



HANNA RUBBER COMPANY

# Types of Rubber

## HNBR Rubber Sheet (ASTM Designation DH)

**Hydrogenated nitrile butadiene rubber (HNBR), also known as highly saturated nitrile (HSN), is a synthetic elastomer derived from nitrile butadiene rubber (NBR) through hydrogenation. This process improves the material's physical properties, making it more suitable for applications requiring enhanced performance, particularly in harsh environments.**

### Physical properties of HNBR rubber include:

**Temperature Resistance:** HNBR has an excellent operating temperature range, typically between -40°F (-40°C) and 325°F (163°C). Its heat resistance is superior to that of standard NBR, making it suitable for applications exposed to high temperatures.

**Chemical Resistance:** HNBR rubber exhibits good resistance to a variety of chemicals, such as oils, fuels, and many common automotive fluids. It is particularly resistant to aliphatic hydrocarbons, water, and diluted acids. However, it has limited resistance to polar solvents and strong acids.

**Mechanical Properties:** HNBR offers excellent mechanical properties, such as high tensile strength, tear resistance, and abrasion resistance. These properties make it a suitable choice for applications where components are subject to significant wear or stress.

**Oil and Fuel Resistance:** HNBR has outstanding resistance to oils and fuels, making it an ideal material for seals, gaskets, and other automotive components that come into contact with these substances.

**Ozone and Weather Resistance:** Due to its high degree of saturation, HNBR has improved resistance to ozone, UV radiation, and weathering compared to standard NBR. This makes it suitable for outdoor applications or those exposed to harsh environmental conditions.

**Aging Resistance:** HNBR has excellent aging resistance, maintaining its physical properties over time and with exposure to heat, chemicals, and other factors that can cause degradation.

**Dynamic Properties:** HNBR exhibits good dynamic properties, such as low compression set and high resilience, which make it suitable for applications involving repeated mechanical stress or movement.

These physical properties make HNBR rubber a popular choice for a range of applications, particularly in the automotive, oil and gas, and industrial sectors. Common uses include seals, gaskets, O-rings, hoses, and belts.