

CHEMICAL RESISTANCE FOR NAN YA CALENDER SHEET FILM

One of the most important properties of compound based on PVC is their exceptional chemical resistance. Presence of a large amount of Chlorine in the polymer composition is the main reason for it. Rigid PVC compounds offer excellent resistance to a broad range of reagents and mixture that smell, dissolve, or corrode many other materials.

Plasticized PVC usually have poor chemical resistance caused by extraction of the plasticizer, however, PVC compounds plasticized with polymeric plasticizer or nitrile rubbers have much better chemical and extraction resistance. If you are searching for these kind of material, please contact Technical Dept. for price and specification.

However, PVC is not recommended for use with chlorinated or aromatic hydrocarbons, esters, ketones, and certain organic solvent such as tetrahydrofuran.

The following chemical resistance is done by Nan Ya Plastics Corp. and related engineer, please take these as reference for your material purchasing.

A+ : RESISTANCE
A : PRACTICAL RESISTANCE
B+ : LIMITED RESISTANCE
B : WEAK RESISTANCE
C: NO RESISTANCE
R : RECOMMENDED
NR : NOT RECOMMENDED

Substance	Concentration	Flexible Film			Rigid Film		
		70 °F	140 °F	Suggestions	70 °F	140 °F	Suggestions
Acetic acid (Glacial acetic acid)	100	C	C	NR	A	C	R ON 70 °F
Acetic acid aq. (see also vinegar)	50 10	B+ A+	C B+	NR R	A+ A+	A+ A+	R R
Acetic anhydride	100	C	C	NR	C	C	NR
Acetone	100	C	C	NR	C	C	NR
Aluminium salts aq.	any	A+	A+	R	A+	A+	R
Alums aq.	any	A+	A+	R	A+	A+	R
Ammonia, gaseous	100	A+	A+	R	A+	A+	R
Ammonia aq.	conc. 10	A+ A+	B B+	R	A+ A+	B+ A	R
Ammonium acetate aq.	any	A+	A+	R	A+	A+	R
Ammonium carbonate aq.	any	A+	A+	R	A+	A+	R
Ammonium chloride aq.	any	A+	A+	R	A+	A+	R
Ammonium nitrate aq.	any	A+	A+	R	A+	A+	R
Ammonium phosphate aq.	any	A+	A+	R	A+	A+	R
Ammonium sulphate aq.	any	A+	A+	R	A+	A+	R
Amyl Alcohol, pure (fermentation amylalcohol)		B	C	NR	A+	B+	R
Aniline	100	C	C	NR	C	C	NR
Barium salts	any	A+	A+	R	A+	A+	R
Benzaldehyde	100	C	C	NR	C	C	NR
Benzaldehyde aq.	sat (0-3)	C	C	NR	C	C	NR
Benzene	100	C	C	NR	C	C	NR
Benzoic acid	100	A+	A	R	A+	A+	R

