

How to be sure your foam tape and gasket is up to the task at hand.

Continuous advancements in polymer science have expanded the types of synthetic rubbers available today, such as polyethylene, urethane, polyurethane, silicone, and plastics. Understanding their unique properties can help ensure installation success.

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The applications for synthetic rubbers and plastics are seemingly limitless: from sealing on space stations and in homes; to improving athletic performances with comfortable gear; or reducing waste and preventing damage to products during transport.



A variety of benefits enable boundless applications for synthetic rubbers.

The first successful synthetic rubber, neoprene, has come a long way since the E. I. du Pont de Nemours and Company began large-scale production of it in 1932. Although at the time difficult and expensive to manufacture, neoprene’s resistance to weather, oil, chemicals, and heat created small, but profitable sales opportunities for the company.¹ Currently, 300,000 tons of neoprene are produced worldwide every year.² Its widespread use spans all types of industries and applications: from automobile tires and laptop “skins” to wet suits, insulated can holders, knee and elbow pads.

Selecting the right carrier material and adhesive in HVAC, RV/Marine, Lighting, and Window & Door applications.

In the HVAC, Window & Door, and Marine/RV industries in particular, manufacturers, engineers, builders, and contractors use foam tapes and gaskets for cushioning, mounting, sound dampening, insulating, bonding, joining, fastening, and sealing.

Foam tapes and gaskets are used virtually everywhere due to a variety of benefits, including:

- Conserving energy and minimizing waste through insulation.
- Improving indoor air quality by keeping mold at bay.
- Reducing installation and maintenance costs through high conformability to rough or irregular surfaces and bonding permanent or repositionable options.
- Prolonging equipment life and minimizing downtime with water, dust, dirt, and high-temperature resistance.
- Creating pleasant environments through sound and vibration absorption.
- Enhancing safety through insulation from electrical shock or fire.

¹ http://www.acs.org/content/acs/en/education/whatischemistry/landmarks/carotherspolymers.html?_ga=1.86806672.963171927.1462816892

² <https://chlorine.americanchemistry.com/Science-Center/Chlorine-Compound-of-the-Month-Library/Neoprene-The-First-Synthetic-Rubber>

Choosing the right foam material and adhesive depends upon what you are trying to achieve or solve:

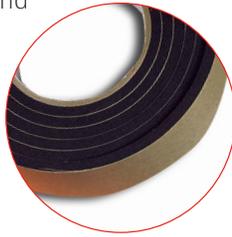
Problem	Solution	Industry Applications
Seal out water and dirt	Neoprene, Vinyl	HVAC, Door Gaskets, Electrical Boxes, Enclosures, Marine Live Wells
Seal out light and dust; Block out noise and vibration	Polyurethane	Fluorescent Light Seals, Air Filter Gaskets, Door and Window Weather Stripping
Absorb impact	Neoprene, EPDM, Vinyl Blends	Shipping Protection, HVAC
Handle extreme temperatures	Silicon, EPDM	HVAC Controls, Lighting, Gaskets

Today's most popular foam tape and gasket materials.

In general, foam tapes and gaskets provide excellent bonding and barrier properties. However, proper selection is typically application driven, therefore, understanding some of the unique properties of the most frequently used carrier materials can help ensure installation success.

Neoprene/EPDM/SBR Blend with Acrylic or Rubber Adhesive

Caulk is no match for the easy installation and conformability of neoprene, especially on irregular surfaces! Neoprene's closed cell structure creates a tight, long-lasting seal against the weather, moisture, dust, temperature extremes, and air leaks. It also resists acids, ozone, oxidation, and alkali.



- HVAC Applications – seals roof curbs to A/C units and damper gaskets.
- RV/Marine Applications – seals electrical or fluid inlets and outlets; prevents the leakage of liquid and odor from live wells; and adds protective cushioning between the strap and gas tank to reduce vibration and noise.
- Interior and Exterior Lighting Applications – flammability rated for use with indoor and outdoor fixtures.
- Window and Door Applications – weather stripping and door gasketing.

