

# Chemical resistance table

## Technical Hoses - 2

### General:

The mixture of different media can lead both to an improvement and to a debasement of the resistance. Statements in the resistance table are only valid for one medium. The respective working conditions, such as higher temperatures, extreme chemical and mechanical stress, combined with dynamical factors may effect the performance of every hose additionally. If plastics come into contact with media in which they are considered unresistant according to chemical resistance lists, this does not necessarily mean that the product will fail. For example, strong but reversible swelling can be categorised as unstable without leading to a product defect.

In cases that require exact details, we recommend either:

- a test in our laboratory with the corresponding medium at the temperature of use
- to find out these data by tests at the place of application (If experiences concerning the application are not available, we will gladly put the required test material at your disposal.)

The stated resistances are non-committal measure or experience values of bench tests and therefore only standard values subject to changes and deviations.

As the operating conditions with the user are outside our control, no guarantee can be given.

### The data means:

- A** resistant
- B** partially resistant
- C** not resistant
- no information available

Unless otherwise specified, the values refer to conditions at 20°C.

### Abbreviations:

- NBR : acrylonitrile-butadiene (nitrile)
- SBR : styrene-butadiene rubber
- NR : natural rubber
- PUR : polyurethane
- XLPE : cross-linked polyethylene
- PVC : polyvinyl chloride
- EPDM : ethylene propylene diene monomer rubber

Medium	NBR	SBR	NR	PUR	UPE/ XLPE	PVC	EPDM
(alpha) methyl styrene (25°C)	C	-	C	-	A	-	C
acetaldehyde	C	B	B	B	A	-	A
acetamide	C	-	C	-	A	-	A
acetone	C	A	A	-	A	-	A
acetonitrile	-	-	-	-	A	-	B
acetophenone	C	-	C	-	A	-	A
acetylacetone	C	-	C	-	A	-	A
acrolein	C	-	C	-	A	-	A
acrylonitrile	C	C	C	-	A	-	C
acryl acid	C	-	C	-	C	-	A
adipic acid	A	A	A	-	A	-	A
alum	A	B	A	A	A	40° A	A
allyl alcohol	A	A	A	-	B	20° B	A
aluminium chloride	A	-	A	B	A	60° A	A
aluminium nitrate	A	-	A	-	B	-	A
formic acid	C	B	C	-	A	-	A
ammonium chloride	A	A	A	A	A	40° A	A
ammoniumhydroxid	A	-	A	-	A	40° A	A
ammonium nitrate	A	A	A	A	A	40° A	A
ammonium persulphate	A	-	A	B	A	-	A
