



**Hammond Valve
Engineering Department**

16550 West Stratton Drive
New Berlin, WI 53151
Phone (262) 432-2800 Fax (262) 432-2801
www.hammondvalve.com

This technical bulletin discusses the issues related to compatibility of Buna-n material with unleaded gasoline.

Overview.

Commercially available Buna-n (Nitrile) butterfly liner is not recommended (approx 30% swelling*) with unleaded regular, mid-grade and premium gasoline.

The recommended liner is Viton® liner.

Details.

Nitrile rubber also known as Buna N is a copolymer of butadiene and acrylonitrile (ACN). The name Buna N is derived from Butadiene and Natrium. The "N" stands for acrylonitrile.

The acrylonitrile segment imparts hardness, tensile strength, and abrasion resistance, as well as fuel and oil resistance.

Commercially produced Buna-n liners contain less than 12% of Buna, 18% to 40% of ACN and the rest is carbon black, and other fillers.

Because of the double bonds present in the polybutadiene portion, nitrile compounds do not have good resistance to ozone, sunlight, or weathering. They should not be stored near ozone-generating electric motors or equipment

Nitrile performs well in:

- Dilute acids
- Ethylene glycol
- Petroleum oils and fuels (Crude/non aromatic)
- Silicone oils and greases
- Water (below 180° F)

Nitrile does not perform well in:

- Aromatic hydrocarbons (benzene, toluene, xylene)
- Automotive brake fluid
- Halogen derivatives (carbon tetrachloride, trichloroethylene)
- Ketones (MEK, acetone)
- Phosphate ester hydraulic fluids (Skydrol®, Pydraul®)
- Strong acids

* Swelling more than 10% adversely affect the performance of butterfly valve because of its interference seat design nature.