Chemical Performance of PE

Abbreviations
S Satisfactory Resistance
L Limited Resistance
U Unsatisfactory Resistance

dil.sol. dilute aqueous solution at a concentration equal to or less than 10%
sol. Aqueous solution at a concentration greater then10% but not saturated
sat.sol. saturated aqueous solution prepared at 20°C
tg-g technical grade, gas
tg-l technical grade, liquid
tg-s technical grade, solid
work.sol. working solution of the concentration usually used in the industry concerned
susp. Suspension of solid in a saturated solution at 20°C

Chemical	Formula	Temp. (^{o}C)	Conc. (%)	Resistance	
				MDPE/HDPE	LDPE
Acetaldehyde	CH_3CHO	20	40	S	L
		60		L	U
		20	100	S	L
		60		L	U
Acetic acid	CH_3COOH	20	up to	S	S
		60	10	S	S
		20	40-60	S	S
		60		S	L
		20	60	S	S
		60		S	L
-glacial		20	>96	S	L
		60		L	U
Acetic anhydride	$(CH_3CO)_2O$	20	100	S	L
		60		L	U
Acetone	CH_3COCH_3	20	100	L	L
		60		L	U
Acetophenone	$CH_3COC_6H_5$	20			S
		60			S
Acrylonitrile	CH_2CHCN	20		S	
		60		S	
Adipic acid	$(CH_2CH_2CO_2H)_2$	20	sat. sol	S	S
		60		S	S
Air		20		S	S
		60		S	S
Allyl acetate		20		S	
		60		S	
Allyl alcohol	CH_2CHCH_2OH	20	96	S	L
		60		S	U
Allyl chloride		20		L	U
		60		U	U
Alum (Aluminium potassium sulphate)	$Al_2(SO_4)_3.K_2SO_4.nH_2O$	20	sat. sol	S	S
		60		S	S
Aluminium -chloride	$AlCl_3$	20	sat. sol	S	S
		60		S	S

Chemical	Formula	Temp. (°C)	Conc. (%)	Resistance	
				MDPE/HDPE	LDPE
Aluminium	AlF_3	20	susp.	S	S
-fluoride		60		S	S
-hydroxide	$Al(OH)_3$	20	susp.	S	S
		60		S	S
-nitrate	$Al(NO_3)_3$	20	sat. sol	S	S
		60		S	S
-oxychloride		20	susp.	S	S
		60		S	S
-phosphate		20		S	
(meta)		60		S	
-sulphate	$Al_2(SO_4)_3$	20	sat. sol	S	S
		60		S	S
Amino acids		20		S	
		60		S	
Ammonia	NH_3	20	sat. sol	S	S
(aqueous)		60		S	S
(gaseous)		20	100	S	S
		60		S	S
(liquid)		20	100	S	L
		60		S	L
Ammonium	CH_3COONH_4	20	sat	S	
-acetate		60		S	
-bromide	NH_4Br	20		S	
		60		S	
-carbonate	$(NH_4)_2CO_3$	20	sat. sol	S	S
		60		S	S
-chloride	NH_4Cl	20	sat. sol	S	S
		60		S	S
-fluoride	NH_4F	20	up to 20	S	S
		60		S	S
-hydrogen carbonate	NH_4HCO_3	20	sat. sol	S	S
		60		S	S
-hydrosulphide		20		S	
		60		S	
-hydroxide	$NH_4(OH)$	20		S	S
		60		S	S
-nitrate	NH_4NO_3	20	sat. sol	S	S
		60		S	S
-persulphate	$(NH_4)_2S_2O_8$	20	sat. sol	S	S
		60		S	S
-phosphate	$NH_4(HPO_4)_2$	20		S	
(dibasic)		60		S	
(meta)	$(NH_4)_4P_4O_{12}$	20	sat. sol.	S	S
		60		S	S
-sulphate	$(NH_4)_2SO_4$	20	sat. sol.	S	S
		60		S	S
-sulphide	$(NH_4)_2S$	20	sat. sol.	S	S
		60		S	S

Chemical	Formula	Temp. (°C)	Conc. (%)	Resistance	
				MDPE/HDPE	LDPE
Ammonium	NH_4OHSO_4	20	dil/sat	S	
-sulphydrate		60		S	
-thiocyanate		20	sat. sol	S	S
		60		S	S
Amyl acetate	$CH_3CO_2CH_2(CH_2)_3CH_3$	20	100	S	U
		60		L	U
Amyl alcohol	$CH_3(CH_2)_3CH_2OH$	20	100	S	L
		60		L	L
Amyl chloride	$CH_3(CH_2)_3CH_2Cl$	20	sat. sol	U	U
		60		U	U
Aniline	$C_6H_5NH_2$	20		L	U
		60		L	U
-chlorhydrate	$C_6H_5NH_2HCl$	20		L	
		60		L	
Anthraquinone sulphonic acid		20		S	
		60		S	
Antimony chloride		20		S	
		60		S	
Antimony pentachloride		20		S	
		60		S	
Antimony trichloride	$SbCl_3$	20	sat. sol	S	S
		60		S	S
Aqua regia	$HCl + HNO_3$	20	3:1	U	U
		60		U	U
Aromatic acids		20		S	
		60		S	
Aromatic hydrocarboU		20		U	U
		60		U	U
Arsenic		20		S	
		60		S	
Arsenic acid	H_3AsO_4	20	sat. sol	S	S
		60		S	S
Ascorbic acid		20		S	S
		60		S	S
Barium	$BaBr_2$	20	sat. sol	S	S
-bromide		60		S	S
-carbonate	$BaCO_3$	20	susp	S	S
		60		S	S
-chloride	$BaCl_2$	20	sat. sol	S	S
		60		S	S
-hydroxide	$Ba(OH)_2$	20	sat. sol	S	S
		60		S	S
-sulphate	$BaSO_4$	20	susp	S	S
		60		S	S
-sulphide	BaS	20	sat. sol	S	S
		60		S	S
-sulphite		20		S	
		60		S	

