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TECHNICAL BULLETIN

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Butterfly Valve Liner for Hydrocarbon Service

This technical bulletin discusses the issues related to compatibility of EPDM material with any hydrocarbon media.

Overview

Commercially available EPDM butterfly liners are not recommended where any trace of oil or hydrocarbon products may be present. The recommended liner is a Buna-N or Viton® liner depending on the media and pressure temperature requirements of the installation.

Details

EPDM rubber is a synthetic elastomer, also known as EPT, EPR, or Nordel®. The name EPDM is an abbreviation of a compound called Ethylene Propylene Diene Monomer. EPDM is used extensively in the HVAC industry and is compatible with a wide range of fluids. However, it should never be used in any service where even a trace of hydrocarbon may be present.

A hydrocarbon is a compound consisting of only hydrogen and carbon atoms. Hydrocarbons can come in many forms such as: natural gas, propane, gasoline, kerosene, diesel fuel and jet fuel. Using an EPDM liner in a hydrocarbon service will result in significant swelling, destruction of the liner, and inability of the valve to function properly. We also do not recommend EPDM on compressed air lines, as they could contain compressor oils and lubricants that are not compatible. Depending on the specific application and the process conditions, a Buna-N or Viton® liner would be a suitable recommendation.

EPDM is compatible with:

- Water (cooling water, hot water, salt water)
- Glycols
- Alcohols
- Strong and oxidizing chemicals

EPDM is not compatible with:

- Petroleum based oils
- Mineral oils and solvents
- Aromatic hydrocarbons (Benzol, Toluol)
- Aliphatic hydrocarbons (kerosene, turpentine)

See Hammond Valve's Elastomer Guide for reference and more information:
<https://www.hammondvalve.com/data/files/EngineeringSpecs.pdf>

Misapplication Examples:

1. Butterfly valve with EPDM liner installed on a Purge Oil line.



2. Butterfly valve with EPDM liner installed in ULSD (Ultra Low Sulfur Diesel) Fuel line.



The technical data provided is for general information only. While Hammond Valve may make recommendations from time to time regarding valve applications, product suitability should be the responsibility of the end user's knowledge and experience.