | + |  |  | + | - |  |  | + | + |
| Apricot juice |  |  |  |  |  | + |  |  |  |  |  |  |  | + | + |  | + | + |
| B | | | | | | | | | | | | | | | | | | |
| Beer | + | + | + |  | + | + | + | + | + | + | + | + | + | + | + | - | + | + |
| Butter | + | + | + |  | + | + | + | + | + | + | + | + |  | - | - | - | + | + |
| Buttermilk | + | + | + |  | + | + | + | + | O | - |  | + |  | O | O | - | + | + |
| C | | | | | | | | | | | | | | | | | | |
| Cider | + | + | + |  |  | + |  | + | + | + | + | + |  |  |  | - | + | + |
| Corn oil | O | - | O | + | O | + | + | O | O | + | + | + | + | O | O | O | + | + |
| E | | | | | | | | | | | | | | | | | | |
| Edible oil | O | - | O | + | O | + | + | O | O | + | + | + | + | O | O | O | + | + |
| F | | | | | | | | | | | | | | | | | | |
| Fruit juices | O | O | O |  | O | + |  | O | O | O |  |  | + | - | - | - | + | + |
| Food fats and oils | O | - | O | + | O | + | + | O | O | + | + | + | + | O | O | O | + | + |
| G | | | | | | | | | | | | | | | | | | |
| Grape vinegar (vinegar 5%) | - | + | O | O | - | + | + | O | + | O | + | + | + | - | O | O | O | + |
| L | | | | | | | | | | | | | | | | | | |
| Lemon juice | O | + | + |  | + | + |  | + | + | + |  |  | + | O | O | - | + | O |

19 - Chemical Resistance Chart

# Resistance in liquid foods and beverages

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Name | NBR | EPDM | FKM | FFKM | CR | PTFE | ETFE | PVC | PP | PA | PVDF | PPS | PEEK | MS | RG | GG, GS | 1.4401/1.4571 | 1.4305/1.4105 |
| M | | | | | | | | | | | | | | | | | | |
| Milk | + | + | + |  | + | + |  | + | + | + | + | + | + | O | + | - | + | + |
| Mineral water | + | + | + | + | + | + | + | + | + | + | + | + | + | O | O | O | O | O |
| O | | | | | | | | | | | | | | | | | | |
| Olive oil | O | - | O | + | O | + | + | O | O | + | + | + | + | O | O | O | + | + |
| Orange juice |  |  |  |  |  | + |  | + |  |  |  |  |  |  |  |  |  | + |
| P | | | | | | | | | | | | | | | | | | |
| Pineapple juice |  |  |  |  | - | + |  | + |  |  |  |  |  | - | - | - | + | + |
| R | | | | | | | | | | | | | | | | | | |
| Rape seed oil | O | - | O | + | O | + | + | O | O | + | + | + | + | O | O | O | + | + |
| S | | | | | | | | | | | | | | | | | | |
| Saccharine (sweetener) | + | + | + |  | + | + |  | + | + |  |  | O |  | + | + | O | + | + |
| Soybean oil | O | - | O | + | O | + | + | O | O | + | + | + | + | O | O | O | + | + |
| Spirits (dependent on their ingredients) | O | O | O |  | O | + |  | + | + |  | + | + | + | - | - | O | + | + |
| Sugar solutions | + | + | + |  | + | + |  | + | + | + | + | + | + | + | + | O | + | + |
| Sweetener (saccharine) | + | + | + |  | + | + |  | + | + |  |  | O |  | + | + | O | + | + |
| W | | | | | | | | | | | | | | | | | | |
| Wines | + | + | + |  | + | + | + | + | + | - | + | + | + | - | - | - | + | + |

1 Technical acetylene contains solvents like alkanes, dimethyl forma- mide or acetone. HITEGLA generally does not know what solvent lack is used in the gas suppliers acetylene. The chemical resistance of the gasket materials has to be proved according to the german specification DIN 9539.

2 Brass with up to 58% Cu.

3 Diffuses through EPDM

4 Most of the polymer materials get damaged by ozone. Therefore the resistances have to be put into perspective.

5 Only for acid resistant FKM compound.

6 Under pressure permitted according to the BAM (Federal Institute for Materials Research and Testing).

7 Hydrogen can lead to an embrittlement of metals.

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