Chemicals Resistance Table
Low Density and High Density Polyethylene

INTRODUCTION

The table in this document summarizes the data given in a number of chemical resistance tables at present in use in various countries, derived from both practical experience and test results.

Source: ISO/TR 7472, 7474; Carlowitz: "Kunststofftabellen-3. Auflage".

The table contains an evaluation of the chemical resistance of a number of fluids judged to be either aggressive or not towards low and high density polyethylene. This evaluation is based on values obtained by immersion of low and high density polyethylene test specimen's in the fluid concerned at 20 and 60°C and atmospheric pressure, followed in certain cases by the determination of tensile characteristics.

A subsequent classification will be established with respect to a restricted number of fluids deemed to be technically or commercially more important, using equipment which permits testing under pressure and the determination of the coefficient of chemical resistance for each fluid. These tests will thus furnish more complete indications on the use of low and high density polyethylene products for the transport of stated fluids, including their use under pressure.

SCOPE AND FIELD APPLICATION

This document establishes a provisional classification of the chemical resistance of low and high density polyethylene with respect to about 300 fluids. It is intended to provide general guidelines on the possible utilization of low and high density polyethylene:

at temperatures up to 20 och 60°C
in the absence of internal pressure and external mechanical stress
(for example flexural stresses, stresses due to thrust, rolling loads etc).

DEFINITIONS, SYMBOLS AND ABBREVIATIONS

The criteria of classification definitions, symbols and abbreviations adopted in this document are as follows:

S = Satisfactory

The chemical resistance of low or high density polyethylene exposed to the action of a fluid is Classified as "satisfactory• when the results of test are acknowledged to be satisfactory by the majority of the countries participating in the evaluation.

L = Limited

The chemical resistance of low or high density polyethylene exposed to the action of a fluid is classified as "limited" when the results of tests are acknowledged to be "limited" by the majority of the countries participating in the evaluation.

Also classified as "limited" are the resistance to the action of chemical fluids for which judgements "S" and "NS" or "L" are pronounced to an equal extent.

NS = Not satisfactory

The chemical resistance of low or high density polyethylene exposed to the action of a fluid is classified as "not satisfactory" when the results of tests are acknowledged to be "not satisfactory" by the majority of the countries participating in the evaluation.

Also classified as "not satisfactory" are materials for which judgements "L" and "NS" are pronounced to an equal extent.

Sat.sol	Saturated aqueous solution, prepared at 20°c
Sol	Aqueous solution at a concentration higher than 10%, but not saturated
Oil.sol	Dilute aqueous solution at a concentration equal to or lower than 10%
Work.sol	Aqueous solution having the usual concentration for industrial use

Solution concentrations reported in the text are expressed as a percentage by mass.
The aqueous solutions of sparingly soluble chemicals are considered, as far as chemical action towards low or high density polyethylene is concerned, as saturated solutions.

In general, common chemical names are used in this document.

The table is made as a first guideline for user of polyethylene. If a chemical compound is not to be found or if there is an uncertainty on the chemical resistance in an application, please contact Borealis for advice and proposal on testing.

Chemical resistance of low density and high density polyethylene, not subjected to mechanical stress, to various fluids at 20 and 60°C

Chemical or product	Concentration	LD °C		HD °C	
		20	60	20	60
Acetaldehyde	100 %	L	NS	S	L
Acetanilide				S	S
Acetic acid	10 %	S	S	S	S
Acetic acid	60 %	S	L	S	S
Acetic acid, glacial	Greater than 96 %	L	NS	S	L
Acetic anhydride	100 %	L	NS	S	L
Acetone	100 %	L	NS	L	L
Acrylnitrile		S	S	S	S
Acetylsilicacid		S	S	S	S
Adipic acid	Sat.sol	S	S	S	S
After shave		NS	NS	NS	NS
Aliphatic hydocarbons		L	NS	L	L
Allyl acetate		S	L	S	L
Ally! alcohol	100 %	L	NS		
Allyl alcohol	96 %			S	S
Allyl chloride		L	NS	L	NS
Aluminium chloride	Sat.sol	S	S	S	S
Aluminium fluoride	Sat.sol	S	S	S	S
Aluminium hydroxide	Sat.sol	S	S	S	S
Aluminium nitrate	Sat.sol	S	S	S	S
Aluminium oxychloride	Sat.sol	S	S	S	S
Al/potassium sulphate	Sat.sol	S	S	S	S
Aluminium sulphate	Sat.sol	S	S	S	S
Alums	Sol	S	S	S	S
Aminobenzoic acid		S	S	S	S
Ammonia, dry gas	100 %	S	S	S	S
Ammonia, liquid	100 %	L	L	S	S
Ammonia, aqueous	Dil.sol	S	S	S	S
Ammonium acetate		S	S	S	S
Ammonium carbonate	Sat.sol	S	S	S	S
Ammonium chloride	Sat.sol	S	S	S	S
Ammonium fluoride	Sol	S		S	S
Ammonium hexafluorosilicate	Sat.sol	S	S	S	S
Ammonium hydrogen carbonate	Sat.sol	S	S	S	S
Ammonium hydroxide	10 %	S	S	S	S
Ammonium hydroxide	30 %	S	S	S	S

