

Chemical resistance of Socorex[®] dispensers

Calibrex[™] models 525 / 530

Bottle-top dispensers are used daily for dispensing a wide range of chemicals. Therefore, instruments have to meet various requirements assuring safety of the laboratory staff and their work. Dispensers shall not release any substances which may interfere with trace analysis, have cytotoxic properties, distort optical tests or influence chromatographic methods and residue analysis.

Materials

Special attention is given to component materials (see charts below). All parts of the Calibrex[™] dispensers in contact with the liquid are made of robust and chemically inert materials providing for long instrument life.

Parts	Calibrex [™] 525	Calibrex [™] 530
Feed tube	FEP	
Valve body	Ceramic - Aluminum oxide	
Valve balls	Ceramic - Aluminum oxide	
Valve springs	Platinum Iridium	
Plate	PTFE	
Barrel	Borosilicate glass	
Plunger	Ground Borosilicate glass	PFA coated glass
Body	ETFE	
Delivery jet	FEP / PCTFE	
Cap	ETFE	

Chemicals from A to Z

The following list includes most frequently used chemicals. It provides useful information for the safe and adequate use of Calibrex[™] 525/530 dispensers. However, safety precautions and recommendations in operating instructions must be followed carefully.

Code explanations

- ++ = Good resistance
- + = Acceptable

Chemicals A - Z	Calibrex™ 525	Calibrex™ 530
A		
Acetaldehyde (Ethanal)	++	++
Acetic acid 96%	++	+
Acetic acid 100% (Glacial)	+	+
Acetic anhydride	+	+
Acetone (Propanone)	++	++
Acetonitrile (MECN)	+	+
Acetophenone	+	+
Acetyl Chloride	+	+
Acetylacetone	++	++
Acrylic acid	++	++
Acrylonitrile	+	+
Adipic acid		++
Allyl alcohol	++	++
Aluminum chloride		++
Amino acids		++
Ammonia <20%	+	+
Ammonia 20-30%	+	+
Ammonium chloride		++
Ammonium fluoride		++
Ammonium hydroxide	+	+
Ammonium molybdate		++
Ammonium sulfate		++
Amyl alcohol (Pentanol)	++	++
Amyl chloride (Chloropentane)	+	+
Aniline	++	++
Antimony trichloride		++
Ascorbic acid		++
n-Amyl acetate	+	+
B		
Barium chloride		++
Benzaldehyde	++	++
Benzene	+	+
Benzine	++	++
Benzoyl chloride	+	+
Benzyl alcohol	++	++
Benzyl chloride	+	+
Benzylamine	+	+
Bis(2-ethylhexyl) phthalate	+	+
Boric acid 10%	+	++
Bromine		
Bromobenzene	+	+
Bromonaphtalene	++	++
Butanediol	+	++
Butanol	++	++
Butanone (MEK)		
Butyl acetate	+	+
Butyl acrylate	+	+
Butyl methyl ether	+	+
Butylamine	+	+

Chemicals A - Z	Calibrex™ 525	Calibrex™ 530
B		
Butyric acid	+	+
C		
Calcium carbonate		
Calcium chloride		++
Calcium hydroxide		+
Calcium hypochlorite		+
Carbon disulfide	+	+
Carbon tetrachloride Thertracholomethane	+	+
Chlorine dioxide	+	+
Chloronaphthalene	+	+
Chloroacetaldehyde 45%	+	++
Chloroacetic acid	+	++
Chloroacetone	+	+
Chlorobenzene	+	+
Chlorobutane	+	+
Chloroethanol	+	+
Chloroform	+	+
Chloronitric acid 100%	+	
Chlorosulfuric acid	+	+
Chlorosulfuric acid 100%	+	+
Chromic acid 100%	+	+
Chromosulfuric acid 100%		+
Citric acid	+	++
Copper fluoride		+
Copper sulfate		++
Cresol	+	++
Cumene (Isopropylbenzene)	+	+
Cyanoacrylate		
Cyclohexane	+	+
Cyclohexanone	+	+
Cyclopentane	+	+
D		
1,2-Diethylbenzene	+	+
1,4-Dioxane (Diethylene dioxide)	+	+
1-Decanol	++	++
Decane	++	++
Di-(2-ethylhexyl) peroxydicarbonate	+	+
Dibenzyl ether	+	+
Dichloroacetic acid	++	++
Dichlorobenzene	++	++
Dichloroethane (DCE)	++	++
Dichloromethane (DCM)	+	+
Dichloroethylene	+	+
Diesel oil (Heating oil)	++	++
Diethanolamine	++	++
Diethylamine	+	+
Diethylene glycol	++	++
Diethyl ether	+	+

