

# FLOWGUARD™ CPVC

Under licence from Lubrizol



High Performance  
piping system

Heating  
and Cooling

Marine  
piping system

Buildings

Solar system

Industrial



FIRST PLASTICS

## FLOWGUARD GLOBAL STANDARDS, CODES AND APPROVALS

### STANDARDS

- ASTM D1784, Specification for Rigid Poly(Vinyl Chloride) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds
- ASTM F437, Standard Specification for Threaded Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80
- ASTM F439, Standard Specification for Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80
- ASTM F441, Standard Specification for Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe, Schedules 40 & 80
- ASTM F2855, Standard for CPVC/AI/CPVC
- EN ISO 15877, Plastics piping systems for hot and cold water installations - Chlorinated poly(vinyl chloride) (PVC-C)
- AFNOR PVC-C Piping systems for hot and cold water installations
- BS 7291 / 4 Thermoplastics pipes and associated fittings for hot and cold water for domestic purposes and heating installations in buildings
- DIN-8079 Chlorinated polyvinyl chloride (PVC-C) pipes - Dimensions
- DIN-8080 Chlorinated polyvinyl chloride (PVC-C) pipes - General quality requirements, testing.

### PERFORMANCE STANDARDS & APPROVALS

- ASTM F493, Standard Specification for Solvent Cements for Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe and Fittings
- ASTM F656, Standard Specification for Primers for Use in Solvent Cement Joints in Poly(Vinyl Chloride) (PVC) Plastic Pipe and Fittings
- NSF SE 8459 CPVC Schedule 40 & 80 Pipe and Fitting with High HDB at 180° F
- NSF Standard 14, Plastic Piping Components and Related Materials.
- NSF Standard 61, Drinking Water System Components – Health Effects

### INSTALLATION STANDARDS

- ASTM D2855, Standard Practice for Making Solvent Cemented Joints and Poly(Vinyl Chloride) (PVC) Pipe and Fittings
- ASTM F402, Standard Practice for Safe Handling of Solvent Cements, Primers, and Cleaners Used for Joining Thermoplastic Pipe and Fittings

### APPLICABLE CODES

- UPC, Uniform Plumbing Code
- UMC, Uniform Mechanical Code
- IBC, International Building Code
- IMC, International Mechanical Code
- IPC, International Plumbing Code
- NBCC, National Building Code of Canada
- CPC, Canadian Plumbing Code
- NSPC, National Standard Plumbing Code
- AFNOR, Association Française de Normalisation

## CHEMICAL RESISTANCE TABLES

Chemical Name	Temperature		Chemical Name	Temperature		Chemical Name	Temperature	
	73°F 23°C	Max Temp°C		73°F 23°C	Max Temp°C		73°F 23°C	Max Temp°C
Acetaldehyde	N	N	Ammonium Carbonate	R	93	Corn Syrup	R	93
Acetic Acid, up to 10%	R	82	Ammonium Chloride	R	93	Cottonseed Oil	N	N
Acetic Acid, greater than 10%	C	C	Ammonium Citrate	R	93	Creosote	N	N
Acetic Acid Glacial	N	N	Ammonium Dichromate	R	93	Cresol	N	N
Acetic Anhydride	N	N	Ammonium Fluoride	R	93	Crotonaldehyde	N	N
Acetone, up to 5%	R	82	Ammonium Hydroxide, 28%	N	N	Cumene	N	N
Acetone, greater than 5%	C	C	Ammonium Hydroxide, 10%	N	N	Gupric Fluoride	R	93
Acetone, pure	N	N	Ammonium Hydr-oxide, 3%	C	N	Guprie Sulfate	R	93
Acetyl Nitrile	N	N	Ammonium Nitrate	R	93	Cuprous Chloride	R	93
Acrylic Acid	N	N	Ammonium Persulfate	R	-	Cyclohexane	N	N
Acrylonitrile	N	N	Ammonium Phosphate	R	C	Cyclohexanol	N	N
Adipic Acid, sat'd in water	R	93	Ammonium Sulfamate	R	93	Cyclohexanone	N	N
Alcohols	C	C	Ammonium Sulfate	R	93	Detergents	C	C
Allyl Alcohol	C	C	Ammonium Sulfide	R	93	Dextrin	R	93
Allyl Chloride	N	N	Ammonium Thiocyanate	R	93	Dextrose	R	93
Alum, All varieties	R	93	Ammonium Tartrate	R	93	Dibutyl Phthalate	N	N
Aluminum Acetate	R	93	Amyl Acetate	N	N	Dibutyl Ethyl Phthalate	N	N
Aluminum Chloride	R	93	Amyl Alcohol	C	C	Dichlorobenzene	N	N
Aluminum Fluoride	R	93	Ami Chlorid	N	N	Dichloroethylene	N	N
Aluminum Hydroxide	R	93	Aniline	N	N	Diethylamine	N	N
Aluminum Nitrate	R	93	Antimony Trichloride	R	93	Diethyl Ether	N	N
Aluminum Sulfate	R	93	Aqua Regia	R	N	Dill Oil	N	N
Amines	N	N	Aromatic Hydrocarbons	N	N	Dimethylformamide	N	N
Ammonia	N	N	Arsenic Add	R	-	Disodium Phosphate	R	93
Ammonium Acetate	R	93	Barium Carbonate	R	93	Distilled water	R	93
Ammonium Benzoate	R	93	Barium ChloridE	R	93	EDTA, Tetrasodium	R	93
Ammonium Bifluoride	R	93	Barium Hydroxide	R	93	Esters	N	N

