



WSS-M99P48-A3

Pressure Sensitive Adhesive Tape (Interior, Exterior and Underhood Applications)

Automotive Spec Testing

Technical Bulletin

November, 2016

3M tested the following adhesive tapes to the Automotive OEM Spec: WSS-M99P48-A3. The results of the testing are provided in the following information. Adhesives not listed on this document have not been tested to this spec.

3M™ Adhesive Transfer Tape 468MP (5 mil)

3M™ Adhesive Transfer Tape 9472LE (5 mil)

3M™ Adhesive Transfer Tape 6035PC (5 mil)

3M™ Double Coated Tape 9832 HL (5 mil)

3M™ Scrim Reinforced Transfer Tape 97053 (2.5 mil)

3M™ Double Coated Tape 99786 (5.5 mil)

3M™ Low VOC Scrim Reinforced
Transfer Tape 98010LVC (3.9 mil)

3M™ Low VOC Double Coated Tissue Tape
99015LVC (5.9 mil)

Test	Test Condition / Environment	
180° Peel Adhesion 300mm / 12 inch per min	Initial	1 hour @ room temp 23°C / 73°F
	Heat Aged	168 hours @ 100°C / 212°F
	Environmental Cycle	10 cycles 4 hours @ 100°C / 212°F 4 hours @ 38°C / 100°F 16 hours @ -40°

Adhesive	Test	SS	PP	ABS
468MP	As received	P	F	P
	Heat	P	P	P
	Cycle	P	P	P
9472LE	As received	P	P	P
	Heat	P	P	P
	Cycle	P	P	P
6035PC	As received	P	P	P
	Heat	P	P	P
	Cycle	P	P	P
98010 LVC	As received	P	P	P
	Heat	P	F	P
	Cycle	P	P	P

Adhesive	Test	SS	PP	ABS
97053	As received	P	P	P
	Heat	P	P	P
	Cycle	P	P	P
9832HL	As received	P	P	P
	Heat	P	P	P
	Cycle	P	P	P
99786	As received	P	P	P
	Heat	P	P	P
	Cycle	P	P	P
99015 LVC	As received	P	P	P
	Heat	P	F	P
	Cycle	P	P	P

P = Pass, F = Fail

Note: Data reported in this technical bulletin, for all test methods, is the average of three replicates using one typical lot of adhesive.

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3M™ Adhesive Transfer Tape 468MP (5 mil)

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Initial – 1 hour @ 23°C / 73°F						
468MP	Substrate	Backing	AVG Peel N/mm	AVG Peel oz/in	Observation	Requirement 0.48 N/mm or 43.85 oz/in or cohesive failure
	SS	PET	1.04	95.02	Clean Peel	Pass
	PP		.34	31.06	Clean Peel	Fail
	ABS		.84	76.74	Clean Peel	Pass

Heat Aged – 168 hours @ 100°C / 212°F						
468MP	Substrate	Backing	AVG Peel N/mm	AVG Peel oz/in	Observation	Requirement Max 25% loss from initial
	SS	PET	2.01	183.64	Cohesive	Pass
	PP		.31	28.32	Clean Peel	Pass
	ABS		.99	90.45	Clean Peel	Pass

Environmental Cycle – 10 cycles						
468MP	Substrate	Backing	AVG Peel N/mm	AVG Peel oz/in	Observation	Requirement max 25% loss from initial
	SS	PET	2.06	188.21	Cohesive	Pass
	PP		.36	32.89	Clean Peel	Pass
	ABS		.72	65.78	Clean Peel	Pass

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3M™ Adhesive Transfer Tape 9472LE (5 mil)

Initial – 1 hour @ 23°C / 73°F						
9472LE	Substrate	Backing	AVG Peel N/mm	AVG Peel oz/in	Observation	Requirement 0.48 N/mm or 43.85 oz/in or cohesive failure
	SS	PET	.91	83.14	Clean Peel	Pass
	PP		1.29	117.86	Clean Peel	Pass
	ABS		1.32	120.60	Clean Peel	Pass

