CHEMICAL RESISTANCE OF PVC IN FLUID CONTROL SYSTEMS

THIS DOCUMENT WAS COMPILED BY
THE JARO INDUSTRY R&D DEPARTMENT.

Chemical resistance classifications (S/L/U) are derived from PVC–U baseline testing in accordance with ISO/TR 10358 and JARO internal validation protocols. PVC–O maintains identical chemical resistance performance. PVC–M compatibility for inorganic and aqueous media aligns with PVC–U data; however, applications involving organic solvents, petroleum products, or aromatic hydrocarbons require project–specific assessment by JARO technical team.

Database Overview & Test Benchmarks

This comprehensive data sheet provides authoritative engineering guidelines on the chemical resistance of Polyvinyl Chloride (PVC) materials. The database encompasses **1,014 specific test data points** across **516 distinct chemical substances**. All empirical evaluations are standardized at two critical operating temperature benchmarks: **20°C (ambient)** and **60°C (elevated)**.

In terms of data distribution and granularity, the database offers exhaustive coverage of industrial chemicals, with categories beginning with the letters **A (115 entries), C (105 entries), M (79 entries), P (139 entries), and S (139 entries)** representing the most densely documented alphabetical groups, providing massive retrieval support for piping specification.

Core Data Findings & Engineering Principles

Statistical analysis of the 1,014 test entries reveals highly consistent engineering patterns regarding the chemical compatibility of PVC:

1. Optimal Application Environments (65.7% of entries rated "S" – Satisfactory Resistance)
A significant 65.7% of the data demonstrates that PVC exhibits superior chemical inertness against a broad spectrum of media.

- **Inorganic Acids, Alkalis, and Salts:** PVC provides excellent corrosion resistance against the vast majority of inorganic aqueous salt solutions (e.g., chlorides, carbonates), standard to medium–concentration inorganic acids (Hydrochloric, Sulfuric, Phosphoric), and caustic alkalis (Sodium Hydroxide, Ammonia).
- **Standard Industrial Fluids:** PVC maintains exceptional structural integrity in water treatment, desalination, food processing (e.g., syrups, fructose), and detergent handling systems.

2. Incompatible or Restricted Media (27.3% rated "U" ; 7.0% rated "L")
Over a third of the tested parameters yielded negative or restrictive ratings, dictating strict avoidance or rigorous evaluation during system design:

- **Unsatisfactory Resistance (27.3% – "U" Rating):** This category is predominantly composed of highly active organic solvents. Ketones (e.g., Acetone), esters (e.g., Ethyl Acetate), aromatic hydrocarbons (Benzene, Toluene), and halogenated hydrocarbons (Chloroform) initiate severe solvation, causing rapid softening, swelling, or dissolution of the PVC matrix. Highly concentrated oxidizing acids (e.g., >50% Nitric Acid, Oleum) also cause irreversible oxidative breakdown.
- **Limited Resistance (7.0% – "L" Rating):** These ratings typically manifest under borderline conditions involving **high concentrations** or **elevated temperatures (60°C)**. While immediate failure may not occur, long–term continuous service poses a degradation risk and requires cautious lifecycle assessment.

- **3. Critical Dynamic Variables: Thermal and Concentration Derating Effects**

Thermal Derating: The empirical data universally demonstrates that elevated temperatures consistently degrade the chemical resistance of PVC. Numerous media classified as "S" at 20°C are downgraded to

"L" or "U" at 60°C. The increased thermal energy accelerates polymer chain mobility, drastically increasing chemical permeation rates.

- **Concentration Thresholds:** The aggressiveness of a single chemical species varies drastically with its concentration. Engineers must continuously cross-reference the triad of variables: chemical media, operating temperature, and concentration.

