



MATERIAL COMPATIBILITY BETWEEN NPB AND VARIOUS PLASTIC MATERIALS ** Heat Only

COMPATIBILITY DATA – PERCENT CHANGE

Sample Type	Temperature	15 min		1 hour		1 day		1 week		1 month	
		Weight	Thickness	Weight	Thickness	Weight	Thickness	Weight	Thickness	Weight	Thickness
		% Change	% Change	% Change	% Change	% Change	% Change	% Change	% Change	% Change	% Change
Acetal	77°F	0.02	2.52	0.01	0.00	0.06	3.14	0.17	1.26	0.83	0.94
	150°F	-0.01	0.95	0.04	1.58	0.61	1.26	1.88	2.21	4.58	2.52
	150°F**	0.56	0.00	0.55	1.27	0.41	2.22	0.34	2.54	0.32	1.90
Acrylic	77°F	-1.11	1.80								
	150°F										
	150°F**	0.61	-0.90	0.76	-1.20	0.36	0.90	0.10	0.90	0.15	0.60
Acrylonitrile Butadien Styrene ABS	77°F										
	150°F										
	150°F**	0.76	-0.31	0.27	-0.62	-0.02	1.86	0.02	1.55	0.04	1.55
Buna N	77°F	10.40	5.41	19.69	10.14	21.33	8.11	26.34	8.78	29.97	12.16
	150°F	12.91	2.63	22.60	7.89	21.11	5.92	27.14	6.58	31.61	13.82
	150°F**	0.96	-1.43	0.58	1.43	0.31	2.86	0.05	4.29	0.11	3.57
Buna S	77°F	24.29	4.40	27.31	6.29	48.61	18.24	29.78	10.69	106.37	32.08
	150°F	37.24	9.32	25.05	7.45	56.59	18.63	32.49	12.42	106.47	30.43
	150°F**	0.47	-0.62	0.09	-1.86	0.22	2.48	-0.02	3.73	-0.06	4.35
Butyl Rubber	77°F	0.64	0.35	1.33	0.35	7.71	2.13	8.97	5.32	6.57	2.84
	150°F	0.89	1.42	2.95	3.19	14.28		10.37	5.32	8.86	6.74
	150°F**	0.02	0.00	-0.00	0.54	0.03	1.08	-0.03	5.41	-0.03	2.70
CPVC	77°F	6.18	5.41	26.88	20.54						
	150°F	12.21	12.22	39.98	41.11						
	150°F**	0.02	0.00	-0.00	0.54	0.03	1.08	-0.03	5.41	-0.03	2.70
EP Rubber	77°F	14.90	5.50	41.87	19.42	53.64	14.56	13.07	8.09	46.27	12.30
	150°F	18.01	8.12	55.42	18.51	54.40	12.01	17.88	9.09	53.53	10.71
	150°F**	-0.02	-0.31	-0.04	-0.94	-0.11	2.81	-0.35	2.19	-0.23	-1.88



