Chemical Tank

Compatibility Chart

Chemical Compatibility Chart

This Chemical Compatibility Chart provides a comparison of the chemical resistance of our specialty grades of High-Density Polyethylene (HDPE) and Polypropylene polymers in different chemical environments. These specialty polymers were formulated to a wide range of chemicals, including aqueous and oxygenated solvents selected from Standard Reagents List. In addition, some Petroleum based fuel like Diesel and Kerosene, mineral oils, and PFAS were also selected. The concept was to cover the broadest range of chemical environments considered most likely to be encountered in applications using our range of polymers.

About Our Test Methods

Material samples were tested in accordance with Environmental Stress-Cracking Resistance (ESCR) - ASTM D1693 and Actual Long-Term Storage Testings. ESCR is the formation of cracks in a material caused by low tensile stress and environmental conditions. The samples are tested by slowly bending the specimens and placing them in a holding clamp. The clamp and specimens are then placed in a test tube and immersed in 100% Igepal. The specimens on multiple test tubes are then sealed and placed in a constant-temperature bath of Triethylene Glycol. These specimens are inspected periodically for signs of cracks and failures.

Following these test procedures, the specimens are removed from the chemicals and their physical properties are tested for dimensional changes.

Guidance to the Chemical Resistance and Chemical Database

Some chemicals on our Chemical Compatibility Chart are derived from information sources and available database of our selected raw material suppliers. The information from these third-party sources are believed to be reliable.

The information relating to chemical resistance is intended to serve as a general guide. The information listed herein does not consider all variables that can be encountered in actual use. Thus, the intent of the information is to provide guidance for consideration and investigation and shall not be construed as a warranty or representation for which Polymaster Pty Ltd assumes legal liability. It is highly advisable for the customer to determine whether our product is suitable for all variables and or intended use.

Chemical Compatibility Chart

Note: "Chemical Grade" HDPE 7065 refers to a higher-resistance HDPE, specifically suited for applications involving more aggressive chemicals.

Chemical Name	% Concentration / % Saturation	Formula	TANK MATERIAL	
			HDPE 7060	Chemical Grade HDPE 7065
Adblue	0-100	DEF	✓	✓
Acetic Acid	0-100	CH_3COOH ($C_2H_4O_2$)	✓	✓
Alum (Potassium Alum Sulphate)	0-100	$KAl(SO_4)2\cdot_{12}H_2O$	✓	✓
Aluminium Chloride Hydroxide (ACH)	0-100	$AlCl_2H_2O$	✓	✓
Aluminium Polychloride (Polyaluminium Chloride)	0-100	(PAC) $[Al_2(OH)nCl_6\text{-}n]m$	✓	✓
Ammonium Chloride	0-100	NH_4Cl	✗	✓
Ammonium Nitrate Solution	0-100	NH_4NO_3	✗	✓
Ammonia	0-100	NH_4OH	✗	✓
Boric Acid (Boracic Acid)	0-100	BH_3O_3	✓	✓
Calcium Bromide	0-50	$CaBr_2$	✓	✓
Calcium Chloride	0-40	$CaCl_2$	✓	✓
Calcium Hydroxide	0-5	$Ca(OH)_2$	✓	✓
Calcium Nitrate	0-50	$Ca(NO_3)_2$	✓	✓
Canola Oil (Rapeseed Oil)	0-100	NA	✓	✓
Carbamide (Urea)	0-100	CH_4N_2O	✓	✓
Caustic Soda (Sodium Hydroxide/ Lye)	0-100	NaOH	✓	✓

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			HDPE 7060	Chemical Grade HDPE 7065
Citric Acid	0-100	$C_6H_8O_7$	✓	✓
Chromic Acid	0-50	H_2CrO_4	✓	✓
Copper Sulphate	0-18	$CuSO_4$	✓	✓
Cumene (Isoprophyl Benzene)	0-100	C_9H_{12}	✗	✗
Diesel	0-100	varies	✓	✓
Diethylene Glycol	0-100	$C_4H_{10}O_3$	✓	✓
Epsom Salt (Magnesium Sulphate)	0-100	$MgSO_4$	✗	✓
Ethanol	0-100	C_2H_6O	✗	✗
Ethylene Glycol	0-100	$C_2H_6O_2$	✓	✓
Ethylene Oxide	0-100	C_2H_4O	✓	✓
Ferric Chloride	0-50	$FECl_3$	✓	✓
Ferric Sulphate	0-50	$Fe_2(SO_4)_3$	✓	✓
Ferrous Chloride	0-50	$FeCl_2$	✓	✓
Fluosilicic Acid	0-100	F_6H_2Si	✓	✓
Formaldehyde	0-100	CH_2O	✓	✓
Formic Acid (Methanoic Acid)	0-100	CH_2O_2	✓	✓
Glucose	0-100	$C_6H_{12}O_6$	✓	✓

