

Chemical resistance table

Technical Hoses - 1

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:

1 very good resistance:

The material will be probably not attacked by the medium.

2 medium resistance:

The material will probably have a satisfactory fitness for use for months or up to years. Later an advanced damage could lead to destruction.

3 conditional resistance:

By short term and occasional contact, or at weak concentration of the medium, the material will probably have a certain fitness for use. At continuous contact you have to reckon with the destruction of the material.

- unresistant or soluble:

The application of the material cannot be recommended, as the mechanical properties will be reduced strongly, the material will be disintegrated or decomposed.

	Ester-PUR	Ether-PUR (FOOD)	Soft PVC	LDPE (ARIDUC® and PROTAPE)	HDPE + LDPE (CP)	TPE	NEOPRENE®	HYP (-CSM)	VITON®	Silicone	PTFE	PA	ARAMID
Medium	20°C	60°C	20°C	60°C	20°C	60°C	20°C	60°C	80°C	20°C	100°C	20°C	100°C
waste water	-	-	1	1	1	1	1	1	1	2	1	1	1
acetaldehyde, aqueous	2	-	2	-	1	1	2	3	2	-	2	-	1
acetamide	-	-	-	-	1	1	1	1	2	-	2	-	1
acetone	-	-	-	-	1	1	2	2	3	3	2	-	1
acetylacetone	-	-	-	-	-	-	-	-	-	-	-	-	1
acetylene	1	1	1	2	3	1	1	1	1	2	1	1	1
acetylsalicylic acid (Aspirin)	-	-	-	-	1	1	-	-	-	-	-	-	1
acrylonitrile	-	-	-	-	1	1	1	3	-	3	2	3	-
acrylic esters (ethyl acrylate)	-	-	-	-	3	1	-	-	1	-	2	1	1
acrylic acid ethylester	-	-	-	-	-	-	-	-	3	-	3	-	1
adipic acid, aqueous	3	-	2	3	1	2	1	1	1	1	1	1	1
caustic potash → potash lye	-	-	-	-	-	-	-	-	-	-	-	-	-
lime → calcium oxide	-	-	-	-	-	-	1	-	-	-	-	-	-
soda lye → sodium hydroxide	-	-	-	-	-	-	-	-	-	-	-	-	-
battery acid → sulfuric acid	-	-	-	-	-	-	-	-	-	-	-	-	-
alum, aqueous	1	2	1	1	1	2	1	1	1	1	1	1	1
aliphatics, generally (see exact media)	1	2	1	2	3	-	-	-	1	1	2	3	-
alcohols, generally (see exact media)	2	-	2	-	2	-	1	1	1	2	2	1	1
allyl alcohol	3	-	3	-	3	-	1	1	2	1	1	3	-
allyl chloride	-	-	-	-	3	-	2	-	-	1	-	1	2
aluminium acetates	-	3	1	1	1	1	1	1	1	-	-	1	1
aluminium chloride, 10%	2	3	1	2	1	1	1	1	2	1	1	1	3
aluminium fluoride	3	-	3	-	1	1	1	1	1	1	1	3	1
aluminium hydroxide	3	-	2	-	1	1	1	1	1	1	1	1	1
aluminium nitrate	3	2	1	1	1	1	1	1	1	1	2	1	3
aluminium phosphates	2	1	1	1	1	1	1	1	1	1	1	1	1
aluminium sulfate, aqueous	2	-	1	3	1	1	1	1	2	1	1	1	1
formic acid, 3%	2	-	1	2	1	1	1	1	2	2	1	2	-
formic acid, 10%	3	-	2	-	1	2	1	1	1	3	2	1	2
formic acid, 100%	-	-	-	-	2	-	1	1	1	2	-	2	-
amines → see exact media	-	-	-	-	-	-	-	-	-	-	-	-	-
aminoethanols	-	-	-	-	-	-	1	3	3	3	-	-	1
ammonia, aqueous 100%	-	-	-	-	1	1	1	1	1	1	3	-	1
ammonia, gaseous	3	-	1	2	1	1	1	1	1	1	2	3	-
