

**Test Equipment & Calibration Plan**

TEST	EQUIPMENT USED	CALIBRATED WITH	EQUIPMENT USED FOR CALIBRATIONS
Acoustic Absorption	Brüel & Kjær Impedance Tube	outside service, Impedance 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
Airflow	Amtec Airflow Resistance Tester	Outside Service	
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	
Sound Transmission Loss	Brüel & Kjær Impedance Tube	outside service, Impedance tube	Small & Large tube, Pulse software
Specific Gravity	Balance	weights	NIST certified weights
Stain	Convection Heat Ovens, balance	weights & thermocouple	NIST certified weights & thermocouple
Taber Abrasion	Testex TF214A	Outside service	
Tear Resistance	Instron, Tinius-Olsen, die	outside service, calipers	NIST certified gage blocks

Creative Foam Corporation  
 310 North Alloy Drive  
 Fenton, MI 48430  
 810-629-4149

## Corporate Laboratory Scope



Temperature	Fluke	Outside service	NIST certified precision process calibrator
Tensile	Instron, Tinius-Olsen, die	outside service, calipers	NIST certified gage blocks
Thickness, High loft Fabrics	Measure-Matic	gage blocks	NIST certified gage blocks
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	ASTM E1050	ASTM C522	SAE J1400						
Adhesion, Peel	ASTM D903	ASTM D1000	ASTM D1876	ASTM D3330	PSTC-101	ISO8510-2	BN-151-05	DIN55543-5	D30 SPS
Adhesion, Release	PSTC-4								
Adhesion, Shear	ASTM D816	PSTC-107	GMW15201	FLTMBU151-01					
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	D30 Quasi static
Compression Set	ASTM D395		ASTM D1056		ASTM D1667	ASTM D3574	ASTM D3575	ISO1856	
Corrosion	SAE J1389								
Creep Resistance	ASTM D3575								
Density	ASTM D1667	ASTM D3574	ASTM D3575	ASTM D297	ASTM D816	ASTM D1217	ISO845	ASTM C167	FLTM BN106-01
	ASTM D792								
Dimensional Stability	ASTM D1667	ASTM D3575	SAE J883	GMW4217	GMW16998	ISO2796	GMW14444		
Durometer	ISO868	ASTM D2240							
Elongation	ASTM D412	ASTM D3574	ASTM D3575	ASTM D3489		ASTM D882	ASTM D1000	ISO1798	ISO1926
Environmental aging	ISO 188	GMW14729	GMW14124	NES M0131	NES M0132	TSM 0502G	ASTM D1735	PR 303.5	
Fastener retention / resistance	FLTMBA116.01	LP-463AB52- 02							
Fiber Loss	FLTM BN058-01								
Flammability	FMVSS 302	SAE J369a	GMW3232	MS300-08	TSM0500G	DBL5307	NESM0094	HES C206/ D6003	UL94 horizontal burn
	ISO3795	CMVSS302	GB-8410 2006	GS 97038	TL1010				
Flexural Modulus	ISO178	ASTM D790	SAE J949	ASTM C393					
Fluid/Solvent/Chemical Resistance	ASTM D471	ASTM D1056	FLTMBO101-05	GMW17408	ASTM D896	FLTM BI 104-01			
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 / Impact	GMW16982	NES M0134							
Specific Gravity	ASTM D1667	ASTM D3574	ASTM D3575	ASTM D297	ASTM D816	ASTM D1217	ASTM C167	ASTM D792	
Stain Resistance	ASTM D925								

Revision: 07/17/2020

Page 2 of 6

Creative Foam Corporation  
 310 North Alloy Drive  
 Fenton, MI 48430  
 810-629-4149

## Corporate Laboratory Scope



Surface Contamination	LP-463PB-13-01								
Taber Abrasion	ISO 5470	FLTM BN 108-02	ASTM D3884						
Tear Resistance	ASTM D624	ASTM D3574	ASTM D3575	ASTM D3489	ISO 9073-4	ISO 8067			
Tensile	ASTM D412	ASTM D3574	ASTM D3575	ASTM D3489	ASTM D5034	ASTM D882	ASTM D1000	ISO1798	ISO1926
Thickness	NWSP120.2.R0	ASTM D3767	ISO 1923	ISO 5084	SAE J882				
Water Absorption	ASTM D570	ASTM D1056	ASTM D1667	ASTM D3575	GMW14777	ISO9073-17	ISO6916-1	D30-DTS089	
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
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
GMW16522	Non Woven Scrim or Facing Materials
GMW16653	Thermal Insulation Materials