Chemical	Formula	Temp. (°C)	Conc. (%)	Resistance	
				MDPE/HDPE	LDPE
Beer		20		S	S
		60		S	S
Benzaldehyde	C_6H_5CHO	20		S	L
		60		L	U
Benzene	C_6H_6	20	100	L	U
		60		L	U
-monochlorine	C_6H_5Cl	20		U	
Benzenesulphonic acid		20		S	L
		60		S	L
Benzoic acid	C_6H_5COOH	20	sat. sol	S	S
		60		S	S
Benzoyl chloride		20		L	U
		60		L	U
Benzyl alcohol	$C_6H_5CH_2OH$	20		S	U
		60		L	U
Benzyl chloride		20		L	
		60		U	
Bichromate sulphuric acid		20		S	
		60		U	
Bismuth carbonate		20	sat. sol	S	S
		60		S	S
Bisulphite		20		S	
		60		S	
Borax		20	sat. sol	S	S
		60		S	S
Boric acid	H_3BO_3	20	dil/sat	S	S
		60		S	S
-methyl ester		20		S	
		60		L	
Boron trifluoride	BF_3	20	sat. sol	S	S
		60		S	S
Brine saturated		20		S	S
		60		S	S
Bromic acid	$HBrO_3$	20	10	S	S
		60		S	S
Bromine	Br_2	20	100	U	U
(dry gas)		60		U	U
(liquid)		20	100	U	U
		60		U	U
Bromochloromethane		20		U	
		60		U	
Butadiene	C_4H_6	20		U	
		60		U	
Butane	C_4H_{10}	20		S	
		60		S	
Butanediol	$CH_3CH_2CHOHCH_2OH$	20		L	L
(aqueous)		60		U	L
Butanetriol		20		S	

Chemical	Formula	Temp. (°C)	Conc. (%)	Resistance	
				MDPE/HDPE	LDPE
		60		S	
Butanol	C_4H_9OH	20	100	S	S
(butyl alcohol)		60		S	L
Butanone		20		S	
		60		L	
Butoxl		20		S	
		60		L	
Butyl acetate	$CH_3CO_2CH_2CH_2CH_2CH_3$	20		L	L
		60		U	U
Butyl acrylate		20		S	
		60		L	
Butyl carbitol		20		S	
		60		L	
Butylene glycol	$C_4H_6(OH)_2$	20	100	S	
		60		S	
Butylbenzyl phthalate		20		S	
		60		S	
Butyric acid	$C_2H_5CH_2COOH$	20		S	L
		60		L	L
		20	conc	U	U
		60		U	U
Calcium		20	sol	S	S
-bisulphide		60		S	S
-bisulphite		20		S	
		60		S	
-bromide	$CaBr_2$	20		S	
		60		S	
-carbide		20		S	S
		60		S	S
-carbonate	$CaCO_3$	20	susp	S	S
		60		S	S
-chlorate	CaCHCl	20	sat. sol.	S	S
		60		S	S
-chloride	$CaCl_2$	20	sat. sol.	S	S
		60		S	S
-hydroxide	$Ca(OH)_2$	20	sat. sol.	S	S
		60		S	S
-hypochlorite	$Ca(OCl)_2$	20	sol	S	S
		60		S	S
-nitrate	$Ca(NO_3)_2$	20	sat. sol	S	S
		60		S	S
-oxide		20		S	S
		60		S	S
-phosphate		20		S	
		60		S	
-sulphate	$CaSO_4$	20	susp	S	S
		60		S	S
-sulphide	CaS	20	dil	L	L
		60		L	L

Chemical	Formula	Temp. (°C)	Conc. (%)	Resistance	
				MDPE/HDPE	LDPE
Carbazole		20		S	
		60		S	
Carbolic acid		20		S	
		60		S	
Carbolineum		20		S	
		60		L	
Carbon dioxide	CO_2	20	dry/wet	S	S
		60	gas	S	S
Carbon disulphide	CS_2	20		L	U
		60		U	U
Carbon monoxide	CO	20		S	S
		60		S	S
Carbon tetrachloride	CCl_4	20		L	U
		60		U	U
Carbonic acid	H_2CO_3	20		S	S
		60		S	S
Caustic potash	KOH	20		S	
		60		S	
Caustic soda	NaOH	20	>10	S	S
		60		S	S
Cetyl alcohol		20		S	
		60		S	
Chloral hydrate		20		S	
		60		S	
Chloramine		20		S	
		60		S	
Chloric acid	$HClO_3$	20	20	S	
		60		U	
Chlorine	Cl_2	20	sat. sol	L	U
(aqueous)		60		U	U
(dry gas)		20		L	U
		60		U	U
Chlorine dioxide (dry gas)		20		U	U
		60			
Chlorine methane		20	100	L	L
		60			
Chloroacetic acid	$ClCH_2COH$	20	>10	S	U
		60		S	U
-ethyl ester		20		S	
		60		S	
-methyl ester		20		S	
		60		S	
Chlorobenzene		20		U	U
		60		U	U
Chlorocarbonic acid		20		S	
		60		L	
Chloroethanol		20		S	
		60		S	
Chloroethyl phosphate		20		S	
		60		S	