Chemical Name	Temperature		Chemical Name	Temperature		Chemical Name	Temperature	
	73°F 23°C	Max Temp°C		73°F 23°C	Max Temp°C		73°F 23°C	Max Temp°C
Barium Nitrate	R	93	Butyric Acid pure	N	N	Glycol Ethers	N	N
Barium Sulfate	R	93	Cadmium Acetate	R	93	Green Liquor	R	93
Barium Sulfide	R	93	Cadmium Chloride	R	93	Halocarbon Oils	N	N
Beer	R	93	Cadmium Sulfate	R	93	Heptane	C	-
Beet sugar liquors	R	93	Calcium Acetate	R	93	Hydrazine	N	N
Senzaldehyde	N	N	Calcium Bisulfide	R	93	Hydrochloric Acid	R	82
Benzene	N	N	Calcium Bisulfite	R	93	Ethyl Chloride	N	N
Benzoic acid Sat'd in water	R	N	Calcium Carbonate	R	93	Ethylene Bromide	N	N
Benzyl Alcohol	N	N	Calcium Chlorate	R	93	Ethylene Chloride	N	N
Benzyl Chloride	N	N	Calcium Chloride	R	93	Ethylene Dia ine	N	N
Bismuth carbonate	R	93	Calcium Hydroxide	R	93	Ethlene Glycol, up to 50%	N	N
Black Liquor	R	93	Calcium Hypochlorite	R	93	Ethylene Glycol greater 50%	R	82
Bleach, household (5%CL)	R	93	Calcium Nitrate	R	93	Ethylene Oxide	C	C
Bleach, household (15% CL)	R	93	Calcium Oxide	R	93	Ferric Chloride	N	N
Borax	R	93	Calcium Sulfate	R	93	Ferric Hydroxide	R	93
Boric Acid	R	93	Cane Sugar liquors	R	93	Ferric	R	93
Brine Acid	R	93	Caprolactam	N	N	Ferric sulfate	R	93
Bromine	N	N	Caprolactone	N	N	Fluorine Gas	R	93
Bromine, aqueous, sat'd	R	93	Carbilol	N	N	Fluosilicic Acid, 30%	N	N
Bromobenzene	N	N	Carbon Dioxide	R	93	Formaldehyde	N	82
Bromotoluene	N	N	Carbon Disulfide	N	N	Formic Acid up to 25%	R	N
Butanol	C	C	Carbon Monoxide	R	93	Formic Acid greater than 25%	C	82
Butyl Acetate	N	N	Carbon Tetrachloride	N	N	Freons	C	N
Butyl Carbitol	N	N	Carbonic Acid	R	93	Fructose	R	C
Butyl Cellosolve	N	N	Castor Oil	N	N	Gasoline	N	93
Butyric Acid, up to 1%	R	R	Caustic Potash	A	A	Glucose	R	N
Butyric Acid greater than 1%	C	C	Caustic Soda	A	A	Glycerine	R	93
Ethanol, up to 5%	R	82	Butyric Acid pure	N	N	Glycol Ethers	N	N
Ethanol, greater than 5%	C	C	Cadmium Acetate	R	93	Green Liquor	R	93
Ethers	N	N	Cadmium Chloride	R	93	Halocarbon Oils	N	N
Ethyl Acetate	N	N	Cadmium Sulfate	R	93	Heptane	C	-
Ethyl Acrylate	N	N	Calcium Acetate	R	93	Hydrazine	N	N
Ethyl Benzene	N	N	Calcium Bisulfide	R	93	Hydrochloric Acid	R	82
Ethyl Chloride	N	N	Calcium Bisulfite	R	93	Hydrochloric Acid, 36%	R	82
Ethylene Bromide	N	N	Calcium Carbonate	R	93	Hydrofluoric Acid, 3%	R	-
Ethylene Chloride	N	N	Calcium Chlorate	R	93	Hydrofluoric Acid, 48%	C	C
Ethylene Dia ine	N	N	Calcium Chloride	R	93	Hydrofluosilicic Acid, 30%	R	82
Ethlene Glycol, up to 50%	N	N	Calcium Hydroxide	R	93	Hydrogen Peroxid, 50%	R	-
Ethylene Glycol greater 50%	R	82	Calcium Hypochlorite	R	93	Hydrogen Sulfide, Aqueous	R	82
Ethylene Oxide	C	C	Calcium Nitrate	R	93	Hypochlorous Acid	C	C
Ferric Chloride	N	N	Calcium Oxide	R	93	Isopropanol	C	C
Ferric Hydroxide	R	93	Calcium Sulfate	R	93	Ketones	N	N
Ferric	R	93	Cane Sugar liquors	R	93	Kraft Liquors	R	93
Ferric sulfate	R	93	Caprolactam	N	N	Lactic Acid, 25%	R	93
Fluorine Gas	R	93	Caprolactone	N	N	Lactic Acid, 85% (Full strength)	R	C
Fluosilicic Acid, 30%	N	N	Carbilol	N	N	Lead Acetate	R	93
Formaldehyde	N	82	Carbon Dioxide	R	93	Lead Chloride	R	93
Formic Acid up to 25%	R	N	Carbon Disulfide	N	N	Lead Nitrate	R	93
Formic Acid greater than 25%	C	82	Carbon Monoxide	R	93	Lead Sulfate	R	93
Freons	C	N	Carbon Tetrachloride	N	N	LemonOil	N	N
Fructose	R	C	Carbonic Acid	R	93	Limonene	N	N
Gasoline	N	93	Castor Oil	N	N	Linseed Oil	N	N
Glucose	R	N	Caustic Potash	A	A	Lithium Chloride	R	93
Glycerine	R	93	Caustic Soda	A	A	Lithium Sulfate	R	93