Revision: 07/17/2020

Page 3 of 6

## Corporate Laboratory Scope

GMW16750	Polyurethane Foam for General applications
GMW16869	Powertrain Compartment Acoustical Insulation materials
GMW16875	Performance Requirements of Anti-Squeak, itch, rattle fiber tape
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
GMW18102	Flexible and Semi-Rigid Two-component Moldable Cellular Polyurethane Systems
GS 93043	BMW-Soft Foam Materials
LP.7M052	Automotive Fluids Staining of Plastics-Determination of
M3G233A	Tape, polyethylene foam, pressure sensitive
MS10943	Insulation-Thermal and/or Acoustical-Pressure-sensitive adhesive, Aluminum and Fiber composite
MS.90075 (PF10770)	Adhesive Performance Testing
MSA0094	Cellular Polypropylene (PP)
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
MSAY565	Modified Polyester Foam (MPF)
MSAY620	Cellular Cross-Linked Polypropylene (XLPP)
MS-CC-240	Adhesive-Pressure Sensitive-Transfer Film
MS-CH-612	Tape-Low-Friction-Pressure Sensitive

Creative Foam Corporation  
 310 North Alloy Drive  
 Fenton, MI 48430  
 810-629-4149

## Corporate Laboratory Scope



MS-CH-613	Tape-Standard weight polyethylene-pressure sensitive
MSDC259	Thermoplastic-calendared ethylene Vinyl Acetate (EVA) for sound barrier applications
MSDC642	Plastics-thermoplastics-filled polyethylene-sound barrier applications
MSDC643	Thermoplastic or Thermoset Rubber-Floor Covering materials
MSHZ100 (MS.50018)	Insulation Materials-Exterior and interior applications
NES M0076	Nissan Engineering Standard for Automotive Carpet
NES M0132	Thermal Cycle Test Methods for plastic parts
NES M7103	Nissan Automotive Carpet
NES M8506	Pressure Sensitive Adhesive Double coated
NES M8508	Door Sealing Screen Adhesive
PF-90058 (PF11084)	Adhesive Performance Testing
PR 388	BMW – Engine Compartment Sound Insulation
PR 389.1	BMW-Passenger Compartment SI and Trunk SI
TL 52608	VW Fine Fiber Nonwoven Fabric, Multilayer
TL 8350151.6	Specs PUR Sealing Foamed
TS420-06-021	Standard of Adhesion for Tape Material-Subaru (Fuji)
TSK5700G	Butyl Rubber Adhesive tapes for sealing
TSK6505G	Caulking Sponge sealants
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
WSK-M2D419-A	Cellular Elastomer, Gasket
WSK-M4D819A2	Polyethylene foam, physically cross linked, closed cell
WSS-M2D496-A4	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-M9P8-C	Elastomeric Parts, Interior Performance
WSS-M11P65-A2	Tape, performance, pressure sensitive adhesive 2 sided exterior body side molding

Creative Foam Corporation  
 310 North Alloy Drive  
 Fenton, MI 48430  
 810-629-4149

## Corporate Laboratory Scope



WSS-M11P68-A1	Tape, performance, pressure sensitive adhesive one-sided, Interior
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-M15P53-A	Performance, Roof Stiffening Pad Assembly
WSS-M18P11B	Sealer High Heat Expansion Performance
WSS-M99J291-B4	Tape with clearcoat, Urethane, Pressure Sensitive, Chip Resistant
WSS-M99P32-F2-F3	Performance specifications
WSS-M99P32-F4-F5	Performance specifications
WSS-M99P32-E1	Performance specifications
WSS-M99P32-E6	Performance specifications
WSS-M99P41	Label Performance
WSS-M99P48-B1 & B3	Performance specifications
WSS-M99P48-B2	Performance specifications
0094Z-TEA-0000	Non-Woven Fabric, Under Cover Material
1751Z-SE0-0100	Fuel Tank Cushion
23539018	Volvo Floor Mat/Covering TR
300011	Loop Closure -Foam laminate
3F125-EA0B-V000	Insulator H2 device Preliminary Specification for GM/Honda 21M
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.)
7232Z-TZ5A-A010-M1	Mass Backed Door Panel-Barrier
7410Z-TZ5A-A000	Flexible Fender Foam
76990NDS00_21	Nissan Design Specification-Body Side Trim
8460Z-STXX-A000	Sound Absorbing Insulator
84904-NDS10	Nissan Design Specification-Carpet/Luggage Floor

Dianna Harris  
 Materials Specialist and Corporate Lab Manager

Date: 07/17/2020