Heat Aged – 168 hours @ 100°C / 212°F						
9472LE	Substrate	Backing	AVG Peel N/mm	AVG Peel oz/in	Observation	Requirement max 25% loss from initial
	SS	PET	1.55	141.61	Clean Peel	Pass
	PP		1.01	92.28	Clean Peel	Pass
	ABS		1.43	130.65	60% Clean Peel /40% cohesive	Pass

Environmental Cycle – 10 cycles						
9472LE	Substrate	Backing	AVG Peel N/mm	AVG Peel oz/in	Observation	Requirement max 25% loss from initial
	SS	PET	1.50	137.05	Cohesive	Pass
	PP		1.10	100.50	Clean Peel	Pass
	ABS		1.41	128.82	Cohesive	Pass

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3M™ Scrim Reinforced Transfer Tape 97053 (2.5 mil)

Initial – 1 hour @ 23°C / 73°F						
97053	Substrate	Backing	AVG Peel N/mm	AVG Peel oz/in	Observation	Requirement 0.48 N/mm or 43.85 oz/in or cohesive failure
	SS	PET	.72	65.78	Clean Peel	Pass
	PP		.78	71.26	Clean Peel	Pass
	ABS		.80	73.09	Clean Peel	Peel

Heat Aged – 168 hours @ 100°C / 212°F						
97053	Substrate	Backing	AVG Peel N/mm	AVG Peel oz/in	Observation	Requirement max 25% loss from initial
	SS	PET	1.38	126.08	Cohesive	Pass
	PP		1.15	105.07	Cohesive	Pass
	ABS		1.34	122.43	Cohesive	Pass

Environmental Cycle – 10 cycles						
97053	Substrate	Backing	AVG Peel N/mm	AVG Peel oz/in	Observation	Requirement max 25% loss from initial
	SS	PET	1.26	115.12	Cohesive	Pass
	PP		1.04	95.02	Cohesive	Pass
	ABS		1.06	96.84	Cohesive	Pass

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3M™ Adhesive Transfer Tape 6035PC (5 mil)

Initial – 1 hour @ 23°C / 73°F						
6035PC	Substrate	Backing	AVG Peel N/mm	AVG Peel oz/in	Observation	Requirement 0.48 N/mm or 43.85 oz/in or cohesive failure
	SS	PET	1.94	177.25	Cohesive	Pass
	PP		1.25	114.20	Clean Peel	Pass
	ABS		1.69	154.40	Clean Peel	Pass

Heat Aged – 168 hours @ 100°C / 212°F						
6035PC	Substrate	Backing	AVG Peel N/mm	AVG Peel oz/in	Observation	Requirement max 25% loss from initial
	SS	PET	2.19	200.09	Cohesive	Pass
	PP		1.00	91.36	Clean Peel	Pass
	ABS		1.73	158.06	80% Clean Peel / 20% Cohesive	Pass

Environmental Cycle – 10 cycles						
6035PC	Substrate	Backing	AVG Peel N/mm	AVG Peel oz/in	Observation	Requirement max 25% loss from initial
	SS	PET	2.10	191.86	Cohesive	Pass
	PP		1.09	99.59	Clean Peel	Pass
	ABS		1.52	138.87	Cohesive	Pass

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3M™ Double Coated Tape 99786 (5.5 mil)

Initial – 1 hour @ 23°C / 73°F						
99786	Substrate	Backing	AVG Peel N/mm	AVG Peel oz/in	Observation	Requirement 0.48 N/mm or 43.85 oz/in or cohesive failure
	SS	PET	1.13	103.24	Cohesive	Pass
	PP		.53	48.42	Clean Peel	Pass
	ABS		.92	84.05	Clean Peel	Pass

Heat Aged – 168 hours @ 100°C / 212°F						
99786	Substrate	Backing	AVG Peel N/mm	AVG Peel oz/in	Observation	Requirement max 25% loss from initial
	SS	PET	1.79	163.54	Cohesive	Pass
	PP		.54	49.34	Clean Peel	Pass
	ABS		.79	72.18	Clean Peel	Pass

