



# ELASTOMER STORAGE GUIDELINE FOR FO&GT PRESSURE CONTROL (PC) PRODUCTS

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# ELASTOMER STORAGE GUIDELINE FOR FO&GT PRESSURE CONTROL (PC) PRODUCTS

The following guideline describes how ram blow-out preventer (BOP) packers, annular BOP packing elements, and all other related BOP elastomeric seals should be properly stored to achieve the stated shelf life for each elastomer type as noted in Table 1.

Most polymeric items, including vulcanized rubber and other elastomers, tend to change their properties during storage. Without the proper handling, parts could become defective due to hardening, softening, cracking, crating or other degradation as the result of oxygen, ozone, light, heat and/or humidity.

The aging process is predominantly dependent on the following factors:

- Temperature
- Humidity
- Light
- Oxygen and Ozone
- Deformation

As such, the following storage recommendations are suggested to better preserve both elastomer properties and composite items:

## Temperature

Storage temperatures should not exceed 75° F. Low temperatures are not directly correlated to permanent damage if elastomeric items are carefully handled and not distorted. When items are taken out of low temperature storage of 60° F or less, then they should be warmed up to approximately 85° F prior to installation.

## Humidity

Optimum humidity should be approximately 65% in a draft-free atmosphere.

## Light

It is highly important to protect elastomeric items from direct sunlight and/or strong artificial light with a high ultraviolet content. Unless items are packed in opaque containers, it is advisable to cover storage windows with red or orange screens or coatings.

## Oxygen and Ozone

Elastomeric items should be protected from circulating air while in storage by remaining wrapped or bagged. Items should be stored in rooms apart from equipment that creates electric sparks or discharges as the ozone released is particularly harmful to rubber.

## Deformation

Where possible, rubber items should be stored in a relaxed position, free from tension or compression. Laying the item flat, avoiding suspension or crushing, will keep it free from strain and will minimize deformation.

## Stock Rotation

Elastomers should be stored for as short a period as possible, and strict stock rotation should be followed.

## Cleaning

Organic solvents such as trichloroethylene, carbon tetrachloride and petroleum are the most harmful agents and should be avoided. Soap and water and methylated spirits are the least harmful. All parts should be dried at room temperature before use.

## Shelf Life

The table below shows the storage life of seal components made from common elastomer materials stored under the conditions covered by these guidelines. Improper storage will reduce the shelf life.

If the shelf life or expiration dates marked on the part or packaging is different than the period listed in Table 1, the part or packaging dates shall be followed.

Elastomer	Maximum Storage Period (years)
Nitrile (NBR)	7
Hydrogenated Nitrile (HNBR)	7
Carboxylic Nitrile (XNBR)	7
Natural Rubber (NR)	5