



UL Recognized Gasket Materials

by Monmouth Rubber & Plastics



Underwriters Laboratories

Website version: <http://monmouthrubber.com/ul-gasket/>



UL GASKETS

UL Recognized Gasket Materials
Manufactured by Monmouth Rubber & Plastics

Need more clarifications?
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Since 1894, Underwriters Laboratories has provided safety testing and assessment of electrical products, equipment, and parts. As a fully independent organization, Underwriters Laboratories (UL) is trusted by the Occupational Safety and Health Administration (OSHA) for its ability to provide thorough and reliable 3rd party product safety testing for electrical and mechanical products, and their components around the world.

Engineers are encouraged to use UL rated components to improve safety and improve likelihood of UL approval of final product. This includes components like gaskets. UL gaskets, like those at Monmouth Rubber & Plastics, provide the safety and structural integrity that products need to go to market.

What Testing is Performed on UL Gaskets?

Underwriters Laboratories has a set of industry standards that it uses to test electronic components, including gaskets. UL Gaskets are tested using the Standard for Safety of Gaskets and Seals, also known as "UL 157." This applies to most types of gaskets, including:

- Elastomer Gaskets
- Thermoplastic Gaskets
- Composite Gaskets
- Coated Fabrics

As well as many common forms, including:

- O-Rings
- Sheets
- Slabs
- Rolls
- Shaft Seals
- Diaphragms
- Special Forms

The UL 157 Standards for Safety of Gaskets and Seals includes many critical safety tests, including a tensile strength and elongation test, an accelerated air-oven aging test, a compression set test, a low temperature test, a hardness test, an immersion test, a detergent/cleaner test, a bursting strength test, and several others.

The following are all of our UL Gaskets with UL 157 Listings:

Sheets of "Closed Cell UL Gaskets" available in our UL Listed Durafoam DK Series - UL Listed Closed Cell Sponge Rubber & Plastic Foam.

**Only the Durafoam DK Series Is:
U.L. Recognized for all 5 Hardnesses
to UL 50E, UL 157, UL 508, UL 94HF-1**

**All 5 Hardnesses are also listed To
Canadian Listing CAN/CSA C22.2 NO.
017-92.**

**DK1111, DK2121, DK3131, DK4141,
DK5151**

UL Listed EPDM/NEOPRENE Closed Cell
Rubber Blend, Durafoam™ DK Series
(DK111, DK2121, DK3131, DK4141,
DK5151)

UL Recognized DURAFOAM DK SERIES
CLOSED CELL RUBBER is the only full
line of ASTM SCE 41 THROUGH SCE 45
that is recognized to UL 50, UL 157,
UL508, UL 94HF-1, and CANADIAN
LISTING CAN/CSA C22.2 NO. 017-92

DURAFOAM	DK1111	DK2121	DK3131	DK4141	DK5151
Color	Black	Black	Black	Black	Black
Density (Pcf Approx.)	6 +/- 2	6 +/- 2	9 +/- 2	10 +3/-2	13 +/- 4
Polymer See Note B:	Neo/EPDM Polymeric Blend	Neo/ EPDM Polymeric Blend	Neo/ EPDM Polymeric Blend	Neo/ EPDM Polymeric Blend	Neo/ EPDM Polymeric Blend
ASTM-D-1056-67 & 68, Grade #	SCE 41	SCE 42	SCE 43	SCE 44	SCE 45
ASTM-D-1056-91 & 07 SAE J18-R7/92	2C1	2C2	2C3	2C4	2C5
Compression Set, Suffix B2 25% Maximum	Pass	Pass	Pass	Pass	Pass
Compression Deflect @ 25% Deflection	2 - 5 PSI	5 - 9 PSI	9 – 13 PSI	13 – 17 PSI	17 – 25 PSI
Water Absorp. By Weight Max, ASTM MTHD.	5% (10% Allowed)	5% (10% Allowed)	5% (10% Allowed)	5%	5%
Temperature Resistance Low °f/High °f See Note A	-40/+250	-40/+250	-40/+250	-40/+250	-40/+250
Elongation % Min	150	150	150	150	150
Heat Aging, 7 Days @ 158°f) +/- 30% Max CD Change	Pass	Pass	Pass	Pass	Pass
Tensile Strength Min.	75 Psi	100 Psi	100 Psi	125 Psi	150 Psi
Ozone 20% Stress, 72 HRS @100 PPHM, ASTM-D- 1171-94; 1149-91; GM6086M; GM4486P; Chrysler MSAY 527	Pass	Pass	Pass	Pass	Pass
Oil Resistance, Fluid Immersion E1, 7 Days @ 23°c Or 74°f	Pass	Pass	Pass	Pass	Pass
Flame Resistance To UL 94 HF1, FMVSS302	Pass U.L. #E208679	Pass U.L. #E208679	Pass U.L. #E208679	Pass U.L. #E208679	Pass U.L. #E208679
Flame Resistance To Canadian CAN/CSA C22.2 # 017-92	Pass U.L. #E208679	Pass U.L. #E208679	Pass U.L. #E208679	Pass U.L. #E208679	Pass UL #E208679
U.L. 50E, U.L. 157, & U.L. 508	Pass U.L. #JMLU2 MH10200	Pass U.L. #JMLU2 MH10200	Pass U.L. #JMLU2 MH10200	Pass U.L. #JMLU2 MH10200	Pass U.L. #JMLU2 MH10200

Other UL Listings for Gaskets and Materials

UL Gasket Testing may not be limited to UL 157. The following are several other possible listings for gaskets, rubber, and related components.