Chemical Name	Temperature		Chemical Name	Temperature	
	73°F 23°C	Max Temp C		73°F 23°C	Max Temp C
Lubricating Oil,ASTM1,2,3	R	-	Methyl Methacrylate	N	N
Magnesium Carbonate	R	93	Methylamine	N	N
Magnesium Chloride	R	93	Methylene chloride	N	-
Magnesium Citrate	R	93	Mineral Oil	R	N
Magnesium Fluoride	R	93	Monoethanolamine	N	N
Magnesium Hydroxide	R	93	Motor Oil	N	82
Magnesium Salts, inorganic	R	93	Muriatic Acid	R	N
Magnesium	R	93	Naphthathene	N	93
Nitrate	R	93	Nickel Acetate	R	93
Magnesium Oxide	R	93	Nickel Chloride	R	93
Magnesium Sulfate	R	93	Nickel Nitrate	R	93
Maleic Acid, 50%	R	82	Nickel Sulfate	R	66
Manganese Sulfate	R	93	Nitric Acid, up to 25%	R	54
Mercuric Chloride	R	93	Nitric Acid,25%-35%	R	41
Mercuric Cyanide	R	93	Nitric Acid,70%	R	N
Mercuric Sulfate	R	93	Nitrobenzene	N	N
Mercurous Nitrate	R	93	1-Octanol	C	N
Mercury	R	82	Oils, edible	N	N
Methane Sufonic Acid	R	82	Oils,Sour Crude	N	N
Methanol, up to10%	R	C	Oleum	N	N
Methanol, greater than10%	C	N	Olive Oil	N	N
Methanol, pure	N	N	Oxalic Acid sat'd	R	77
Methyl Cellosolve	N	N	Oxygen	R	82
Methyl Chloride	N	N	Ozonized water	R	93
Methyl Ethyl Ketone	N	N	Palm Oil	N	N
Methyl Formate	N	N	Paraffin	R	82
Methyl Isobutyl Ketone	N	N	Peanul Oil	N	N