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		Weight	Thickness	Weight	Thickness	Weight	Thickness	Weight	Thickness	Weight	Thickness
	Temperature	% Change	% Change	% Change	% Change	% Change	% Change	% Change	% Change	% Change	% Change
EPDM	77°F	11.00	2.16	4.90	-2.16	-6.67	-12.23	-0.27	-2.16	-20.29	-11.51
	150°F	10.39	5.22	-0.37	-4.48	-4.73	-2.99	4.25	2.24	-19.02	-9.70
	150°F**	-0.03	-1.56	-0.07	0.78	-0.31	5.47	-0.43	6.25	-0.63	6.25
Epichlorohydrin	77°F	6.63	-2.75	-10.31	-5.50	-15.20	-13.76	-18.56	-11.01	-22.03	-10.09
	150°F	2.17	-1.83	-9.19	-6.42	-14.80	-7.34	-17.22	-9.17	-21.36	-8.26
	150°F**	-0.02	-1.74	-0.08	-0.87	-0.16	5.22	-0.63	6.09	-0.70	6.96
Fiberglass	77°F	-0.12	-1.53	-0.08	2.45	1.25	1.23	7.78	13.50	20.01	22.39
	150°F	0.01	0.00	0.91	-0.26	8.97	14.14				
	150°F**	-0.03	0.57	-0.10	0.00	-0.23	1.14	-0.59	1.71	-0.61	1.71
Fluoro Elastomer	77°F	19.29	6.55	-9.69	11.90	-12.43	1.19	-6.40	-4.76	-11.42	-11.31
	150°F	23.99	5.85	85.21	2.34	41.38	-9.36	-18.57	-12.28	-10.34	-8.19
	150°F**	0.01	0.61	-0.06	1.21	-0.45	3.64	-0.55	5.45	-0.41	4.85
G-10 Epoxy	77°F	0.02	-0.30	0.03	0.00	0.04	-4.45	0.07	-2.37	0.22	-2.08
	150°F	0.00	0.29	0.03	-1.47	0.87	-1.18	1.18	3.24	5.27	15.63
	150°F**	-0.01	-0.60	-0.02	-0.91	-0.05	0.91	-0.23	1.51	-0.35	2.42
High Density Polyethylene	77°F	0.13	-0.32	0.38	0.32	2.60	-0.95	7.35	0.95	8.16	1.27
	150°F	0.30	0.32	1.07	0.32	10.03	0.32	10.38	2.56	11.16	2.88
	150°F**	-0.01	-1.59	0.00	-1.59	0.36	0.00	-0.03	0.64	-0.02	0.32
Hypalon	77°F	30.45	12.50	49.04	15.63	9.16	-4.17	4.09	4.17	-0.79	3.13
	150°F	43.33	18.81	45.22	11.88	32.28	9.90	-2.64	-3.96	0.84	0.99
	150°F**	-0.07	-3.06	-0.22	-3.06	-1.81	2.04	-2.13	3.06	-2.22	2.04
Natural Rubber	77°F	24.97	7.19	64.54	12.57	164.43	20.96	156.84	19.16		
	150°F	28.35	9.25	84.13	19.70	142.88	14.03	150.00	18.51		
	150°F**	-0.01	0.31	-0.05	0.00	0.09	1.54	-0.18	3.38	0.24	3.08



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Sample Type		15 min		1 hour		1 day		1 week		1 month	
		Weight	Thickness	Weight	Thickness	Weight	Thickness	Weight	Thickness	Weight	Thickness
	Temperature	% Change	% Change	% Change	% Change	% Change	% Change	% Change	% Change	% Change	% Change
Neoprene	77°F	11.61	6.31	41.02	16.94	60.34	6.64	43.00	7.31	29.18	5.98
	150°F	14.24	3.97	41.21	12.58	41.82	2.32	47.28	7.62	42.63	6.95
	150°F**	-0.02	-0.34	-0.05	-1.71	-0.56	2.39	-0.82	3.07	-0.78	2.73
Polyamide Nylon	77°F	-0.02	3.42	-0.02	0.62	-0.15	0.00	-0.29	0.00	-0.47	0.00
	150°F	-0.03	0.00	-0.06	0.31	-0.38	-1.25	-0.89	-0.31	-1.51	0.00
	150°F**	-0.03	0.63	-0.08	0.63	-0.92	1.90	-2.08	1.59	-2.55	1.90
PBT	77°F	0.01	0.35	0.01	0.35	2.02	0.00	0.15	0.47	0.34	0.47
	150°F	0.01	0.85	0.04	0.85	0.34	0.24	1.11	1.21	2.20	1.93
	150°F**	-0.00	0.37	-0.01	0.37	-0.11	0.74	-0.17	1.48	-0.21	1.11
Polycarbonate LEXAN	77°F	5.25	10.78	13.40	21.90						
	150°F	6.23	5.66	12.53	13.84						
	150°F**	-0.01	0.96	-0.04	-0.32	-0.19	0.00	-0.18	0.64	-0.18	0.32
Polyetherimide ULTEM	77°F	0.01	-0.63	0.01	-2.52	-0.09	-2.20	-0.12	-0.31	-0.04	-0.63
	150°F	0.00	-0.32	0.01	0.32			0.11	1.58	1.18	2.52
	150°F**	-0.00	0.00	-0.03	0.64	-0.15	1.28	-0.66	2.88	-0.64	2.56
Polyphenylene Oxide	77°F										
	150°F										
	150°F**	-0.02	0.32	-0.01	0.32	-0.07	1.60	-0.08	1.92	-0.05	1.92
Polypropylene	77°F	0.22	-1.62	0.63	-0.97	5.21	0.97	18.22	5.18	17.86	4.85
	150°F	0.68	0.66	2.46	1.66	18.21	5.65	22.46	8.31	20.66	7.97
	150°F**	-0.01	0.33	0.00	0.33	-0.03	2.67	-0.01	3.33	-0.02	2.67
Polystyrene	77°F										
	150°F										
	150°F**	0.00	0.00	-0.01	-0.63	0.02	0.95	-0.04	1.90	-0.03	1.58