Chemical or product	Concentration	LDPE		HDPE	
		20 °C	60 °C	20 °C	60 °C
Ammonium metaphosphate	Sat.sol	S	S	S	S
Ammonium nitrate	Sat.sol	S	S	S	S
Ammonium oxalate	Sat.sol	S	S	S	S
Ammonium phosphate	Sat.sol	S	S	S	S
Ammonium persulphate	Sat.sol	S	S	S	S
Ammonium sulphate	Sat.sol	S	S	S	S
Ammonium sulphide	Sol	S	S	S	S
Ammonium thiocyanate	Sat.sol	S	S	S	S
Amyl acetate	100 %	NS	NS	L	L
Amyl alcohol	100 %	L	L	S	L
Amyl chloride	100 %	NS	NS		
Amyl phthalate		L	L	S	L
Aniline	100 %	NS	NS	S	L
Anilinchlorohydrate		L			
Antimony (III) chloride	90 %			S	S
Antimony (III) chloride	Sat.sol	S	S	S	S
Antimony trichloride	Sol	S	S	S	S
Apple juice	Sol			S	L
Aqua regia	HCl/HNO3 = 3/1	NS	NS	NS	NS
Aromaitic hydrocarbons		NS	NS	NS	NS
Arsenic acid	Sat.sol	S	S	S	S
Asorbic acid	10 %	S	S	S	S
Barium bromide	Sat.sol	S	S	S	S
Barium carbonate	Sat.sol	S	S	S	S
Barium chloride	Sat.sol	S	S	S	S
Barium hydroxide	Sat.sol	S	S	S	S
Barium sulphate	Sat.sol	S	S	S	S
Barium sulphide	Sat.sol	S	S	S	S
Beer		S	S	S	S
Benzaldehyde	100 %	L	NS	S	L
Benzene	100 %	NS	NS	L	L
Benzoic acid	Sat.sol	S	S	S	S
Benzoytchloride		S	L	S	L
Benzyl alcohol		S	L	S	S
Benzylsulphonic acid	10 %	S	S	S	S
Bismuth carbonate	Sat.sol	S	S	S	S
Bitumen		S	L	S	S
Bleach lye	10 %	S	S	S	S

Chemical or product	Concentration	LD 20 °C	LD 60 °C	HD 20 °C	HD 60 °C
Borax	Sat.sol	S	S	S	S
Boric acid	Sat.sol	S	S	S	S
Boron trifluoride		L	NS	L	NS
Brake fluid		L	NS	L	NS
Brine		S	S	S	S
Bromine, dry gas	100 %	NS	NS	NS	NS
Bromine, liquid	100 %	NS	NS	NS	NS
Bromoform	100 %	NS	NS	NS	NS
Butandiol	10 %	S	S	S	S
Butandiol	60 %	S	S	S	S
Butandiol	100 %	S	S	S	S
Butane, gas	100 %			S	S
Butanol	100 %	S	L	S	S
Butter		S	S	S	S
Butyl acetate	100 %	S	L	S	L
Butyl chloride		S		S	
Butylene glycol	10 %	S	S	S	S
Butylene glycol	60 %	S	S	S	S
Butylene glycol	100 %	S	S	S	S
Butyraldehyde				S	L
Butyric acid	100 %	L	L	S	L
Calcium arsenate		S	S	S	S
Calcium benzoate		S	S	S	S
Calcium bisulphide		S	S	S	S
Calcium bromate	10 %	S	S	S	S
Calcium bromide	Sat.sol	S	S	S	S
Calcium carbonate	Sat.sol	S	S	S	S
Calcium chlorate	Sat.sol	S	S	S	S
Calcium chloride	Sat.sol	S	S	S	S
Calcium chromate	40 %	S	S	S	S
Calcium cyanide		S	S	S	S
Calcium hydrosulphide	Sol	S	S	S	S
Calcium hydroxide	Sat.sol	S	S	S	S
Calcium hypochlorite	Sol	S	S	S	S
Calcium nitrate	Sat.sol	S	S	S	S
Calcium oxide	Sat.sol	S	S	S	S
Calcium perchlorate	1 %	S		S	S