Special Precautions for PVC-M in Organic Media Applications

Medium Type	Risk Factor	Recommendation
Hydrocarbons / Oils (gasoline, diesel, crude oil, lubricants)	Elastomer components in the modifier may be subject to swelling / extraction	Request supplier to provide PVC-M-specific oil resistance data.
Halogenated Hydrocarbons (carbon tetrachloride, chloroform, trichloroethylene)	Already rated U for PVC-U; even less suitable for PVC-M	Prohibit use entirely.
Ketones / Esters (acetone, methyl ethyl ketone, ethyl acetate)	May accelerate modifier degradation	Treat as U (Unsuitable) or conduct separate testing.
High-Temperature Organic Media (oils, alcohols >40°C)	Modifier thermal stability is lower than the PVC matrix	Reduce temperature limits or shorten service life assessment.

Applicability of Chemical Resistance Data by Material Type

Material	Data Applicability	Description
PVC-U	✅ Directly Applicable	The tabulated data is based on PVC-U testing and can be used as a standard reference.
PVC-O	✅ Generally Applicable	The orientation process does not alter the chemical structure; corrosion resistance is consistent with PVC-U. However, mechanical properties degrade more rapidly at elevated temperatures, requiring attention to the combined temperature-pressure boundary.
PVC-M	⚠️ Mostly Applicable, Verification Required	The matrix remains PVC, but impact modifiers (elastomer components) may exhibit increased sensitivity to organic solvents, oils, and aromatics.

Engineering Recommendation

Prior to the final specification of valves, fittings, and piping networks, system engineers must strictly validate their specific operating parameters (media, temperature, and concentration) against this empirical database to guarantee the operational safety, reliability, and lifecycle economy of the fluid control infrastructure.

Inorganic Compounds: Acids (hydrochloric acid, sulfuric acid, nitric acid, phosphoric acid, hydrofluoric acid, etc.), Bases (sodium hydroxide, potassium hydroxide, ammonia solution, etc.), Salts (chlorides, sulfates, carbonates, nitrates, etc.), Oxidizers (potassium permanganate, potassium dichromate, hydrogen peroxide, etc.)

Organic Compounds: Alcohols (methanol, ethanol, ethylene glycol, glycerin, etc.), Ketones (acetone, methyl ethyl ketone, etc.), Esters (ethyl acetate, phthalates, etc.), Hydrocarbons (benzene, toluene, xylene, gasoline, diesel fuel, etc.), Halogenated Hydrocarbons (carbon tetrachloride, chloroform, trichloroethylene, etc.), Amines (aniline, dimethylamine, triethanolamine, etc.)

Industrial Media: Crude oil, edible oils, soap solutions, plating solutions, developer solutions, seawater, sewage, alcoholic beverages, etc.

Chemical Performance of PVC data

NO.	Chemical	Formula	Temp.(°C)	Conc. (%)	PVC
1	Acetaldehyde	CH_3CHO	20	40	U
2	Acetaldehyde	CH_3CHO	60	40	U
3	Acetaldehyde	CH_3CHO	20	100	U
4	Acetaldehyde	CH_3CHO	60	100	U
5	Acetic acid	CH_3COOH	20	up to 10	S
6	Acetic acid	CH_3COOH	60	up to 10	S
7	Acetic acid	CH_3COOH	20	10 to 50	S
8	Acetic acid	CH_3COOH	60	10 to 50	L
9	Acetic acid –glacial	CH_3COOH	20	>96	U
10	Acetic acid –glacial	CH_3COOH	60	>96	U
11	Acetic anhydride	$(CH_3CO)_2O$	20	100	U
12	Acetic anhydride	$(CH_3CO)_2O$	60	100	U
13	Acetone	CH_3COCH_3	20	10	U
14	Acetone	CH_3COCH_3	60	10	U
15	Acetone	CH_3COCH_3	20	100	U
16	Acetone	CH_3COCH_3	60	100	U
17	Acetonitrile	—	20	—	U

