



HANNA RUBBER COMPANY

Types of Rubber

AEM (ASTM Designation EE)

AEM rubber, also known as ethylene-acrylic elastomer, is a synthetic copolymer made from ethylene, methyl acrylate, and a small amount of a carboxylic acid-containing monomer. It was developed in the late 20th century to provide better oil and heat resistance compared to other elastomers. AEM rubber is widely used in the automotive and industrial sectors, where it is employed in applications such as hoses, seals, gaskets, and wire and cable jackets.

Physical properties of AEM rubber:

Temperature Resistance: AEM rubber has an excellent resistance to high temperatures, withstanding continuous exposure to temperatures up to 150°C (302°F) and intermittent exposure up to 175°C (347°F). It also retains its flexibility and performance at low temperatures, typically down to -40°C (-40°F).

Chemical Resistance: AEM rubber offers good resistance to oils, fuels, and various chemicals, including automotive fluids like engine oil, transmission fluid, and coolant. However, it is not suitable for exposure to strong acids, alkalis, or polar solvents like ketones and esters.

Weathering and Ozone Resistance: AEM rubber has strong resistance to environmental factors such as UV rays, ozone, and oxidation, which can cause other elastomers to degrade over time.

Mechanical Properties: AEM rubber exhibits good tensile strength, elongation, and compression set resistance. This means it can maintain its shape and integrity under mechanical stress, making it suitable for use in dynamic applications.

Electrical Properties: AEM rubber has moderate electrical insulating properties, which can be useful in certain applications like wire and cable jackets.

Low Permeability: AEM rubber has low permeability to gases, which makes it suitable for applications where sealing against gas leakage is essential.

Flammability: AEM rubber is inherently flame-resistant, meaning it has a low tendency to support combustion.

Keep in mind that the specific properties of AEM rubber can vary depending on the formulation and additives used during manufacturing.

One of the leading manufacturers of AEM rubber is DuPont, a well-known chemical company. DuPont introduced AEM rubber under the trade name Vamac® in 1975. Vamac® is still a widely recognized brand for AEM rubber and has become synonymous with the material. Over the years, other manufacturers have also introduced their own brands of AEM rubber, but Vamac® remains one of the most popular.

Some other trade names for AEM rubber include:

- Vamac® by DuPont
- Therban® by Arlanxeo (formerly known as Bayer)
- Zetpol® by Zeon Corporation

AEM rubber is primarily used in the automotive industry, specifically for under-the-hood applications such as hoses, gaskets, seals, and belts. It is also utilized in various other industries for similar applications, where excellent heat, ozone, and oil resistance is required. Its popularity has grown over the years due to its ability to withstand harsh environments and maintain its physical properties, making it a reliable choice for various applications.