

Test Equipment & Calibration Plan

TEST	EQUIPMENT USED	CALIBRATED WITH	EQUIPMENT USED FOR CALIBRATIONS
Acoustic Absorption	Brüel & Kjær Impedence Tube	outside service, Impedence tube	Small & Large tube, Pulse software
Adhesion, Peel / Release / Shear	Tinius-Olsen, Twiing-Albert	outside service, load cell	NIST certified weights & timer
Adhesion, Static	balance, air circulating oven	weights & thermocouple	NIST certified weights & thermocouple
Blocking	Convection Heat Ovens, balance	weights & thermocouple	NIST certified weights & thermocouple
Compression Deflection	Instron, Tinius-Olsen, rotary die	outside service, calipers	NIST certified gage blocks
Compression Set	Tinius-Olsen, rotary die	outside service, dial gage	NIST certified gage blocks
Corrosion	Environmental Chamber	outside service	
Dimensional Measurements	Calipers, ruler	calipers, gage blocks	NIST certified calipers, gage blocks
Durometer	Shore A, Shore 00	Outside Service	
Elongation	Instron, Tinius-Olsen, ruler, die	outside service, calipers	NIST certified gage blocks
Fiber Loss	Balance	weights	NIST certified weights
Flammability	Timer, ruler, flame test apparatus	timer, ruler	NIST certified timer, calipers
Flex Modulus	Instron, Tinius-Olsen	outside service, load cell	NIST certified weights & timer
Heat Aging	Air Circulating Ovens	thermocouple	NIST certified thermocouple
Heat Aging	Convection Heat Ovens	thermocouple	NIST certified thermocouple
Heat/Steam Age	Autoclave	Outside service	
Humidity Resistance	Humidity cabinet	outside service	
Low Temperature Flexibility	Freezer	Outside service	
Mildew	Environmental Chamber	outside service	
Non-Volatile Content	balance, air circulating oven	weights & thermocouple	NIST certified weights & thermocouple
Odor	Air Circulating Ovens	thermocouple	NIST certified thermocouple
Radiant Heat	Radiant Heat Cabinet	Outside service, Fluke	
Sealability	U die, calipers	calipers, gage blocks	NIST certified gage blocks
Slam	Freezer, fixture	Outside service	
Specific Gravity	Balance	weights	NIST certified weights
Stain	Convection Heat Ovens, balance	weights & thermocouple	NIST certified weights & thermocouple
Tear Resistance	Instron, Tinius-Olsen, die	outside service, calipers	NIST certified gage blocks
Temperature	Fluke	Outside service	NIST certified precision process calibrator
Tensile	Instron, Tinius-Olsen, die	outside service, calipers	NIST certified gage blocks
Thickness, Highloft Fabrics	Measure-Matic	gage blocks	NIST certified gage blocks

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Viscosity	Brookfield	fluid standard	certified viscosity standard
Water Absorption	Water absorption apparatus, balance	Outside service, weights	NIST certified vacuum gage, weights
Wicking	Wicking apparatus	ruler	NIST certified ruler

