NORRES BAGGERMAN
Leading Performance.

Chemical resistance table Technical Hoses - 2

General information:

Mixing several media may either improve or reduce resistance. Information on resistance therefore always applies to a single medium.

The suitability of any hose for use is also influenced by the operating conditions. These include elevated temperatures, extreme chemical and mechanical stresses, as well as dynamic stresses acting in combination with these.

If plastics come into contact with media to which they are classified as non-resistant in resistance tables, this does not necessarily mean that the product will fail. For example, significant but reversible swelling may lead to a rating of 'not resistant' without a product defect occurring.

Where precise information is required, we recommend obtaining it through testing:

- in our laboratory using the relevant medium at the operating temperature; or
- directly at the point of use.

If no previous experience with the application is available, we will be happy to provide the required test material.

The resistance ratings given are based on measurements or empirical values obtained from laboratory tests. The information is non-binding and serves as a guide only. It is subject to change and variation.

Since the operating conditions at the user's site are beyond our control, no guarantee can be given.

Meaning of the ratings:

A **resistant**
B **conditionally resistant**
C **not resistant**
\- **no information available**

Unless otherwise stated, the values apply at a temperature of 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
acetaldehyde	C	B	B	B	A	-	A
acetamide	C	-	C	-	A	-	A
acetic acid (100 %)	-	C	C	C	C	-	C
acetic acid (60 %)	-	C	B	C	C	40 °C A	C
acetic anhydride (20 °C)	C	A	B	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
acrylic acid	C	-	C	-	C	-	A
acrylonitrile	C	C	C	-	A	-	C
adipic acid	A	A	A	-	A	-	A
allyl alcohol	A	A	A	-	B	20 °C B	A
alpha-methylstyrene (25 °C)	C	-	C	-	A	-	C
alum	A	B	A	A	A	40 °C A	A
aluminium chloride	A	-	A	B	A	60 °C A	A
aluminium nitrate	A	-	A	-	B	-	A
ammonium chloride	A	A	A	A	A	40 °C A	A
ammonium hydroxide	A	-	A	-	A	40 °C A	A
ammonium nitrate	A	A	A	A	A	40 °C A	A
