

Introduction

Purpose

This document provides information on the chemical resistance of the Model 2020 Hand Pump.

Overview

Plastics play a key role, both in industry and everyday life. Nevertheless, each specific end use calls for a judicious selection of plastic, in order to safeguard the environment and prevent pollution.

Generally speaking, polyamides are inert to all types of chemicals. Apart from concentrated acids, very few reagents attack polyamides. The Model 2020 Hand Pump Technical Data Sheet on page 2 shows the chemical resistance of the following materials:

- Nylon 6 and Viton A - used to make the Model 2020 Hand Pump,
- Polypropylene - used to make the telescopic suction tube.

Note: Viscosity of liquid to be pumped cannot exceed the viscosity of light engine oil.

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Warranty

For information on warranty, refer to MDE-4255 Gasboy's Warranty Policy Statement. If you have any warranty-related questions, contact Gasboy's Warranty Department at its Greensboro location.

Model 2020 Hand Pump Technical Data Sheet

Key

- ● ● Resistant. No, or negligible, changes in mass and dimensions. Example: GRILON unimpaired in aqueous and alcoholic media.
- ● Limited resistance. Considerable dimensional changes, and possible irreversible changes in properties after prolonged contact. Consultation advisable before use.
- Not resistant. Under certain conditions (brief contact) may be used in some cases.
- X Soluble or attacked after brief contact. Do not use under any condition.

Note: Data valid for all concentrations.

Medium	Chemical Formula	Concentration	Resistance
Acetaldehyde	CH ₃ -CHO	40% aq. soln.	X
Acetamide	CH ₃ -CO-NH ₂	50% aq. soln.	● ● ●
Acetic acid	CH ₃ COOH	10% aq. soln.	X
Acetic acid	CH ₃ COOH	40% aq. soln.	X
Acetic acid	CH ₃ COOH	glacial	X
Acetic anhydride	CH ₃ -CO-O-OC-CH ₃	technically pure	X
Acetone	CH ₃ -CO-CH ₃	technically pure	X
Aluminum Salts	-	* .aq. soln.	● ●
Alums	K ₂ SO ₄ -AL ₂ (SO ₄) ₃ 12H ₂ O	*. aq. soln.	● ●
Ammonia	NH ₃	10% aq. soln.	● ● ●
Ammonia	NH ₃	*, gaseous	● ● ●
Ammonium chloride	NH ₄ Cl	10% aq. soln.	● ● ●
Ammonium salts	-	*, technically pure	● ●
Amyl acetate	CH ₃ (CH ₂) ₄ -OOCCH ₃	technically pure	X
Amyl alcohol	CH ₃ (CH ₂) ₃ -CH ₂ -OH	technically pure	● ● ●
Aniline	C ₆ H ₅ -NH ₂	technically pure	● ●
Aniseed oil	C ₆ H ₅ -O-CH ₃	technically pure	● ● ●
Antifreeze compounds	-	commercial grade	● ● ●
Aqua regia	HNO ₃ +HCl	technically pure	X
Aspirin	-	technically pure	● ● ●
Attar of roses	-	technically pure	● ● ●
Barium salts	-	*.aq. soln.	● ● ●
Battery acid	H ₂ SO ₄	30% aq. soln.	●
Beer	-	commercial grade	● ● ●
Benzaldehyde	C ₆ H ₅ CHO	technically pure	●
Benzaldehyde	C ₆ H ₅ CHO	0.3% aq. soln.	● ● ●
Benzene	-	technically pure	● ●
Benzoic acid	C ₆ H ₅ -COOH	*. aq. soln.	● ●

