



Global Thermoset Composite Solutions

The following is a list of IL/Norplex's composite materials that have been tested in various fluids to determine the chemical resistance of the products. Materials were measured in width and thickness (1.00" and 0.062") then immersed in the fluid and re-measured after the time and temperature of testing. In addition, a visual examination was performed when the samples were removed from the solutions. This information is presented for information only and no specification or specific results are implied.

ACIDS (C-168/23)		NP130	NP504	NP509	NP510A	NP511	NP310	NP313	NP315	NP319	NP320	NP329	NP602	NP611	NP612	NP631	NP664	NP101	P95
ACETIC ACID 10%	VISUAL	E	E	E	E	E	E	E	E	E	E	F	E	E	E	E	E	E	
	± THK %	0.08	0.99	0.07	0	0.48	2.76	4.75	4.31	2.41	2.43	7.58	15.07	4.02	5.77	1.01	23.49	0.15	0.41
	± WTH%	0.53	0.27	0.01	0.34	0	0.46	0.5	0.6	0.56	0.41	0.61	0	0.07	0.09	0.26	0.5	0.32	0.15
	RECOM.	GOOD	OK	EXCE	GOOD	GOOD	T/C	T/C	T/C	T/C	T/C	T/C	NR	T/C	T/C	OK	NR	GOOD	GOOD
HCl 10%	VISUAL	E	E	F	E	E	F	E	E	E	E	X	E	G	E	E	E	E	
	± THK %	0.6	0.98	4.4	0	0.24	2.32	4.65	5.66	2.71	2.21	98.29	16.53	4.45	3.05	0.67	23.46	0.31	1.06
	± WTH%	-0.28	0.07	0	0.05	0.05	0.17	0.55	0.5	0.5	0.45	-1.62	0.1	0.39	-0.01	-0.16	0.5	0.15	-0.01
	RECOM.	OK	OK	T/C	EXCE	OK	T/C	T/C	T/C	T/C	T/C	NR	NR	T/C	T/C	OK	NR	GOOD	OK
H ₃ PO ₄ 25%	VISUAL	E	E	E	E	E	E	E	E	E	X	G	F	E	E	G	E	E	
	± THK %	0	0.81	0.58	0.31	0	1.55	2.48	3.03	1.32	1.09	77.82	6.69	1.45	2.33	0.67	12.75	0.46	0.08
	± WTH%	0.02	-0.26	0.13	-0.12	0	0.41	0.3	0.4	0.3	0.2	-1.01	0.05	0.04	0.19	0.01	0.31	0.01	0.05
	RECOM.	EXCE	OK	OK	GOOD	EXCE	OK	T/C	T/C	OK	OK	NR	T/C	OK	T/C	OK	NR	GOOD	EXCE
H ₂ SO ₄ 10%	VISUAL	E	E	G	E	F	E	E	E	E	E	F/X	G	G	E	E	G	E	E
	± THK %	0.49	0.99	1.83	0.08	0	2.23	3.08	3.96	1.38	1.66	30.3	7.38	2.91	3.43	0.76	12.83	0.15	0.08
	± WTH%	0.07	0.15	0.63	0.08	0	0.18	0.25	0.3	0.31	0.3	-0.35	0	0.06	0	0.21	0.3	0.03	0
	RECOM.	GOOD	OK	OK	EXCE	EXCE	T/C	T/C	T/C	OK	OK	NR	T/C	T/C	T/C	OK	NR	GOOD	EXCE
HNO ₃ 5%	VISUAL	E	E	G	E	E	E	E	E	E	X	E	E	G	E	G	E	E	
	± THK %	0.24	0.72	1.85	0.31	0	3.81	4.64	5.47	2.02	2.03	30.21	18.09	8.24	8.13	1.53	23.77	0.39	0.84
	± WTH%	0.07	0.25	0.11	0.06	0.05	0.72	0.45	0.35	0.4	0.4	-0.51	0	0.4	0.12	0.08	0.35	0.37	0.08
	RECOM.	GOOD	OK	OK	GOOD	EXCE	T/C	T/C	T/C	OK	OK	NR	NR	T/C	T/C	OK	NR	GOOD	OK
BASES (C-168/23)		NP130	NP504	NP509	NP510A	NP511	NP310	NP313	NP315	NP319	NP320	NP329	NP602	NP611	NP612	NP631	NP664	NP101	P95
KOH 1N	VISUAL	E	X	E	E	G	X	F	F	F	F	X	F	X	X	X	X	F	E
	± THK %	0.81	3.28	0.95	0.7	0.4	14.32	24	28.7	13.49	6.52	12.05	113.9	97.32	56.99	83.88	130	0.54	0.83
	± WTH%	0.03	0.26	0.08	0.08	0	1.33	1.72	2.45	1	0.61	0.35	0	0.08	1.15	2.45	1.66	0.12	0.77
	RECOM.	OK	T/C	OK	OK	GOOD	NR	NR	NR	NR	T/C	NR	NR	NR	NR	NR	NR	GOOD	OK
NH ₄ OH 1N	VISUAL	E	G	E	E	E	E	E	E	E	E	X	G	E	G	E	G	E	E
	± THK %	0.42	0.72	0.51	1.1	0.08	3.91	4.93	5.43	2.81	2.44	18.86	17.91	7.72	7.74	1.43	26.11	0.08	0
	± WTH%	0.02	0.43	0.05	0.01	0	0.62	0.5	0.4	0.5	0.4	0.51	0	0.06	0.01	0.19	0.9	0.03	0
	RECOM.	GOOD	OK	GOOD	OK	EXCE	T/C	T/C	T/C	T/C	NR	NR	T/C	T/C	OK	NR	EXCE	EXCE	
NAOH 1N	VISUAL	E	F	E	E	E	F	X	X	F	F	X	X	X	X	X	E	E	
	± THK %	0.16	0.81	0.15	0.4	0	5.66	40.2	57.8	25.23	12.92	14.57	134.8	70.73	46.37	21.17	126	0.15	0.25
	± WTH%	0.01	0.16	0.09	0.09	0	0.56	3.52	3.39	3.23	0.91	0.88	0	0.1	0.71	0.72	1.87	0.11	0.03
	RECOM.	GOOD	OK	GOOD	GOOD	EXCE	T/C	NR	GOOD	GOOD									