Chemical or product	Concentration	LO °C		HD °C	
		20	60	20	60
Calcium pennanganate	20 %	S	S	S	S
Calcium persulphate	Sol	S	S	S	S
Calcium sulphate	Sat.sol	S	S	S	S
Calcium sulphide	Oil.sol			L	L
Camphor oil		NS	NS	L	L
Carbon dioxide, dry gas	100 %			S	S
Carbon dioxide, wet		S	S	S	S
Carbon disulphide	100 %	NS	NS	L	NS
Carbon monoxide	100 %	S	S	S	S
Carbon tetrachloride	100 %	NS	NS	L	NS
Carbonic acid		S	S	S	S
Castor oil	Sol	S	S	S	S
Chlorine, water	2 % Sat.sol	L	L	S	S
Chlorine, aqueous	Sat.sol	NS	NS	L	NS
Chlorine, dry gas	100 %	NS	NS	L	NS
Chloroacetic acid	Sol			S	S
Chlorobenzene	100 %	NS	NS	NS	NS
Chloroethanol	100 %	S	S	S	S
Chlorofonn	100 %	NS	NS	NS	NS
Chloromethane, gas	100 %	L		L	
Chlorosulphonic acid	100 %	NS	NS	NS	NS
Chloropropene		NS	–	L	
Chrome alum	Sol	S	S	S	S
Chromic acid	Sat.sol	S	S		
Chromic acid	20 %			S	L
Chromic acid	50 %			S	L
Chromium VI oxide	Sat.sol	S	S	S	S
Cider		S	S	S	S
Citric acid	Sat.sol	S	S	S	S
Citric acid	10 %	S	S	S	S
Citric acid	25 %	S	S	S	S
Coconut oil alcoholic		S	S	S	S
Coffee		S	S	S	S
Copper (II) chloride	Sat.sol	S	S	S	S
Copper cyanide	Sat.sol	S	S	S	S
Copper (II) fluoride	Sat.sol	S	S	S	S
Copper (II) fluoride	2 %	S	S	S	S
Copper (II) nitrate	Sat.sol	S	S	S	S
Copper (II) sulphate	Sat.sol	S	S	S	S

Chemical or product	Concentration	LO °C		HO °C	
		20	60	20	60
Corn oil		S	S	S	S
Cottonseed oil		S	S	S	S
Cresylic acid	Sat.sol			L	
Crotonaldehyde	Sat.sol	L			
Cyclanone		S	S	S	S
Cyclohexane		NS	NS	NS	NS
Cyclohexanol	Sat.sol	L	NS		
Cyclohexanol	100%			S	S
Cyclohexanone	100%	NS	NS	S	L
Decahydronaphthalene	100%	L	NS	S	L
Decane		NS	NS	L	NS
Decalin	100%			S	L
Detergents, synthetic		S	S	S	S
Developers (photographic)	Work.cone			S	S
Dextrin	Sol	S	S	S	S
Dextrose	Sol	S	S	S	S
Diacetone alcohol		L	L	L	L
Diazo salts		S	S	S	S
Dibutyl amine		NS	NS	L	NS
Dibuthyl ether		NS	NS	L	
Dibutylphthalate		L	L	S	L
Dichlorobenzene		NS	NS	NS	NS
Dichloroethylene		NS	NS	NS	NS
Dichloropropylene		NS	NS	NS	NS
Diesel oil		S	NS	S	L
Diethyl ether	100%	NS	NS	L	
Diethyl ketone		L	NS	L	L
Diethylene glycol		S	S	S	S
Diglycolic acid		S	S	S	S
Diisobutylketone	100%	S	L	S	L
Dimethyl amine	100%	NS	NS		
Dimethyl formamid		S	L	S	S
Dioctyl phthalate	100%	L	NS	S	L
Dioxan	100%			S	S
Dipentene		NS	NS	NS	NS
Disodiumphosphate		S	S	S	S
Drano, plumbing cleaner		S	S	S	S