Chemical	Formula	Temp. (°C)	Conc. (%)	Resistance	
				MDPE/HDPE	LDPE
Chloroform		20	100	U	U
		60		U	U
Chloromethane		20		L	L
Chloropicrin		20		S	
		60		U	
Chlorosulphonic acid	$ClHSO_3$	20	100	U	U
		60		U	U
Chrome alum	$KCr(SO_4)_2$	20	sol	S	S
		60		S	S
Chrome salts		20		S	
		60		S	
Chromic acid	$CrO_3 + H_20$	20	20	S	S
		60		L	S
		20	50	S	S
		60		L	S
		20	80	S	S
		60		U	S
Chromic solution	$CrO_3 + H_20 + H_2SO_4$	20	50/35/15	U	
		60		U	
Chromium trioxide		20	50	S	
		60		U	
Chromosulphuric acid		20		S	
		60		U	
Citric acid	$C_3H_4(OH)(CO_2H)_3$	20	sat. sol	S	S
		60		S	S
Copper	$CuCl_2$	20	sat. sol	S	S
-chloride		60		S	S
-cyanide	$CuCN_2$	20	sat. sol	S	S
		60		S	S
-fluoride	CuF_2	20	sat. sol	S	S
		60		S	S
-nitrate	$Cu(NO_3)_2$	20	sat. sol	S	S
		60		S	S
-sulphate	$CuSO_4$	20	sat. sol	S	S
		60		S	S
Cresol	$CH_3C_6H_4OH$	20		S	
		60		L	
Cresylic acid	$CH_3C_6H_4COOH$	20	sat. sol	L	
		60			
Crotonaldehyde		20	sat. sol	S	L
		60		L	
Cupric chloride		20		S	S
		60		S	S
Cupric nitrate		20		S	S
		60		S	S
Cupric sulphate		20		S	S
		60		S	S
Cuprous chloride		20		S	S
		60		S	S

Chemical	Formula	Temp. (°C)	Conc. (%)	Resistance	
				MDPE/HDPE	LDPE
Cuprous oxide		20		S	
		60		S	
Cyclanone		20		S	
		60		S	
Cyclohexane	C_6H_{12}	20		U	
		60		U	
Cyclohexanol		20	100	S	L
		60		L	U
Cyclohexanone	$C_6H_{10}O$	20		S	U
		60		L	U
Cyclohexyl alcohol		20		S	L
		60		S	L
DDT		20		S	
		60		S	
Decahydronaftalene	$C_{10}H_{18}$	20		S	
		60		L	
Decalin		20		S	
		60		L	
Dextrin	$C_6H_{12}OCH_2O$	20	sol	S	S
		60		S	S
Dextrose		20	sol	S	S
		60		S	S
Diazo salts		20		S	
		60		S	
Dibromoethane		20		L	
		60		U	
Dibutyl ether		20	100	L	U
		60		U	U
Dibutyl phthalate	$C_6H_4(CO_2C_4H_9)_2$	20		L	L
		60		L	L
Dibutyl sebacate		20		S	
		60		L	
Dichloroacetic acid	$Cl_2CHCOOH$	20	50	S	
		60		S	
		20	100	S	
		60		L	
Dichloroacetic methyl ester		20		S	
		60		S	
Dichlorobenzene		20		U	U
		60		U	U
Dichloroethane	CH_2ClCH_2Cl	20		L	
		60		L	
Dichloroethylene	$ClCH_2Cl$	20		U	
		60		U	
Dichloropropane		20		L	
		60		U	
Dichloropropene		20		L	
		60		U	
Diesel oil		20		S	
		60		L	

Chemical	Formula	Temp. (°C)	Conc. (%)	Resistance	
				MDPE/HDPE	LDPE
Diethyl ether	$C_2H_5OC_2H_5$	20	100	U	U
		60		U	U
Diethyl ketone		20		L	L
		60		L	U
Diethylene glycol		20		L	L
		60		L	L
Diethylenetriamine (DETA)		20		S	
		60		S	
Diglycolic acid	$(CH_2)_2O(CO_2H)_2$	20		L	L
		60		L	L
Diisobutyl ketone		20		S	
		60		U	
Diisopropyl ether		20		S	
		60		U	
Dimethylamine	$(CH_3)_2NH$	20		U	U
		60		U	U
Dimethyl formamide		20	100	S	
		60		L	
Dimethyl sulphoxide		20		S	
		60		S	
Dioctyl phthalate		20		S	L
		60		L	U
Dioxane		20	100	S	L
		60		S	U
Diphenyl oxide		20		S	
		60		L	
Diphenylamine		20		S	
		60		L	
Disodium phosphate		20		S	S
		60		S	S
Disodium sulphate		20		S	
		60		S	
Dodecylbenzenesulphonic acid		20		S	
		60		L	
DOP (di(2-ethylhexyl) phthalate)		20		S	
		60		L	
Emulsifiers		20		S	
		60		S	
Ephetin		20	10	S	
		60		S	
Epichlorohydrin		20		S	
		60		S	
Ethane	C_2H_6	20		S	
		60		S	
Ethers		20		L	
		60		L	
Ethanol	CH_3CH_2OH	20	40	S	S
		60		L	L
		20	95		L
		60			L