NO.	Chemical	Formula	Temp.(°C)	Conc. (%)	PVC
18	Acetonitrile	—	60	—	U
19	Acetophenone	$CH_3COC_6H_5$	20	tg–s	U
20	Acetophenone	$CH_3COC_6H_5$	60	tg–s	U
21	Acetyl nitrile	—	20	—	U
22	Acetyl nitrile	—	60	—	U
23	Acetylene	C_2H_2	20	tg–g	S
24	Acetylene	C_2H_2	60	tg–g	S
25	Acrylic acid ethyl ester	—	20	—	U
26	Acrylic acid ethyl ester	—	60	—	U
27	Acrylonitrile	CH_2CHCN	20	technically pure	U
28	Acrylonitrile	CH_2CHCN	60	technically pure	U
29	Adipic acid	$(CH_2CH_2CO_2H)_2$	20	sat. sol.	S
30	Adipic acid	$(CH_2CH_2CO_2H)_2$	60	sat. sol.	L
31	Air	—	20	tg–g	S
32	Air	—	60	tg–g	S
33	Allyl alcohol	CH_2CHCH_2OH	20	tg–l	L
34	Allyl alcohol	CH_2CHCH_2OH	60	tg–l	U
35	Allyl chloride	—	20	—	U
36	Allyl chloride	—	60	sat. sol	U
37	Alum (Aluminium potassium sulphate)	$Al_2(SO_4)_3 \cdot K_2SO_4 \cdot n H_2O$	20	sat. sol	S
38	Alum (Aluminium potassium sulphate)	$Al_2(SO_4)_3 \cdot K_2SO_4 \cdot n H_2O$	60	sat. sol	S
39	Aluminium –chloride	$AlCl_3$	20	sat. sol.	S
40	Aluminium –chloride	$AlCl_3$	60	sat. sol.	S
41	Aluminium –fluoride	AlF_3	20	susp.	S
42	Aluminium –fluoride	AlF_3	60	susp.	S
43	Aluminium –hydroxide	$Al(OH)_3$	20	susp.	S
44	Aluminium –hydroxide	$Al(OH)_3$	60	susp.	S
45	Aluminium –nitrate	$Al(NO_3)_3$	20	sat. sol.	S
46	Aluminium –nitrate	$Al(NO_3)_3$	60	sat. sol.	S

NO.	Chemical	Formula	Temp.(°C)	Conc. (%)	PVC
47	Aluminium –oxychloride	—	20	susp.	S
48	Aluminium –oxychloride	—	60	susp.	S
49	Aluminium –sulphate	$Al_2(SO_4)_3$	20	sat. sol.	S
50	Aluminium –sulphate	$Al_2(SO_4)_3$	60	sat. sol.	S
51	Ammonia aqueous	NH_3	20	sat. sol.	S
52	Ammonia aqueous	NH_3	60	sat. sol.	S
53	Ammonia dry gas	NH_3	20	tg–g	S
54	Ammonia dry gas	NH_3	60	tg–g	S
55	Ammonia liquid	NH_3	20	tg–l	L
56	Ammonia liquid	NH_3	60	tg–l	U
57	Ammonium –acetate	CH_3COONH_4	20	—	S
58	Ammonium –acetate	CH_3COONH_4	60	—	S
59	Ammonium –alum	—	20	—	S
60	Ammonium –alum	—	60	—	S
61	Ammonium –benzoate	—	20	—	S
62	Ammonium –benzoate	—	60	—	S
63	Ammonium –bifluoride	—	20	—	S
64	Ammonium –bifluoride	—	60	—	S
65	Ammonium –bisulphate	—	20	—	S
66	Ammonium –bisulphate	—	60	—	S
67	Ammonium –carbonate	$(NH_4)_2CO_3$	20	sat. sol.	S
68	Ammonium –carbonate	$(NH_4)_2CO_3$	60	sat. sol.	S
69	Ammonium –chloride	NH_4Cl	20	sat. sol.	S
70	Ammonium –chloride	NH_4Cl	60	sat. sol.	S
71	Ammonium –dichromate	—	20	—	S
72	Ammonium –dichromate	—	60	—	S
73	Ammonium –fluoride	NH_4F	20	25	S
74	Ammonium –fluoride	NH_4F	60	25	L
75	Ammonium –hydrogen carbonate	NH_4HCO_3	20	sat. sol.	S
76	Ammonium –hydrogen carbonate	NH_4HCO_3	60	sat. sol.	S
77	Ammonium –hydroxide	$NH_4(OH)$	20	35 m/v sol.	S
78	Ammonium –hydroxide	$NH_4(OH)$	60	35 m/v sol.	S