Chemical or product	Concentration	LO 20	OC 60	HD 20	OC 60
Emulsions, photographic		S	S	S	S
Ethandiol	100 %	S	S	S	S
Ethanol	40 %	S	L	S	L
Ethanol	96 %	L	L		
Ethyl acetate	100 %	L	NS	S	NS
Ethyl acrylate	100 %	NS	NS	L	NS
Ethyl alcohol	35 %	S	S	S	S
Ethyl alcohol	100 %	S	S	S	S
Ethyl benzene		NS	NS	NS	NS
Ethyl chloride	100 %	NS	NS	NS	NS
Ethylene chloride	100 %	NS	NS	NS	NS
Ethylene diamine	100 %	S	L	S	S
Ethyl ether		NS	NS	NS	NS
Ethylene glycol	100 %	S	S	S	S
Ethyl mercaptan		NS	NS	NS	NS
Ferric chloride	Sat.sol	S	S	S	S
Ferric nitrate	Sat.sol	S	S	S	S
Ferric sulphate	Sat.sol	S	S	S	S
Ferrous chloride	Sat.sol	S	S	S	S
Ferrous sulphate	Sat.sol	S	S	S	S
Fish solubles	Sol	S	S	S	S
Fluoboric acid		S	S	S	S
Fluorine gas	100 %	L	NS	NS	NS
Fluorine gas, dry	100 %	NS	NS	NS	NS
Fluorine gas, wet	100 %	NS	NS	NS	NS
Fluorosilic acid	Cone	S	L	S	L
Fluorosilic acid	40 %	S	S	S	S
Formaldehyde	40 %	S	S	S	S
Formic acid	40 %	S	S	S	S
Formic acid	98 to 100 %	S	S	S	S
Fructose	Sat.sol	S	S	S	S
Fruit pulps	Sol	S	S	S	S
Furfural	100 %	NS	NS	NS	NS
Furfuryl alcohol	100 %	L	NS	S	L
Gallic acid	Sat.sol	S	S	S	S
Gasoline, petrol		L	NS	L	L
Gelatine		S	S	S	S

Chemical or product	Concentration	LO •C		HD •C	
		20	60	20	60
Glucose	Sat.sol	S	S	S	S
Glycerine	100 %	S	S	S	S
Glycerol	100 %	S	S	S	S
Glycolic acid	30 %	S	L		
Glycolic acid	Sol			S	S
n-Heptane	100 %	NS	NS	L	NS
Hexachlorobenzene		S	S	S	L
Hexachlorophene		NS	NS	L	L
Hexamethylenetramine	40 %	S		S	
Hexane		S	L	S	L
Hexanol,tertiary		S	S	S	S
Hydrobromic acid	50 %	S	S	S	S
Hydrobromic acid	Up to 100 %	S	S	S	S
Hydrochloric acid	Upto 36 %	S	S	S	S
Hydrochloric acid	Cone	S	S	S	S
Hydrochlorous acid	Cone	S	S	S	S
Hydrocyanic acid	10 %	S	S	S	S
Hydrocyanic acid	Sat.sol	S	S	S	S
Hydrofluoric acid	40 %	S	S	S	S
Hydrofluoric acid	60 %	S	L	S	L
Hydrogen	100 %	S	S	S	S
Hydrogen chloride	Dry gas	S	S	S	S
Hydrogen peroxide	30 %	S	L	S	S
Hydrogen peroxide	90 %	S	NS	S	NS
Hydrogen sulphide gas	100 o/o	S	S	S	S
Hydroquinone	Sat.sol	S	S		
Hydroxylamine	up to 12 %	S	S	S	S
Inks		S	S	S	S
Iodine (in potassium sol)		L	NS	NS	NS
Iodine (in alcohol)		NS	NS	NS	NS
Iron (II) chloride	Sat.sol	S	S	S	S
Iron (II) sulphate	Sat.sol	S	S	S	S
Iron (III) chloride	Sat.sol	S	S	S	S
Iron (III) nitrate	Sol	S	S	S	S
Iron (III) sulphate	Sat.sol	S	S	S	S
Iso octane	100 %	S	NS	S	L
Isopentane		NS	NS	NS	NS