ammonium persulphate	A	-	A	B	A	-	A
ammonium phosphate	A	A	A	A	A	60 °C A	A
ammonium sulphate	A	A	A	A	A	60 °C A	A
amyl acetate	C	C	B	-	B	-	A
amyl alcohol	A	A	A	B	A	40 °C A	A
aniline	C	C	C	-	B	-	A
anol (see cyclohexanol)	A	C	A	-	A	-	A
anon (see cyclohexanone)	C	C	C	-	B	-	-
aqua fortis (see nitric acid, 100 %)	C	C	C	C	C	-	C
aqueous ammonia	A	-	A	C	A	60 °C A	A
barium chloride	A	-	A	A	A	-	A
benzaldehyde	C	B	C	C	A	-	-
benzene	C	C	C	C	A	-	C
benzyl alcohol	C	-	A	-	A	20 °C B	A
benzyl chloride (25 °C)	C	-	C	-	C	-	C
borax (disodium tetraborate)	A	A	A	A	A	40 °C A	A
bromine	C	C	C	B	C	-	C
bromobenzene (25 °C)	C	-	C	-	C	-	C
bunker oil (heavy fuel oil)	A	-	C	-	C	-	C
butanol (see butyl alcohols)	A	A	A	C	A	40 °C A	A
butanone (methyl ethyl ketone)	C	-	B	-	A	-	A
butyl acetate	C	C	C	-	A	-	A
butyl alcohols	A	-	A	C	A	40 °C A	A
butyl aldehyde	C	-	C	-	A	-	A
butyl ether	C	-	C	C	A	-	C
butyric acid	C	-	C	-	A	-	A
butyric acid ethyl ester (see ethyl butyrate)	C	-	C	-	A	-	A
calcium chloride	A	A	A	A	A	40 °C A	A
calcium hydroxide (lime water)	A	A	A	C	A	60 °C A	A
calcium hypochlorite	C	C	A	-	A	40 °C A	A
calcium nitrate	A	A	A	A	A	40 °C A	A
calcium salts	A	-	A	-	A	-	A
calcium sulfate	A	-	A	A	A	-	A
carbon dioxide	A	-	A	A	A	60 °C A	A
carbon dioxide, gaseous	A	A	A	A	A	60 °C A	A
carbon disulfide	C	C	B	C	B	-	C
caustic soda (sodium hydroxide 20 %)	B	B	B	B	A	40 °C A	A
chlorine bleach (sodium hypochlorite 13 %)	C	C	C	B	B	40 °C A	A
chlorine water (0.5 % chlorine)	C	C	C	B	A	40 °C B	A
chloroacetic acid (25 °C)	C	C	C	C	A	-	-
chlorobenzene (25 °C)	C	C	C	C	B	-	C
chlorodifluoridemethane (25 °C)	-	-	-	-	-	-	-
chloroform (trichloromethane)	C	C	C	C	A	-	C
chlorosulphonic acid	C	C	C	C	C	-	-
chromic acid (25 % - 40 °C)	C	C	C	-	A	40 °C A	B
citric acid	A	A	A	A	A	40 °C A	A
copper acetate	A	-	C	-	A	-	A
copper cyanide	A	-	C	B	A	-	A
cresol (60 %)	C	C	C	C	C	20 °C B	-
cresolic acid	C	-	C	C	C	-	-
cyclohexane	A	C	C	-	A	-	C
cyclohexanol	A	C	A	C	A	60 °C A	A
cyclohexanone	C	C	C	C	B	-	-
cyclohexylamine	C	C	C	-	A	-	-
decahydronaphthalene	A	C	C	A	A	-	C
decalin	A	C	C	A	A	-	C
diacetone alcohol	C	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 °C B	C
diethyl ether	C	C	C	-	C	-	C
diethylamine	C	C	C	B	A	20 °C B	-