Medium	Chemical Formula	Concentration	Resistance
Benzole	C_6H_6	technically pure	● ● ●
Benzyl alcohol	$C_6H_5-CH_2OH$	technically pure	●
Bitumen	-	commercial grade	● ● ●
Borax	$Na_2B_4O_7$	*. aq. soln	● ● ●
Boric acid	H_3BO_3	10% aq. soln.	● ●
Brake fluid	-	commercial grade	● ● ●
Brandy	-	commercial grade	● ● ●
Bromine	Br_2	*	●
Butane	C_4H_{10}	technically pure	● ● ●
Butanol	C_4H_9OH	technically pure	● ● ●
Butter	-	commercial grade	● ● ●
Buttermilk	-	commercial grade	● ● ●
Butyl acetate	$CH_3COOCH_2CH_2CH_2CH_3$	technically pure	X
Butyric acid	$CH_3CH_2CH_2-COOH$	technically pure	● ●
Butylene glycol	$HO-CH_2-CH_2-CH_2-CH_2-OH$	technically pure	● ●
Calcium chloride	$CaCl_2$	10% aq. soln.	● ● ●
Camphor	-	technically pure	● ●
Carbon disulphide	CS_2	100%	● ●
Carbon tetrachloride	CCl_4	technically pure	● ● ●
Catechol	$C_6H_{10}-(OH)_2$	6% aq. soln.	X
Caustic soda	$NaOH$	40% aq. soln.	X
Chlorinated lime	$Ca(CLO)_2$	*. aq. soln.	X
Chlorine	Cl_2	technically pure	X
Chlorine gas	Cl_2	<5% gaseous	●
Chlorine water	-	<5% aq. soln.	●
Chloroacetic acid	$ClCH_2COOH$	10% technically pure	X
Chlorobenzene	C_6H_5-Cl	technically pure	● ● ●
Chlorobrommethane	CH_2ClBr	technically pure	● ● ●
Chloroform	$CHCl_3$	technically pure	●
Chromic acid	H_2CrO_4	10% aq. soln	X
Chromic acid	H_2CrO_4	1% aq. soln.	X
Chromic/sulphuric acid	H_2SO_4/CrO_3	*. aq. soln	X
Chrome baths	-	commercial grade	X
Coconut oil	-	commercial grade	● ● ●
Coffee	-	commercial grade	● ● ●
Common salt	$NaCl$	*.aq. soln.	● ● ●
Copper salts	-	10% aq. soln.	● ● ●
Cresol	$C_6H_5-CH_3-OH$	technically pure	X
Cyclohexane	C_6H_{12}	technically pure	● ● ●
Cyclohexanol	$C_6H_{11}OH$	technically pure	● ● ●
Cyclohexanone	$C_6H_{11}O$	technically pure	X
Decalin	$C_{10}H_{18}$	technically pure	● ● ●

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Medium	Chemical Formula	Concentration	Resistance
Detergents (dishwashing)	-	commercial grade	● ● ●
Dibutyl phthalate	$C_6H_4-(COOCH_2)_2$	technically pure	●
Diesel oil	-	commercial grade	● ● ●
Diethyl ether	$CH_3-CH_2-O-CH_2-CH_3$	technically pure	X
Dimethyl formamide	$HCON-(CH_3)_2$	technically pure	X
Diocetyl phthalate	$C_6H_4-(COOC_8H_{17})_2$	technically pure	● ●
Dioxane	$C_4H_8O_2$	technically pure	X
Ether	$CH_3CH_2-O-CH_2CH_3$	technically pure	X
Ethyl acetate	$CH_3COOCH_2CH_3$	technically pure	X
Ethyl alcohol	C_2H_5OH	technically pure	● ●
Ethylene chloride	$ClCH_2-CH_2Cl$	technically pure	● ●
Formaldehyde	HCHO	40% aq. soln.	X
Formalin	HCHO	*, aq. soln.	●
Formamide	$HCONH_2$	technically pure	●
Formic acid	HCOOH	10% aq. soln.	X
Formic acid	HCOOH	40% aq. soln.	X
Formic acid	HCOOH	85% aq. soln.	X
Freon	-	commercial grade	X
Freon 12	CF_2Cl_2	technically pure	X
Fuel oil	-	commercial grade	● ● ●
Furfural	C_4H_3-CHO	technically pure	X
Gasoline		technically pure	● ● ●
Glycerine	$C_3H_8O_3$	technically pure	● ● ●
Glycol	$HO-CH_2CH_2-OH$	technically pure	● ● ●
Heptane	C_7H_{16}	technically pure	● ● ●
Hexane	C_6H_{14}	technically pure	● ● ●
Hydraulic fluid	-	petroleum based	● ● ●
Hydrochloric acid	HCl	10% aq. soln.	X
Hydrochloric acid	HCl	1% aq. soln.	X
Hydrogen chloride	HCl	>2% aq. soln	X
Hydrogen chloride	HCl	<2% aq. soln	X
Hydrogen fluoride	HF	40% aq. soln	X
Hydrogen peroxide	H_2O_2	30% aq. soln.	X
Hydrogen peroxide	H_2O_2	10% aq. soln.	●
Hydrogen peroxide	H_2O_2	2% aq. soln.	●
Hydrogen sulphide	H_2S	<5% gaseous	X
Ink	-	commercial grade	● ● ●
Iron salts	-	20% aq. soln., neut	● ● ●
Iron salts	-	20% aq. soln., acid	X
Isooctane	$(CH_3)_3-CH_2CH(CH_3)_2$	technically pure	● ● ●
Isopropyl alcohol	$(CH_3)_2-CHOH$	technically pure	● ● ●
Lactic acid	$CH_3CHOH-COOH$	90% aq. soln.	X