Chemical or product	Concentration	LD 20	OC 60	HD 20	OC 60
Isopropanol		S	S	S	S
Isopropylamine		NS	NS	NS	NS
Isopropyl ether	100 %	L	NS	S	NS
Kerosene		NS	NS	NS	NS
Lactic acid	10 %	S	S	S	S
Lactic acid	28 %	S	S	S	S
Lactic acid	up to 100 %	S	S	S	S
Latex		S	S	S	S
Lead acetate	Oil.sol	S	S	S	S
Lead acetate	Sat.sol	S	S	S	S
Lead arsenate		S	S	S	S
Lubricating oil		S	S	S	S
Lysol		NS	NS	L	NS
Magnesium carbonate	Sat.sol	S	S	S	S
Magnesium chloride	Sat.sol	S	S	S	S
Magnesium hydroxide	Sat.sol	S	S	S	S
Magnesium nitrate	Sat.sol	S	S	S	S
Magnesium sulphate	Sat.sol	S	S	S	S
Maleic acid	Sat.sol	S	S	S	S
Mercury		S	S	S	S
Mercury (I) nitrate	Sol	S	S	S	S
Mercury (II) chloride	Sat.sol	S	S	S	S
Mecury (II) cyanide	Sat.sol	S	S	S	S
Mercury	100 %	S	S	S	S
Methanol	100 %	S	L	S	S
Methyl alcohol	100 %	S	L	S	S
Methyl benzoic acid	Sat.sol	NS	NS	L	
Methyl bromide	100 %	NS	NS	NS	NS
Methyl chloride	100 %	NS	NS	NS	NS
Methylcyclohexane		L	NS	L	NS
Methyl ethyl ketone	100 %			S	L
Methylene chloride		NS	NS	NS	NS
Methoxybutanol	100 %	S	L	S	L
Milk		S	S	S	S
Milk of Magnesia		S	L	S	L
Mineral oils		L	NS	S	L

Chemical or product	Concentration	LDPE		HDPE	
		20	60	20	60
Molasses	Work.cone	S	S	S	S
Motor oil		S	L	S	S
Naphtha		L	NS	L	NS
Naphtahalene		NS	NS	L	
Nickel chloride	Sat.sol	S	S	S	S
Nickel nitrate	Sat.sol	S	S	S	S
Nickel sulphate	Sat.sol	S	S	S	
Nicotine	Oil.sol	S	S	S	S
Nicotinic acid	Oil.sol	L	L	S	
Nitric acid	25 %	S	S	S	S
Nitric acid	50 %	S	L	S	L
Nitric acid	70 %	S	L	S	L
Nitric acid	95 %	NS	NS	NS	NS
Nitric acid	100 %	NS	NS	NS	NS
Nitrobenzene	100 %	NS	NS	NS	NS
Nitroethane	100 %	S	NS	S	NS
Nitromethane	100 %	S		S	
Nitrotoluene		NS	NS	NS	NS
n-Octane		S	S	S	S
Octyl alcohol		S	NS	S	NS
Oiland fats		L	NS	S	L
Oleic acid	100 %	L	NS	S	S
Oleum (H2S04 + 10% S03)		NS	NS	NS	NS
Oleum (H2S04 + 50 % S03)		NS	NS	NS	NS
Olive oil		S	NS	S	NS
Orthophosphoricacid	50 %	S	S	S	S
Orthophosphoricacid	95 %	S	L	S	L
Oxalic acid	Sat.sol	S	S	S	S
Oxygen	100 %	S		S	L
Ozone	100 %	NS	NS	L	NS
Paraffin oil		S	L	S	S
n-Pentane		NS	NS	NS	NS
Pentane-2		NS	NS	NS	NS
Perchloricacid	20 %	S	S	S	S
Perchloric acid	50 %	S	L	S	L
Perchloricacid	70 %	S	NS	S	NS