EPDM Foam with Acrylic Adhesive

When EPDM (Ethylene Propylene Diene Monomer) closed cell sponge rubber is used to eliminate air and moisture leaks around windows and doors, homeowners in even the most extreme climates are more likely to benefit from more energy-efficient homes. EPDM performs well in a wide range of temperatures (-70° to +220° F) and resists weathering, water, acid, chemicals, UV, alkali, ozone, and oxidation. It also exhibits low compression stress. This highly versatile, high performing tape is excellent for weather stripping, gasketing, dust-proofing, sound dampening, filling and sealing joints, packing and sealing appliances, and thermal insulation



- HVAC Applications – access door gaskets.
- RV/Marine Applications – seals between hatch doors and framing to keep out rain, moisture, and dust.
- Interior and Exterior Lighting Applications – gasketing.

Polyurethane with Acrylic or Rubber Adhesive

Flexible open cell foam polyurethane tapes offer a cost-effective solution for dust and moisture and dampening sound and vibration on a variety of surfaces. It offers very good air permeability and remains flexible over a long period of demanding usage.



- HVAC Applications – access door gaskets; air filter gaskets.
- RV/Marine/Automotive Applications – seals doors and window from rain, moisture, and dust; dampens sound and vibrations in engine compartments.
- Lighting Applications – gasketing.

Polyethylene with Acrylic or Rubber Adhesive

Closed cell, cross-linked polyethylene is a cost-effective choice for general foam tape requirements. Flexible and conformable to most smooth and irregular surfaces, polyethylene is ideal for custom die-cutting. Its resistance to water, UV, aging, chemicals, and temperature extremes, makes it a great solution for sealing, shock and noise absorption, as well as cushioning for shipping pads.



- Industry Applications – window glazing, door and mirror fabrications, glass separators, door gasketing, industrial HVAC flange gasketing, shipping protection.
- FDA approved– for food contact.

Urethane with Acrylic Adhesive

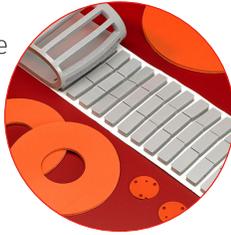
Available with an open or closed cell, urethane provides a good seal against light and dust and creates a permanent seal against leakage in a wide range of temperature extremes.



- HVAC applications – damper gaskets.
- RV/Marine applications – mounting nameplates and attaching trim; securely fasten exterior aluminum skin to steel or aluminum frames.

Silicone with Acrylic Adhesive

Have an extreme sealing requirement with temperatures over 300°F? Open cell silicone combines foam lightness with the seal of sponge rubber to effectively resist UV, ozone, extreme temperatures, corrosion, water, and fine particles. Characteristics also include excellent memory and low stress relaxation.



- Industry Applications – sealing and protecting outdoor enclosures such as HID lighting fixtures, electronics cabinets, and HVAC units from environmental damage.
- Automotive Applications – isolating vibration and noise.
- Passed UL94, HF1 self-extinguishing test.

Natural Rubber with Acrylic Adhesive

Flexible and compressible open cell natural rubber dates back to pre-Columbian Mexico. The Mesoamericans knew how to combine latex from the rubber tree with the juice of the morning glory plant to make rubber. By varying the proportions, they were able to make different products, such as bouncing balls, sandals, and rubber bands. Today open cell natural rubber foam tape offers a long service life in a wide variety of applications by providing a tight, long-lasting seal against moisture, dust and air leaks, and preventing noise and vibration. It features a medium density and excellent shock absorption.



- RV/Marine/Automotive Applications – weatherproofing doors and window.
- Window and Door Applications – weather stripping and door gasketing.

So what's next for foam tape?

The polymer science world is continuously evolving and innovating. Polymer scientists are developing cutting-edge adhesive formulations designed to resist temperature extremes, UV degradation, and aging. Chemists at Pres-On, for example, utilize a state-of-the-art, high bond acrylic foam tape that is a cost-effective, light and efficient replacement to traditional permanent fasteners. Known as Pres-On PHB, this high-bond acrylic tape is quickly gaining a reputation in the marketplace as a convenient, flexible, conformable, and extremely aggressive fastening solution. Pres-On PHB is ideal for the inside panels of buses and airplanes as a solution that enables better site lines, less chance of rust, lighter weight, and lower manufacturing costs than traditional fasteners.

When you partner with a manufacturer who offers a complete line of high-quality single and double-coated foam tapes and gaskets – in a variety of material forms (i.e. rolls, long-length spools, nested and/or pop-out die-cut parts, etc.) – you'll cost-effectively meet the demands of the most challenging applications, both today and in the future.

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