ammonium phosphate	A	A	A	A	A	60° A	A
ammonium sulphate	A	A	A	A	A	60° A	A
amyl acetate	C	C	B	-	B	-	A
amyl alcohol	A	A	A	B	A	40° A	A
aniline	C	C	C	-	B	-	A
anol (see cyclohexanol)	A	C	A	-	A	-	A
anon (see cyclohexanon)	C	C	C	-	B	-	-
ethanolamine	-	-	A	-	A	-	A
ethanol	A	A	A	B	A	-	A
ethyl acetate (see acetal)	-	-	A	-	A	-	A
ethyl acrylate	C	-	C	-	A	-	-
ethyl alcohol (see ethanol)	A	A	A	B	A	-	A
ethyl ether	C	C	C	-	C	-	C
ethyl benzole (18°C)	C	C	C	-	B	-	C
ethyl butyrate	C	-	C	-	A	-	A
ethylene chloride (see dichlorethane)	C	C	C	-	A	-	C
ethylene glycol monoethyl ether acetate	C	A	A	-	A	-	A
ethyl glycol	A	A	A	B	A	60° A	A
ethylene glycol monoethyl ether	A	-	A	-	A	-	A
ethyl mercaptan	C	-	C	-	A	-	-
barium chloride	A	-	A	A	A	-	A
benzaldehyde	C	B	C	C	A	-	-
gasoline (super fuel)	A	C	C	C	A	-	C
gasoline with max. 50% benzene content	A	C	C	B	A	-	C
benzene	C	C	C	C	A	-	C
benzyl alcohol	C	-	A	-	A	20° B	A
benzyl chloride (25°C)	C	-	C	-	C	-	C
cyanide (see hydrocyanic acid)	B	-	A	B	A	-	A
lead acetate	A	A	A	A	A	60° A	A
lead arsenate	C	-	A	A	A	-	A
borax (see disodium tetraborate)	A	A	A	A	A	40° A	A
bromine	C	C	C	B	C	-	C
bromobenzene (25°C)	C	-	C	-	C	-	C
hydrobromic acid (conc.)	C	-	C	C	C	20° A	A
bunker oil	A	-	C	-	C	-	C
butanol (see butyl alcohols)	A	A	A	C	A	40° A	A
butanone (see methyl ethyl ketone)	C	-	B	-	A	-	A
butyric acid	C	-	C	-	A	-	A
butyric acid ethyl (see ethyl butyrate)	C	-	C	-	A	-	A
butyl acetate	C	C	C	-	A	-	A
butyl aldehyde	C	-	C	-	A	-	A
butyl alcohol	A	-	A	C	A	40° A	A
butyl ether	C	-	C	C	A	-	C
calcium chloride	A	A	A	A	A	40° A	A
calcium hydroxide (lime water)	A	A	A	C	A	60° A	A
calcium hypochlorite	C	C	A	-	A	40° A	A
calcium nitrate	A	A	A	A	A	40° A	A
calcium salt	A	-	A	-	A	-	A
calcium sulphide	A	-	A	A	A	-	A
chlorobenzene (25°C)	C	C	C	C	A	-	-
chlorine bleach (see sodium hypochlorite) 13%	C	C	C	B	B	40° A	A
chlorodifluoridemetane (25°C)	-	-	-	-	-	-	-
chloroacetic acid (25°C)	C	C	C	C	A	-	-
chloroform (see trichlormethane)	C	C	C	C	A	-	C
chlorosulphonic acid	C	C	C	C	C	-	-
chlorine water (0,5% chlorine)	C	C	C	B	A	40° B	A
hydrogen chloride (37%)	C	C	B	-	A	-	A
chromic acid (25% - 40°C)	C	C	C	-	A	40° A	B
cyancali (see potassium cyanide)	A	A	A	B	A	60° A	A
hydrocyanic acid	B	-	A	B	A	-	A
cyclohexane	A	C	C	-	A	-	C
cyclohexanol	A	C	A	C	A	60° A	A
cyclohexanone	C	C	C	C	B	-	-
cyclohexylamine	C	C	C	-	A	-	-
decahydronaphthalene	A	C	C	A	A	-	C