Chemical resistance table Technical Hoses - 2

Medium	NBR	SBR	NR	PUR	UPE/ XLPE	PVC	EPDM
diethylene glycol	A	A	A	B	A	-	A
diglycol (see diethylene glycol)	A	A	A	B	A	-	A
diisobutylene	-	C	C	-	A	-	C
dimethyl sulfoxide	C	-	C	-	-	-	A
dimethylamine	C	C	C	-	A	20 °C B	-
dimethylaniline	C	-	C	C	A	-	B
dimethylformamide	C	C	C	C	C	-	A
dioctyl phthalate	C	C	C	-	A	-	A
dioctyl sebacate	C	C	C	B	A	-	A
dioxane (60 °C; also known as diethylene oxide)	C	B	C	C	A	-	A
epichlorohydrin	C	-	C	C	A	-	A
ethanol	A	A	A	B	A	-	A
ethanolamine	-	-	A	-	A	-	A
ethyl acetate (ethyl ethanoate)	-	-	A	-	A	-	A
ethyl acrylate	C	-	C	-	A	-	-
ethyl alcohol (see ethanol)	A	A	A	B	A	-	A
ethyl butyrate	C	-	C	-	A	-	A
ethyl ether	C	C	C	-	C	-	C
ethyl mercaptan	C	-	C	-	A	-	-
ethylbenzene (18 °C)	C	C	C	-	B	-	C
ethylene dichloride (1,2-dichloroethane)	C	C	C	-	A	-	C
ethylene glycol	A	A	A	B	A	60 °C A	A
ethylene glycol monoethyl ether	A	-	A	-	A	-	A
ethylene glycol monoethyl ether acetate	C	A	A	-	A	-	A
fatty acids	A	-	C	A	B	60 °C A	C
ferric chloride	A	A	A	B	A	-	A
ferric nitrate	A	-	A	-	A	-	A
ferric sulfate	A	-	A	B	A	-	A
fluorosilicic acid (50 %)	C	A	C	-	A	-	A
formaldehyde solution (40 %)	B	A	B	B	A	40 °C A	A
formic acid	C	B	C	-	A	-	A
furfural	C	-	A	-	A	-	A
glacial acetic acid (see acetic acid 100 %)	C	C	B	C	C	-	C
glucose	A	A	A	A	A	40 °C A	A
glycols	A	A	A	B	A	60 °C A	A
heating oil	A	C	C	B	A	20 °C B	C
heating oil ASTM-A (isooctane)	A	C	C	B	A	-	C
heptane	A	C	C	B	A	20 °C A	C
hexane	A	C	C	B	A	20 °C A	C
hexanols (see hexyl alcohol)	A	-	A	C	A	-	A
hexyl alcohol	A	-	A	C	A	-	A
hydrobromic acid (conc.)	C	-	C	C	C	20 °C A	A
hydrochloric acid (20 %)	B	-	B	-	A	40 °C A	A
hydrochloric acid (37 %)	C	-	B	C	A	40 °C A	A
hydrocyanic acid	B	-	A	B	A	-	A
hydrofluoric acid (75 %)	C	B	B	B	A	20 °C B	A
hydrogen chloride (37 %)	C	C	B	-	A	-	A
hydrogen peroxide (35 %)	C	C	B	B	A	40 °C A	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 °C A	A
isopropyl alcohol	A	A	A	B	A	20 °C A	A
isopropylbenzene (40 °C)	C	-	C	B	A	-	C
kerosene (petroleum)	A	C	C	A	A	20 °C A	C
lead acetate	A	A	A	A	A	60 °C A	A
lead arsenate	C	-	A	A	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
mercury	A	A	A	A	A	60 °C A	A
mercury salts	A	A	A	-	A	40 °C A	A
methanol (see methyl alcohol)	A	A	A	B	A	40 °C A	A
methyl acetate	C	-	C	C	A	-	A
methyl acrylate	C	C	C	-	A	-	-
methyl alcohol	A	A	A	B	A	40 °C A	A
methyl chloride, gaseous	C	C	C	C	B	-	C
methyl isobutyl ketone	C	C	C	C	A	-	A
methylamine (aqueous, 30 %, 20 °C)	C	B	A	-	A	20 °C B	B
methylene chloride (20 °C see dichloromethane)	C	C	C	C	C	-	C
naphtha	A	C	C	B	A	-	C
naphthalene	C	C	C	C	C	-	C
naphthalene (90 °C)	C	C	C	B	C	-	C
nickel sulfate	A	A	A	B	A	-	A
nitric acid (40 °C, 40 %)	C	C	C	C	-	-	B
nitric acid (60 °C, 20 %)	C	C	C	C	A	-	B
nitric acid (fuming, 100 %)	C	C	C	C	C	-	C
nitrobenzene (40 °C)	C	C	C	C	A	-	C
nitrogen, gaseous	A	A	A	A	A	-	A
nitropropane	C	B	B	C	A	-	A
octane	A	-	C	A	A	-	C
oleic acid	A	C	B	A	A	60 °C A	A
oleum	C	C	C	C	C	-	C
oxalic acid (50 °C)	B	B	A	C	A	60 °C A	A
ozone	C	C	C	A	B	20 °C A	A
palmitic acid	A	C	B	A	B	20 °C A	A
paraffin (alkanes)	A	C	C	B	A	40 °C A	B
perchloroethylene (20 °C)	C	C	C	C	B	-	C
petrol (premium grade)	A	C	C	C	A	-	C