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Benzoic acid aq.	sat.	A+	A	R	A+	B+	R
Boric acid	100	A+	A	R	A+	A+	R
Boric acid aq.	sat. (4.9)	A+	A+	R	A+	B+	R
Bromine, liquid	100	C	C	NR	C	C	NR
Bromine, vapours	high	C	C	NR	C	C	NR
	low	C	C		B+	C	
Bromine water	sat.	C	C	NR	B+	B+	R
Butane, gaseous	100	C	C	NR	A+	A+	R
Butane, liquid	100	C	C	NR	A+	A+	R
Butyl acetate	100	C	C	NR	C	C	NR
n-Butyl alcohol (n-butanol)	100	C	C	NR	A+	A+	R
Calcium chloride aq.	sat.	A+	A+	R	A+	A+	R
Calcium nitrate aq.	sat.	A+	A+	R	A+	A+	R
Carbon bisulphide	100	C	C	NR	C	C	NR
Carbon tetrachloride	100	C	C	NR	C	C	NR
Caustic potash solution	50	B+	C	NR	A+	A+	R
Caustic potash solution	25	A	B+	R	A+	A+	R
	10	A+	A				
Caustic soda solution	50	C	C	NR	A+	A+	R
	25	B+	B+	R	A+	A+	R
	10	A+	A	R	A+	A+	R
Chlorine, gas, dry	100	C	C	NR	B+	C	NR
Chlorine, gas, humid	10	C	C	NR	B+	C	NR
Chlorine, liquid	100	C	C	NR	C	C	NR
Chlorine water	sat.	B+	B+	R	A+	A+	R
Chlorobenzene	100	C	C	NR	C	C	NR
Chloroform	100	C	C	NR	C	C	NR
Chlorosulphonic acid	100	C	C	NR	B+	C	NR
Chromic acid	sat.	A+	A	R	A+	A	R
	20				A+	B+	R
Chromium salts (bi-and trivalent) aq.	sat	A+	A+	R	A+	A+	R
Citric acid aq.	sat.	A+	A	R	A+	A+	R
Copper salts aq.	sat.	A+	A+	R	A+	A+	R
Cresols	100	C	C	NR	C	C	NR
Cresols aq.	sat.(0.25)	B	C	NR	B	C	NR
Cyclohexane	100	C	C	NR	A+	B+	R
Cyclohexanol	100	C	C	NR	A+	A	R
Cyclohexanone	100	C	C	NR	C	C	NR
Decahydronaphthalene	100	C	C	NR	A+	A+	R
Dibutylphthalate (see plasticizer)							
Dimethylformamide	100	C	C	NR	C	C	NR
1,4-Dioxane	100	C	C	NR	C	C	NR
Ether	100	C	C	NR	C	C	NR
Ethyl acetate	100	C	C	NR	C	C	NR
Ethyl alcohol not denatured	100	C	C	NR	A+	B+	R
Ethyl alcohol, aq not denatured	96	B+	C	NR	A+	B+	R
	50	B+	B+	R	A+	A	R
	10	A+	B+	R	A+	A	R
Ethyl benzene	100	C	C	NR	C	C	NR

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Ethyl chloride	100	C	C	NR	C	C	NR
Ethylene chloride	100	C	C	NR	C	C	NR
2-Ethyl hexanol	100	C	C	NR	A+	A	R
Fluoric acid	40		C	NR	A+	B+	R
Formaldehyde aq.	40	B+	B+	R	A+	A+	R
Formaldehyde aq.	30	B+	B+	R	A+	A+	R
	10	A+	A+		A+	A+	
Formic acid	98	C	C	NR	A+	C	NR
	90	B	C	NR	A+	C	NR
	50	B+	C	NR	A+	B+	R
	10	A+	B+	R	A+	A	R
Glycerine	100	A	A	R	A+	A+	R
Glycerine aq.	high	A+	B+	R	A+	A+	R
	low	A+	A+	R	A+	A+	R
Glycol	100	A	A	R	A+	A+	R
Glycol aq.	high	A+	B+	R	A+	A+	R
	low	A+	A+	R	A+	A+	R
Heptane	100	C	C	NR	A+	A+	R
Hexane	100	C	C	NR	A+	A+	R
Hydrochloric acid	conc.	A	B+	R	A+	A+	R
	10	A+	A	R	A+	A+	R
Hydrogen chloride gas	high				A+	A+	R
	low	A+	A	R	A+	A+	R
Hydrogen peroxide aq.	30		B+	R	A+	A	R
	10	A+	B+	R	A+	A+	R
	3	A+	A	R	A+	A+	R
Hydrogen sulphide	low	A+	A	R	A+	A+	R
Iron salts aq.	sat.	A+	A+	R	A+	A+	R
Isooctane	100	C	C	NR	A+	A+	R
Isopropyl alcohol	100	C	C	NR	A+	A	R
Lactic acid aq.	90	B+	C	NR	A+	C	NR
	50	B+	C	NR	A+	A+	R
	10	A+	B+	R	A+	A+	R
Magnesium salts aq.	sat.	A+	A+	R	A+	A+	R
Mercuric salts aq.	sat.	A+	A	R	A+	A	R
Mercury	100	A+	A+	R	A+	A+	R
Methyl alcohol	100	C	C	NR	A+	A	R
Methyl alcohol, aq.	50	B+	B+	NR	A+	A	R
Methylene chloride	100	C	C	NR	C	C	NR
Methyl ethylketone	100	C	C	NR	C	C	NR
Mineral Oil		A+	A	R	A+	A+	R
Naphthalene	100	C	C	NR	B+	C	NR
Nicket salts aq.	sat.	A+	A+	R	A+	A+	R
Nitric acid	50	B	C	NR	A+	A	R
Nitrobenzene	100	C	C	NR	C	C	NR
	25	B+	B	R	A+	A+	R
	10	A	B+	R	A+	A+	R
Octane		A+	A	R	A+	A+	R
Oleic acid	100	C	C	NR	A+	A+	R
Oxalic acid aq.	sat.	A+	B+	R	A+	A+	R

