



HANNA RUBBER COMPANY

# Types of Rubber

## ACM (ASTM Designation EH)

**ACM rubber, or Acrylic Rubber, is a type of synthetic elastomer known for its resistance to heat, ozone, and oil. Its chemical name is Alkyl acrylate copolymer or ethylene acrylate rubber. This material is used in a variety of applications, including automotive, industrial, and aerospace sectors, where high-performance seals and gaskets are required.**

### Physical properties of ACM rubber include:

**Temperature Resistance:** ACM rubber has excellent heat resistance, with a typical operating temperature range of -30°C to +150°C (-22°F to +302°F). Some specially formulated ACM rubber compounds can withstand temperatures as high as +175°C (+347°F).

**Ozone and Weather Resistance:** ACM rubber has outstanding resistance to ozone, oxygen, and ultraviolet (UV) radiation, making it suitable for outdoor applications.

**Oil Resistance:** ACM rubber is highly resistant to mineral oils, synthetic lubricants, and greases, as well as to automotive fluids such as engine oils, transmission fluids, and power steering fluids.

**Tensile Strength:** ACM rubber generally has moderate tensile strength, which varies depending on the specific formulation. Its tensile strength typically ranges from 5 to 12 MPa (725 to 1740 psi).

**Elongation at Break:** The elongation at break for ACM rubber usually falls between 100% and 300%, depending on the specific compound.

**Hardness:** ACM rubber can be found in a range of hardness levels, typically between 40 and 90 Shore A.

**Compression Set:** ACM rubber exhibits a moderate compression set, meaning it can return to its original shape after being compressed for a period of time.

It is worth noting that ACM rubber has poor resistance to water, acids, and alkalis, which can limit its application in certain environments. Additionally, it has limited low-temperature flexibility and may not be suitable for applications where extreme cold is a factor.

### Trade Names

ACM rubber is commercially available under various trade names. Some of the most common ones include:

- Elast-O-Lion (from Zeon Chemicals)
- Nipol AR (from Nippon Zeon)
- Noxtite (from Unimatec)
- Vamac (from DuPont)

### History

ACM rubber was initially developed in the 1960s, and its production and use have since expanded. Its primary application has been in the automotive industry, where it is used for seals, hoses, gaskets, and belts. The material's exceptional resistance to heat, oils, and ozone makes it an ideal choice for these applications.

In the late 20th century, the demand for ACM rubber increased as automotive manufacturers shifted towards using higher-performance synthetic rubbers to improve the overall quality and durability of their vehicles. Today, ACM rubber is widely used in various industries, including the automotive, aerospace, and industrial sectors, due to its advantageous properties.