

# ORD Problem Solved!

## Carboxylated Nitrile (XNBR)



Nitrile rubber, also known as NBR or Buna-N, has been the workhorse of the seal industry for 60+ years. Despite the constant development of new high-tech and high-performance elastomers, nitrile remains the most popular type of rubber seal material in the world. Having said that, there are hundreds of nitrile materials available.

Carboxylated nitriles (also known as XNBR) are one of the many types of nitriles on the market today. They exhibit lower high temperature limits and warmer low temperature limits than standard nitrile materials. Reacting a nitrile base polymer with a carboxylic acid dramatically improves the wear resistance of the nitrile material. However this process hardens the material, resulting in higher durometer materials.

For more information on nitrile materials, contact O-Ring Division's Applications Engineering Department at 859-335-5101.

## Success Story

### Application:

Nitrile (NBR) O-rings in a pneumatic application.

### Problem:

An appliance manufacturer was using a competitor's nitrile O-rings in a pneumatic application. They were experiencing failures due to excessive wear of the seals.

### Parker's Analysis:

A Parker applications engineer suggested compound N1090-85. This compound is an Extremely Low Friction (ELF) carboxylated nitrile (XNBR). This specific type of nitrile was formulated especially for pneumatic sealing applications, where low friction and good wear resistance are critical to the longevity of the seal. The internal lubrication of this compound dramatically reduces the moving friction, and carboxylated nitrile offers a significant improvement in wear resistance over standard nitrile.

### Outcome:

After testing the N1090-85 in the application, the customer approved the material. The material offered significant friction reduction and wear resistance over the competitor's compound, and greatly improved the service life of the O-rings.