Chemical Name	Temperature		Reagent	Temperature	
	73°F 23°C	Max Temp C		73°F 23°C	Max Temp C
Perchloric Acid,1006	R	-	Potassium Hypochlorite	R	93
Phenyhydrazine	N	N	Potassium Iodide	R	93
Phosphoric Acid	R	82	Potassium Nitrate	R	93
Phosphorous tridlloride	N	N	Potassium Perborate	R	82
Picric Acid	N	N	Potassium Perdlilorate, sat'd	R	82
Pine Oil	N	N	Potassium Permanganate, sat'd	R	82
Plating solutions	N	82	Potassium persulfate, sat'd	R	-
Polyethylene Glycol	R	N	Potassium phosphate	R	93
Potash	N	93	Potassium Sulfate	R	93
Potassium Acetate	R	93	Potassium Sulfide	R	93
Potassium Bicarbonate	R	93	Potassium Sulfite	R	93
Potassium Bichromate	R	93	Potassium tripolyphosphate	R	93
Potassium Bisulfate	R	93	Propanol, up to O,5%	R	82
Potassium Borate	R	93	Propanol,greater than O,5%	C	C
Potassium Bromate	R	93	Propionic Acid, uto 2%	R	82
Potassium Bromide	R	93	Propionic Acid, greater than2%	C	C
Potassium Carbonate	R	93	Propionic Acid pure	N	N
Potassium Chlorate	R	93	Propylene Dichloride	N	N
Potassium Chlorrde	R	93	Propylene Glycol, up to 25%	R	82
Potassium Chromate	R	93	Propylene Glycol,greater 25%	C	C
Potassium Cyanate	R	93	Propylene Oxide	N	N
Potassium Cyanide	R	93	Pyridine	N	N
Potassium Dichromate	R	93	Sea water	R	93
Potassium ferricyanide	R	93	Silicic Acid	R	-
Potassium Ferrocyanide	R	93	Silkone Oil	R	-
Potassium Fluoride	R	93	Silver Chloride	R	93
Potassium Hydroxide	A	A	Silver Cyanide	R	93

Chemical Name	Temperature		Chemical Name	Temperature	
	73°F 23°C	Max Temp C		73°F 23°C	Max Temp C
Silver Nitrate	R	93	Sodium Iodide	R	93
Silver Sulfate	R	93	Sodium Metaphosphate	R	93
Soaps	R	93	Sodium itrate	R	93
Sodium Acetate	R	93	Sodium Nitrite	R	93
Sodium Aluminate	R	93	Sodium Perborate	R	82
Sodium Arsenate	R	93	Sodium Perchlorate	R	82
Sodium Benzoate	R	93	Sodium Phosphate	R	93
Sodium Bicarbonate	R	93	Sodium Sifcate	R	93
Sodium Bichromate	R	93	Sodium Sulfate	R	93
Sodium Bisulfate	R	93	Sodium Sulfide	R	93
Sodium Bisulfite	R	93	Sodium Sulfite	R	93
Sodium Borate	R	93	Sodium Thiosulfate	R	93
Sodium Bromide	R	93	Sodium Tripolyphosphate	R	93
Sodium Carbonate	R	93	Soybean Oil	N	N
Sodium Chlorate	R	93	Stannic Chloride	R	93
Sodium Chloride	R	93	Stannous Chloride	R	93
Sodium Chlorite	R	93	Stannous Sulfate	R	93
Sodium Chromate	R	93	Starch	R	93
Sodium Cyanide	R	93	Stearic Acid	R	-
Sodium Dichromate	R	93	Strontium Chloride	R	93
Sodium Ferricyanide	R	93	Styrene	N	N
Sodium Ferrocyanide	R	93	Sugar	R	93
Sodium Fluoride	R	93	Sulfamic Acid	R	82
Sodium Formate	R	93	Sulfur	R	-
Sodium Hydroxide	A	A	Sulfuric Acid, Fuming	N	N
Sodium Hypobromite	R	93	Sulfuric Acid,98%	R	52
Sodium Hypochlorite	R	93	Sulfuric Acid,85%	R	77

Chemical Name	Temperature		Reagent	Temperature	
	73°F 23°C	Max Temp C		73°F 23°C	Max Temp C
Sulfuric Acid,80%	R	82	Xylene	N	N
Sulfuric Acid,50%	R	82	Zinc Acetate	R	93
Tall Oil	C	C	Zinc Carbonate	R	93
Tannk Acid,30%	R	-	Zinc Chloride	R	93
Tartaric Acid	R	-	Zinc Nitrate	R	93
Terpenes	N	N	Zinc Sulfate	R	93
Tetrahydrofuran	N	N			
Tetrasodium pyrophosphate	R	93			
Texanol	N	N			
Thionyl chloride	N	N			
Toluene	N	N			
Tributyl Phosphate	N	N			
Trichloroethylene	N	N			
Trisodium Phosphate	R	93			
Turpentine	N	N			
Urea	R	82			
Urine	R	93			
Vegetable Oils	N	N			
Vinegar	R	93			
Vinyl Acetate	N	N			
Water, Deionized	R	93			
Water, Demineralized	R	93			
Water Distilled	R	93			
Water, Salt	R	93			
Water, swimming Pool	R	93			
WD-40	C	C			
White Liquor	R	93			



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