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Ozone		A+	A	R	A+	A	R
Perchloroethylene				N/A			N/A
Petrol				N/A			N/A
Phenol (aqueous phase)	sat. (appr. 9)	C	C	NR	B+	C	NR
(phenolic phase)	sat. (appr. 70)	C	C	NR	B	C	NR
Phosphoric acid	sat. (85)	A+	B+	R	A+	A+	R
	50	A+	A+	R	A+	A+	R
	10	A+	A+	R	A+	A+	R
Phosphorous pentoxide	100	A	A	R	A+	A+	R
Potassium carbonate aq.	sat.	A+	A	R	A+	A+	R
Potassium chlorate aq.	sat. (7.3)	A+	A+	R	A+	A+	R
Potassium chloride aq.	sat.	A+	A+	R	A+	A+	R
Potassium dichromate aq.	sat.	A+	B+	R	A+	A+	R
Potassium iodide aq.	sat.	A+	A	R	A+	A+	R
Potassium nitrate aq.	sat.	A+	A	R	A+	A+	R
Potassium permanganate aq.	sat. (6.4)	A	A	R	A+	A+	R
Potassium persulphate aq.	sat. (0.5)	A+	B+	R	A+	A+	R
Potassium sulphate aq.	sat.	A+	A+	R	A+	A+	R
Propane, gaseous	100	A	A	R	A+	A+	R
Propane, liquid	100	C	C	NR	A+	A	R
Pyridine	100	C	C	NR	C	C	NR
Silver salts aq.	sat.	A+	B+	R	A+	A	R
Sodium bicarbonate aq.	sat.	A+	A	R	A+	A+	R
Sodium bisulphite aq.	sat.	A+	A	R	A+	A+	R
Sodium carbonate aq.	sat.	A	B+	R	A+	A+	R
Sodium carbonate aq.	10	A+	A+	R	A+	A+	R
Sodium chlorate aq.	25	A+		R	A+	A+	R
Sodium chloride aq.	sat.	A+	A+	R	A+	A+	R
Sodium chlorite aq.	5	A+	A	R	A+	A+	R
Sodium hydroxide aq.	100	A+	A+	R	A+	A	R
Sodium hypochlorite aq.	5	A+	A	R	A+	A	R
Sodium nitrate aq.	sat.	A+	A	R	A+	A+	R
Sodium nitrite aq.	sat.	A+	A	R	A+	A+	R
Sodium perborate aq.	sat. (1.4)	A+	A	R	A+	A+	R
Sodium phosphates aq.	sat.	A+	A+	R	A+	A+	R
Sodium sulphate aq.	sat.	A+	A+	R	A+	A+	R
Sodium sulphide aq.	sat.	A+	A+	R	A+	A+	R
Sodium sulphite aq.	sat.	A+	A+	R	A+	A+	R
Sodium thiosulphate aq.	sat.	A+	A+	R	A+	A+	R
Stannous chloride	sat.	A+	A+	R	A+	A+	R
Succinic acid aq.	sat.	A+	A+	R	A+	B+	R
Sulphur	100	A+	A+	R	A+	A+	R
Sulphur dioxide	low	A+	A+	R	A+	A+	R
Sulphuric acid	96	C	C	NR	A+	A	R
	50	A	C	NR	A+	A+	R
	25	A+	B+	R	A+	A+	R
	10	A+	A+	R	A+	A+	R
Stearic acid	100	A+	B+	R	A+	A+	R
Tartaric acids, aq.	sat.	A+	A	R	A+	A+	R
Tetrachlorethane	100	C	C	NR	C	C	NR