NO.	Chemical	Formula	Temp.(°C)	Conc. (%)	PVC
79	Ammonium –nitrate	NH_4NO_3	20	sat. sol.	S
80	Ammonium –nitrate	NH_4NO_3	60	sat. sol.	S
81	Ammonium –persulphate	$(NH_4)_2S_2O_8$	20	sat. sol.	S
82	Ammonium –persulphate	$(NH_4)_2S_2O_8$	60	sat. sol.	S
83	Ammonium –phosphate dibasic	$NH_4(HPO_4)_2$	20	—	S
84	Ammonium –phosphate dibasic	$NH_4(HPO_4)_2$	60	—	S
85	Ammonium –phosphate meta	$(NH_4)_4P_4O_{12}$	20	sat. sol.	S
86	Ammonium –phosphate meta	$(NH_4)_4P_4O_{12}$	60	sat. sol.	S
87	Ammonium –phosphate tri	$(NH_4)_2HPO_4$	20	—	S
88	Ammonium –phosphate tri	$(NH_4)_2HPO_4$	60	—	S
89	Ammonium –sulphate	$(NH_4)_2SO_4$	20	sat. sol.	S
90	Ammonium –sulphate	$(NH_4)_2SO_4$	60	sat. sol.	S
91	Ammonium –sulphide	$(NH_4)_2S$	20	sat. sol.	S
92	Ammonium –sulphide	$(NH_4)_2S$	60	sat. sol.	S
93	Ammonium –thiocyanate	—	20	sat. sol.	S
94	Ammonium –thiocyanate	—	60	sat. sol.	S
95	Ammonium –zinc chloride	—	20	—	S
96	Ammonium –zinc chloride	—	60	—	S
97	Amyl acetate	$CH_3CO_2CH_2(CH_2)_3CH_3$	20	tg–l	U
98	Amyl acetate	$CH_3CO_2CH_2(CH_2)_3CH_3$	60	tg–l	U
99	Amyl alcohol	$CH_3(CH_2)_3CH_2OH$	20	tg–l	S
100	Amyl alcohol	$CH_3(CH_2)_3CH_2OH$	60	tg–l	L
101	Amyl chloride	$CH_3(CH_2)_3CH_2Cl$	20	tg–l	U
102	Amyl chloride	$CH_3(CH_2)_3CH_2Cl$	60	tg–l	U
103	Aniline	$C_6H_5NH_2$	20	sat. sol.	U
104	Aniline	$C_6H_5NH_2$	60	or tg–l	U
105	Aniline –chlorohydrate	$C_6H_5NH_2HCl$	20	—	U
106	Aniline –chlorohydrate	$C_6H_5NH_2HCl$	60	—	U
107	Aniline –hydrochloride	—	20	sat. sol.	U
108	Aniline –hydrochloride	—	60	sat. sol.	U
109	Aniline –sulphate	—	20	—	U