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		Weight	Thickness	Weight	Thickness	Weight	Thickness	Weight	Thickness	Weight	Thickness
	Temperature	% Change	% Change	% Change	% Change	% Change	% Change	% Change	% Change	% Change	% Change
Polysulfide	77°F	0.23	-2.31	-5.23	-7.69	-18.48	-8.46	-11.05	-4.62	-8.36	-3.85
	150°F	4.34	2.38	-12.76	-6.35	-18.98	-10.32	-3.14	0.00	-17.79	-5.56
	150°F**	-0.01	2.36	-0.03	0.79	-0.30	5.51	-0.36	7.09	-0.44	5.51
Polysulfone	77°F	0.24	0.00								
	150°F	1.40	0.65								
	150°F**	-0.03	0.33	-0.03	0.33	-0.27	2.28	-0.41	2.93	-0.36	3.58
Polyurethane	77°F	2.66	3.00	8.38	5.67	54.63	17.33	72.36	23.67	73.00	22.67
	150°F	4.55	4.35	13.14	7.36	62.87	20.07	80.43	24.41	71.42	23.08
	150°F**	-0.09	0.00	-0.24	0.33	-1.26	2.67	-0.98	2.33	-0.89	2.33
PVC	77°F	1.78	2.31	5.91	5.61	48.29	24.42	99.11	34.98	102.98	39.93
	150°F	3.59	3.69	15.58	11.41	117.43	46.31	185.74	71.48	149.37	67.11
	150°F**	-0.02	1.71	-0.01	3.07	-0.05	0.00	-0.10	1.02	-0.09	0.68
PVC/PP	77°F	0.58	0.96	4.06	3.86						
	150°F	2.76	1.98								
	150°F**	-0.02	-0.32	-0.02	0.65	-0.08	2.91	-0.09	4.21	-0.10	4.53
Silicone Rubber	77°F	3.73	2.72	11.42	9.18	17.61	18.71	31.95	28.91	32.03	26.19
	150°F	5.97	5.41	12.29	11.82	19.65	11.49	44.34	30.74	31.31	18.24
	150°F**	-0.01	0.68	-0.01	0.34	-0.15	3.38	-0.06	4.05	-0.06	3.72
Poly TFE Teflon	77°F	-0.04	0.57	-0.08	0.00	0.00	0.00	0.17	1.71	0.39	2.57
	150°F	-0.04	1.15	-0.01	0.29	0.15	1.15	0.49	2.59	0.79	3.45
	150°F**	-0.01	0.29	-0.01	0.57	-0.04	0.29	0.01	0.86	-0.01	1.15
Tygon	77°F	8.74	2.14	22.89	9.29	9.72	3.57	24.91	14.29	22.05	10.00
	150°F	12.07	6.47	17.67	9.35	8.69	2.16	21.87	7.19	12.00	8.63
	150°F**	-0.03	-1.42	-0.06	-1.42	-0.50	3.55	-0.52	3.55	-0.46	5.67



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Sample Type		15 min		1 hour		1 day		1 week		1 month	
		Weight	Thickness	Weight	Thickness	Weight	Thickness	Weight	Thickness	Weight	Thickness
	Temperature	% Change	% Change	% Change	% Change	% Change	% Change	% Change	% Change	% Change	% Change
UHMW PE	77°F	0.07	0.96	0.25	0.96	2.37	1.28	8.46	4.15	8.58	3.83
	150°F	0.23	0.00	1.07	0.32	10.23	2.23	11.80	4.14	11.53	4.46
	150°F**	-0.01	0.00	0.00	0.00	-0.06	1.92	-0.01	2.24	-0.01	2.24
Fluoroelastomer Viton A/B	77°F	0.45	0.32	1.01	-0.32	5.73	4.76	13.90	10.48	13.04	11.43
	150°F	0.72	0.95	2.85	2.54	18.87	8.57	20.15	12.06	18.12	10.48
	150°F**	-0.01	-0.97	-0.02	-1.29	-0.14	1.94	-0.20	5.16	-0.22	4.19
Fluoroelastomer Viton G/F	77°F	7.37	5.62	20.72	9.06	71.01	14.38	97.77	27.81	103.04	28.13
	150°F	9.53	5.61	29.17	12.15	67.07	12.46	103.15	26.17	123.59	28.97
	150°F**	-0.00	0.00	-0.01	-1.55	-0.14	3.10	-0.59	3.10	-0.63	3.10



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