CHEMICAL RESISTANCE HYDRA

LIST OF MATERIALS HYDRA

Tank:	PP	Suction hose:	EVA
Sewage pump:	V2A stainless steel	Drain hose:	PVC
Check valve:	PVC	Floor nozzle:	Aluminium/rubber
Screw connections:	PVC	Suction tube:	PVC
C-couplings:	Aluminium	Suction head:	PA

PLASTICS, MATERIAL CHARACTERISTICS | Overview of chemical resistance

EPDM	Ethylene-propylene-diene rubber	PA	Polyamide	PSU	Polysulfone
FEP	Tetrafluoroethylene-perfluoropropylene (teflon, FEP)	PC	Polycarbonate	PTFE	Polytetrafluoroethylene (teflon)
		PFA	Perfluoralkoxy (teflon, PFA)	PVC	Polyvinyl chloride
PETG	Polyethylene terephthalate	PMP	Polymethylpentene (TPX)	PVDF	Polyvinylidene fluoride
FPM/FKM	Fluorine rubber (Viton)	PP	Polypropylene	SAN	Styrene-acrylonitrile
HDPE	High-density polyethylene	PS	Polystyrene	SI	Silicone rubber
LDPE	Low-density polyethylene				

Plastic abbr.	Temperature		Sterilisation [5]				Transparency	Flexibility	Specific weight g/cm³	Water absorption %
	max. °C [1]	min. °C [2]	Steam [4] 121 °C	Gas ethlyene oxid	Radiation 2,5 kGy	chemical formalin, ethanol				
EPDM	+ 120 °	- 30 °	yes	no	yes	yes	transparent	excellent	0.88	0.01
FEP	+ 205 °	- 255 °	yes	yes	no	yes	transparent	superb	2.15	< 0.01
FPM/FKM	+ 200 °	- 20 °					black	good	1.90	
HDPE	+ 110 °	- 50 °	no	yes	yes	yes	transparent	stiff	0.95	0.01
LDPE	+ 95 °	- 50 °	no	yes	yes	yes	transparent	excellent	0.92	0.01
PA	+ 90 °	+/- 0 °	no	yes	yes	yes	transparent	stiff	1.13	1.30
PC	+ 135 °	- 135 °	yes	yes	yes	yes	clear	rigid	1.20	0.35
PFA	+ 250 °	- 270 °	yes	yes	no	yes	transparent	excellent	2.15	0.03
PMP	+ 175 °	- 150 °	yes	yes	yes	yes	crystal clear	rigid	0.83	0.01
PP	+ 135 °	+ 5 °	yes	yes	no	yes	transparent	rigid	0.90	0.02
PS	+ 70 °	- 20 °	no	no	yes	yes	crystal clear	rigid	1.05	0.05
PSU	+ 165 °	- 100 °	yes	yes		yes	clear	stiff	1.24	0.30
PTFE	+ 270 °	- 270 °	yes	yes	no	yes	opaque	excellent	2.25	< 0.01
PVC	+ 70 °	- 30 °	no [3]	yes	no	yes	clear	rigid	1.35	0.06
PVDF	+ 160 °	- 40 °	yes	yes	yes	yes	transparent	rigid	1.78	0.04
SAN	+ 95 °	- 40 °	no	yes	no	yes	crystal clear	rigid	1.03	0.05
SI	+ 180 °	- 60 °	yes	yes	no	yes	transparent	excellent	1.10	
PETG	+ 70 °	+ 5 °	no	n.a.	n.a.	yes	crystal clear	rigid	1.78	0.70

1) higher in a short term
2) embrittlement temperature
3) except PVC hoses, which are resistant to steam sterilisation up to 121 °C.
4) frequent steam sterilisation leads to loss of stability!

5) clean equipment with distilled water beforehand (avoid stress corrosion cracking).
In the case of closed containers remove the closure or open it slightly; do not screw it on until it has cooled down.

Group of substances at 20 °C	ABS	ECTFE	HDPE	LDPE	PA	PC	PMP	PP	PS	PTFE/FEP/PFA	PVC	SAN	SI
Aldehydes	-	+	+	+	0	0	0	+	-	+	-	-	0
Alcohols alipathic	+	+	+	+	0	+	+	+	+	+	+	+	+
Esters	-	+	0	0	+	-	0	0	-	+	-	-	0
Ethers	-	+	0	-	+	-	-	-	-	+	-	-	-
Ketones	-	0	0	0	+	-	0	0	-	+	-	-	
Hydrocarbons													
alipathic	-	+	+	0	+	0	0	+	-	+	+	-	-
aromatic	-	+	+	0	+	-	-	0	-	+	-	-	-
halogenated	-	+	0	-	0	-	-	0	-	+	-	-	-
Acids, weak/diluted	0	+	+	+	0	0	+	+	0	+	+	0	0
Acids, strong/concentrated	-	+	+	+	-	-	+	+	0	+	+	-	-
Acids, oxidising	-	0	0	0	-	-	0	0	-	+	-	-	-
Alkalis	0	+	+	+	0	-	+	+		+	+	+	+

+ = excellent chemical resistance
Permanent exposure to the substance does not damage the plastic within 30 days. The plastic can remain resistant for years.

0 = good/conditional chemical resistance
Permanent exposure to the substance causes minor damage from approx. 7 to 30 days, which is partly reversible (softening, swelling, reduction of mechanical strength, discolouration).

- = low chemical resistance
Permanent exposure may cause immediate damage to the plastic. (Reduction of mechanical strength, deformations, discolourations, cracks, dissolution, risk of breakage).