



Double-Coated Foam Tape for Exterior Attachment

1 Scope

1.1 Material Description. This specification describes the material and performance requirements for tapes consisting of a closed-cell foamed carrier coated with an adhesive on both sides. The adhesive is commonly, but not restricted to, the acrylic based pressure sensitive type. This system is to be used primarily for the attachment of exterior trim products such as moldings, claddings, appliques, nameplates, emblems, and weatherstrips. The adhesive surface, unless otherwise specified, shall be protected with a polyethylene liner.

1.2 Symbols. Not applicable.

1.3 Applicability. Various types of systems are available under this specification. See Appendix C, Table C1 for typical usage of each type.

2 References

Note: Only the latest approved standards are applicable unless otherwise specified.

2.1 External Standards/Specifications.

ASTM D2000-00	ISO 37	ISO 8510-1
DIN 1725	ISO 1183	ISO 8510-2

2.2 GM Standards/Specifications.

GMW3059	GMW14650	GMW15680	GMW16982
GMW3221	GMW14873	GMW15851	
GMW14124	GMW14914	GMW16847	

2.3 Additional References.

- TMC003 Material Safety Data Sheet guidance documents (available at www.gmsupplypower.com).
- www.acttestpanels.com.
- www.lauren.com.
- www.lawrencefrederick.com.

3 Requirements

3.1 Requirements on Test Specimens. Reference GMW3221.

Note: Unless otherwise noted, all testing for initial approval should be performed using samples from three (3) different production lots.

3.1.1 Sample Conditioning. All samples are to be conditioned prior to each requirement test to GMW3221 Code A.

3.1.2 All tests shall be performed at $23\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ and $50\% \pm 5\%$ Relative Humidity (RH) unless otherwise specified. All requirements in Table 1 through Table 3 are applicable on as-received material for Type I through Type XIII.

Note: Tapes originally approved to Type V have been discontinued. Applications that were suitable for Type V approved tapes are now covered by Type IV.

GM Confidential

© Copyright 2014 General Motors Company All Rights Reserved

July 2014

Page 1 of 15



Documents

Document Sharing Hub

3.1.3 Shelf Life. The material must meet all the requirements of this specification after 90 days storage at a temperature of 35 °C. The shelf life of tape from different suppliers can vary. Refer to the specific tape technical data sheet for shelf life recommendations.

3.2 As-Received Requirements for Type I through Type XIII.

3.2.1 Release Liner. The typical release liner is polyethylene, approximately 0.10 mm thick. Other types of release liners include silicone-coated polyethylene, silicone-coated polyester, and silicone-coated paper. Liner constructions shall be detailed on the engineering drawing. Additionally, the production liner construction(s) used by the tape supplier must be detailed in documentation submitted for initial approval to this standard.

3.2.1.1 Liner Color. The color of the liner is usually left up to the discretion of the supplier. Specific colors can be detailed in the engineering drawing.

3.2.1.2 It must be possible to separate the release liner from the adhesive tape non-destructively. The liner must not be removed until immediately before the application of the adhesive tape.

3.2.1.3 For applications where tape attached trim is installed in the paint shop, test the release liner for possible contaminants that could affect paint topcoat appearance. A primed steel panel with the approximate dimensions of 100 mm × 250 mm shall be vigorously rubbed for 5 s ± 1 s with one (1) side of the release liner, and 5 s ± 1 s with the other side. Then, the primed test panel treated shall be topcoated with the production intent topcoat paint system. Refer to 3.3 or contact Materials Engineering for the correct paint system. The topcoated surface shall have no fish eyes, pitting, or other deterioration caused by contaminants.

3.2.2 Release Strength Characteristics: 180 degree peel at 300 mm/minute per ISO 8510-2.

- As-Received: 4.0 N/cm maximum.
- Roll Aged: 4.0 N/cm maximum after conditioning at 70 °C for 7 days.

3.2.2.1 The liner must be removable without tearing or damaging the adhesive.

Table 1: As-Received Material, Type I through Type IV

Requirements		Type I		Type II		Type III	Type IV	
Thickness – (mm) Caliper Nominal, ±15%	Type A	0.51		0.5		0.5	0.76	
	Type B	0.76		0.8		0.8	1.14	
	Type C	1.14		1.2		1.0	0.76	
	Type D	1.52		1.6		1.2	1.14	
		Min	Max	Min	Max	Min	Min	Max
Density - (kg/m³) ISO 1183	Type A	545	695	450	550	420	560	760
	Type B	500	660	450	550	175	560	760
	Type C	480	610	450	550	240	600	780
	Type D	460	600	450	550	NA	600	780

GM Confidential

© Copyright 2014 General Motors Company All Rights Reserved

July 2014

Page 2 of 15



Documents

Document Sharing Hub

Requirements		Type I		Type II		Type III	Type IV	
Tensile Strength - (MPa) ISO 37, Type I Dumbbell 500 mm/minute Initial, minimum After H ₂ O Immersion, % Change Maximum	All Types	0.70	NA	0.70	NA	0.40	0.40	NA
		NA	-50	NA	-40	NA	NA	-50
Elongation - (% change) ISO 37, Type I Dumbbell 500 mm/minute Initial, minimum After H ₂ O Immersion, % Change Maximum	Type A	80	NA	125	NA	40	500	NA
	Type B	80	NA	125	NA	200	500	NA
	Type C	80	NA	125	NA	100	500	NA
	Type D	80	NA					
		NA	±25	NA	-10	NA	NA	±25

Max = Maximum, Min = Minimum, NA = Not applicable.