Medium	Chemical Formula	Concentration	Resistance
Lactic acid	$\text{CH}_3\text{CHOH-COOH}$	50% aq. soln.	●
Lactic acid	$\text{CH}_3\text{CHOH-COOH}$	5% aq. soln.	● ●
Lanolin	-	commercial grade	● ● ●
Linseed oil	-	commercial grade	● ● ●
Liqueurs	-	commercial grade	● ● ●
Lubricating oils, greases, soaps	-	commercial grade	● ● ●
Magnesium hydroxide	Mg(OH)_2	10% aq. soln.	● ● ●
Magnesium salts	-	10% aq. soln.	● ● ●
Mercury	Hg	technically pure	● ● ●
Methanol	CH_3OH	technically pure	X
Methylene chloride	CH_2Cl_2	technically pure	X
Methyl ethyl ketone	$\text{CH}_3\text{-CO-CH}_2\text{CH}_3$	technically pure	X
Milk	-	commercial grade	● ● ●
Mineral oils	-	commercial grade	● ● ●
Motor fuels	-	commercial grade	● ● ●
Nail polish remover	-	commercial grade	X
Naphthalene	C_{10}H_8	technically pure	● ● ●
Nitric acid	HNO_3	*aq. soln.	X
Nitrobenzene	$\text{C}_6\text{H}_5\text{NO}_2$	technically pure	●
Nitromethane	CH_3NO_2	technically pure	X
Octane	C_8H_{18}	technically pure	● ● ●
Oil (No. 3 ASTM)	-	commercial grade	● ● ●
Oleic acid	-	technically pure	● ●
Oleum	$\text{H}_2\text{SO}_4+\text{SO}_3$	technically pure	X
Olive oil	-	commercial grade	● ● ●
Oxalic acid	HOOC-COOH	10% aq. soln.	● ●
Ozone	O_3	* gaseous	●
Ozone	O_3	<1 ppm. gaseous	● ● ●
Paraffin oil	-	technically pure	● ● ●
Peanut oil	-	commercial grade	● ● ●
Perchloroethylene	$\text{Cl}_2\text{C=CCl}_2$	technically pure	● ● ●
Petroleum ether	-	technically pure	● ●
Phenol	$\text{C}_6\text{H}_5\text{OH}$	*. aq. soln.	●
Phosphoric acid	H_3PO_4	50% aq. soln.	●
Phosphoric acid	H_3PO_4	10% aq. soln.	●
Pine Oil	-	technically pure	● ● ●
Potassium bromide	KBr	10% aq. soln.	● ●
Potassium chlorate	KClO_3	5% aq. soln.	● ●
Potassium chlorate	KClO_3	7% aq. soln.	●
Potassium hydroxide	KOH	50% aq. soln.	X
Potassium iodide	KJ	10% aq. soln.	● ● ●
Potassium nitrate	KNO_3	10% aq. soln.	● ● ●