ammonia, aqueous 3% (liquid ammonia)	3	-	1	2	1	1	1	1	1	2	3	-	1
ammonium acetate, aqueous	-	3	-	1	1	1	1	1	1	1	-	3	-
ammonium carbonate, aqueous	-	3	-	1	2	1	1	1	1	1	1	1	1
ammonium chloride, aqueous 3% (salmiac)	1	2	1	2	1	1	1	1	1	1	1	1	1
ammonium diphosphat, aqueous	3	1	1	1	1	1	1	1	1	1	1	1	1
ammonium fluorides, aqueous	-	-	1	3	1	1	1	1	1	1	2	1	1
ammonium metaphosphat, aqueous	1	1	1	2	1	1	1	1	1	1	2	1	1
ammonium nitrate, aqueous	3	-	2	-	1	1	1	1	2	1	1	1	1
ammonium phosphates, aqueous	2	-	2	-	1	1	1	1	1	1	1	1	1
ammonium sulfate	1	-	1	3	1	1	1	1	1	1	1	1	1
ammonium thiocyanate	3	2	1	1	1	1	1	1	1	1	1	1	1
pentyl acetates	-	-	-	-	1	2	3	3	-	3	-	-	1
amyl alcohols → pentanols	-	-	-	-	-	-	-	-	-	-	-	-	-
amyl chlorides	-	-	-	-	3	-	-	-	-	2	-	1	1
aniline	-	-	-	-	2	2	3	-	-	2	3	1	3
aniline hydrochloride	-	-	2	-	1	2	3	3	-	-	-	-	1
anise oil	-	-	-	-	1	1	3	-	-	-	-	1	1
anole → cyclohexanol	-	-	-	-	-	-	-	-	2	-	-	-	-
anone → cyclohexanone	-	-	-	-	-	-	-	-	-	-	-	-	-
anthraquinonesulfonic acid, aqueous	-	-	1	1	1	1	1	1	1	1	-	-	1
antimony chlorides, free of water	-	-	1	1	1	1	1	1	1	1	2	1	2
antimony-III-chlorides, aqueous	3	-	2	-	1	1	1	1	1	1	1	1	2
malic acid, aqueous (apple juice)	-	3	-	1	1	1	1	1	1	1	1	1	1
argon	1	1	1	1	1	1	1	1	1	1	1	1	1
aromatics, generally (see exact media)	-	-	-	-	1	1	2	3	3	-	2	3	-
arsenic acid, aqueous	3	-	3	-	1	2	1	1	1	1	2	1	1
asphalt	2	-	2	-	2	3	1	1	2	3	2	-	2
ASTM-fuels → gasoline	-	-	-	-	-	-	-	-	-	-	-	-	-
ASTM-oils → oil	-	-	-	-	-	-	-	-	-	-	-	-	-
ATE-brake fluids → brake fluids	-	-	1	1	1	1	1	1	1	1	3	1	1
ATF-oil → oil	-	-	-	-	-	-	-	-	-	-	-	-	-
barium chloride, aqueous	1	3	1	2	1	1	1	1	1	1	1	1	1
barium hydroxide, aqueous	3	-	2	3	1	1	1	1	1	3	1	1	1
barium sulfate	1	1	1	1	1	1	1	1	1	2	1	1	1
barium sulfide	3	-	2	3	1	1	1	1	1	2	2	1	1
cottonseed oil	1	1	1	1	1	1	1	1	2	2	1	2	1
benzaldehyde	-	-	-	-	1	3	-	-	-	3	-	-	1
gasoline, generally (see exact media)	1	1	3	-	1	1	2	3	-	1	-	1	3
gasoline, ASTM-Fuel A	1	1	3	-	-	-	-	-	1	1	1	3	1
gasoline, ASTM-Fuel B	3	3	3	-	-	-	-	-	-	1	3	3	1
gasoline, ASTM-Fuel C	-	-	3	-	-	-	-	-	-	1	-	1	-
gasoline, diesel/ diesel oil/ heating oil	1	1	3	-	1	1	2	3	-	-	-	1	1
gasoline, FAM-Fuel DIN 51604-A	1	1	3	-	-	-	-	-	-	-	-	-	-
gasoline, FAM-Fuel DIN 51604-B	2	2	3	-	-	-	-	-	-	-	-	-	-
gasoline, FAM-Fuel DIN 51604-C	3	2	3	-	-	-	-	-	-	-	-	-	-
gasoline, flight- (kerosene)	1	1	3	-	1	1	2	3	-	1	-	1	3
gasoline, white spirits	1	2	1	2	3	-	1	2	-	-	-	1	-
gasoline-benzene (50/ 50%)	3	3	3	-	-	-	-	-	-	2	-	-	1
gasoline-benzene (60/ 40%)	2	2	3	-	-	-	-	-	-	2	-	-	1
gasoline-benzene (70/ 30%)	2	2	3	-	-	-	-	-	-	1	3	1	1
gasoline-benzene (80/ 20%)	2	2	3	-	3	2	3	-	-	-	-	1	3