Chemical	Formula	Temp. (°C)	Conc. (%)	Resistance	
				MDPE/HDPE	LDPE
Ethyl acetate	$CH_3CO_2C_2H_5$	20	100	S	L
		60		U	U
Ethyl benzene		20		U	U
		60		U	U
Ethyl butyrate		20			L
		60			U
Ethyl chloride	CH_3CH_2Cl	20		U	U
		60		U	U
Ethyl dibromide		20		L	
		60		U	
Ethyl ether	$CH_3CH_2OCH_2CH_3$	20		U	U
		60		U	U
Ethylene		20		S	
		60		U	
Ethylene chloride		20		U	U
		60		U	U
Ethylene chlorohydrin	$ClCH_2CH_2OH$	20			U
		60			U
Ethylene dichloride		20		L	U
		60		U	U
Ethylene glycol	$HOCH_2CH_2OH$	20	100	S	S
		60		S	S
Ethylene glycol ethyl		20			S
Ethylene oxide		20		S	
		60		S	
Ethylenediamine		20		S	
		60		S	
Ethylenediaminetetraacetic acid		20		S	
		60		S	
Ethyl hexanol		20		S	
		60		L	
Fatty acids		20		S	
		60		S	
Fatty alcohols		20		S	
		60		L	
Ferric -chloride		20	sat.sol	S	S
		60		S	S
-nitrate		20	sat.sol	S	S
		60		S	S
-sulphate		20	sat.sol	S	S
		60		S	S
Ferrous ammonium citrate		20		S	
		60		S	
Ferrous chloride		20	sat.sol	S	S
		60		S	S
Ferrous sulphate		20	sat.sol	S	S
		60		S	S
Fluoboric acid		20		S	S
		60		S	S

Chemical	Formula	Temp. (°C)	Conc. (%)	Resistance	
				MDPE/HDPE	LDPE
Fluorine	F_2	20	100	U	U
		60		U	U
Fluosilic acid	$HSiF_6$	20	40	S	S
		60		S	S
Formaldehyde	HCOH	20	30-40	S	S
		60		S	S
Formamide		20		S	
		60		S	
Formic acid	HCOOH	20	10-85	S	S
		60		S	S
Fructose		20		S	S
		60		S	S
Furfural		20		U	U
		60		U	U
Furfuryl alcohol	$C_5H_3OCH_2OH$	20	100	S	L
		60		L	U
Gallic acid		20		L	L
		60		L	L
Gas exhaust (w/nitrous vapours)		20		S	
		60		S	
Gasoline (fuel)		20	work.sol	S	L
		60		L	U
Gas phosgene		20	100	L	
		60		L	
Gelatine		20	sol	S	S
		60		S	S
Genantin		20		S	
		60		S	
Glaubers salt		20		S	
		60		S	
Gluconic acid		20	>10	S	S
		60		S	S
Glucose		20	sol	S	S
		60		S	S
Glycerine		20		S	S
		60		S	S
Glycerine chlorhydrin		20		S	
		60		S	
Glycerol		20	100	S	S
		60		S	S
Glycine		20		S	
		60		S	
Glycoglue		20	10	S	
		60		S	
Glycol		20		L	L
		60		L	L
Glycolic acid	$HOCH_2COOH$	20	30		S
		60			L
		20	50-70	S	
		60		S	

Chemical	Formula	Temp. (°C)	Conc. (%)	Resistance	
				MDPE/HDPE	LDPE
Glycolic acid -butyl ester		20 60		S S	
Glysantin		20 60		S S	
Halothane		20 60		L L	
Heptane	C_7H_{16}	20 60	100	S U	U U
Hexachlorobenzene		20 60		S	S S
Hexadecyl alcohol		20 60		S S	
Hexane	C_6H_{14}	20 60		S L	
Hexanetriol		20 60		S S	
Hexyl alcohol		20 60		L L	L L
Hydrazine hydrate		20 60		S S	
Hydrobromic acid	HBr	20 60	100	S S	S S
Hydrochloric acid	HCl	20 60	up to 25	S S	S S
		20 60	>30	S S	S S
		20 60	conc	S S	S S
Hydrocyanic	HCN	20 60	10	S S	S S
Hydrofluoric acid	HF	20 60	up to 10	S S	S S
		20 60	60	S L	S L
Hydrofluosilicic acid		20 60		S S	
Hydrogen	H_2	20 60	100	S S	S S
Hydrogen bromide		20 60	10	S S	S S
Hydrogen chloride gas		20 60		S S	S S
Hydrogen peroxide	H_2O_2	20 60	up to 10	S S	S S
		20 60	30	S S	S L
		20 60	90	S U	S U
Hydrogen phosphide		20 60		S S	