List of Qualified Test Methods and Standards

Test Methods

Acoustic absorption	ASTM:	E1050									
Adhesion, Peel	ASTM:	D903	D1000	D1876	D3330	PSTC-101	ISO8510-2	BN-151-05	DIN55543-5		
Adhesion, Release		TAPPI UM502	PSTC-4								
Adhesion, Shear	ASTM:	D816	PSTC-107	GMW15201	DBL5306						
Autoclave	ASTM	D3575 J2	GMW14357								
Blocking		SAE J912a									
Basis Weight		GMW3182	FLTM BN106-01								
Compression Deflection		GMW14359	ASTM D1056	ASTM D1667	ASTM D3574	ASTM D3575	ISO3386/1	ISO3386/2	ISO 844		
Compression Set	ASTM:	D395		D1056		D1667	D3574	D3575	ISO1856		
Corrosion		SAE J1389									
Creep Resistance	ASTM:	D3575									
Density	ASTM:	D1667	D3574	D3575	D297	D816	D1217	ISO845	C167	D792	FLTM BN106-01
Dimensional Stability	ASTM:	D1667	D3575	SAE J883	GMW4217	GMW16998	ISO2796	GMW14444			
Durometer		ISO868	ASTMD2240								
Elongation	ASTM:	D412	D3574	D3575	D3489		D882	D1000	ISO1798	ISO1926	
Environmental aging		ISO 188	GMW14729	GMW14124	NES M0132	D1735					
Fastener retention / resistance		FLT MBA116.01	LP-463AB52- 02								
Fiber Loss		FLTM BN058-01									
Flammability		FMVSS 302	SAE J369a	GMW3232	MS300-08	TSM0500G	DBL5307	NESM009 4	HES C206/ D6003	TL1010	UL94 horizontal burn
		ISO3795	CMVSS302	GB-8410 2006							
Flexural Modulus		ISO178	ASTM D790	SAE J949							
Fluid/Solvent/Chemical Resistance	ASTM:	D471	D1056		GMW17408		WSS- M99P32-C	FLTM BO101-05	LP.7M052		
Low Temp Flex	ASTM:	F147	GMW 3154	SAE J323							
Mildew		GMW3259									
Non-Volatile content		SAEJ243 ADS-7									
Odor		SAE J1351	VDA270	TSM0505G	FLTMBO131-03	GMW3205					
Radiant Heat		SAE J1361									
Sealability		MS AY355	FLTM BO 112-03	GMW 17408							
Slam		GMW16982									
Specific Gravity	ASTM:	D1667	D3574	D3575	D297	D816	D1217		C167	D792	
Stain Resistance	ASTM:	D925									
Surface Contamination		LP-463PB-13-01									
Tear Resistance	ASTM:	D624	D3574	D3575	D3489	ISO 9073-4		ISO 8067			
Tensile	ASTM:	D412	D3574	D3575	D3489	D5034	D882	D1000	ISO1798	ISO1926	
Thickness	ASTM		D3767	ISO 1923	ISO 5084	SAE J882					

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Water Absorption	ASTM:	D570	D1056	D1667	D3575	GMW14777	ISO9073-17	ISO6916-1			
Wicking		GM9146P inactive-no replacement	SAE J913								

Material Test Standards

DBL 5450	Foamed flexible polyurethane-based cellular plastics
DBL 5452	Foam-Molded Flexible Cellular
DBL 5455	Polyolefin Foam
DBL 5463	Light Multi-layer sound insulations for internal and external applications
DBL 5869	Non Woven Fleece
DBL 5972	Single Layer Acoustical Insulating Materials
ESBM3G76B1 B2	Tape, Polyester – two sided pressure sensitive
ESBM3G102-A	Tape, Low Density Polyvinyl Chloride Foam Pressure sensitive
ESB-M3G123-B	Tape, Polyethylene, Pressure sensitive, Interior – Anti Squeak
ESFM8G156A	Gasket, cross linked polyethylene foam, closed cell
GMW14124	Automotive Environmental Cycle
GMW14147	Requirements for Expanded Elastomeric Body Seals
GMW14171	Heavy Layer Sound Barriers and Decoupler Assemblies
GMW14194	Fibrous Sound Absorption Materials
GMW14196	Polyurethane Foams for Acoustical applications
GMW14652	Interior Trim Compression Molded and Moldable Composite Materials
GMW14892	Adhesion requirements for bonded interior parts
GMW15063	Polyolefin Foams Non Cross-linked and Cross-linked for General applications
GMW15064	Polyurethane Foam for Molded parts
GMW15065	Polyurethane Foam for Back Foaming
GMW15066	PUR Foam (Flocks Compound) for Side Seat Reinforcements
GMW15523	Door inner water deflection/Barrier/acoustic material
GMW15725	Performance Requirements for Engine Compartment Plastic Parts
GMW16443	Adhesion Performance requirements For Adhesive Backed Foam