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Tetrachlorethylene	100	C	C	NR	C	C	NR
Tetrahydrofurane	100	C	C	NR	C	C	NR
Tetrahydronaphthalene	100	C	C	NR	C	C	NR
Thiophen	100	C	C	NR	C	C	NR
Toluene	100	C	C	NR	C	C	NR
Trichlorethylene	100	C	C	NR	C	C	NR
Urea, aq.	sat.	A+	B+	R	A+	A+	R
Water	100	A+	A+	R	A+	A+	R
Xylene	100	C	C	NR	C	C	NR
Zinc salts aq.	sat.	A+	A+	R	A+	A+	R
Alum	sat.	A+	A+	R	A+	A+	R
Antifreeze agent		A+	B+	R	A+	A+	R
Aqua regia		C	C	NR	B+	C	NR
Asphalt		B+	B	R	A+	A+	R
Bleaching solution		A+	A	R	A+	B+	R
Bone oil		B+	C	NR	A+	A+	R
Borax aq.	sat.	A+	A	R	A+	A+	R
Brake fluid		A+	A	R	A+	A+	R
Chloride of lime		B+	B	NR	A+	A+	R
Chromic/sulphuric acid		C	C	NR	A	B	R
Chromium plating solution		B+	B	NR	A+	B+	R
Cresol solution		B	C	NR	B	C	NR
Detergents, synthetic	high	A+	B+	R	A+	A	R
	ready for use	A+	A+	R	A+	A+	R
Diesel oil		B	C	NR	A+	A	R
Dish-washing agents, liquid		A+	A+	R	A+	A+	R
Dixan solution	ready for use	A+	A	R	A+	A+	R
Fixing salt	10	A+	A+	R	A+	A+	R
Floor wax		B+	C	NR	A+	B+	R
Formalin		B+	C	NR	A+	A+	R
Fuel		B	C	NR	A+	A+	R
Petrol, normal		C	C	NR	A+	A+	R
Petrol, regular		C	C	NR	B+	C	NR
Petrol, super		C	C	NR	B	C	NR
Diesel oil		B	C	NR	A+	A+	R
Fuel oil		B	C	NR	A+	A+	R
Furniture polish		C	C	NR	A+	A+	R
Hydrogen peroxide		A	B+	R	A+	A	R
Ink		A+	A+	R	A+	A+	R
Lanolin		B+	C	NR	A+	A+	R
Linseed oil		B+	C	NR	A+	A+	R
LITEX				N/A	A+	A	R
Lysol		B	C	NR	B	B	NR
MARLIPAL MG	50	B+	C	NR	A+		R
MARLON		B+	B	NR	A+	A+	R
MARLOPHEN 83	100	B+	B	NR	A+	A+	R
MARLOPHEN 89	100	A	B+	R	A+	A	R
	20	A+	B+	R	A+	A	R
	5	A+	B+	R	A+	A	R
MARLOPHEN 810	100	B+	B+	NR	A+	A	R

