

# CHEMICAL PERMEATION TEST DATA

## **BREAKTHROUGH**

BREAKTHROUGH	
Level	Breakthrough Time
6	Greater than 480 minutes
5	241 - 480 minutes
4	121 - 240 minutes
3	61 - 120 minutes
2	31 - 60 minutes
1	11 - 30 minutes
0	1 - 10 minutes

Permeation Rate is calculated by milligrams per sq. meter per minute

As per EN 374 1994

Warning: The results herein are obtained under controlled laboratory conditions and are for guidance only. It is with the intention to assist the user to make the correct choice of personal protective equipment. Actual conditions of end use are not simulated, and it is the responsibility of the user to determine the risk and make the appropriate choice for protection against such risk. The manufacturer, the distributor and the sales agents do not imply any guarantee or responsibility from any information provided that a particular product will suit a specific use.

## **DEGRADATION**

Physical effects on a glove and change in a glove material's physical properties. Ninja® employs an internal test for this, which is based on the finger portion of the glove. The middle finger of the glove is cut up to 50 mm, weighed accurately and then placed on a test tube with coating area exposed. This tube is immersed in the test chemical for 30 minutes. After this time, the sample is taken out of the chemical, off of the test tube and then re-weighed after it's dried completely in an oven. The result is recorded as percent change in weight, coating condition before and after drying, and usability.



Degradation Rating	Weight Change	Puncture Resistance	Condition after Drying
E Excellent	0 to 10%	>3.4 lbf	Soft
G Good	11 to 20%	2.2 - 3.4 lbf	Soft
F Fair	21 to 30%	1.1 - 2.2 lbf	Slightly Hard
P Poor	Over 30%	<1.1 lbf	Hard
NR Not Recommended			Break
NT Not Tested			
G/E	A degradation test with this chemical was not run. However, since its breakthrough time is greater than 480 minutes, the Degradation Rating is expected to be GOOD to EXCELLENT.		

NINJA® CHEMICAL PERMEATION TEST DATA

S. #	CHEMICAL	PVC		NITRILE	
		Alchemy Cut + Premier Cut		Nitrachem65	
		BreakThrough Time	Level	BreakThrough Time	Level
1	1,2 DICHLORO ETHANE 76% + PHENOL 24%			17	1
2	1,2 DICHLORO ETHANE	11	1	5	0
3	1,2 DICHLORETHAN REINCST				
4	1,4 DIOXANE	27	1	35	2
5	1-BUTANOL (BUTYL ALCOHOL)	>480	6	>480	6
6	1-PROPANOL (PROPYL ALCOHOL)			>480	6
7	2,6 DIMETHYL-4-HEPTANONE	>480	6	>480	6
8	2-NITRO PROPANE (95.5%)	21	1	20	1
9	ACETALDEHYDE	24	1	24	1
10	ACETIC ACID (Glacial)	121	4	167	4
11	ACETIC ACID 25%				
12	ACETONE	10	0	17	1
13	ACETONITRILE	20	1	22	1
14	ACRYLAMIDE (50%)	>480	6	>480	6
15	ACRYLIC ACID	58	2	132	4
16	AMMONIA GAS				
17	AMMONIUM FLORIDE (40%)	>480	6	>480	6
18	AMMONIUM HYDROXIDE (<30%)	>480	6		
19	AMMONIUM HYDROXIDE (35%)	>480	6	>480	
20	AMYL ACETATE			89	3
21	ANILINE	230	4	175	4
22	ANIMAL FATS	>480	6	>480	6
23	BATTERY ACID	>480	6	>480	6
24	BENZALDEHYDE	66	3	40	2
25	BENZENE	17	1	9	0
26	BRAKE FLUID	>480	6	>480	6
27	BUTOXY PROPANOL	>480	6		
28	BUTOXY TRIGLYCOL	>480	6	>480	6
29	BUTYL ACETATE			43	2
30	BUTYL CARBITOL SOLVENT (DIETHYLENE GLYCOL MONOBUTYL ETHER)	>480	6	>480	6
31	BUTYL CELLOSOLVE SOLVENT (2-Butoxy Ethanol)	>480	6	>480	6
32	BUTYL ETHYLENE (1-HEXENE)	>480	6		
33	BUTYRO LACTONE	122	4	110	3
34	CARBON TETRA CHLORIDE	43	2	82	3
35	CARBONDISULFIDE	8	0	2	0
36	CASTOR OIL (Ricinus oil)	>480	6		
37	CHLORINE GAS				
38	CHLOROBENZENE	16	1	24	1
39	CHLOROFORM	6	0	2	0
40	CHROMIC ACID (50%)	>480	6	>480	6
41	CHROMIUM TRIOXIDE	>480	6	>480	6
42	CITRIC ACID (30%)	>480	6	>480	6
43	COOKING OIL	>480	6		
44	CORN OIL	>480	6		
45	CRESOL	>480	6		