NO.	Chemical	Formula	Temp.(°C)	Conc. (%)	PVC
110	Aniline –sulphate	—	60	—	U
111	Anthraquinone	—	20	—	S
112	Anthraquinone	—	60	—	U
113	Anthraquinone sulphonic acid	—	20	susp.	S
114	Anthraquinone sulphonic acid	—	60	susp.	S
115	Antimony chloride	$SbCl_3$	20	sat. sol.	S
116	Antimony chloride	$SbCl_3$	60	sat. sol.	S
117	Aqua regia	$HCl + HNO_3$	20	—	U
118	Aqua regia	$HCl + HNO_3$	60	—	U
119	Arsenic acid	H_3AsO_4	20	sat. sol. or weak conc.	S
120	Arsenic acid	H_3AsO_4	60	sat. sol. or weak conc.	L
121	Aryl sulphonic acids	—	20	—	S
122	Aryl sulphonic acids	—	60	—	U
123	Barium –bromide	$BaBr_2$	20	sat. sol	S
124	Barium –bromide	$BaBr_2$	60	sat. sol	S
125	Barium –carbonate	$BaCO_3$	20	susp.	S
126	Barium –carbonate	$BaCO_3$	60	susp.	S
127	Barium –chloride	$BaCl_2$	20	sat. sol.	S
128	Barium –chloride	$BaCl_2$	60	sat. sol.	S
129	Barium –hydroxide	$Ba(OH)_2$	20	sat. sol.	S
130	Barium –hydroxide	$Ba(OH)_2$	60	sat. sol.	S
131	Barium –nitrate	$Ba(NO_3)_2$	20	—	S
132	Barium –sulphate	$BaSO_4$	20	susp.	S
133	Barium –sulphate	$BaSO_4$	60	susp.	S
134	Barium –sulphide	BaS	20	sat. sol.	S
135	Barium –sulphide	BaS	60	sat. sol.	S
136	Beer	—	20	work sol.	S
137	Beer	—	60	work sol.	S
138	Benzaldehyde	C_6H_5CHO	20	—	U
139	Benzaldehyde	C_6H_5CHO	60	—	U
140	Benzalkonium chloride	—	20	—	S

NO.	Chemical	Formula	Temp.(°C)	Conc. (%)	PVC
141	Benzene	C_6H_6	20	tg–l	U
142	Benzene	C_6H_6	60	tg–l	U
143	Benzoic acid	C_6H_5COOH	20	sat. sol.	L
144	Benzoic acid	C_6H_5COOH	60	sat. sol.	U
145	Benzoyl chloride	—	20	tg–l	U
146	Benzyl acetate	—	20	—	U
147	Benzyl acetate	—	60	—	U
148	Bismuth carbonate	—	20	sat. sol.	S
149	Bismuth carbonate	—	60	sat. sol.	S
150	Boric acid	H_3BO_3	20	sat. sol.	S
151	Boric acid	H_3BO_3	60	sat. sol.	L
152	Boron trifluoride	BF_3	20	sat. sol.	S
153	Brine	—	20	work sol.	S
154	Brine	—	60	work sol.	S
155	Bromic acid	$HBrO_3$	20	10	S
156	Bromic acid	$HBrO_3$	60	10	S
157	Bromine	Br_2	20	tg–g	U
158	Bromine	Br_2	60	tg–g	U
159	Bromine	Br_2	20	tg–l	U
160	Bromine	Br_2	60	tg–l	U
161	Bromine	Br_2	20	trace	L
162	Bromine	Br_2	60	trace	U
163	Bromobenzene	—	20	—	U
164	Bromobenzene	—	60	—	U
165	Bromoethane	—	20	tg–l	U
166	Bromoethane	—	60	tg–l	U
167	Bromotoluene	—	20	—	U
168	Bromotoluene	—	60	—	U
169	Butadiene	C_4H_6	20	tg–g	S
170	Butadiene	C_4H_6	60	tg–g	S
171	Butane	C_4H_{10}	20	tg–g	S
172	Butane	C_4H_{10}	60	tg–g	S