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	20	B+	B+	NR	A+	A	R
	5	A+	B+	R	A+	A	R
MARLOPHEN 820	100	B+	B+	NR	A+	A	R
	20	B+	B+	NR	A+	A	R
	5	A+	B+	R	A+	A+	R
Mineral Oil		B+	C	NR	A+	A+	R
Moth balls		C	C	NR	B+	B	NR
Motor oil		B+	C	NR	A+	A+	R
Oil No. 3	100	B+	C	NR	A+	A+	R
Oileum	any	C	C	NR	C	C	NR
Paraffin	100	B+	C	NR	A+	A+	R
Paraffin oil	100	B+	C	NR	A+	A+	R
Pectin	sat.	A+	C	R	A+	A+	R
Petrol				N/A			N/A
Petroleum	100	C	C	NR	A+	A+	R
Petroleum ether	100	C	C	NR	A+	A+	R
Pine needle oil	100	C	C	NR	A+	A+	R
Plasticizer		C	C	NR	C	C	NR
Dibutylphthalate		C	C	NR	C	C	NR
Dihexylphthalate		C	C	NR	C	C	NR
Dinonyladipate		C	C	NR	C	C	NR
Dinonylphthalate		C	C	NR	C	C	NR
Diocthladipate		C	C	NR	C	C	NR
Diocetylphthalate		C	C	NR	C	C	NR
Tricresylphosphate		C	C	NR	C	C	NR
Trioctylphosphate		C	C	NR	C	C	NR
Storage-battery acid		A+	B+	R	A+	A+	R
Photographic developers	comm ready for use	A	A	R	A+	A+	R
Sagrotan		B	C	NR	B	C	NR
Seawater		A+	A+	R	A+	A+	R
Shoe Polish		B+	C	NR	A+	B+	R
Silicone oil		A	B+	R	A+	A+	R
Soda		A	B+	R	A+	A	R
Soft soap		A+	A	R	A+	A+	R
Strychnine		A	A	R	A	A	R
Tar		B+	B	NR	A+	A+	R
Trasformer oil		B+	B	NR	A+	A	R
Turpentine oil		C	C	NR	A+	B+	R
Two-stroke oil		B+	C	NR	A+	A+	R
Typewriter oil		B+	C	NR	A+	A	R
Water glass		A+	A	R	A+	A	R
White spirit		A+	C	R	A+	A+	R
Alcoholic iodine		B+	B+	R	A	A	R
Aspirin		A+	A	R	A+	A	R
Camphor				N/A			N/A
Hair shampoo		A+	A	R	A+	A+	R
Methol				N/A			N/A
Mercury ointment				R	A+	A	R
Nail polish		C	C	NR	B+	B	NR

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Nail polish remover		C	C	NR	C	C	NR
Perfume		C	C	NR	A+	A	R
Quinine		A	B+	R	A+	A	R
Soap, cake soap		A+	A	R	A+	A+	R
Soap solution		A+	A	R	A+	A+	R
Sulphur ointment	sat.	A+	A+	R	A+	A+	R
Toothpastes	10	A+	A+	R	A+	A	R
Vaseline		B+	C	NR	A+	A+	R
Apple juice		A+	A+	NR	A+	A+	R
Apple sauce		A+	A+	NR	A+	A+	R
Beef suet		B+	C	NR	A+	A+	R
Beer		A	B+	NR	A+	A+	R
Brandy		B+	B	NR	A+	A+	R
Buttermilk		A	B+	NR	A+	A+	R
Cake		B+	B+	NR	A+	A+	R
Cheese		A+	B+	NR	A+	A+	R
Cinnamon (cane)		A	A	NR	A+	A+	R
Cinnamon (ground)		A	A	NR	A+	A+	R
Citric acid		A	A	NR	A+	A+	R
Clove oil		B+	C	NR	A+	A	R
Cloves		A+	A+	R	A+	A+	R
Coca-Cola		B+	C	NR	A+	A+	R
Coca (powder)		A+	A	NR	A+	A+	R
Cocoa (ready-to-drink)		B+	C	NR	A+	A+	R
Coconut oil		B+	C	NR	A+	A+	R
Cod-liver oil		B+	C	NR	A+	A+	R
Coffee (bean & ground)		A+	A	R	A+	A+	R
Coffee (ready-to-drink)		A+	A	NR	A+	A+	R
Common salt, dry		A+	A	R	A+	A+	R
Corn seed oil		B+	C	NR	A+	A+	R
Cream, whipped cream		B+	B	NR	A+	A+	R
Curds		A	A	R	A+	A+	R
Eggs		A+	A	R	A+	A+	R
Flour		A+	A+	R	A+	A+	R
Fruit juice		A+	A	NR	A+	A+	R
Fruit salad		B+	B+	NR	A+	A+	R
Gin	40	B+	C	NR	A+	A+	R
Grapefruit juice		A	A	NR	A+	A+	R
Gravy		A	A	NR	A+	A+	R
Honey		A	A	NR	A+	A+	R
Horse-radish, ready to eat		A	A	NR	A+	A+	R
Jam		A	A	NR	A+	A+	R
Jelly		A+	A	NR	A+	A+	R
Lard		B+	C	NR	A+	A+	R
Lemonades		A+	A	NR	A+	A+	R
Lemon aroma		A	A	NR	A+	A+	R
Lemon juice		A+	A	NR	A+	A+	R
Lemon peel		A+	A	NR	A+	A	R
Lemon peel oil		B+	B+	NR	A	A	R