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Medium	Chemical Formula	Concentration	Resistance
Potassium permanganate	KMnO ₄	1% aq. soln.	X
Potassium sulphate	K ₂ SO ₄	10% aq. soln.	● ● ●
Propane	C ₃ H ₈	technically pure	● ● ●
Propanol	C ₃ H ₇ OH	technically pure	● ● ●
Pyridine	C ₅ H ₅ N	technically pure	X
Resorcinol	-	technically pure	X
Resorcinol	-	* alcohol soln.	X
Salicylic acid	-	technically pure	● ● ●
Salt	NaCl	*. aq. soln.	● ● ●
Silicone oils	-	technically pure	● ● ●
Silver salts	-	* aq. soln.	● ●
Soap solution	-	10% aq. soln.	● ● ●
Sodium bicarbonate	NaHCO ₃	* aq. soln.	● ● ●
Sodium bisulphite	NaHSO ₃	10% aq. soln.	● ● ●
Sodium bromide	NaBr	10% aq. soln.	● ●
Sodium carbonate	Na ₂ CO ₃	10% aq. soln.	● ● ●
Sodium chloride	NaCl	* aq. soln.	● ● ●
Sodium chlorite	NaClO ₂	5% aq. soln.	●
Sodium hydroxide	NaOH	40% aq. soln.	● ●
Sodium hypochlorite	-	5% aq. soln.	●
Sodium nitrate	NaNO ₃	10% aq. soln.	● ● ●
Sodium nitrite	NaNO ₂	5% aq. soln.	●
Sodium perborate	-	5% aq. soln.	● ●
Sodium phosphate	Na ₃ PO ₄	10% aq. soln.	● ● ●
Sodium sulphate	Na ₂ SO ₄	10% aq. soln.	● ● ●
Sodium sulphide	Na ₂ S	10% aq. soln.	● ● ●
Sodium sulphite	Na ₂ SO ₃	10% aq. soln.	● ● ●
Sodium thiosulphite	Na ₂ S ₂ O ₃	* aq. soln.	● ● ●
Solvent naphtha	-	technically pure	● ● ●
Styrene	C ₆ H ₅ --CH-CH ₂	technically pure	● ●
Sugar	C ₆ H ₁₂ O ₆	* aq. soln.	● ● ●
Sulphur	S	technically pure	● ● ●
Sulphur dioxide	SO ₂	<5%	●
Sulphuric acid	H ₂ SO ₄	technically pure	X
Sulphuric acid	H ₂ SO ₄	25% aq. soln.	X
Sulphuric acid	H ₂ SO ₄	10% aq. soln.	X
Sulphuric acid	H ₂ SO ₄	2% aq. soln.	X
Tallow	-	commercial grade	● ● ●
Tar	-	technically pure	● ● ●
Tartaric acid	(HOOC-CH-OH) ₂	10% aq. soln.	● ●
Tetrahydrofuran	-	technically pure	X
Tetraline	-	technically pure	● ●

Medium	Chemical Formula	Concentration	Resistance
Thionyl chloride	SOCl_2	technically pure	X
Toluene	$\text{C}_6\text{H}_5\text{-CH}_3$	technically pure	● ●
Transformer oil	-	commercial grade	● ● ●
Trichlorethylene	$\text{Cl}_2\text{C=CHCl}$	technically pure	● ●
Turpentine	-	technically pure	● ●
Vinegar	CH_3COOH	commercial grade	● ●
Water	H_2O	technically pure	● ● ●
Xylene	$\text{C}_6\text{H}_5(\text{CH}_3)_2$	technically pure	● ●
Zinc chloride	ZnCl_2	10% aq. soln.	● ●



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