NO.	Chemical	Formula	Temp.(°C)	Conc. (%)	PVC
173	Butanediols	$CH_3CH_2CHOHCH_2OH$	20	10	S
174	Butanediols	$CH_3CH_2CHOHCH_2OH$	60	10	U
175	Butanediols	$CH_3CH_2CHOHCH_2OH$	20	conc.	L
176	Butanediols	$CH_3CH_2CHOHCH_2OH$	60	conc.	U
177	Butanols (butyl alcohols)	C_4H_9OH	20	tg–l	S
178	Butanols (butyl alcohols)	C_4H_9OH	60	tg–l	L
179	Butyl acetate	$CH_3CO_2CH_2CH_2CH_2CH_3$	20	tg–l	U
180	Butyl acetate	$CH_3CO_2CH_2CH_2CH_2CH_3$	60	tg–l	U
181	Butylene glycol	$C_4H_6(OH)_2$	60	100	L
182	Butyl mercaptan	—	20	—	U
183	Butyl mercaptan	—	60	—	U
184	Butylphenols	$C_4H_9C_6H_4OH$	20	sat. sol.	U
185	Butylphenols	$C_4H_9C_6H_4OH$	60	sat. sol.	U
186	Butyl phthalate	—	20	tg–l	U
187	Butyl phthalate	—	60	tg–l	U
188	Butylstearate	—	20	—	S
189	Butynediol	—	20	—	S
190	Butynediol	—	60	—	U
191	Butyric acid	$C_2H_5CH_2COOH$	20	20	S
192	Butyric acid	$C_2H_5CH_2COOH$	60	20	U
193	Butyric acid	$C_2H_5CH_2COOH$	20	tg–l	U
194	Butyric acid	$C_2H_5CH_2COOH$	60	tg–l	U
195	Cadmium cyanide	—	20	—	S
196	Cadmium cyanide	—	60	—	S
197	Calcium –carbonate	$CaCO_3$	20	susp.	S
198	Calcium –carbonate	$CaCO_3$	60	susp.	S
199	Calcium –chlorate	CaCHCl	20	sat. sol.	S
200	Calcium –chlorate	CaCHCl	60	sat. sol.	S

NO.	Chemical	Formula	Temp.(°C)	Conc. (%)	PVC
201	Calcium –chloride	$CaCl_2$	20	sat. sol.	S
202	Calcium –chloride	$CaCl_2$	60	sat. sol.	S
203	Calcium –hydrogen sulphide (calcium bisulphide)	$Ca(HS)_2$	20	sol.	S
204	Calcium –hydrogen sulphide (calcium bisulphide)	$Ca(HS)_2$	60	sol.	S
205	Calcium –hydrogen sulphite (calcium bisulphite)	$Ca(HSO_3)_2$	20	—	S
206	Calcium –hydrogen sulphite (calcium bisulphite)	$Ca(HSO_3)_2$	60	—	S
207	Calcium –hydroxide	$Ca(OH)_2$	20	sat. sol.	S
208	Calcium –hydroxide	$Ca(OH)_2$	60	sat. sol.	S
209	Calcium –hypochlorite	$Ca(OCl)_2$	20	sat. sol.	S
210	Calcium –hypochlorite	$Ca(OCl)_2$	60	sat. sol.	S
211	Calcium –nitrate	$Ca(NO_3)_2$	20	sat. sol.	S
212	Calcium –nitrate	$Ca(NO_3)_2$	60	sat. sol.	S
213	Calcium –sulphate	$CaSO_4$	20	susp.	S
214	Calcium –sulphate	$CaSO_4$	60	susp.	S
215	Calcium –sulphide	CaS	20	sat. sol.	S
216	Calcium –sulphide	CaS	60	sat. sol.	S
217	Carbitol	—	20	—	S
218	Carbon dioxide (gas)	CO_2	20	tg–g	S
219	Carbon dioxide (gas)	CO_2	60	tg–g	S
220	Carbon dioxide (aqueous)	CO_2	20	sat. sol.	S
221	Carbon dioxide (aqueous)	CO_2	60	sat. sol.	S
222	Carbon disulphide	CS_2	20	tg–l	U
223	Carbonic acid (aqueous) (wet)	—	20	—	S
224	Carbonic acid (aqueous) (wet)	—	60	—	L
225	Castor oil	—	20	—	S
226	Castor oil	—	60	—	S
227	Caustic potash	—	20	—	S
228	Caustic potash	—	60	—	S
229	Cellosolve (2–ethoxyethanol)	—	20	—	S