Chemical	Formula	Temp. (°C)	Conc. (%)	Resistance	
				MDPE/HDPE	LDPE
Hydrogen sulphide gas		20 60	100	S S	S S
Hydroquinone		20 60	sat. sol	S S	S S
Hydrosulphite		20 60		S S	
Hydroxylamine sulphate		20 60		S S	
Hypochlorous acid		20 60		S S	S S
Iodine **(in potassium iodide)** **(in alcohol)**	I_2	20 60	sat. sol	U U	U U
		20 60	work sol (in alcohol)	U U	U U
Isobutyl acetate		20		L	
Isobutyl alcohol		20 60		S S	
Isooctane	C_8H_{18}	20 60		S L	
Isopropanol		20 60		S S	
Isopropyl acetate		20 60		S L	
Isopropyl alcohol	$(CH_3)_2CHOH$	20 60		S S	
Isopropyl ether	$(CH_3)_2CHOCH(CH_3)_2$	20 60		L U	
Kerosine		20 60		L L	
Ketone		20 60		L U	
Labarraques solution		20		S	
Lactic acid	$CH_3CHOHCOOH$	20 60	10-90	S S	S S
Lactose		20 60		S S	
Latex		20 60			L L
Lead acetate	$Pb(CH_3COO)_2$	20 60	dil/sat. sol	S S	S S
Lead nitrate	$PbNO_3$	20 60		S S	S S
Lestoil		20	2	U	
LiUeed oil		60 60		S S	L U
Lithium Bromide		20 60		S S	

Chemical	Formula	Temp. (°C)	Conc. (%)	Resistance	
				MDPE/HDPE	LDPE
Magnesium	$MgCO_3$	20	susp	S	S
-carbonate		60		S	S
-chloride	$MgCl_2$	20	sat. sol	S	S
		60		S	S
-fluosilicate		20		S	
		60		S	
-hydroxide	$Mg(OH)_2$	20	sat. sol	S	S
		60		S	S
-iodide		20		S	
		60		S	
-nitrate	$MgNO_3$	20	sat. sol	S	S
		60		S	S
-sulphate	$MgSO_4$	20	sat. sol	S	S
		60		S	S
Maleic acid	COOHCHCHOOH	20	sat. sol	S	S
		60		S	S
Malic acid	$CH_2CHOH(COOH)_2$	20	sat. sol	S	S
		60		S	S
Manganese sulphate		20		S	
		60		S	
Menthol		20		S	
		60		L	
Mercuric	$HgCl_2$	20	sat. sol	S	S
-chloride		60		S	S
-cyanide	$HgCN_2$	20	sat. sol	S	S
		60		S	S
-nitrate	$HgNO_3$	20	sat. sol	S	S
		60		S	S
Mercurous nitrate	$HgNO_3$	20		S	S
		60		S	S
Mercury	Hg	20	100	S	S
		60		S	S
-cyanide		20		S	S
		60		S	S
Methacrylate		20		S	
		60		S	
Methacrylic acid		20		S	
		60		S	
Methanol	CH_3OH	20	100	S	S
		60		S	L
Methoxybutyl alcohol		20		S	
		60		L	
Methyl-2-Pentanone		20		S	
		60		S	
Methyl bromide	CH_3Br	20		U	
		60		U	
Methyl butanol		20		S	
		60		L	

Chemical	Formula	Temp. (°C)	Conc. (%)	Resistance	
				MDPE/HDPE	LDPE
Methyl chloride	CH_3Cl	20 60		L U	
Methylene chloride		20 60		U U	U U
Methyl ethyl ketone	$CH_3COCH_2CH_3$	20 60		U U	U U
Methyl glycol		20 60		S S	
Methyl isobutyl ketone		20 60		S L	
Methyl methacrylate		20 60		S S	
Methyl propyl ketone		20 60		S L	
Methyl salicylate		20 60		S L	
Methyl sulphate		20 60		S S	
Methyl sulphoric acid	CH_3COOSO_4	20 60	50	L L	
		20 60	100	U U	
Methyl sulphuric acid		20 60		S S	L L
Methylamine	CH_3NH_2	20 60	32	S L	
Methylbenzene		20 60	L U		
Methylcyclohexane		20 60	U U		
Methylpyrrolidone		20 60	S S		
Mineral oils		20 60	work. sol	S L	L U
Mineral spirits (white spirits)		20 60		S S	
Molasses		20 60	work. sol	S S	S S
Monochloroacetic acid		20 60		S S	
Monochloroacetic ethyl ester		20 60		S S	
Monochloroacetic methyl ester		20 60		S S	
Morpholine		20 60		S S	
Mowilith		20 60		S S	
Naptha		20 60		L U	L U

