

What are polyacrylate and nitrile seals?

Tech tip

Polyacrylate seals

Polyacrylates are elastomers that are compatible with higher operating temperatures, as well as extreme pressure (EP) lubricants. They are available in most general purpose designs.



Advantages of polyacrylate seals:

- Good compatibility with most oils, including EP lubricants
- High resistance to oxidation and ozone
- Better compatibility with higher operating temperatures than nitrile
- Operating range from -40 degrees F to 300 degrees F

Disadvantages of polyacrylate seals:

- Low compatibility with water and some industrial fluids
- Poor compression set characteristics

Polyacrylates are generally black with the same appearance as nitrile. Nitrile, silicone or fluoroelastomers can be used as substitute materials.

What are polyacrylate and nitrile seals?–cont.

Nitrile seals

Nitrile is the most popular material for the major applications of today's automotive seals. It is actually a mixture of two basic synthetic rubbers, Buna and Acrylonitrile polymers. Synthetic lip materials are bonded to the metal shell (case) to prevent leakage between the sealing lip and the shell; this provides a longer lasting, more effective seal. Different properties are obtained by changing the percentage of each polymer used in the mixture.

Nitrile seals have advantages and disadvantages – these should be reviewed and understood for your specific application choice.



Advantages of nitrile seals:

- Good oil/grease compatibility
- Abrasion resistance
- Good low temperature and swell characteristics
- Good manufacturing qualities
- Relatively low in cost

Disadvantages of nitrile seals:

- Lacks compatibility with synthetic oils
- Not recommended with EP lubes at elevated temperatures