Medium	NBR	SBR	NR	PUR	UPE/ XLPE	PVC	EPDM
petrol with a maximum benzene content of 50 %	A	C	C	B	A	-	C
petroleum ether	A	C	C	B	A	60 °C A	C
phenol (carbolic acid) 60 °C	C	C	C	C	B	20 °C B	A
phosphoric acid (60 °C)	B	A	B	C	A	40 °C A	A
phosphorus chloride (50 °C)	C	C	B	-	A	-	B
picric acid (alcoholic solution)	B	B	B	C	A	20 °C A	A
potassium bromate (10 %)	A	A	A	-	A	40 °C A	A
potassium carbonate	A	A	A	B	A	40 °C A	A
potassium chlorate	A	B	A	A	A	60 °C A	A
potassium chloride	A	A	A	A	A	60 °C A	A
potassium cyanide	A	-	A	B	A	60 °C A	A
potassium hydroxide solution	B	-	A	A	A	40 °C A	A
potassium iodide	A	A	A	-	A	60 °C A	A
potassium nitrate	A	A	A	A	A	60 °C A	A
potassium permanganate (10 %)	C	B	C	A	A	40 °C A	A
potassium sulfate	A	B	A	A	A	40 °C A	A
propanol (see propyl alcohol)	A	A	A	B	A	20 °C A	A
propionic acid ethyl ester	C	C	A	-	A	40 °C A	A
propyl acetate	C	-	B	-	A	-	A
propyl alcohol	A	A	A	B	A	20 °C A	A
pyridine	C	C	C	C	A	-	B
saline solution	A	A	A	B	A	40 °C A	A
silicone grease	A	A	A	A	A	-	A
silicone oil	A	A	A	A	A	20 °C A	A
silver salts	A	B	-	A	A	40 °C A	A
sodium acetate	A	-	A	B	A	20 °C A	A
sodium bisulfite	A	A	A	C	A	40 °C A	A
sodium carbonate	A	A	A	B	A	60 °C A	A
sodium chloride	A	A	A	B	A	40 °C A	A
sodium cyanide (30 %)	A	-	A	B	A	-	A
sodium hydroxide (20 %)	B	B	B	B	A	40 °C A	A
sodium hypochlorite (13 %)	C	C	C	B	B	40 °C A	A
sodium nitrate	A	A	A	A	A	40 °C A	A
sodium perborate	A	-	A	-	A	-	A
sodium phosphate	A	A	A	B	A	40 °C A	A
sodium silicate	A	A	A	B	A	40 °C A	A
sodium sulfate	A	A	A	A	A	40 °C A	A
sodium sulfide	A	A	A	A	A	40 °C A	A
sodium thiosulfate	A	A	A	B	A	40 °C A	A
stearic acid	A	A	A	A	A	60 °C A	A
sugar	A	-	A	A	A	40 °C A	A
sulfur dioxide (dry, 60 %)	C	B	C	B	A	60 °C A	A
sulfuric acid (100 %, fuming)	C	B	C	C	C	C	C
sulfuric acid (20 %, 50 °C)	B	B	B	A	A	C	A
sulfuric acid (50 %, 50 °C)	C	B	B	B	A	C	A
sulfuric acid (75 %, 50 °C)	C	B	C	C	A	C	B
sulfuric acid (96 %, 20 °C)	C	B	C	C	A	C	C
sulfuric anhydride (sulfur trioxide)	C	-	-	C	C	-	B
sulfurous acid (10 %)	C	B	C	B	A	20 °C B	A
sulfuryl chloride	C	B	-	C	A	-	B
tannic acid (60 °C)	C	A	C	C	A	20 °C B	A
tannin (see tannic acid)	C	A	C	C	A	20 °C B	A
tartaric acid	A	A	A	A	A	-	A
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
trichloroethylene	C	C	C	C	C	-	C
triethanolamine (20 °C)	A	C	A	C	A	20 °C B	A
triethylamine	A	-	C	-	A	-	C
trimethylamine	A	-	C	-	A	-	C
turpentine	A	C	C	C	A	20 °C A	C
urea	A	A	A	B	A	40 °C A	A
vinyl acetate	C	C	C	-	A	-	A
water	A	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