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SOLVENTS (C-168/23)		NP130	NP504	NP509	NP510A	NP511	NP310	NP313	NP315	NP319	NP320	NP329	NP602	NP611	NP612	NP631	NP664	NP101	P95
ACETONE	VISUAL	G	G	E	G	G	F	E	E	E	E	E	G	X	X	X	X	E	E
	± THK %	1.94	0.9	0.14	7.04	5.92	3.71	0.4	0.16	-0.09	0.47	0.08	4.49	63.07	16.33	28.33	45.8	0.69	0.17
	± WTH%	-0.07	0.07	0.02	0.09	0	0.26	0.1	0.05	0.05	0	0	0	0.1	0.18	0.3	0.2	0.11	0.05
	RECOM.	T/C	OK	GOOD	T/C	T/C	T/C	GOOD	GOOD	EXCE	GOOD	EXCE	T/C	NR	NR	NR	NR	OK	GOOD
METHYL ALCOHOL	VISUAL	G	E	E	G	E	E	E	E	E	E	E	E	E	X	X	G	E	
	± THK %	2	-1.14	0	2.91	3.7	2.78	1.69	2.55	3.04	1.09	0.42	21.14	21.62	12.5	18.89	23.12	2	0.34
	± WTH%	0.14	0.05	0.01	0.07	0.1	0.33	0	0.2	0.15	0	0	0	0.24	0.15	0.15	0.36	0.09	0.03
	RECOM.	OK	GOOD	EXCE	T/C	T/C	T/C	OK	T/C	T/C	OK	GOOD	NR	NR	NR	NR	NR	OK	GOOD
NO LEAD GAS	VISUAL	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	
	± THK %	0.24	0.09	0.07	0.08	0.08	0.25	0.08	0	0	0.08	0	0	0	0.35	0	0.74	0	0
	± WTH%	0.02	0.1	0.04	0.05	0	0.08	0	0	0	0	0	0.05	0	0.01	0.03	0	0.04	0.07
	RECOM.	GOOD	EXCE	EXCE	EXCE	EXCE	GOOD	EXCE											
TOLUENE	VISUAL	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	
	± THK %	0.32	0.36	0.07	0.72	0.41	0.25	0	0.08	0	0	0.08	0	0.56	0.61	0.34	0	0	0.59
	± WTH%	0	0.12	0.06	0.05	0	0.17	0	0.05	0	0	0	0.05	0.02	1.14	0.24	0.05	0.05	0.01
	RECOM.	GOOD	GOOD	EXCE	OK	GOOD	GOOD	EXCE	EXCE	EXCE	EXCE	EXCE	EXCE	OK	GOOD	EXCE	EXCE	OK	
TCE	VISUAL	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	
	± THK %	1.54	0.09	0.43	2.44	2.51	0.5	0.08	0	0	0.08	0	0.08	0.48	1.94	0.42	0.6	0.46	0.17
	± WTH%	0.07	0.08	0.01	0.16	0.05	0.1	0	0	0	0	0	0	0.04	0.02	0.01	0	0	0.16
	RECOM.	GOOD	EXCE	GOOD	T/C	T/C	GOOD	EXCE	EXCE	EXCE	EXCE	EXCE	EXCE	GOOD	OK	GOOD	GOOD	GOOD	
ATF (#220)	VISUAL	E	E	E	E	G	E	E	E	E	E	E	E	E	E	E	E	E	
	± THK %	0	-0.63	0	-0.39	0.24	0	0.49	0.24	0.28	0.31	0.25	0.08	0	0	0.15	0	-0.08	
	± WTH%	0.03	0	0	0	0	0	0	0	0	0	0	0.05	0.14	0.05	0.01	0	0.16	0.08
	RECOM.	EXCE	GOOD	EXCE	GOOD	GOOD	EXCE	GOOD	GOOD	GOOD	GOOD	GOOD	EXCE	GOOD	EXCE	GOOD	EXCE	EXCE	