NINJA® CHEMICAL PERMEATION TEST DATA

S. #	CHEMICAL	PVC		NITRILE	
		Alchemy Cut + Premier Cut		Nitrachem65	
		BreakThrough Time	Level	BreakThrough Time	Level
46	CRESYLIC ACID	>480	6		
47	CYCLOHEXANE	56	2	>480	6
48	CYCLOHEXANONE			118	3
49	CYCLOHEXANOL	>480	6	>480	6
50	DETERGENT	>480	6		
51	DIACETONE ALCOHOL	>480	6	>480	6
52	DI-BUTLY PHTHALATE (D.B.P)	>480	6		
53	DIESEL	>480	6	>480	6
54	DIETHANOLAMINE	>480	6	>480	6
55	DIETHYL ETHER (ETHYL ETHER)	9	0	14	1
56	DIETHYLAMINE	13	1	11	1
57	DIETHYLENE GLYCOL MONOHEXYL ETHER (HEXYLCARBITOL SOLVENT)	>480	6	>480	6
58	DIETHYLENE GLYCOL MONOHEXYL ETHER (METHYLCARBITOL SOLVENT)	>480	6	>480	6
59	DI-ISOBUTYL KETONE	>480	6	>480	6
60	DIETHYL PHTHALATE				
61	DIMETHYL SULFATE	100	3		
62	DIMETHYLACETAMIDE			51	2
63	DIMETHYL SULPHOXIDE				
64	DIMETHYL FORMAMIDE (DMF)	39	2	37	2
65	DIOCTYL PHTHALATE [DI(2-ETHYL HEXYL)PHTHALATE] (D.O.P)	>480	6	>480	6
66	DIPROPASOL GLYCOL MONO n-BUTYL ETHER (BUTYL DIPROPASOL SOLVENT) (DIPROPYLENE GLYCOL MONO n-BUTYL ETHER)	>480	6	>480	6
67	DIPROPYLENE GLYCOL MONO n-PROPYL ETHER	>480	6	>480	6
68	EPICHLOROHYDRIN	18	1	20	1
69	EPOXIDISED SOYA BEAN OIL	>480	6		
70	ETHANOLAMINE	>480	6	>480	6
71	ETHOXYTRIGLYCOL (TRIETHYLENE GLYCOL MONO ETHYL ETHER)	>480	6	>480	6
72	ETHYL ACETATE	11	1	22	1
73	ETHYL ALCOHOL (ETHANOL) (90%)	45	2	72	3
74	ETHYL BUTANOL	>480	6	>480	6
75	ETHYLENE GLYCOL	>480	6	>480	6
76	ETHYLENE GLYCOL MONOPROPYL ETHER (PROPYL CELLOSOLVE SOLVENT)	>480	6	>480	6
77	FORMALDEHYDE (37%)	>480	6	>480	6
78	FORMIC ACID (90%)	>480	6	>480	6
79	FURFURAL	65	3	61	3
80	GLYCERINE	>480	6		
81	GROUNDNUT OIL (PEANUT OIL)	>480	6		
82	HEXYLCARBITOL SOLVENT				
83	HEXYLCELLOSOLVE SOLVENT	>480	6		
84	HYDRAZINE HYDRATE (85%)	>480	6	>480	6
85	HYDROCHLORIC ACID (10%)	>480	6	>480	6
86	HYDROCHLORIC ACID (30%)	>480	6	>480	6