Chemical or product	Concentration	LOC		HDOC	
		20	60	20	60
Perchloroethylene		NS	NS	NS	NS
Phenol	Sol	L	NS	S	S
Phosphine	100%	S	S	S	S
Phosphoric acid	upto 25%	S	S	S	S
Phosphoric acid	25to 50%	S	S	S	S
Phosphoric (III) chloride	100%	S	L	S	L
Phosphorous (II) chloride	100%			S	L
Phosphorous pentoxide	100%	S	S	S	S
Phosphorous trichloride	100%	S	L	S	L
Photographic solutions		S	S	S	S
Phtalic acid	50%	S	S	S	S
Picric acid	Sat.sot	S	L	S	
Plating solutions		S	S	S	S
Potassium acetate		S	S	S	S
Potassium aluminium sulphate	Sat.sol	S	S	S	S
Potassium benzoate		S	S	S	S
Potassium bicarbonate	Sat.sol	S	S	S	S
Potassium borate	Sat.sol	S	S	S	S
Potassium bromate	Sat.sol	S	S	S	S
Potassium bromide	Sat.sot	S	S	S	S
Potassium carbonate	Sat.sol	S	S	S	S
Potassium chlorate	Sat.sol	S	S	S	S
Potassium chloride	Sat.sol	S	S	S	S
Potassium chromate	Sat.sol	S	S	S	S
Potassium cyanide	Sol	S	S	S	S
Potassium dichromate	Sat.sol	S	S	S	S
Potassium fluoride	Sat.sol	S	S	S	S
Potassium hexacyanoferrate (III)	Sat.sol	S	S	S	S
Potassium hexacyanoferrate (II)	Sat.sol	S	S	S	S
Potassium hexaftuorositicate	Sat.sol	S	S	S	S
Potassium hydrogen carbonate	Sat.sol	S	S	S	S
Potassium hydrogen sulphate	Sat.sol	S	S	S	S
Potassium hydrogen sulphide	Sol			S	S
Potassium hydroxide	10%	S	S	S	S
Potassium hydroxide	Sol	S	S	S	S
Potassium hypochlorite	Sol	S	L	S	L
Potassium iodate	10%	S	S	S	S
Potassium iodide	Sat.sol	S	S	S	S
Potassium nitrate	Sat.sol	S	S	S	S

Chemical or product	Concentration	LD 0C		HO •C	
		20	60	20	60
Potassium orthophosphate	Sat.sol	S	S	S	S
Potassium oxalate	Sat.sol	S	S	S	S
Potassium perchlorate	Sat.sol	S	S	S	S
Potassium permanganate	20 %	S	S	S	S
Potassium persulphate	Sat.sol	S	S	S	S
Potassium phosphate	Sat.sol	S	S	S	S
Potassium sulphate	Sat.sol	S	S	S	S
Potassium sulphide	Sol	S	S	S	S
Potassium sulphite	Sat.sol	S	S		
Potassium thiocyanate	Sat.sol	S	S	S	S
Potassium thiosulphate	Sat.sol	S	S	S	S
Propargull alcohol		S	S	S	S
n-Propyt alcohol		S	S	S	S
Propionic acid	50 %			S	S
Propionic acid	100 %			S	L
Propylene dichloride	100 %	NS	NS	NS	NS
Propylene glycol		S	S	S	S
Pyridine	100 %			S	L
Quinol (hydroquinone)	Sat.sol	S	S	S	S
Resorcinol	Sat.sol	S	S	S	S
Salicylic acid	Sat.sol	S	S	S	S
Sea water		S	S	S	S
Selenic acid		S	S	S	S
Silicon oil		S	S	S	S
Silver acetate	Sat.sol	S	S	S	S
Silver cyanide	Sat.sol	S	S	S	S
Silver nitrate	Sat.sol	S	S		
Soap solution	100 %	S	S	S	S
Sodium acetate	Sat.sol	S	S		
Sodium antimonate	Sat.sol	S	S	S	S
Sodium arsenite	Sat.sol	S	S	S	S
Sodium benzoate	Sat.sol	S	S	S	S
Sodium bicarbonate	Sat.sol	S	S	S	S
Sodium bisulphate	Sat.sol	S	S	S	S
Sodium bisulphite	Sat.sol	S	S	S	S
Sodium borate		S	S	S	S
Sodium bromide	Sat.sol	S	S	S	S
Sodium carbonate	Sat.sol	S	S	S	S