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Medium	NBR	SBR	NR	PUR	UPE/ XLPE	PVC	EPDM
decalin	A	C	C	A	A	-	C
diacetone alcohol	C	A	A	B	A	-	A
diethylamine	C	C	C	B	A	20° B	-
diethyl ether	C	C	C	-	C	-	C
diethylene glycol	A	A	A	B	A	-	A
dibutyl phthalate	C	C	C	B	A	-	A
dibutyl sebacate	C	C	C	C	A	-	A
dichloroethane	C	C	C	-	A	-	C
dichloromethane (25°C)	C	C	C	C	C	-	C
diesel fuel	A	C	C	B	A	40° B	C
diglycol (see diethylene glycol)	A	A	A	B	A	-	A
diisobutylene	-	C	C	-	A	-	C
dimethylamine	C	C	C	-	A	20° B	-
dimethyl aniline	C	-	C	C	A	-	B
dimethylformamide	C	C	C	C	C	-	A
dimethyl sulfoxide	C	-	C	-	-	-	A
dioctyl phthalate	C	C	C	-	A	-	A
dioctyl sebacate	C	C	C	B	A	-	A
dioxane (see diethylene oxide 60° C)	C	B	C	C	A	-	A
ferric chloride	A	A	A	B	A	-	A
ferric nitrate	A	-	A	-	A	-	A
ferric sulfate	A	-	A	B	A	-	A
glacial acetic acid (see acetic acid 100%)	C	C	B	C	C	-	C
epichlorohydrin	-	-	C	C	A	-	A
acetic acid (100%)	-	C	C	C	C	-	C
acetic acid (60%)	-	C	B	C	C	40° A	C
acetic acid anhydride (20°C)	C	A	B	C	A	-	A
fatty acids	A	-	C	A	B	60° A	C
hydrofluoric acid (75%)	C	B	B	B	A	20° B	A
flux acid (75%) (see hydrofluoric acid)	C	B	B	B	A	20° B	B
formaldehyde solution (40%)	B	A	B	B	A	40° A	A
furfural	C	-	A	-	A	-	A
furfuroil	C	-	A	-	A	-	A
tannic acid (60°C)	C	A	C	C	A	20° B	A
glucose	A	A	A	A	A	40° A	A
glycols	A	A	A	B	A	60° A	A
urea	A	A	A	B	A	40° A	A
heating oil ASTM-A (isooctane)	A	C	C	B	A	-	C
heating oil	A	C	C	B	A	20° B	C
heptane	A	C	C	B	A	20° A	C
hexane	A	C	C	B	A	20° A	C
hexanols (see hexyl alcohol)	A	-	A	C	A	-	A
hexyl alcohol	A	-	A	C	A	-	A
cresol	C	C	C	C	C	20° B	-
isobutyl acetate	C	-	C	-	A	-	A
isophorone (20°C)	C	-	C	C	A	-	A
isopropanol (see isopropyl alcohol)	A	A	A	B	A	20° A	A
isopropyl alcohol	A	A	A	B	A	20° A	A
isopropyl benzene (40°C)	C	-	C	B	A	-	C
potassium bromate (10%)	A	A	A	-	A	40° A	A
potassium carbonate	A	A	A	B	A	40° A	A
potassium chlorate	A	B	A	A	A	60° A	A
potassium chloride	A	A	A	A	A	60° A	A
potassium cyanide	A	-	A	B	A	60° A	A
potassium hydroxide solution	B	-	A	A	A	40° A	A
potassium iodide	A	A	A	-	A	60° A	A
potassium nitrate	A	A	A	A	A	60° A	A
potassium permanganate (10%)	C	B	C	A	A	40° A	A
potassium sulfate	A	B	A	A	A	40° A	A
silicic acid (50%)	C	A	C	-	A	-	A
saline solution	A	A	A	B	A	40° A	A
carbon dioxide, gaseous	A	A	A	A	A	60° A	A
carbon dioxide	A	-	A	A	A	60° A	A
cresolic acid	C	-	C	C	C	-	-
copper acetate	A	-	C	-	A	-	A
copper cyanide	A	-	C	B	A	-	A
light gasoline	A	-	C	-	A	-	C
magnesium chloride	A	A	A	A	A	-	A
magnesium hydroxide	A	-	A	A	A	-	A
magnesium sulfate	A	A	A	A	A	-	A
methanol (see methyl alcohol)	A	A	A	B	A	40° A	A
methyl acetate	C	-	C	C	A	-	A
methyl acrylate	C	C	C	-	A	-	-
methyl alcohol	A	A	A	B	A	40° A	A
methylamine (aqueous, 30%, 20°C)	C	B	A	-	A	20° B	B
methyl chloride, gaseous	C	C	C	C	B	-	C
methylene chloride (20°C see dichloromethane)	C	C	C	C	C	-	C
methyl isobutyl ketone	C	C	C	C	A	-	A
naphtha	A	C	C	B	A	-	C
naphthalene (90°C)	C	C	C	B	C	-	C
sodium acetate	A	-	A	B	A	20° A	A
sodium bisulfite	A	A	A	C	A	40° A	A
sodium carbonate	A	A	A	B	A	60° A	A
sodium chloride	A	A	A	B	A	40° A	A
sodium cyanide (30%)	A	-	A	B	A	-	A
sodium hydroxide (20%)	B	B	B	B	A	40° A	A
sodium hypochlorite (13%)	C	C	C	B	B	40° A	A
sodium nitrate	A	A	A	A	A	40° A	A
sodium perborate	A	-	A	-	A	-	A