NO.	Chemical	Formula	Temp.(°C)	Conc. (%)	PVC
230	Cellosolve (2–ethoxyethanol)	—	60	—	U
231	Cellosolve acetate	—	20	—	S
232	Chloral hydrate	—	20	—	S
233	Chloral hydrate	—	60	—	S
234	Chloramine	—	20	dil. sol.	S
235	Chloric acid	$HClO_3$	20	20	S
236	Chloric acid	$HClO_3$	60	20	L
237	Chlorine –dry gas	Cl_2	20	10	S
238	Chlorine –dry gas	Cl_2	60	10	L
239	Chlorine –dry gas	Cl_2	20	100	L
240	Chlorine –dry gas	Cl_2	60	100	U
241	Chloroacetic acid	$ClCH_2COH$	20	sol.	S
242	Chloroacetic acid	$ClCH_2COH$	60	sol.	L
243	Chloroacetyl chloride	—	20	—	S
244	Chlorobenzene	—	20	tg–l	U
245	Chlorobenzene	—	60	tg–l	U
246	Chloroform	$CHCl_3$	20	tg–l	U
247	Chloroform	$CHCl_3$	60	tg–l	U
248	Chloropicrin	—	20	—	U
249	Chloropropanes	—	20	tg–l	U
250	Chloropropanes	—	60	tg–l	U
251	Chlorosulphonic acid	$ClHSO_3$	20	tg–s	L
252	Chlorosulphonic acid	$ClHSO_3$	60	tg–s	U
253	Chrome alum	$KCr(SO_4)_2$	20	sol.	S
254	Chrome alum	$KCr(SO_4)_2$	60	sol.	S
255	Chromic acid (plating soln)	$CrO_3 + H_2O$	20	10	S
256	Chromic acid (plating soln)	$CrO_3 + H_2O$	60	10	S
257	Chromic acid (plating soln)	$CrO_3 + H_2O$	20	30	S
258	Chromic acid (plating soln)	$CrO_3 + H_2O$	60	30	S
259	Chromic acid (plating soln)	$CrO_3 + H_2O$	20	50	S
260	Chromic acid (plating soln)	$CrO_3 + H_2O$	60	50	L
261	Chromic acid (plating soln)	$CrO_3 + H_2O$	20	sat. sol.	S

NO.	Chemical	Formula	Temp.(°C)	Conc. (%)	PVC
262	Chromic solution	$CrO_3 + H_2O + H_2SO_4$	20	50/35/15	S
263	Chromic solution	$CrO_3 + H_2O + H_2SO_4$	60	50/35/15	L
264	Citric acid	$C_3H_4(OH)(CO_2H)_3$	20	sat. sol.	S
265	Citric acid	$C_3H_4(OH)(CO_2H)_3$	60	sat. sol.	S
266	Copper –carbonate	$CuCO_3$	20	—	S
267	Copper –carbonate	$CuCO_3$	60	—	S
268	Copper –chloride	$CuCl_2$	20	sat. sol.	S
269	Copper –chloride	$CuCl_2$	60	sat. sol.	S
270	Copper –cyanide	$CuCN_2$	20	sat. sol.	S
271	Copper –cyanide	$CuCN_2$	60	sat. sol.	S
272	Copper –fluoride	CuF_2	20	—	S
273	Copper –fluoride	CuF_2	60	—	S
274	Copper –hypochlorite	$Cu(OCl)_2$	20	—	S
275	Copper –hypochlorite	$Cu(OCl)_2$	60	—	S
276	Copper –nitrate	$Cu(NO_3)_2$	20	sat. sol.	S
277	Copper –nitrate	$Cu(NO_3)_2$	60	sat. sol.	S
278	Copper –sulphate	$CuSO_4$	20	sat. sol.	S
279	Copper –sulphate	$CuSO_4$	60	sat. sol.	S
280	Cottonseed oil	—	20	work	S
281	Cottonseed oil	—	60	work sol.	S
282	Creosote	—	20	—	U
283	Creosote	—	60	—	U
284	Cresol	$CH_3C_6H_4OH$	20	⩽90	L
285	Cresol	$CH_3C_6H_4OH$	60	⩽90	U
286	Cresol	$CH_3C_6H_4OH$	20	⩾90	U
287	Cresol	$CH_3C_6H_4OH$	60	⩾90	U
288	Cresylic acid	$CH_3C_6H_4COOH$	20	50	L
289	Cresylic acid	$CH_3C_6H_4COOH$	60	50	U
290	Crotonaldehyde	—	20	sat. sol. or tg–l	U