Chemical or product	Concentration	LDPE		HDPE	
		20 °C	60 °C	20 °C	60 °C
Sodium chlorate	Sat.sol	S	S	S	S
Sodium chloride	Sat.sol	S	S	S	S
Sodium chlorite	Sat.sol	L			
Sodium cyanide	Sat.sol	S	S	S	S
Sodium dichromate	Sat.sol	S	S	S	S
Sodium fluoride	Sat.sol	S	S	S	S
Sodium hexacyanoferrate (III)	Sat.sol			S	S
Sodium hexacyanoferrate (II)	Sat.sol			S	S
Sodium hexafluorosilicate	Sat.sol	S	S	S	S
Sodium hydrogen carbonate	Sat.sol	S	S	S	S
Sodium hydrogen sulphate	Sat.sol	S	S	S	S
Sodium hydrogen sulphite	Sol	S	S	S	S
Sodium hydroxide	40 %	S	S	S	S
Sodium hydroxide	Sol			S	S
Sodium hypochloride		L	NS	S	S
Sodium hypochlorite	15 % available Cl			S	S
				S	S
Sodium iodate	10 %	S	S	S	S
Sodium iodide	Sat.sol	S	S	S	S
Sodium nitrate	Sat.sol	S	S	S	S
Sodium nitrite	Sat.sol	S	S	S	S
Sodium ortophosphate	Sat.sol	S	S	S	S
Sodium oxalate	Sat.sol	S	S	S	S
Sodium phosphate	Sat.sol	S	S	S	S
Sodium silicate	Sol	S	S	S	S
Sodium sulphate	Sat.sol	S	S	S	S
Sodium sulphide	Sat.sol	S	S	S	S
Sodium sulphite	Sat.sol	S	S	S	S
Sodium thiocyanate	Sat.sol	S	S	S	S
Stannic chloride	Sat.sol	S	S	S	S
Stannous chloride	Sat.sol	S	S	S	S
Starch solution	Sat.sol	S	S	S	S
Stearic acid	Sat.sol	S	L	S	
Styrene	Sol	L	NS	L	NS
Sulphur dioxide, dry	100 %	S	S	S	S
Sulphur trioxide	100 %	NS	NS	NS	NS
Sulphuric acid	10 to 50 %	S	S	S	S
Sulphuric acid	10 %	S	S	S	S
Sulphuric acid	50 %	S	S	S	S

Chemical or product	Concentration	LO °C		HO °C	
		20	60	20	60
Sulphuric acid	70 %	S	L	S	L
Sulphuric acid	80 %	S	NS	S	NS
Sulphuric acid	98 %	L	NS	S	NS
Sulphuric acid	Fuming	NS	NS	NS	NS
Sulphurous acid	30 %	S	S	S	S
Sulphurous acid	Sol	S	S	S	S
Tallow		S	L	S	L
Tannic acid	Sol	S	S	S	S
Tartaric acid	Sat.sol	S	S	S	S
Tartaric acid	Sol			S	S
Tetrachloroethylene	100 %	NS	NS	NS	NS
Tetrachloromethane	100 %	NS	NS	L	NS
Tetradecane		NS	NS	NS	NS
Tetrahydrofuran		NS	NS	NS	NS
Tetrahydronaphthalene	100 %	L	NS	S	L
Thionyl chloride	100 %	NS	NS	NS	NS
Tin (II) chloride	Sat.sol	S	S	S	S
Tin (IV) chloride	Sol	S	S	S	S
Tin (IV) chloride	Sat.sol			S	S
Titanium tetrachloride	Sat.sol	NS	NS	NS	NS
Toluene	100 %	NS	NS	L	NS
Tribromomethane		NS	NS	NS	NS
Trichloroacetaldehyde		S		S	
Trichlorobenzene		NS	NS		
Trichloroethytene	100 %	NS	NS	NS	NS
Triethanolamine	100 %	S		S	
Triethanolamine	Sol			S	L
Triethylene glycol		S	S	S	S
Trisodium phosphate	Sat.sol	S	S		
Turpentine		NS	NS	NS	NS
Urea	up to 30 %	S	S	S	S
Urea	Sol	S	S	S	S
Urine		S	S	S	S
Vanilla extract		S	S	S	S
Vaseline		S	L	S	S
Vegetables oils		S	L	S	S
Vinegar		S	S	S	S
Water		S	S	S	S
Wetting agents		S	S	S	S
Wines and spirits		S	S	S	S

Chemical or product	Concentration	LO °C		HO °C	
		20	60	20	60

Xylene	100 %	NS	NS	L	NS
Yeast	Sol	S	S	S	S
Zinc bromide	Sat.sol	S	S	S	S
Zinc carbonate	Sat.sol			S	S
Zinc chloride	Sat.sol	S	S	S	S
Zinc oxide	Sat.sol	S	S	S	S
Zinc stearate		S	S	S	S
Zinc sulphate	Sat.sol	S	S	S	S
o- Zylene		NS	NS	NS	NS
p- Zylene		NS	NS	NS	NS