Table 2: As-Received Material, Type VI through Type X

Requirements		Type VI		Type VII		Type VIII		Type IX		Type X	
Thickness - (mm) Caliper Nominal, ±15%	Type A	0.76		1.14		1.14		0.76		0.40	
	Type B	1.14		1.5		1.52		1.14		0.80	
	Type C	1.52		NA		NA		1.52		1.14	
		Min	Max	Min	Max	Min	Max	Max	Max	Min	Max
Density - (kg/m³) ISO 1183	Type A	580	780	600	780	464	745	577	689	580	760
	Type B	580	780	600	780	441	745	464	624	580	760
	Type C	600	780	NA	NA	NA	NA	473	585	NA	NA
Tensile Strength - (MPa) ISO 37, Type I Dumbbell 500 mm/minute Initial, Minimum After H ₂ O immersion, % change maximum	Type A	0.40	NA	0.50	NA	0.40	NA	0.50	NA	1.40	NA
	Type B	0.40	NA	0.50	NA	0.45	NA	0.50	NA	1.40	NA
	Type C	0.50	NA	NA	NA	NA	NA	0.50	NA	NA	NA
		NA	-50	NA	-50	NA	-50	NA	-50	NA	-50
Elongation - (% change) ISO 37, Type I Dumbbell 500 mm/minute Initial, Minimum After H ₂ O Immersion, % Change Maximum	Type A	500	NA	500	NA	400	NA	450	NA	150	NA
	Type B	450	NA	500	NA	400	NA	450	NA	150	NA
	Type C	500	NA	NA	NA	NA	NA	450	NA	NA	NA
		NA	±25	NA	±25	NA	±25	NA	±25	NA	±25

Max = Maximum, Min = Minimum, NA = Not applicable.

GM Confidential

© Copyright 2014 General Motors Company All Rights Reserved

July 2014

Page 3 of 15

Table 3: As-Received Material, Type XI through Type XIII

Requirements		Type XI		Type XII		Type XIII	
Thickness – (mm) Caliper Nominal, ±15%	Type A	1.20		1.20		0.38	
	Type B	NA		NA		0.50	
	Type C	NA		NA		2.3	
	Type D	NA		NA		3.18	
		Min	Max	Min	Max	Min	Max
Density – (kg/m³) ISO 1183	Type A	610	770	470	630	655	820
	Type B	NA	NA	NA	NA	710	890
	Type C	NA	NA	NA	NA	600	780
	Type D	NA	NA	NA	NA	480	660
Tensile Strength – (MPa) ISO 37, Type I Dumbbell 500 mm/minute Initial, Minimum	Type A	1.40	NA	1.40	NA	0.50	NA
	Type B	NA	NA	NA	NA	0.70	NA
	Type C	NA	NA	NA	NA	0.45	NA
	Type D	NA	NA	NA	NA	0.35	NA
	After H ₂ O Immersion, % Change Maximum	NA	-50	NA	-50	NA	-50
Elongation – (% change) ISO 37, Type I Dumbbell 500 mm/minute Initial, Minimum	Type A	150	NA	150	NA	500	NA
	Type B	NA	NA	NA	NA	500	NA
	Type C	NA	NA	NA	NA	500	NA
	Type D	NA	NA	NA	NA	500	NA
	After H ₂ O Immersion, % Change Maximum	NA	±25	NA	±25	NA	±25

Max = Maximum, **Min** = Minimum, **NA** = Not applicable.

GM Confidential

© Copyright 2014 General Motors Company All Rights Reserved

July 2014

Page 4 of 15

Documents

Document Sharing Hub



Table 4: Performance Requirements, Type I through Type VII ^{Note 1}

Environment	I	II	III	IV	VI	VII
	Min	Min	Min*	Min	Min	Min
Peel Testing – (N/cm)						
20 Minutes	4	7	3	3	10	7
4 h (Optional)	4	8	5	4	13	8
24 h (Optional)	5	8	5	4	13	10
72 h	7	8	5	5	13	12
Accelerated Age	32	14	5	32	36	40
Fuel Resistance	NR	NR	5	4	10	7
Cycle Test	30	8	5	30	16	40
Humidity	15	15	5	12	15	12
Florida Exposure (2 Years)	30	Note 2	Note 2	Note 2	16	30
Hot Peel	4.8	NR	5	NR	5.9	NR
Shear Testing						
Static Test at Room Temperature (RT) Maximum Movement – millimeter (mm)	1	0.5	2.0	4	2.3	3.0
Static Test at 80 °C, Maximum Movement – millimeter (mm)	1.5	0.73	2.0	3	2.3	3.0
Dynamic Test, at RT (MPa)	NR	NR	NR	NR	NR	NR
Dynamic Test, at 80 °C (MPa)	NR	NR	NR	NR	NR	NR
Other Testing						
Cold Slam Test (Optional), Cycles Before Observed Adhesion Loss	NR	NR	NR	1	3	1
Bowed Panel Test (Optional) Peel Distance– millimeter (mm)	NR	NR	NR	110	25	25
Pluck Test – Newton (N)	400	420	400	NR	NR	NR

Note 1: Values shown are minimum individual values, in N/cm unless otherwise specified. These values are based upon statistical analysis of data from at least 3 production lots.

Note 2: Data can be made available upon request.

Min: Minimum.

NR: Not required.

RT: Room Temperature

***:**180 Degree Peel

GM Confidential

© Copyright 2014 General Motors Company All Rights Reserved

July 2014

Page 5 of 15



Documents

Document Sharing Hub