• UL 50 and 50E – Enclosures for Electrical Equipment

UL 50 is the standard applied to how effective a component is for protecting electrical enclosures from penetration by foreign objects. “Objects” includes dirt, water, dust, humans – anything that could affect the safety or efficacy of the electronic parts. UL 50E is a higher level standard than just UL50.

The following are all of our UL Gaskets with UL 50 Listings (Chart on right) Sheets of “Closed Cell UL Gaskets” available in our UL Listed Durafoam DK Series - UL Listed Closed Cell Sponge Rubber & Plastic Foam.

Only the Durafoam Dk Series Is: U.L. Recognized for all 5 Hardnesses to UL 50E, UL 157, UL 508, UL 94HF-1 All 5 Hardnesses are also listed To Canadian Listing CAN/CSA C22.2 NO. 017-92. DK1111, DK2121, DK3131, DK4141, DK5151

UL Listed EPDM/NEOPRENE Closed Cell Rubber Blend, Durafoam™ DK Series (DK111, DK2121, DK3131, DK4141, DK5151)

UL Recognized DURAFOAM DK SERIES CLOSED CELL RUBBER is the only full line of ASTM SCE 41 THROUGH SCE 45 that is recognized to UL 50, UL 157, UL508, UL 94HF-1, and CANADIAN LISTING CAN/CSA C22.2 NO. 017-92

- **UL 94** – Standard for Tests of Flammability These requirements cover tests for flammability of polymeric materials used for parts in devices and appliances. They are intended to serve as a preliminary indication of their acceptability with respect to flammability for a particular application.

DURAFOAM	DK1111	DK2121	DK3131	DK4141	DK5151
Color	Black	Black	Black	Black	Black
Density (Pcf Approx.)	6 +/- 2	6 +/- 2	9 +/- 2	10 +3/-2	13 +/- 4
Polymer See Note B:	Neo/EPDM Polymeric Blend	Neo/ EPDM Polymeric Blend	Neo/ EPDM Polymeric Blend	Neo/ EPDM Polymeric Blend	Neo/ EPDM Polymeric Blend
ASTM-D-1056-67 & 68, Grade #	SCE 41	SCE 42	SCE 43	SCE 44	SCE 45
ASTM-D-1056-91 & 07 SAE J18-R7/92	2C1	2C2	2C3	2C4	2C5
Compression Set, Suffix B2 25% Maximum	Pass	Pass	Pass	Pass	Pass
Compression Deflect @ 25% Deflection	2 - 5 PSI	5 - 9 PSI	9 – 13 PSI	13 – 17 PSI	17 – 25 PSI
Water Absorp. By Weight Max, ASTM MTHD.	5% (10% Allowed)	5% (10% Allowed)	5% (10% Allowed)	5%	5%
Temperature Resistance Low °f/High °f See Note A	-40/+250	-40/+250	-40/+250	-40/+250	-40/+250
Elongation % Min	150	150	150	150	150
Heat Aging, 7 Days @ 158°f) +/- 30% Max CD Change	Pass	Pass	Pass	Pass	Pass
Tensile Strength Min.	75 Psi	100 Psi	100 Psi	125 Psi	150 Psi
Ozone 20% Stress, 72 HRS @100 PPHM, ASTM-D- 1171-94; 1149-91; GM6086M; GM4486P; Chrysler MSAY 527	Pass	Pass	Pass	Pass	Pass
Oil Resistance, Fluid Immersion E1, 7 Days @ 23°c Or 74°f	Pass	Pass	Pass	Pass	Pass
Flame Resistance To UL 94 HF1, FMVSS302	Pass U.L. #E208679	Pass U.L. #E208679	Pass U.L. #E208679	Pass U.L. #E208679	Pass U.L. #E208679
Flame Resistance To Canadian CAN/CSA C22.2 # 017-92	Pass U.L. #E208679	Pass U.L. #E208679	Pass U.L. #E208679	Pass U.L. #E208679	Pass UL #E208679
U.L. 50E, U.L. 157, & U.L. 508	Pass U.L. #JMLU2 MH10200	Pass U.L. #JMLU2 MH10200	Pass U.L. #JMLU2 MH10200	Pass U.L. #JMLU2 MH10200	Pass U.L. #JMLU2 MH10200