Chemical	Formula	Temp. (°C)	Conc. (%)	Resistance	
				MDPE/HDPE	LDPE
Naphthalene		20		U	U
		60		U	U
Natural gas		20		S	
		60		S	
Nickel	$NiCl_2$	20	sat. sol	S	S
-chloride		60		S	S
-nitrate	$Ni(NO_3)_2$	20	sat. sol	S	S
		60		S	S
-sulphate	$NiSO_4$	20	sat. sol	S	S
		60		S	S
Nicotinic acid		20	susp	S	L
		60		S	L
Nitric acid	HNO_3	20	5	S	S
		60		S	S
		20	25	S	S
		60		S	S
		20	50	L	L
		60		U	U
		20	>50	U	U
		60		U	U
-fuming (with nitrogen dioxide)		20		U	U
		60		U	U
Nitrobenzene	$C_6H_5NO_2$	20		U	U
		60		U	U
Nitrocellulose		20		S	
Nitroglycerin		20		L	
		60		U	
Nitrotoluene		20		S	
		60		L	
Nonyl alcohol		20		S	
		60		S	
Octane	C_8H_{18}	20		S	S
		60		S	S
Octyl cresol		20		L	L
		60		U	U
Oils and fats		20		S	L
		60		L	U
Oleic acid	$C_8H_{17}CHCH(CH_2)_7CO_2H$	20	100	S	L
		60		L	U
Oleum		20		U	U
		60		U	U
Orthophosporic acid		20	50	S	S
		60		S	S
		20	95	S	S
		60		L	L
Oxalic acid	HO_2CCO_2H	20	sat. sol	S	S
		60		S	S
Oxygen	O_2	20		S	S
		60		L	L

Chemical	Formula	Temp. (°C)	Conc. (%)	Resistance	
				MDPE/HDPE	LDPE
Ozone	O_3	20		L	U
		60		U	U
Palmitic acid	$CH_3(CH_2)_{14}COOH$	20		S	
		60		S	
Palmityl alcohol		20		S	
		60		S	
Paraformaldehyde		20		S	
		60		S	
Peppermint oil		20		L	
		60		U	
Perchloric acid	$HClO_4$	20	20	S	
		60		S	
		20	50	S	
		60		L	
		20	70	S	
		60		U	
Perchloroethylene		20		S	S
		60		S	S
Peroxide		20	30	S	S
		60		S	S
		20	90	S	S
		60		U	U
Petrol		20		S	
		60		L	
Petroleum		20		U	U
-ether		60		U	U
-jelly		20		S	
		60		S	
-spirits		20		S	
		60		L	
Phenol	C_6H_5OH	20	sol	S	L
		60		S	U
Phenolic resiU		20		S	
		60		S	
Phenylethyl alcohol		20		S	
		60		S	
Phenyl hydrazine	$C_6H_5NHNH_2$	20		L	
		60		L	
-chlorhydrate	$C_6H_5NHNH_3Cl$	20		S	
		60		U	
Phenylsulphonate		20		S	
		60		S	
Phosgene		20		U	
		60		U	
Phosphates		20		S	
		60		S	
Phosphine		20		S	S
		60		S	S
Phosphoric	H_3PO_4	20	up to 50	S	S
-acid		60		S	S

Chemical	Formula	Temp. (°C)	Conc. (%)	Resistance	
				MDPE/HDPE	LDPE
Phosphoric		20	95	S	
-acid		60		L	
-anhydride	P_2O_5	20		S	
		60		S	
Phosphorous oxychloride		20		S	
		60		L	
Phosphorous pentoxide		20		S	S
		60		S	S
Phosphorous trichloride	PCl_3	20	100	S	S
		60		L	S
Photographic		20		S	S
-developer		60		S	S
-emulsion		20		S	S
		60		S	S
Phthalic acid	$C_6H_4(CO_2H)_2$	20	50	S	
		60		S	
-ester		20		S	
		60		S	
Phthalic anhydride		20		S	
		60		S	
Picric acid	$HO_6H_2(NO_2)_3$	20	sat. sol	S	S
		60			L
Plasticisers		20		S	
		60		L	
Plating solutioU		20		S	
-brass		60		S	
-cadmium		20		S	
		60		S	
-chromium		20		S	
		60		S	
-copper		20		S	
		60		S	
-gold		20		S	
		60		S	
-indium		20		S	
		60		S	
-lead		20		S	
		60		S	
-nickel		20		S	
		60		S	
-nonchrome		20		S	
-rhodium		20		S	
		60		S	
-silver		20		S	
		60		S	
-tin		20		S	
		60		S	
-zinc		20		S	
		60		S	

Chemical	Formula	Temp. (°C)	Conc. (%)	Resistance	
				MDPE/HDPE	LDPE
Polyesters		20		L	
		60		U	
Polyglycols		20		S	
		60		S	
Potash alum		20		S	
		60		S	
Potassium		20	sat. sol	S	S
-bicarbonate		60		S	S
-bisulphate		20	sat. sol	S	S
		60		S	S
-borate	K_3BO_3	20	sat. sol	S	S
		60		S	S
-bromate	$KBrO_3$	20	sat. sol	S	S
		60		S	S
-bromide	KBr	20	sat. sol	S	S
		60		S	S
-carbonate	K_2CO_3	20	sat. sol	S	S
		60		S	S
-chlorate		20	sat. sol	S	S
		60		S	S
-chloride	KCl	20	sat. sol	S	S
		60		S	S
-chromate	K_2CrO_4	20	sat. sol	S	S
		60		S	S
-cyanide	KCN	20	sat. sol	S	S
		60		S	S
-dichromate	$K_2Cr_2O_7$	20	sat. sol	S	S
		60		S	S
-ferricyanide		20	sat. sol	S	S
		60		S	S
-ferrocyanide	$K_4Fe(CN)_6.3H_2O$	20	sat. sol	S	S
(-hexacyanoferrate (II))		60		S	S
-fluoride	KF	20	sat. sol	S	S
		60		S	S
-hydrogen sulphite		20	sol	S	S
		60		S	S
-hydroxide	KOH	20	sol	S	S
		60		S	S
-hypochlorite		20	sol	S	S
		60		L	L
-iodide		20		S	
		60		S	
-nitrate	KNO_3	20	sat. sol	S	S
		60		S	S
-orthophophate		20	sat. sol	S	S
		60		S	S
-perborate	KBO_3	20	sat. sol	S	S
		60		S	S
-perchlorate		20	sat. sol	S	S
		60		S	S