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Medium	Ester-PUR		Ether-PUR (FOOD)		Soft PVC	LLDPE (AFRUDUC® and PROTAFE)		HDPE + LDPE (CP)		TPE	NEOPRENE®		HYP (=CSM)		VITON®	Silicone	PTFE	PA	ARAMID	
	20°C	60°C	20°C	60°C		20°C	60°C	20°C	60°C		20°C	60°C	20°C	60°C						20°C
air, wet → water vapour																				
air, containing oil → oil																				
air, dry	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
magnesium chloride, aqueous 10%	1	-	1	3	1	2	1	1	1	1	1	2	1	1	1	1	1	1	1	1
magnesium hydroxide, aqueous	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
magnesium silikates (talc, talcum)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
magnesium sulfate, aqueous	1	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
magnesium sulfates, aqueous	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
mash	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
maize germ oil	2	3	2	3	2	3	1	2	-	1	1	1	2	1	1	1	1	1	1	1
maleic acid, aqueous	3	-	2	3	1	3	1	1	2	1	2	-	1	1	1	2	3	1	2	2
margarine	1	1	1	1	1	2	1	1	2	-	2	2	3	1	1	3	-	1	1	1
machine oils → oil																				
sea water → water																				
MEK → methyl ethyl ketone																				
melamine																				
molasses	3	-	2	-	1	2	1	1	1	1	2	1	1	1	1	1	1	1	1	1
menthol	3	-	3	-	1	1	2	-	1	2	-	1	1	1	1	1	1	2	2	2
mesityl oxide	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
methane	1	1	1	1	1	1	1	1	1	1	1	2	1	3	-	1	1	1	1	1
methanol (methyl alcohol)	2	-	2	3	3	-	1	1	1	1	2	1	1	3	-	2	1	3	3	3
methyl acetate	-	-	-	-	3	-	1	1	1	1	2	-	-	-	-	1	1	1	1	1
methyl acrylate	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	1	1	1	1	1
methyl alcohol → methanol																				1
methylamine, aqueous	-	-	-	3	-	1	-	1	2	1	-	1	-	-	1	1	1	1	1	1
methyl bromide	-	-	-	-	3	-	-	-	-	-	-	2	-	2	-	1	1	1	1	1
methyl chloride → chloromethanes																				
methyl chloroform → trichloroethanes																				
methyl chloride → chloromethanes																				
methyl ethyl ketone (MEK)	-	-	-	-	1	1	2	-	3	-	3	-	-	-	1	2	2	2	2	2
methyl glycol → ethylene glycol																				
methyl isobutyl ketone	-	-	-	-	2	-	3	-	-	-	-	-	-	-	1	2	2	2	2	2
methyl pyrrolidone (NMP)	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
microbes (microorganisms)	-	-	-	1	1	1	2	3	2	3	2	3	1	1	1	3	3	1	1	1
milk	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
lactic acid, aqueous 3%	2	3	1	2	1	2	1	1	1	1	1	3	1	1	1	1	1	1	1	1
lactic acid, aqueous 10%	3	-	2	3	2	3	1	1	1	1	1	1	1	1	1	2	1	3	3	3
lactic acid, aqueous 50%	-	-	-	3	-	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1
mineral oil → oil																				
mixed acid: sulfuric acid + phosphoric acid + water	-	-	-	2	1	-	2	-	2	1	1	1	-	1	3	3	3	3	3	3
mixed acid: sulfuric acid + nitric acid + water	-	-	-	-	1	-	3	-	-	-	-	-	-	-	1	1	1	1	1	1
monochloroacetic acid → chloroacetic acid																				
morpholine	-	-	-	1	1	1	1	1	2	3	1	2	1	2	-	1	1	1	1	1
must (fruit wine)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
motor oils (engine oils) → oil																				
myristyl alcohol (tetradecanol)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1
naphtha	2	2	-	-	1	1	2	3	3	-	3	-	-	-	1	1	1	1	1	1
naphthalene	3	-	3	-	-	1	1	2	-	-	3	-	1	1	-	1	1	1	1	1