- The methods described in this Standard involve standard size specimens and are intended to be used solely to measure and describe the flammability properties of materials, used in devices and appliances, in response to a small open flame or radiant heat source under controlled laboratory conditions

Like UL 50, not all UL Gaskets are tested for UL 94 standards. But Underwriters Laboratories regularly tests for flammability, to determine which gaskets are fire resistant. There are several burn tests that may be performed, including:

- Horizontal Burning Test (UL 94HB)
- 50W Vertical Burning Test (UL 94V-0)
- 500W Vertical Burning Test (UL 94 5VA)
- Radiant Panel Flame Spread Test
- Thin Material Vertical Burning Test (UL 94VTM)
- Horizontal Burning Foam Material (UL 94HBF)

Not all material manufacturers perform the UL 94 test. Some use historical testing to determine if a component is “capable” of passing the UL 94. Although often times the product is capable, it is not recognized to have passed the test. In addition, UL 94 testing is affected by product thickness. Engineers should take this into consideration with their designs.

Some of the products at Monmouth that qualify for a UL 94 rating include:

Additional UL Gasket Listings and Information

Certain UL gaskets may require additional testing depending on the type of design. Some of the listings that may be considered include:

- UL 1570 (Fluorescent Lighting Fixtures)
- UL 1571 (Incandescent Lighting Fixtures)
- UL 1572 (HID Lighting Fixtures)
- UL 8750 (LED Lighting Fixtures)
- UL 1598C (LED Retrofit Fixtures)
- UL 60947 (Industrial Control Equipment, Formerly UL 508)

The UL 508 rating, which applied to UL Gaskets in Industrial Control Equipment, is currently being phased out in favor of UL 60947. All UL 508 listed components should continue to qualify for the new UL 60947 standards.

UL 508 migration to UL60947-4-1A

The standard for Industrial Control Equipment UL 508 is being harmonized with relevant IEC standards for Low-Voltage Switchgear and Control Gear IEC 60947. Effective Jan. 27, 2017, all UL 508 certified products must meet the new UL 60947-4-1A standard. This does not invalidate any existing UL508 certifications. According to UL, “While the UL 508 and UL 60947 series standards do not look the same, when taking into account the national differences included in the harmonized standards, they are essentially technically identical.” As such, this harmonization does not represent a substantial change in design requirements for UL 508 products. It is also important to note that the UL 508A Standard for Safety Industrial Control panels is not directly affected by the UL 508 to UL60947-4-1A migration.

Need More Information About UL Recognized Gasket Materials Manufactured by Monmouth Rubber & Plastics?

For those that are in need of UL Gaskets, and other UL certified rubber and plastic materials – or if you have any questions about the process for testing UL products, please call John Bonforte Sr. today at 1-888-362-6888 extension 12.

E-mail: johnsr@monmouthrubber.com

NOTE A: For temperature resistance lower and/or higher than the above figures, please contact technical assistance. Under certain conditions, values greater than -40/+250 are possible.

NOTE B: Monmouth's materials are manufactured to ASTM-D-1056 and other related ASTM Standards. ASTM specifies physical performance, not polymers nor polymer content. Monmouth's lab is equipped to certify to all the ASTM specifications either customer specified or on our physical properties chart. If a particular polymer or polymer content is required, please contact John Sr. with your specific requirements.

DISCLAIMER: To the extent that the above product information is derived from sources other than Monmouth Rubber, Monmouth Rubber is substantially, if not wholly, relying upon the other source(s) to provide accurate information. Information provided as a result of Monmouth Rubber's own technical analysis and testing is accurate to the extent of our knowledge and ability, using effective standardized methods and procedures. Each user of these products, or information, should perform their own tests to determine the safety, fitness and suitability of the products, or combination of products, for any foreseeable purposes, applications and uses by the user and by any third party to which the user may convey the products. Since Monmouth Rubber cannot control the end use of this product, Monmouth Rubber does not guarantee that the user will obtain the same results as published in this document. The data and information is provided as a technical service, and the data and information is subject to change without notice. When considering the above product as a competitive equivalent material, please keep in mind that some materials have unique physicals that are not part of the recognized industry specifications and standards. Therefore, customer sample evaluation and approval of any substitution is suggested.

Monmouth Rubber will supply free of charge evaluation & testing of its materials to assist customers in their evaluation. For technical evaluation and support, please contact John M. Bonforte, Sr., 1-732-229-3444 Ext 12, or email: johnsr@monmouthrubber.com.

[Durafoam DK Series UL Chart](#) [\[PDF Download\]](#)



ISO CERTIFIED 9001:2008
CERTIFICATE #US08/5033

Have a Technical Question?

"Ask John" is Monmouth's **global technical support service**. It is **FREE** and brings real value to your company. It allows Monmouth's customers and visitors to have a 24/7 Technical Library & Test lab, absolutely **FREE**.