NO.	Chemical	Formula	Temp.(°C)	Conc. (%)	PVC
291	Crotonaldehyde	—	60	sat. sol. or tg–l	U
292	Crude oil	—	20	tg–l	S
293	Crude oil	—	60	tg–l	S
294	Cyclanone	—	20	—	S
295	Cyclanone	—	60	—	S
296	Cyclohexane	C_6H_{12}	20	—	U
297	Cyclohexane	C_6H_{12}	60	—	U
298	Cyclohexanol	—	20	sat. sol. or tg–s	U
299	Cyclohexanol	—	60	sat. sol. or tg–s	U
300	Cyclohexanone	$C_6H_{10}O$	20	tg–l	U
301	Cyclohexanone	$C_6H_{10}O$	60	tg–l	U
302	Cyclohexyl alcohol	—	20	—	U
303	Cyclohexyl alcohol	—	60	—	U
304	DDT	—	20	—	U
305	DDT	—	60	—	U
306	Detergents (synthetic)	—	20	dil	S
307	Detergents (synthetic)	—	60	dil	S
308	Developers (photographic)	—	20	work	S
309	Developers (photographic)	—	60	work sol.	S
310	Dextrin	$C_6H_{12}OCH_2O$	20	sol.	S
311	Dextrin	$C_6H_{12}OCH_2O$	60	sol.	L
312	Dextrose	—	20	sol.	S
313	Dextrose	—	60	sol.	S
314	Diacetone alcohol	—	22	—	S
315	Diazo salts	—	20	—	S
316	Diazo salts	—	60	—	S
317	Dibutoxyethyl phthalate	—	20	—	U
318	Dibutoxyethyl phthalate	—	60	—	U
319	Dibutyl phthalate	$C_6H_4(CO_2C_4H_9)_2$	20	—	U
320	Dibutyl phthalate	$C_6H_4(CO_2C_4H_9)_2$	60	—	U

NO.	Chemical	Formula	Temp.(°C)	Conc. (%)	PVC
321	Dibutyl sebacate	—	20	—	S
322	Dibutyl sebacate	—	60	—	U
323	Dichloroacetic acid	$Cl_2CHCOOH$	20	tg–l	U
324	Dichloroacetic acid	$Cl_2CHCOOH$	60	tg–l	U
325	Dichlorobenzene	—	20	tg–l	U
326	Dichlorobenzene	—	60	tg–l	U

Data Sources:

1. Chemical resistance data based on PVC–U reference standards (ISO/TR 10358,JARO). PVC–O exhibits equivalent chemical resistance. For PVC–M applications involving organic solvents, oils, or hydrocarbons, please contact manufacturer for material–specific compatibility confirmation.
2. Chemical Resistance, Volume 1 – Thermoplastics, Second Edition, Plastics Design Library, 1994
3. ISO/TR 10358 Technical Report: Plastic Pipes and Fittings – Combined Chemical–resistance Classification Table, First Edition, International Organisation for Standardisation, 1993