Environmental Cycle – 10 cycles						
99786	Substrate	Backing	AVG Peel N/mm	AVG Peel oz/in	Observation	Requirement max 25% loss from initial
	SS	PET	1.76	160.80	Cohesive	Pass
	PP		.57	52.08	Clean Peel	Pass
	ABS		1.19	108.72	Clean Peel	Pass

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3M™ Double Coated Tape 9832 HL (5 mil)

Initial – 1 hour @ 23°C / 73°F						
9832HL	Substrate	Backing	AVG Peel N/mm	AVG Peel oz/in	Observation	Requirement 0.48 N/mm or 43.85 oz/in or cohesive failure
	SS	PET	.85	77.66	Cohesive	Pass
	PP		.64	58.47	Clean Peel	Pass
	ABS		.83	75.83	Clean Peel	Pass

Heat Aged – 168 hours @ 100°C / 212°F						
9832HL	Substrate	Backing	AVG Peel N/mm	AVG Peel oz/in	Observation	Requirement max 25% loss from initial
	SS	PET	.26	23.75	Cohesive	Pass
	PP		.55	50.25	Clean Peel	Pass
	ABS		.85	77.66	Clean Peel	Pass

Environmental Cycle – 10 cycles						
9832HL	Substrate	Backing	AVG Peel N/mm	AVG Peel oz/in	Observation	Requirement 0.48 N/mm or 43.85 oz/in or cohesive failure
	SS	PET	1.16	105.98	Cohesive	Pass
	PP		.58	52.99	Clean Peel	Pass
	ABS		.95	86.79	Clean Peel	Pass

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3M™ Low VOC Scrim Reinforced Transfer Tape 98010LVC (3.9 mil)

Initial – 1 hour @ 23°C / 73°F						
98010LVC	Substrate	Backing	AVG Peel N/mm	AVG Peel oz/in	Observation	Requirement 0.48 N/mm or 43.85 oz/in or cohesive failure
	SS	PET	1.11	101.41	Cohesive	Pass
	PP		1.07	97.76	Cohesive	Pass
	ABS		1.08	98.67	Cohesive	Pass

Heat Aged – 168 hours @ 100°C / 212°F						
98010LVC	Substrate	Backing	AVG Peel N/mm	AVG Peel oz/in	Observation	Requirement max 25% loss from initial
	SS	PET	1.09	99.59	Cohesive	Pass
	PP		.55	50.25	Clean Peel	Fail
	ABS		1.23	112.38	Cohesive	Pass

Environmental Cycle – 10 cycles						
98010LVC	Substrate	Backing	AVG Peel N/mm	AVG Peel oz/in	Observation	Requirement max 25% loss from initial
	SS	PET	1.04	95.02	Cohesive	Pass
	PP		1.10	100.50	Cohesive	Pass
	ABS		.82	74.92	Cohesive	Pass

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3M™ Low VOC Double Coated Tissue Tape 99015LVC (5.9 mil)

Initial – 1 hour @ 23°C / 73°F						
99015LVC	Substrate	Backing	AVG Peel N/mm	AVG Peel oz/in	Observation	Requirement 0.48 N/mm or 43.85 oz/in or cohesive failure
	SS	PET	1.08	98.67	Cohesive	Pass
	PP		.99	90.45	Clean Peel	Pass
	ABS		1.15	105.07	Clean Peel	Pass

Heat Aged – 168 hours @ 100°C / 212°F						
99015LVC	Substrate	Backing	AVG Peel N/mm	AVG Peel oz/in	Observation	Requirement max 25% loss from initial
	SS	PET	1.45	132.48	Cohesive	Pass
	PP		.69	63.04	Clean Peel	Fail
	ABS		1.30	118.77	Cohesive	Pass

Environmental Cycle – 10 cycles						
99015LVC	Substrate	Backing	AVG Peel N/mm	AVG Peel oz/in	Observation	Requirement max 25% loss from initial
	SS	PET	1.23	112.38	Cohesive	Pass
	PP		1.36	124.25	Cohesive	Pass
	ABS		1.15	105.07	Cohesive	Pass

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Technical Information

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