Chemical	Formula	Temp. (°C)	Conc. (%)	Resistance	
				MDPE/HDPE	LDPE
Potassium	$KMnO_4$	20	20	S	S
-permanganate		60		S	S
-persulphate	$K_2S_2O_8$	20	sat. sol	S	S
		60		S	S
-sulphate	K_2SO_4	20	sat. sol	S	S
		60		S	S
-sulphide		20	sat. sol	S	S
		60		S	S
-sulphite		20	sat. sol	S	S
		60		S	S
-tetracyanocuprate		20		S	
		60		S	
-thiosulphate		20	sat. sol	S	S
		60		S	S
Propane	C_3H_8	20	100	S	
(gas)		60		S	
(liquid)		20	100	L	
		60			
Propargyl alcohol		20		L	L
		60		L	L
Propionic acid		20	50	S	S
		60		S	S
		20	100	S	S
		60		L	L
Propyl alcohol		20	100	S	L
		60		S	L
Propylene		20		U	U
-dichloride		60		U	U
-glycol		20		L	L
		60		L	L
-oxide		20		S	
		60		S	
Pseudocumene		20		L	
		60		L	
Pyridine	$CH(CHCH)_2N$	20	100	S	S
		60		L	L
Quinine		20		S	
		60		S	
Resorcinol		20		S	S
		60		S	S
Roasting gases		20		S	
		60		S	
Rubbers		20		S	
		60		S	
Sagrotan		20		S	
		60		L	
Salicylic acid		20	sat. sol	S	S
		60		S	S
-methyl ester		20		S	
		60		L	

Chemical	Formula	Temp. (°C)	Conc. (%)	Resistance	
				MDPE/HDPE	LDPE
Selenic acid		20		S	S
		60		S	S
Silicic acid	H_2SiO_3	20		S	
		60		S	
Silicone oil		20		S	
		60		L	
Silver	$AgCH_3COO$	20	sat. sol	S	S
-acetate		60		S	S
-acid		20		S	S
		60		S	S
-cyanide	AgCN	20	sat. sol	S	S
		60		S	S
-nitrate	$AgNO_3$	20	sat. sol	S	S
		60		S	S
Sodium	CH_3COONa	20	sat. sol	S	S
-acetate		60		S	S
-aluminium sulphate		20		S	
		60		S	
-antimonate		20	sat. sol	S	S
		60		S	S
-arsenite		20	sat. sol	S	S
		60		S	S
-benzoate		20	sat. sol	S	S
		60		S	S
-bicarbonate	$NaHCO_3$	20	sat. sol	S	S
		60		S	S
-bisulphate	$NaHSO_4$	20	sat. sol	S	S
		60		S	S
-bisulphite	$NaHSO_3$	20	sat. sol	S	S
		60		S	S
-borate		20	sat. sol	S	S
		60		S	S
-bromide	NaBr	20	sat. sol	S	S
		60		S	S
-carbonate	Na_2CO_3	20	sat. sol	S	S
		60		S	S
-chlorate	$NaClO_3$	20	sat. sol	S	S
		60		S	S
-chloride	NaCl	20	sat. sol	S	S
		60		S	S
-chlorite		20	2	S	S
		20	20	S	
-chromate		20	dil. sol	S	S
		60		S	S
-cyanide	NaCN	20	sat. sol	S	S
		60		S	S
-dichromate		20	sat. sol	S	S
		60		S	S
dodecylbenzenesulphonate		20		S	
		60		S	

Chemical	Formula	Temp. (°C)	Conc. (%)	Resistance	
				MDPE/HDPE	LDPE
Sodium		20	sat. sol	S	S
-ferricyanide		60		S	S
-ferrocyanide	$Na_4Fe(CN)_6$	20	sat. sol	S	S
		60		S	S
-fluoride	NaF	20	sat. sol	S	S
		60		S	S
-hexacyanoferrate		20		S	
		60		S	
-hydrogen sulphide		20	>10	S	S
		60		S	S
-hydroxide	NaOH	20	1 to 40	S	S
		60		S	S
-hypochlorite	NaOCl	20		S	L
		60		S	L
-nitrate	$NaNO_3$	20	sat. sol	S	S
		60		S	S
-nitrite	$NaNO_2$	20	sat. sol	S	S
		60		S	S
-perborate	$NaBO_3.H_2O$	20		S	
		60		S	
-perchlorate		20		S	
		60		S	
-peroxide		20		S	
		60		S	
-phosphate		20	sat. sol	S	S
(acid)		60		S	S
-phosphate		20	sat. sol	S	S
(neutral)		60		S	S
-phosphate	Na_3PO_4	20		S	
(tri)		60		S	
-silicate		20	sol	S	S
		60		S	S
-sulphate	Na_2SO_4	20	sat. sol	S	S
		60		S	S
-sulphide	Na_2S	20	sat. sol	S	S
		60		S	S
-sulphite	$NaSO_3$	20	sat. sol	S	S
		60		S	S
-thiosulphate	$Na_2S_3O_3$	20		S	
		60		S	
Spermaceti		20		S	
		60		L	
Spirits		20		S	
		60		S	
Stannic chloride	$SnCl_4$	20		S	S
(Tin (IV) chloride)		60		S	S
Stannous chloride	$SnCl_2$	20		S	S
(Tin (II) chloride)		60		S	S

