

# HNBR vs. FKM/Viton™

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Fluoropolymers like FKM rubber or Viton™ are highly desired for a wide range of applications, especially those that require excellent high-temperature and chemical resistance. However, the implications of potential PFAS regulations and the investment associated with FKM have caused many companies to begin evaluating alternatives to protect and diversify their product lines.

While not an exact equivalent, HNBR (hydrogenated nitrile butadiene rubber) may serve as a potential alternative to FKM in certain applications due to its similar performance characteristics.

## **FKM & HNBR Similarities**

- Strong chemical & oil resistance
- Generally resists higher temperatures than other organic rubber materials
- Excellent weathering and ozone resistance
- Characterized as a premier performance material
- Longer shelf life compared to other organic polymers

## **FKM Advantages compared to HNBR**

- FKM resists a wider range of chemicals
- FKM provides superior resistance to corrosive chemicals, such as solvents and acids
- FKM has stronger electrical properties and flame resistance
- FKM generally has a longer service life in extreme high temperature applications

## **HNBR Advantages compared to FKM**

- Although formulation compositions may vary between manufacturers, HNBR compounds are generally PFAS-free which can help avoid additional regulatory considerations.
- HNBR performs better in lower-temperature settings
- HNBR tends to produce fewer byproducts under extreme heat
- HNBR exhibits less volume loss in abrasive applications
- Robust mechanical performance in dynamic applications
- HNBR is typically more cost effective

## **Material Applications**

FKM (Viton™) and HNBR rubber gaskets, o-rings and seals are regularly deployed in aerospace, military and defense, automotive, chemical processing, and oil & gas applications. Considering industry trends, FKM (Viton™) is more commonly used in aerospace applications, whereas HNBR is more frequently found in oil & gas applications, especially where low-temperature resistance is essential.

## **WARCO FKM (Fluorozone®, Viton™) and HNBR**

Although HNBR and FKM share many similarities, selecting the right material ultimately comes down to the demands of your specific application. During your evaluation, it is best to consult with the end user to assess specific requirements and utilize a compounding expert to determine whether HNBR or FKM / Viton™ will meet those requirements.

WARCO regularly manufactures HNBR and FKM / Viton™ materials as sheet rubber, rubber extrusions, rubber seals, rubber gaskets, and custom-molded rubber parts. We invite you to leverage our team's experience and exemplary elastomeric expertise.