

3. RESISTANCE TO CHEMICALS

In deciding whether an enclosure will resist the effect of chemical substances, not only the material of the enclosure but also the types of seal (gasket) need to be taken into account.

Table I lists only the most important plastic enclosure and gasket materials with the chemicals most commonly encountered.

The table provides only guideline information regarding the resistance of these materials to the listed chemicals. In each case the concentrations and surrounding temperature need to be taken into account. If combinations of chemicals occur, it is advisable to conduct specific tests to assess resistance.

TABLE I : CHEMICAL RESISTANCE OF MATERIALS								
Sl. No	DESCRIPTION	ENCLOSURE MATERIAL			GASKET MATERIAL			
		Poly carbonate	ABS	Polyester / (SMC)	Poly Urethane	EPDM	Chloroprene	Silicone
1.	Acetic acid	@ 10%	@ 10%	+	/	/	-	-
2.	Acetone	-	-	+	-	V	V	+
3.	Ammonia	-	-	-	/	V	V	V
4.	Ammonium Hydroxide (10%)	/	/	@%	/	/	/	/
5.	Aniline	/	/	+	/	/	/	/
6.	Acetaldehyde	/	/	@%	/	/	/	/
7.	Ammonium Phosphate	/	/	@%	/	/	/	/
8.	Benzene	+	-	+	V	+	V	V
9.	Benzole	-	-	V	V	-	-	-
10.	Brake fluid	-	/	V	/	-	+	V
11.	Butane	V	/	/	/	/	V	-
12.	Butanol	/	/	V	/	/	V	-
13.	Butylacetate	/	/	@%	/	/	/	/
14.	Calcium chloride	V	/	V	/	/	/	/
15.	Carbon disulphide	-	/	-	/	/	-	-
16.	Carbon tetra chloride	/	-	+	-	-	-	-
17.	Caustic potash solution	-	/	-	/	/	V	/
18.	Chloric benzole	-	-	V	-	-	-	-
19.	Citric acid (1%)	@ 10%	@ 10%	+	/	V	V	V
20.	Chromic acid (40%)	/	/	V	/	/	/	/
21.	Calcium Hypochlorite	/	/	@%	/	/	/	/
22.	Creosote	/	/	@%	/	/	/	/
23.	Detergent solutions	V	/	+	+	+	V	V
24.	Diesel oil	+	V	V	V	+	+	+
25.	Diethyl ether	/	/	+	/	/	/	/
26.	Dim ethyl formaldehyde	/	/	+	/	/	/	/
27.	Distilled Water	/	/	@%	/	/	/	/
28.	Engine oils	V	/	V	V	+	+	V
29.	Ethyl acetate	/	/	V	/	/	/	/
30.	Ethyl Alcohol (95%)	/	/	+	/	/	/	/
31.	Ethyl Alcohol (10%)	/	/	+	/	/	/	/
32.	Ethylene die chloride	/	/	+	/	/	/	/
33.	Formaldehyde	/	+	@%	/	/	-	V
34.	Formic acid	@ 30%	-	@%	/	V	V	+
35.	Frigen 113	V	/	V	/	/	V	/
36.	Fruit juice	V	/	V	V	V	V	V
37.	Glycerin	+	V	V	V	V	V	V
38.	Heating oil	+	+	V	V	+	+	+
39.	Hydraulic oil	V	/	V	/	/	V	+
40.	Hydro chloric acid (10%)	@ 20%	@ 10%	+	-	V	V	/
41.	Hydro fluoric acid	/	/	+	/	/	/	/
42.	Hydrogen peroxide solutions	/	/	+	/	/	/	/
43.	Isooctane (2,2,4-tri methyl pentane)	/	/	V	/	/	/	/
44.	Kerosene	/	/	+	/	/	/	/
45.	Lactic acid	@ 10%	V	V	/	V	V	/
46.	Linseed oil	V	/	V	V	V	V	+
47.	Lubricating oil	V	/	V	V	+	+	V
48.	Lime	/	/	@%	/	/	/	/

49.	Methanol	-	/	-	/	/	V	V
50.	Methylene chloride	-	/	-	-	/	-	-
51.	Mineral oils	V	V	V	V	+	+	V
52.	Nitric acid	@ 10%	@ 30%	@%	-	V	+	-
53.	Methyl alcohol	/	/	+	/	/	/	/
54.	Nitric Acid (40%)	/	/	@%	/	/	/	/
55.	Nitric Acid (10%)	/	/	@%	/	/	/	/
56.	Oleic Acid	/	/	+	/	/	/	/
57.	Potassium chloride	V	/	V	V	V	V	V
58.	Potassium hydroxide (10%)	/	V	@%	-	V	V	+
59.	Phenol solutions (5%)	/	/	+	/	/	/	/
60.	Phosphoric acid (50%)	/	/	+	/	/	/	/
61.	Phosphoric acid (25%)	/	/	+	/	/	/	/
62.	Soap suds	+	/	V	+	/	V	V
63.	Soap Solutions	/	/	+	/	/	/	/
64.	Soda lye	-	-	@%	/	/	@ 50%	-
65.	Sodium carbonate solutions (20%)	V	/	+	/	/	/	/
66.	Sodium carbonate solutions (2%)	/	/	+	/	/	/	/
67.	Sodium chloride solutions (10%)	V	/	+	V	V	V	V
68.	Sodium hydroxide solutions 1%	/	V	+	-	V	V	+
69.	Sodium hydroxide solutions 10%	/	/	@%	/	/	/	/
70.	Sodium hydroxide solutions 60%	/	/	+	/	/	/	/
71.	Sodium hypo chlorite solutions	/	/	@%	/	/	/	/
72.	Sulphuric acid (3%)	@ 50%	@ 30%	@%	/	/	@ 50%	@ 25%
73.	Sulphuric acid (30%)	/	/	@%	/	/	/	/
74.	Tartaric acid	@ 10%	/	V	V	V	V	V
75.	Toluol	-	-	V	-	-	-	-
76.	Toluene	/	/	@%	/	/	/	/
77.	Transformer Oil	/	/	+	/	/	/	/
78.	Trichloroethylene	/	-	-	-	-	-	-
79.	Tri sodium phosphate	/	/	-	/	/	/	/
80.	Turpentine oil	/	/	@%	/	/	-	-
81.	Water	V	V	V	V	V	V	V
82.	Xylol	-	-	V	-	-	-	-
83.	Zinc sulphide	V	/	V	/	V	V	V

LEGEND

V	Resistant to all concentrations
@ %	Resistance to max. % concentration
C*	Resistance up to max. C*
+	Conditionally resistant
-	Not resistant.
/	No information available