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ACIDS & BASES (E-24/38)		NP130	NP504	NP509	NP510A	NP511	NP310	NP313	NP315	NP319	NP320	NP329	NP602	NP611	NP612	NP631	NP664	NP101	P95
ACETIC ACID 10%	VISUAL	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	
	± THK %	0.33	0.55	0	0.63	0.16	1.81	3.18	3.21	1.48	1.33	6.23	8.54	2.25	5.89	1.26	14.71	0.15	0.33
	± WTH%	0	0.05	0	0.35	-0.1	0.71	0.15	0.25	0.26	0.15	0.35	0.05	0.05	0.05	0.15	0.5	0	0.6
	RECOM.	GOOD	GOOD	EXCE	OK	GOOD	OK	T/C	T/C	OK	OK	T/C	T/C	T/C	T/C	OK	NR	GOOD	GOOD
HYDRO- CHLORIC ACID 10%	VISUAL	E	E	G	E	E	F	E	E	E	G	F	G	E	E	E	G	E	E
	± THK %	0.08	0.09	2.9	0.16	0.16	1.57	2.64	3.47	1.12	1.01	33.59	10.99	2.95	3.1	0.34	15.5	-0.1	0.24
	± WTH%	0	0.1	0.2	0.1	0	0.29	0.4	0.35	0.15	0.2	-0.46	0	0	0.05	0.15	0.25	0.05	0
	RECOM.	EXCE	EXCE	T/C	GOOD	GOOD	GOOD	T/C	T/C	OK	OK	NR	NR	T/C	T/C	GOOD	NR	EXCE	GOOD
HNO ₃ 5%	VISUAL	E	E	G	E	E	E	E	E	E	E	X	G	G	G	E	G	E	E
	± THK %	0.32	0.54	1.1	0.24	0	2.43	3.79	4.01	1.48	1.42	38.66	11.16	4.96	5.43	1.35	18.53	0.31	0.33
	± WTH%	0	0.25	0.05	0.05	0.1	0.25	0.25	0.4	0.3	0.3	-0.46	0.1	0.05	0.1	0.1	0.25	0	0.25
	RECOM.	GOOD	OK	OK	GOOD	EXCE	T/C	T/C	T/C	OK	OK	NR	NR	T/C	T/C	OK	NR	GOOD	GOOD
H ₃ PO ₄ 25%	VISUAL	E	E	E	E	E	E	E	E	E	E	X	G	E	E	E	G	E	E
	± THK %	0.24	0.91	0.07	0.39	0.08	1.55	1.69	1.71	0.37	0.63	97.82	3.59	1.36	2.45	0.93	7.59	0	0.49
	± WTH%	0.05	0.69	0	0	0	0.2	0.1	0.15	0.2	0	-1.76	0	0.05	0.05	0.05	0.2	0	0
	RECOM.	GOOD	OK	EXCE	GOOD	EXCE	OK	OK	OK	OK	OK	NR	T/C	OK	T/C	OK	T/C	EXCE	GOOD
NH ₄ OH IN	VISUAL	E	E	E	E	E	E	E	E	E	E	G	E	E	G	NA	G	E	E
	± THK %	0.17	0.18	0	0.08	0	2.59	3.09	3.33	1.02	0.86	12.95	9.39	4.15	7.85	0	19.26	0.31	0.16
	± WTH%	0.05	0.05	0.05	0	0.05	0.54	0.25	0.1	0.2	0.2	0.25	0.05	0.05	0	0	0.35	0.1	0
	RECOM.	GOOD	GOOD	EXCE	EXCE	EXCE	T/C	T/C	T/C	OK	OK	NR	NR	T/C	T/C	EXCE	NR	GOOD	GOOD
NAOH IN	VISUAL	E	NA	E	E	E	X	X	F	F	F	X	X	E	--	X	X	E	
	± THK %	1.94	0	0.22	0.08	0	12.61	17.3	21.6	10.48	4.03	6.87	107	92.84	56.02	--	148.4	0.39	0.83
	± WTH%	0.05	0	0.05	0	0.05	20.3	0.95	1.36	0.7	0.3	0.15	0	0	1.12	--	1.76	0.1	0.2
	RECOM.	OK	EXCE	GOOD	EXCE	EXCE	NR	NR	NR	NR	T/C	T/C	NR	NR	NR	--	NR	GOOD	OK

KEY TO ABBREVIATIONS:

VISUAL

E = EXCELLENT

F = FAIR

G = GOOD

N/D = NO DATA

X = BAD

RECOMMENDATION

EXCE = EXCELLENT RESISTANCE TO CHEMICAL

GOOD = GOOD RESISTANCE TO CHEMICAL

OK = MAY BE USED, MINOR CHANGES IN WIDTH AND/OR THICKNESS <10%

T/C = USE CAUTION BECAUSE OF THICKNESS INCREASE IN CHEMICAL

NR = NOT RECOMMENDED FOR USE IN THIS CHEMICAL