Guidelines for the storage of elastomer components

The correct storage of elastomeric parts is an essential criteria for the proper function in the application. Wrong storage conditions will shorten the lifetime of elastomeric components due to a change of the physical properties. The durability can be greatly affected by many factors (oxygen, ozone, heat, moisture, solvents, UV-light, etc.) and is therefore also dependent on the correct storage conditions. Hardening, softening, cracks, breakage, and other degradation can occur and constrain the usability of the parts.
The physical properties of elastomeric products that have been properly stored remain virtually unaltered over a long period of time (up to 15 years).

Guidelines of storage are given in Standards DIN 7716 and ISO 2230. These guidelines apply to all elastomer parts, whether made from natural or synthetic rubber.

General
In general storage areas must be cool, dry and dust free.
Due to possible chemical interaction solvents, fuels, lubricants, chemicals, acids, disinfectants, etc. should not be stored in the storage area.
To avoid deterioration it is recommended to store the elastomeric parts in the original packaging until it is used.

Temperature
The storage temperature should be below + 25°C. Higher temperatures can shorten service life. If the storage temperature is below 15°C the elastomers can stiffen and have to be handled carefully otherwise they could be subject to distortion. In that case we recommend our customers, to warm up the parts to 20°C throughout their mass before assembling.
Heating elements and piping in the storage area must be screened and the distance between them and the goods stored must be at least 1m.

Humidity
The relative humidity should preferably be lower than 65%. It has to be ensured, that condensation does not occur.

Light
Elastomeric parts have to be protected from direct sun light or artificial light, which has a high ultraviolet content. For this reason windows should be coated with red or orange paint (never blue). The lighting should be diffused.

Ozone
Ozone is degenerating many kinds of rubber. Therefore the starting-up of electrical equipment, motors and machinery that generates sparks and the creation of high-voltage fields in these areas is not permitted because of the formation of ozone.
All light sources that emit ultraviolet radiation are harmful because of the associated formation of ozone.

Contact with other materials
The contact of elastomeric products to other materials, e.g. metals, plastics or other elastomeric parts should be avoided, due to possible interactions between the different

materials. Especially the metal part of rubber-to-metal bounded rubber should not come into contact with other elastomers.

Deformation
Elastomeric products should be stored in such a way that they are not deformed, according to their uses and dimensions. Do not stretch, bend or fold elastomeric parts and do not hang them on hooks. Do not subject them to compressive stress.
It is therefore recommended that they are kept in their original packaging until they are used.

Additional precautions
In the event of doubt as to the condition of rubber parts that have been stored for a long time, they can be tested by stretching them slightly. Elastomers that present fine cracks on the surface must not be used.

For the choice of suitable packaging materials and additional information regarding the storage of rubber products please refer to DIN 7716 and ISO 2230.

Under careful attention of the above mentioned instructions the Angst+Pfister AG recommends the following storage times:

Type of elastomer	Minimum storage period
NR, SBR, NBR, IR, AU, EU	5 years
CR, IIR, ACM, HNBR	7 years
CSM, EPDM, FKM, VMQ, FVMQ	10 years
FFKM	15 years