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GMW16522	Non Woven Scrim or Facing Materials
GMW16653	Thermal Insulation Materials
GMW16750	Polyurethane Foam for General applications
GMW16875	Performance Requirements of Anti-Squeak, itch, rattle fiber tape
GMW16869	Powertrain Compartment Acoustical Insulation materials
GMW16879	Performance Requirements of Ultra High Molecular Weight Polyethylene (UHMW) Tape.
GMW17408	Flexible Expanded Rubber and Rubber-like Materials for Air, Dust, Noise and Water Sealing
M3G233A	Tape, polyethylene foam, pressure sensitive
MS10943	Insulation-Thermal and/or Acoustical-Pressure-sensitive adhesive, Aluminum and Fiber composite
MSA0094	Cellular Polypropylene (PP)
MSAY41	Pressure sensitive coating for closed cell rubber
MSAY303	Cellular polyester polyurethane-4# density
MSAY326_MS.90109	Cellular polyurethane-low air permeability
MSAY349_MS.90109	Cellular polyurethane foam-low density sound attenuation
MSAY350	Cellular polyurethane foam-seals-low water absorption
MSAY352 - 04	Polyurethane Foam Cast/Molded
MSAY355_MS.90109	Polyurethane foam-low water permeability
MSAY430_MS.90145	Die-cut ethylene propylene diene monomer (EPDM) closed cell rubber
MSAY500	PVC gasket material
MSAY512_MS.90109	Closed cell polyethylene-water and dust seals
MSAY516_MS.90145	Polyvinyl/Nitrile (PVN) semi-open cellular material
MSAY518	Ethylene vinyl acetate (EVA) –cellular-water and dust seals
MSAY522_MS.90145	Polyvinyl/Nitrile (PVN) blend-closed cell material
MSAY540_MS-90109	High Density Cellular Polyurethane
MSAY549	Microcellular polyurethane-high density
MSAY550_MS.90145	Closed cell EPDM rubber-low load compression-water and dust seals
MSAY551_MS.90109	Cellular crosslinked polyethylene-water and dust seals
MSAY554	Polyethylene –Cellular Extruded Tubing
MSAY561	Molded cellular metallocene polyolefin
MS-CC-240	Adhesive-Pressure Sensitive-Transfer Film
MS-CH-612	Tape-Low-Friction-Pressure Sensitive
MSDC642	Plastics-thermoplastics-filled polyethylene-sound barrier applications
MSHZ100 (MS.50018)	Insulation Materials-Exterior and interior applications
MSJZ8-22	Anti-squeak fabric, pressure sensitive
NES M0132	Thermal Cycle Test Methods for plastic parts
NES M8506	Pressure Sensitive Adhesive Double coated

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NES M8508	Door Sealing Screen Adhesive
MS.90075 (PF10770)	Adhesive Performance Testing
PF-90058 (PF11084)	Adhesive Performance Testing
TL 8350151.6	Specs PUR Sealing Foamed
TS420-06-021	Standard of Adhesion for Tape Material
TSK5700G	Butyl Rubber Adhesive tapes for sealing
TSK6712G	Sealing foams for interior trims
TSK 7707G	Soundproof Molded Urethane Foam for Engine
TSL 3505G	Silencer Pad Materials
TSL 5705G	Covering Sheets for Dash Panel Inner Silencers
TSM6701G	Integral Skin Urethane Pad Material
VW 50131	Sound Insulation Elements, Self-Adhesive. Adhesive Properties
WSBM3G102-B2	Tape, low density polyvinyl chloride foam, pressure sensitive
WSB-M3G209-A	Tape butyl pressure sensitive, extruded
WSB-M3G212-A	EPDM Material with PSA
WSKM4D819A2	Polyethylene foam, physically cross linked, closed cell
WSS-M2D496-A1	Polyurethane (PUR) Foam, Cellular Gasket
WSS-M3G238-A1-2-3	Tape, Transit Film, Removable
WSS-M4D291-F1	Flexible Polyurethane Foam, Water Sealing Die cut – with adhesive backing
WSS-M8P16-B	Performance, Carpet, Floor and Trim
WSS-M11P65-A2	Tape, performance, pressure sensitive adhesive 2 sided exterior body side molding
WSS-M15P32-D	Trim Assembly, Enclosed Luggage Compartment covering.
WSS-M15P36-A2	Performance, Inner Door Water shield with Pressure Sensitive Adhesive
WSS-M15P4-H	Assembly Performance, Hard Mold-in-color Interior components
WSS-M18P11B	Sealer High Heat Expansion Performance
WSS-M99J291-B4	Tape with clearcoat, Urethane, Pressure Sensitive, Chip Resistant
WSS-M99P32-E2-E5	Performance specifications
WSS-M99P32-E1	Performance specifications
WSS-M99P32-E6	Performance specifications
WSS-M99P48-A1,2,3	Performance specifications
0094Z-TEA-0000	Non-Woven Fabric, Under Cover Material
5266Z-TYT-A000	Insulator Damper
7232Z-SOX-000	Hole Seal Adhesive Specification
7232Z-SZA-A010-M1	Acoustical Door Hole Seal Application
7232Z-TX4A-A010-M1	Acoustical Door Hole Seal Specification
7232Z-T5AA-0000	Door Hole Seal (P.E.)

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7232Z-TZ5A-A010-M1	Mass Backed Door Panel-Barrier
7410Z-TZ5A-A000	Flexible Fender Foam
8460Z-STXX-A000	Sound Absorbing Insulator
84904-NDS10	Nissan Design Specification-Carpet/Luggage Floor

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