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Linseed oil		B+	C	NR	A	A	R
Liqueur	any	A+	A	R	A+	A	R
Margarine		A	A	NR	A+	A+	R
Mashed potatoes		A	A	NR	A+	A+	R
Mayonnaise		A	A	NR	A+	A	
Milk		B+	B	NR	A+	A+	R
Milk food		B+	B	NR	A+	A+	R
Mustard		A	B	NR	A+	A	R
Oil of bitter almonds				N/A			N/A
Olive Oil		C	C	NR	A+	A+	R
Orange juice		B+	C	NR	A+	A+	R
Orange peel		C	C	NR	A+	A+	R
Orange peel oil		C	C	NR	A+	A+	R
Palm oil		C	C	NR	A+	A+	R
Paprika		B+	C	NR	A+	A	R
Peant oil		B+	C	NR	A+	A+	R
Pepper		A+	A+	R	A+	A+	R
Peppermint oil		B	A	NR	A+	A	R
Pickled cabbage ready-to-eat		A	A	NR	A+	A+	R
Pickled fish		A	B+	NR	A+	A+	R
Pickled herring		A+	A	NR	A+	A	R
Pineapple juice		A+	A	NR	A+	A+	R
Porridge		A+	A	NR	A+	A+	R
Potato salad		A+	A	NR	A+	A+	R
Pudding		A+	A	NR	A+	A+	R
Rum	40	B+	C	NR	A+	A+	R
Rum aroma							
Salad oil, animal		B+	C	NR	A+	A+	R
Salad oil, vegetable		B+	C	NR	A+	A+	R
Salted water	any	A+	A+	NR	A+	A+	R
Sausage		A	B+	NR	A+	A+	R
Soda water		A+	A	NR	A+	A	R
Soybean oil		B+	C	NR	A+	A	R
Starch	any	A+	A	R	A+	A	R
Sugar		A+	A	NR	A+	A+	R
Sugar beet sirup		A+	A+	R	A+	A+	R
Sugal solution aq.	any	A+	A+	NR	A+	A+	R
Tea (leaves)		A	B+	NR	A+	A	R
Tea (ready-to-drink)		B+	B	NR	A+	A	R
Tomato juice		A+	A	NR	A+	A	R
Tomato ketchup		A+	A	NR	A+	A+	R
Vinella		A+	A	NR	A+	A+	R
Vegetables (ready-to-eat)		A+	C	NR	A+	A	R
Vinegar	comm	A+	B+	NR	A+	A	R
Vinegar essence	comm	B+	C	NR	A+	A	R
Whiskey	40	A	C	NR	A	A	NR
Wine, mulled claret		A+	C	NR	A	A	NR

* Food contact needs special formula, R means it can be used for covering on flexible film.

CHEMICAL RESISTANCE FOR NAN YA CALENDER SHEET FILM

This information is to be considered as guidelines. Since it is not possible to anticipate the different and varying conditions, purchaser is advised to perform their own test to determine the suitability for their specific use.