



# Chemical Tank Compatibility Chart

## Chemical Compatibility Chart

This Chemical Compatibility Chart provides a comparison of the chemical resistance of our Specialty Grades of Linear Low-Density Polyethylene, High Density Polyethylene 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

Chemical Name	% Concentration / % Saturation	Formula	TANK MATERIAL	
			Hexene PE (7032)	Chemical Grade PE (7080/7088)
Adblue	0-100	DEF	✓	✓
Acetic Acid	0-100	CH <sub>3</sub> COOH (C <sub>2</sub> H <sub>4</sub> O <sub>2</sub> )	✓	✓
Alum (Potassium Alum Sulphate)	0-100	KAl(SO <sub>4</sub> ) <sub>2</sub> ·12H <sub>2</sub> O	✓	✓
Aluminium Chloride Hydroxide (ACH)	0-100	AlCl <sub>2</sub> H <sub>2</sub> O	✓	✓
Aluminium Polychloride (Polyaluminium Chloride)	0-100	(PAC) [Al <sub>2</sub> (OH)nCl <sub>6-n</sub> ] <sub>m</sub>	✓	✓
Ammonium Chloride	0-100	NH <sub>4</sub> Cl	✗	✓
Ammonium Nitrate Solution	0-100	NH <sub>4</sub> NO <sub>3</sub>	✗	✓
Ammonia	0-100	NH <sub>4</sub> OH	✗	✓
Boric Acid (Boracic Acid)	0-100	BH <sub>3</sub> O <sub>3</sub>	✓	✓
Calcium Bromide	0-50	CaBr <sub>2</sub>	✓	✓
Calcium Chloride	0-40	CaCl <sub>2</sub>	✓	✓
Calcium Hydroxide	0-5	Ca(OH) <sub>2</sub>	✓	✓
Calcium Nitrate	0-50	Ca(NO <sub>3</sub> ) <sub>2</sub>	✓	✓
Canola Oil (Rapeseed Oil)	0-100	NA	✓	✓
Carbamide (Urea)	0-100	CH <sub>4</sub> N <sub>2</sub> O	✓	✓
Caustic Soda (Sodium Hydroxide/ Lye)	0-100	NaOH	✓	✓

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Chemical Name	% Concentration / % Saturation	Formula	TANK MATERIAL	
			Hexene PE (7032)	Chemical Grade PE (7080/7088)
Citric Acid	0-100	$C_6H_8O_7$	✓	✓
Chromic Acid	0-50	$H_2CrO_4$	✓	✓
Copper Sulphate	0-18	$CuSO_4$	✓	✓
Cumene (Isopropyl 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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Chemical Name	% Concentration / % Saturation	Formula	TANK MATERIAL	
			Hexene PE (7032)	Chemical Grade PE (7080/7088)
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	$C_3H_8O$	✓	✓
Isopropyl 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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Chemical Name	% Concentration / % Saturation	Formula	TANK MATERIAL	
			Hexene PE (7032)	Chemical Grade PE (7080/7088)
Phosphoric Acid	0-100	H <sub>3</sub> PO <sub>4</sub>	✓	✓
Potassium Alum Sulphate (Alum)	0-100	KAl(SO <sub>4</sub> ) <sub>2</sub> ·12H <sub>2</sub> O	✓	✓
Potassium Nitrate	0-24	KNO <sub>3</sub>	✓	✓
Potassium Permanganate	0-20	KMnO <sub>4</sub>	✗	✓
Potassium Sulphate	0-20	K <sub>2</sub> SO <sub>4</sub>	✓	✓
Polyaluminium Chloride (PAC)	0-100	AlnCl <sub>(3-n-m)</sub> (OH)m	✓	✓
Propylene Glycol	0-100	C <sub>3</sub> H <sub>8</sub> O <sub>2</sub>	✓	✓
Rapeseed Oil (Canola Oil)	0-100	NA	✓	✓
Salt (Sodium Chloride)	0-25	NaCl	✓	✓
Smithsonite (Zinc Carbonate)	0-100	ZnCO <sub>3</sub>	✓	✓
Soda Ash (Sodium Carbonate)	0-25	Na <sub>2</sub> CO <sub>3</sub>	✓	✓
Sodium Bisulphate (Sodium Hydrogen Sulphate)	0-50	NaHSO <sub>4</sub>	✓	✓
Sodium Bromide	0-40	NaBr	✓	✓
Sodium Carbonate (Soda Ash)	0-25	Na <sub>2</sub> CO <sub>3</sub>	✓	✓
Sodium Chloride (Salt)	0-25	NaCl	✓	✓
Sodium Chlorite	0-40	NaClO <sub>2</sub>	✗	✓
Sodium Hydrogen Sulphate (Sodium Bisulphate)	0-50	NaHSO <sub>4</sub>	✓	✓
Sodium Hydroxide (Lye/ Caustic Soda)	0-100	NaOH	✓	✓

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Sodium Hypochlorite	0-20	NaOCl	✗	✓
Sodium Metasilicate (Sodium Silicate)	0-60	Na <sub>2</sub> SiO <sub>3</sub>	✓	✓
Sodium Metabisulfite	0-100	Na <sub>2</sub> S <sub>2</sub> O <sub>5</sub>	✓	✓
Sodium Nitrate	0-45	NaNO <sub>3</sub>	✓	✓
Sodium Nitrite	0-40	NaNO <sub>2</sub>	✓	✓
Sodium Persulphate	0-22	Na <sub>2</sub> S <sub>2</sub> O <sub>8</sub>	✓	✓
Sodium Silicate (Sodium Metasilicate)	0-60	Na <sub>2</sub> SiO <sub>3</sub>	✓	✓
Sulphuric Acid	0-30	H <sub>2</sub> SO <sub>4</sub>	✓	✓
Sulphuric Acid	30-75	H <sub>2</sub> SO <sub>4</sub>	✗	✓
Sulphuric Acid	75-98	H <sub>2</sub> SO <sub>4</sub>	✗	✓
Urea (Carbamide)	0-100	CH <sub>4</sub> N <sub>2</sub> O	✓	✓
Water (Pure)	0-100	H <sub>2</sub> O	✓	✓
Zinc Bromide	0-50	ZnBr <sub>2</sub>	✓	✓
Zinc Carbonate (Smithsonite)	0-100	ZnCO <sub>3</sub>	✓	✓
Zinc Chloride	0-65	ZnCl <sub>2</sub>	✓	✓
Zinc Oxide	0-50	ZnO	✓	✓
Zinc Sulphate	0-20	ZnSO <sub>4</sub>	✓	✓



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