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			HDPE 7060	Chemical Grade HDPE 7065
Glycerine	0-100	$C_3H_8O_3$	✓	✓
Hydrochloric Acid (Muriatic Acid)	0-100	HCl(aq)	✓	✓
Hydrogen Peroxide	0-100	H_2O_2	✓	✓
Isobutyl Alcohol	0-100	$C_4H_{10}O$	✓	✓
Isopropyl Alcohol	0-100	C_3H_8O	✓	✓
Isoprophyl Benzene (Cumene)	0-100	C_9H_{12}	✗	✗
Kerosene	0-100	varies	✗	✗
Liquid Detergent	0-100	varies	✓	✓
Lye (Sodium Hydroxide/ Caustic Soda)	0-100	NaOH	✓	✓
Magnesium Hydroxide	0-50	$Mg(OH)_2$	✓	✓
Magnesium Sulphate (Epsom Salt)	0-100	$MgSO_4$	✗	✓
Methanoic Acid (Formic Acid)	0-100	CH_2O_2	✓	✓
Muriatic Acid (Hydrochloric Acid)	0-100	HCl(aq)	✓	✓
Nitric Acid	0-100	HNO_3	✗	✓
Oleic Acid	0-100	$C_{18}H_{34}O_2$	✓	✓
Olive Oil	0-100	varies	✓	✓
Oxalic Acid	0-100	$C_2H_2O_4$	✓	✓

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Phosphoric Acid	0-100	H_3PO_4	✓	✓
Potassium Alum Sulphate (Alum)	0-100	$KAl(SO_4)_2 \cdot _{12}H_2O$	✓	✓
Potassium Nitrate	0-24	KNO_3	✓	✓
Potassium Permanganate	0-20	$KMnO_4$	✗	✓
Potassium Sulphate	0-20	K_2SO_4	✓	✓
Polyaluminium Chloride (PAC)	0-100	$AlnCl(_3n\text{-}m)(OH)m$	✓	✓
Propylene Glycol	0-100	$C_3H_8O_2$	✓	✓
Rapeseed Oil (Canola Oil)	0-100	NA	✓	✓
Salt (Sodium Chloride)	0-25	NaCl	✓	✓
Smithsonite (Zinc Carbonate)	0-100	$ZnCO_3$	✓	✓
Soda Ash (Sodium Carbonate)	0-25	Na_2CO_3	✓	✓
Sodium Bisulphate (Sodium Hydrogen Sulphate)	0-50	$NaHSO_4$	✓	✓
Sodium Bromide	0-40	NaBr	✓	✓
Sodium Carbonate (Soda Ash)	0-25	Na_2CO_3	✓	✓
Sodium Chloride (Salt)	0-25	NaCl	✓	✓
Sodium Chlorite	0-40	$NaClO_2$	✗	✓
Sodium Hydrogen Sulphate (Sodium Bisulphate)	0-50	$NaHSO_4$	✓	✓

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Sodium Hypochlorite	0-20	NaOCl	✗	✓
Sodium Metasilicate (Sodium Silicate)	0-60	Na_2SiO_3	✓	✓
Sodium Metabisulfite	0-100	$Na_2S_2O_5$	✓	✓
Sodium Nitrate	0-45	$NaNO_3$	✓	✓
Sodium Nitrite	0-40	$NaNO_2$	✓	✓
Sodium Persulphate	0-22	$Na_2S_2O_8$	✓	✓
Sodium Silicate (Sodium Metasilicate)	0-60	Na_2SiO_3	✓	✓
Sulphuric Acid	0-30	H_2SO_4	✓	✓
Sulphuric Acid	30-75	H_2SO_4	✗	✓
Sulphuric Acid	75-98	H_2SO_4	✗	✓
Urea (Carbamide)	0-100	CH_4N_2O	✓	✓
Water (Pure)	0-100	H_2O	✓	✓
Zinc Bromide	0-50	$ZnBr_2$	✓	✓
Zinc Carbonate (Smithsonite)	0-100	$ZnCO_3$	✓	✓
Zinc Chloride	0-65	$ZnCl_2$	✓	✓
Zinc Oxide	0-50	ZnO	✓	✓
Zinc Sulphate	0-20	$ZnSO_4$	✓	✓

Polymaster

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