NINJA® CHEMICAL PERMEATION TEST DATA

S. #	CHEMICAL	PVC		NITRILE	
		Alchemy Cut + Premier Cut		Nitrachem65	
		BreakThrough Time	Level	BreakThrough Time	Level
87	HYDROCHLORIC ACID (37%)	>480	6		
88	HRDROFLUORIC ACID (40%)				
89	HYDROGEN PEROXIDE	>480	6		
90	HYDROGEN PEROXIDE (30%)	>480	6	>480	6
91	HYDROQUINONE	>480	6	>480	6
92	IODOMETHANE (METHYL IODIDE)				
93	ISO BUTYL ALCOHOL (2-BUTANOL)			>480	6
94	ISO BUTYL METHYL KETONE (METHYL ISO BUTYL KETONE) (MIBK)			52	2
95	ISO PROPYL ALCOHOL (2-PROPANOL)			>480	6
96	ISOAMYL ALCOHOL			>480	6
97	ISOPARRAFFIN H				
98	KEROSENE	>480	6	>480	6
99	KEROSENE (Paraffin)				
100	LACTIC ACID (85%)	>480	6	>480	6
101	MALEIC ACID	>480	6	>480	6
102	METHANOL (METHYL ALCOHOL)	36	2	129	4
103	METHOXY TRIGLYCOL	>480	6	>480	6
104	METHYL ACETATE				
105	METHYL ACRYLATE				
106	METHYL AMINE (40%)	>480	6	>480	6
107	METHYL ETHYL KETONE (2-BUTANONE) (MEK)			15	1
108	METHYL CELLOSOLVE SOLVENTS				
109	METHYL METACRYLATE			15	1
110	METHYLENE CHLORIDE (DI CHLORO METHANE)	9	0	6	0
111	MILK	>480	6		
112	MILK PRODUCTS (Butter, etc.)	>480	6		
113	MONO ETHANOL AMINE	>480	6	>480	6
114	MORPHOLIN				
115	MURIATIC ACID	>480	6	>480	6
116	n,n DIMETHYL ACETAMIDE				
117	n-AMYL ALCOHOL	172	4	397	5
118	NAPHTHA (SHELLSOL A)	45	2	71	3
119	n-HEPTANE	39	2	0	0
120	n-HEXANE	54	2	>480	6
121	NITRIC ACID (10%)	>480	6	>480	6
122	NITRIC ACID (23%)				
123	NITRIC ACID (65%)			130	4
124	NITRO BENZENE	103	3	60	2
125	NITRO METHANE				
126	N-METHYL-2-PYRROLIDONE	170	4	173	4
127	n-OCTANOL	>480	6	>480	6
128	n-PENTANE				
129	OCTANE (Petrol or Gasoline)	40	2	246	5
130	OIL-BASED PAINTS	>480	6		
131	OLEIC ACID	>480	6	>480	6

NINJA® CHEMICAL PERMEATION TEST DATA

S. #	CHEMICAL	PVC		NITRILE	
		Alchemy Cut + Premier Cut		Nitrachem65	
		BreakThrough Time	Level	BreakThrough Time	Level
132	OLIVE OIL	>480	6		
133	ORTHO PHOSPHORIC ACID (85%)	>480	6	>480	6
134	OXALIC ACID	>480	6	>480	6
135	PALMITIC ACID	>480	6	>480	6
136	PARAFFIN OIL	>480	6		
137	PERCHLORIC ACID (60%)	>480	6	>480	6
138	PHENOL (76% IN H <sub>2</sub> O)				
139	PHENOL (90%)	>480	6	>480	6
140	PHTALIC ACID DIBUTYL ESTER	>480	6	>480	6
141	POTASSIUM HYDROXIDE (CAUSTIC POTASH) (Saturated)			>480	6
142	POTASSIUM HYDROXIDE (CAUSTIC POTASH) 40%			>480	6
143	POTASSIUM HYDROXIDE (CAUSTIC POTASH) 45%	>480	6	>480	6
144	POTASSIUM HYDROXIDE (CAUSTIC POTASH) 50%	>480	6	>480	6
145	PROPETAMPHOS (SAFROTIN) (50% IN ROH)	>480	6	>480	6
146	PROPOXY DIETHYLENE GLYCOL (PROPYL CARBITOL SOLVENT) (DIETHYLENE GLYCOL MONOPROPYL ETHER)	>480	6	>480	6
147	PROPYL ACETATE	17	1	7	0
148	PROPYL CELLOSOLVE SOLVENT	>480	6		
149	PROPYLENE GLYCOL MONOBUTYL ETHER (BUTYL PROPASOL SOLVENT)	>480	6		
150	PETROLEUM ETHER				
151	PYRIDINE			23	1
152	SODIUM HYDROXIDE (CAUSTIC SODA) (40%)	>480	6	>480	6
153	SODIUM HYPOCHLORITE (6~12%) (Bleach)	>480	6	>480	6
154	STYRENE			26	1
155	SULPHURIC ACID (50%)				
156	SULPHURIC ACID (30%)	>480	6		
157	SULPHURIC ACID (47%)	>480	6	>480	6
158	SULPHURIC ACID (Con. 96~98%)	160	4	128	4
159	TANNIC ACID (65%)	>480	6	>480	6
160	TERT-BUTYL AMINE				
161	TETRACHLOROETHYLENE			78	3
162	TETRAHYDROFURANE	15	1	7	0
163	TOLUENE	16	1	24	1
164	TOLUENE EXTRA PURE				
165	TRICHLOROETHANE (GENKLENE)				
166	TRICHLOROETHYLENE	5	0		
167	TRICRESYL PHOSPHATE (TCP)	>480	6	>480	6
168	TRIETHANOLAMINE (TEA)	>480	6	>480	6
169	TURPENTINE				
170	TRIXYLENYL PHOSPHATE (TXP)	>480	6		
171	UNLEADED PETROL	40	2	246	5
172	XYLENE	7	0	60	2