Chemical	Formula	Temp. (°C)	Conc. (%)	Resistance	
				MDPE/HDPE	LDPE
Starch		20		L	L
		60		L	L
Stearic acid		20		L	L
		60		L	L
Styrene		20		L	
		60		U	
Succinic acid		20		S	
		60		S	
Sugar syrup		20	high	S	
		60		S	
Sulphur	S	20		S	S
		60		S	
Sulphuric acid	H_2SO_4	20	up to 10	S	S
		60		S	S
		20	10 to 50	S	S
		60		S	S
		20	50 to 75	S	S
		60		S	S
		20	98	S	L
		60		U	U
		20	fuming	U	U
		60		U	U
-nitric aqueous soln	$H_2SO_4 + HNO_3 + H_2O$	20	48/49/3	U	
		60		U	
		20	50/50/0	U	
		60		U	
		20	10/20/70	L	
		60		L	
Sulphurous acid		20	up to 30	S	S
		60		S	S
Sulphurous ether		20		S	
		60		L	
Sulphur dioxide	SO_2	20	dry	S	S
		60		S	S
		20	100	S	
		60	liquid	L	
Sulphur trioxide	SO_3	20	100	U	U
		60		U	U
Tallow emulsion		20		S	S
		60		L	L
Tannic acid	$C_{14}H_{10}O_9$	20	sol	S	S
		60		S	S
Tartaric acid	$HOOC(CHOH)_2COOH$	20	sat. sol	S	S
		60		S	S
Tetrabromoethane		20		L	
		60		U	
Tetrachloroethane	$CHCl_2CHCl_2$	20		L	
		60		U	
Tetrachloroethylene	CCl_2CCl_2	20		L	
		60		U	

Chemical	Formula	Temp. (°C)	Conc. (%)	Resistance	
				MDPE/HDPE	LDPE
Tetraethyllead	$Pb(C_2H_5)_4$	20		S	S
Tetrahydrofuran	C_4H_8O	20		L	U
		60			U
Tetrahydronaphthalene		20		S	
		60		U	
Tetralin		20		U	
		60		U	
Thioglycolic acid		20		S	
		60		S	
Thionyl chloride	$SOCl_3$	20	100	U	U
		60		U	U
Thiophene	C_4H_4S	20	100	L	
		60		L	
Titanium tetrachloride		20		U	U
		60		U	U
Toluene	$C_6H_5CH_3$	20	100	L	U
		60		U	U
Tributyl phosphate		20		S	
Trichloroacetic acid	CCl_3COOH	20	≤50	S	
		60		L	
Trichlorobenzene		20		U	U
		60		U	U
Trichloroethylene	Cl_2CCHCl	20	100	U	U
		60		U	U
Tricresyl phosphate		20		S	
		60		S	
Triethanolamine	$N(CH_2CH_2OH)_2$	20	sol	S	S
		60		L	L
Triethylamine		20			L
		60			L
Triethylene glycol		20		S	S
		60		S	S
Trilon		20		S	
		60		S	
Trimethyl borate		20		S	
		60		L	
Trimethylolpropane		20		S	
		60		S	
Trioctyl phosphate		20		S	
		60		L	
Trisodium phosphate		20		S	S
		60		S	S
Turpentine		20		U	U
		60		U	U
Urea	$CO(NH_2)_2$	20	sol	S	S
		60		S	S
Uric acid	$C_5H_4N_4O_3$	20		S	
		60		S	

Chemical	Formula	Temp. (°C)	Conc. (%)	Resistance	
				MDPE/HDPE	LDPE
Urine		20		S	S
		60		S	S
Vinegar		20	work.sol	S	S
		60		S	S
Vinyl acetate	$CH_3CO_2CHCH_2$	20		S	
		60		S	
Waste gases		20		S	S
		60		S	S
Water	H_2O	20		S	S
		60		S	S
Xylene	C_8H_{10}	20	100	L	U
		60		U	U
Yeast (aqueous)		20	susp	S	S
		60		S	S
Zinc		21		S	S
-bromide		60		S	S
-carbonate	$ZnCO_3$	20	susp	S	S
		60		S	S
-chloride	$ZnCl_2$	20	sat. sol	S	S
		60		S	S
-nitrate	$Zn(NO_3)_2$	20	sat. sol	S	S
		60		S	S
-oxide	ZnO	20	susp.	S	S
		60		S	S
-stearate		20		S	S
		60		S	S
-sulphate	ZUO4	20	sat. sol	S	S
		60		S	S

Sources for Chemical Resistances of PE

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