sodium acetate, aqueous	3	-	2	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
sodium benzoate, aqueous	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	1	1	1	1
sodium bi... → sodium hydrogen...																				
sodium bromide	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
sodium carbonate (soda ash)	3	-	2	3	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1
sodium chlorate, aqueous	3	-	2	-	1	1	1	1	2	1	3	1	1	1	1	1	1	1	1	1
sodium chloride, aqueous (table-salt)	2	3	2	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
sodium chlorite, aqueous	-	-	-	-	2	-	2	-	2	-	1	3	1	1	1	1	1	1	1	1
sodium cyanide	3	-	3	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
sodium dichromate	3	-	3	-	-	1	1	1	1	1	1	1	1	1	2	1	2	2	2	2
sodium fluorides, generally	3	-	3	-	1	1	1	1	1	1	1	1	1	1	2	1	2	2	2	2
sodium hydrogencarbonate, aqueous	3	-	3	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
sodium hydrogensulfate	3	-	2	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
sodium hydrogensulfate, aqueous 10%	2	-	2	-	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1
sodium hydroxide (caustic soda), aqueous 3%	3	-	2	3	1	2	1	1	1	1	2	2	3	1	1	1	1	1	1	1
sodium hydroxide (caustic soda), aqueous 50%	-	-	-	-	1	2	1	2	3	-	1	1	-	3	-	1	1	2	3	3
sodium hypochlorite, aqueous 10%	3	-	2	3	1	1	1	3	-	3	-	1	2	2	3	-	1	1	1	1
sodium metaphosphates	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
sodium nitrate, aqueous 10%	2	3	2	3	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1
sodium nitrite	3	-	2	-	1	1	1	1	1	1	1	1	1	1	1	2	3	1	1	1
sodium perborate	-	-	-	2	3	1	1	1	2	1	1	1	1	1	1	1	3	3	3	3
sodium phosphates	2	3	2	3	1	1	1	1	1	1	1	1	1	1	1	2	1	2	3	-
sodium silicate, aqueous	-	-	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
sodium sulfate, aqueous (Glauber's salt)	2	3	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
sodium sulfides	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
sodium sulfite, aqueous 3%	1	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
sodium thiosulfate	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
nickel acetate	-	-	-	-	1	1	1	1	1	2	-	3	1	1	1	1	1	1	1	1
nickel chloride	2	-	1	3	1	1	1	1	1	2	1	1	2	1	2	1	3	3	3	3
nickel sulfate	2	3	1	2	1	1	1	1	1	1	1	1	1	2	1	2	1	2	2	2
nitrobenzene	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
nitroglycerin	-	-	-	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
nitromethane	-	-	-	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
nitropropanes	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

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	20°C	60°C	20°C	60°C		20°C	60°C	20°C	60°C		20°C	60°C	20°C	60°C						20°C
nitrous fumes → nitrogen oxides																				
nitrotoluenes	-	-	-	-	1	1	3	-	-	-	-	-	-	-	3	-	1	3	-	-
nonyl alcohol (nonanol)																				
octane	1	1	-	-	1	1	1	1	-	-	3	2	-	-	1	-	1	1	1	1
octanols (octyl alcohol)																				
oil, ASTM-oil nr. 1	1	1	1	3	-	1	1	2	3	-	1	2	3	1	1	2	2	1	1	1
oil, ASTM-oil nr. 2	1	1	1	3	-	1	1	2	3	-	1	2	3	1	1	2	2	1	1	1
oil, ASTM-oil nr. 3	1	1	1	3	-	1	1	2	3	3	-	2	3	1	1	2	3	1	1	1
oil, ATF-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
oil, hydraulic → hydraulic fluid																				