Medium	NBR	SBR	NR	PUR	UPE/ XLPE	PVC	EPDM
sodium phosphate	A	A	A	B	A	40° A	A
sodium silicate	A	A	A	B	A	40° A	A
sodium sulfate	A	A	A	A	A	40° A	A
sodium sulfide	A	A	A	A	A	40° A	A
sodium thiosulfate	A	A	A	B	A	40° A	A
caustic soda (see sodium hydroxide 20%)	B	B	B	B	A	40° A	A
nickel sulfate	A	A	A	B	A	-	A
nitrobenzene (40°C)	C	C	C	C	A	-	C
nitropropane	C	B	B	C	A	-	A
octane	A	-	C	A	A	-	C
oleum	C	C	C	C	C	-	C
oleic acid	A	C	B	A	A	60° A	A
oxalic acid (50°C)	B	B	A	C	A	60° A	A
ozone	C	C	C	A	B	20° A	A
palmitic acid	A	C	B	A	B	20° A	A
paraffin (see alkanes)	A	C	C	B	A	40° A	B
perchloroethylene (20°C)	C	C	C	C	B	-	C
petroleum ether	A	C	C	B	A	60° A	C
petroleum	A	C	C	A	A	20° A	C
phenol (see carbolic acid (60°C))	C	C	C	C	B	20° B	A
phosphorus chloride (50°C)	C	C	B	-	A	-	B
phosphoric acid (60°C)	B	A	B	C	A	40° A	A
picric acid (alcoholic solution)	B	B	B	C	A	20° A	A
propanol (see ethyl alcohol)	A	A	A	B	A	20° A	A
propionic acid ethyl ester	C	C	A	-	A	40° A	A
propyl acetate	C	-	B	-	A	-	A
propyl alcohol	A	A	A	B	A	20° A	A
pyridine	C	C	C	C	A	-	B
mercury	A	A	A	A	A	60° A	A
mercury salts	A	A	A	-	A	40° A	A
salmiakgeist (see ammonia solution)	A	-	A	C	A	60° A	A
nitric acid (60°C, 20%)	C	C	C	C	A	-	B
nitric acid (40°C, 40%)	C	C	C	C	-	-	B
nitric acid (smoking, 100%)	C	C	C	C	C	-	C
hydrochloric acid (20%)	B	-	B	-	A	40° A	A
hydrochloric acid (37%)	C	-	B	C	A	40° A	A
aqua regia (see nitric acid, 100%)	C	C	C	C	C	-	C
sulfur dioxide (dry, 60%)	C	B	C	B	A	60° A	A
sulfurous acid (10%)	C	B	C	B	A	20° B	A
carbon disulfide	C	C	B	C	B	-	C
sulfuric acid (50%, 50°C)	C	B	B	B	A	C	A
sulfuric acid (100%, smoking)	C	B	C	C	C	C	C
sulfuric acid (75%, 50°C)	C	B	C	C	A	C	B
sulfuric acid (20%, 50°C)	B	B	B	A	A	C	A
sulfuric acid (96%, 20°C)	C	B	C	C	A	C	C
sulfuric acid anhydride (see sulfur trioxide)	C	-	-	C	C	-	B
naphtalene	C	C	C	C	C	-	C
silver salts	A	B	-	A	A	40° A	A
silicone grease	A	A	A	A	A	-	A
silicone oil	A	A	A	A	A	20° A	A
stearic acid	A	A	A	A	A	60° A	A
nitrogen, gaseous	A	A	A	A	A	-	A
sulfonyl chloride	C	B	-	C	A	-	B
tannin (see tannic acid)	C	A	C	C	A	20° B	A
turpentine	A	C	C	C	A	20° A	C
test gasoline (see white spirit)	A	C	C	B	A	-	C
tetrachloroethane	C	C	C	-	A	-	C
tetrachlorohydrocarbon	C	C	C	B	C	-	C
tetrahydrofuran	C	C	C	-	B	-	C
tetralin	C	-	C	-	A	-	C
toluene (20°C)	C	C	C	C	B	-	C
triethamine	A	-	C	-	A	-	C
triethanolamine (20°C)	A	C	A	C	A	20° B	A
trichloroethylene	C	C	C	C	C	-	C
trimethylamine	A	-	C	-	A	-	C
vinyl acetate	C	C	C	-	A	-	A
water	A	A	A	A	A	A	A
hydrogen peroxide (35%)	C	C	B	B	A	40° A	B
tartaric acid	A	A	A	A	A	-	A
white spirit	A	C	C	B	A	-	C
xylene (mixture of isomers)	C	C	C	C	C	-	C
zinc acetate	A	C	A	C	A	-	A
zinc chloride	A	-	A	B	A	-	A
zinc sulfate	A	-	A	B	A	-	A
citric acid	A	A	A	A	A	40° A	A
sugar	A	-	A	A	A	40° A	A