Chemicals A - Z	Calibrex™ 525	Calibrex™ 530
D		
Dimethyl sulfoxide (DMSO)	+	+
Dimethylaniline	++	++
Dimethylformamide (DMF)	+	+
Dimethylglycol / Dimethoxyethane (DME)	+	+
Dioxide chlorine	+	+
Diphenyl ether	+	+
E		
Essentials oils	+	+
Ethanol	++	++
Ethanolamine	+	+
Ether	+	+
Ethyl acetate	+	+
Ethylbenzene	+	+
Ethylene chloride	+	+
Ethylenediamine	++	++
Ethylene glycol	++	++
F		
Fluoroacetic acid	+	+
Formaldehyde (Formalin)	++	++
Formamide	++	++
Formic acid	++	++
G		
Gamma-butyrolactone	++	++
Gasoline	+	+
Glycerin <40%	++	++
Glycolic acid <50%	+	++
H		
Heating oil (Diesel oil)	++	++
Heptane	++	++
Hexane	++	++
Hexanoic acid	+	++
Hexanol	++	++
Hydriodic acid	+	+
Hydrobromic acid	++	++
Hydrochloric acid <20% (HCL) 10 to 100 mL	++	++
Hydrochloric acid <20% (HCL) 1 to 5 mL	+	+
Hydrochloric acid 20 to 37% (HCL) 10 to 100 mL	+	+
Hydrochloric acid 20 to 37% (HCL) 1 to 5 mL	+	+
Hydrofluoric acid (HF)		
Hydrogen peroxide	++	+
I		
Iodine		+
Iodine bromide		
Iodine chloride		

Chemicals A - Z	Calibrex™ 525	Calibrex™ 530
I		
Isoamyl alcohol	++	++
Isobutanol	++	++
Isooctane	++	++
Isopropanol	++	++
Isopropyl ether	+	+
Isopropylamine	+	+
K		
Kerosene	+	+
L		
Lactic acid		++
M		
2-Methoxyethanol	++	++
Methanol	++	++
Methoxybenzene (Anisol)	+	+
Methyl benzoate	+	+
Methyl chloride (Chloromethane)	+	+
Methyl ethyl ketone peroxide (MEKP)		+
Methyl formate	++	++
Methyl iodine (Iodomethane)	+	+
Methyl methacrylate (MMA)	+	+
Methyl n-butyl keton (MEK)		
Methyl propyl ketone (2-Pentanone)	++	++
Methyl tert-butyl ether (MTBE)	+	+
Methylene chloride (Dichloromethane) (DCM)	+	+
Methylpentanone	++	++
Mineral oil (engine oil)	++	++
N		
N-Butylamine	+	+
Nitric acid <30% - 10 to 100mL	++	++
Nitric acid <30% - 1 to 5mL	+	+
Nitric acid 30-70% - 10 to 100mL	+	+
Nitric acid 30-70% - 1 to 5mL		
Nitric acid >70% - 10 to 100mL		
Nitric acid >70% - 1 to 5mL		
Nitro-hydrochloric acid (Aqua regia)	+	+
Nitrobenzene	+	+
Nitromethane	+	+
N-methyl-2-pyrrolidone (NMP)	++	++
O		
Octane	++	++
Octanol	++	++
Oil (vegetable, animal)	+	+
Oil of turpentine	+	+
Oleic acid	+	++
Oxalic acid		++

Chemicals A - Z	Calibrex™ 525	Calibrex™ 530
P		
Pentane	+	+
Peracetic acid	++	++
Perchloric acid 100%	+	+
Perchloric acid diluted	++	++
Perchloroethylene	+	+
Petroleum	+	+
Petroleum ether / spirit	+	+
Phenol	++	++
Phenylethanol (2-phenylethanol)	+	+
Phenylhydrazine	+	+
Phosphoric acid <100%	++	++
Phosphoric acid <85%	++	++
Piperidine	+	+
Potassium chloride		++
Potassium dichromate		+
Potassium fluoride		
Potassium hydroxide		++
Potassium iodide		++
Potassium permanganate		+
Potassium peroxydisulfate (Potassium persulfate)		+
Potassium sulfate		+
Propionic acid (Propanoic acid)	++	++
Propylene glycol (Propane-1,2-diol)	++	++
Propylene oxide	++	++
Picric acid (Trinitrophenol)	+	+
Pyridine	+	+
Pyruvic acid	+	++
R		
Resorcin		++
S		
Salicylaldehyde	++	++
Scintillation fluid	++	++
Silver acetate		
Silver nitrate		++
Sodium acetate		++
Sodium chloride (Kitchen salt)		++
Sodium dichromate		++
Sodium fluoride		+
Sodium hydroxide 30%		+
Sodium hypochlorite		+
Sodium thiosulfate		++
Sulfonitric acid 100%	+	+
Sulfochromic acid 100%	+	+
Sulfur dioxide	+	+
Sulfuric acid <60% - 10 to 100mL	++	++
Sulfuric acid <60% - 1 to 5mL	+	+
Sulfuric acid >60% - 10 to 100mL	+	+
Sulfuric acid >60% - 1 to 5mL	+	

Chemicals A - Z	Calibrex™ 525	Calibrex™ 530
T		
Trichlorotrifluoroethane	+	+
Terebentine oil	++	++
Tartaric acid		++
Tetrachloroethane	+	+
Tetrachloroethylene / methylene	+	+
Tetrahydrofuran (THF)	+	+
Tetramethylammonium hydroxide		+
Tetramin	++	++
TKN Digest		+
Toluene	++	++
Trichlorethylene	+	+
Trichloroacetic acid	+	+
Trichlorobenzene	+	+
Trichloroethane / Methane	+	+
Trichloromethane (Chloroform)	+	+
Triethanolamine	++	++
Triethylene glycol	++	++
Trifluoroacetic anhydride (TFAA)	+	+
Trifluoroacetic acid (TFA)	+	+
Trifluoromethane (Fluoroform)	+	+
U		
Urea		++
X		
Xylene	+	+
Z		
Zinc chloride 10%		++
Zinc sulfate 10%		++

The above guidelines have been carefully reviewed prior to publication. Should you require information on chemicals not listed or contribute to some comments, please feel free to contact us.