

Saunders[®] HC4 Diaphragms Storage and Shelf Life of Rubber Elastomeric and PTFE Diaphragms

The physical properties and therefore the performance of rubber articles can deteriorate during long periods of storage. This can lead to the rubber component becoming unsuitable for service because of excessive hardening, softening, cracking, crazing or other surface degradation. These changes may be the result of one factor or a combination of factors, for example the action of oxygen, ozone, light, heat and humidity.

Recommendations

The shelf life of an elastomer is largely dependent upon following the guidelines of ISO 2230 in the following areas:

Temperature

Storage temperature should be between 59°F (15°C) and 77°F (25°C) and away from direct sources of heat. At higher temperatures certain forms of deterioration may occur sufficiently to affect the ultimate service life.

The effects of low temperature are not permanently damaging but articles may become stiffer so care should be taken to avoid distortion. When taken from low temperatures into usage, the product should be warmed to approximately 30°C in temperature before being placed in service.

Humidity

Storage conditions should be such that condensation does not occur, store in a dry environment. The relative humidity of the atmosphere in storage should be less than 70%

Light

Vulcanized rubber should be protected from light, in particular direct sunlight and strong artificial light with a high ultra-violet content. Unless the diaphragms are packed in opaque containers it is advisable to cover windows of storage rooms with an orange screen.

Oxygen and Ozone

Where possible cured or vulcanized rubber should be protected from circulating air by wrapping or storage in air-tight containers. This particularly applies to product with large surface areas.

Ozone is very aggressive to rubber and storage rooms should not contain any equipment capable of generating ozone such as mercury lamps, electric motors or other equipment that produces electric spark or discharge.

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Radiation

Vulcanised rubber should be protected from all sources of ionising radiation.

Deformation

Vulcanized rubber where possible should be stored in a relaxed condition free from tension, compression or other deformation.

Contact with Liquid or Semi-Solid Materials

Rubber should not be allowed to come into contact with liquid or semi solid materials, in particular solvents oils and greases, at any time during storage.

Contact with Metals

Certain metals, in particular copper, manganese and iron are known to have a damaging effect on rubber. Protection should be given by wrapping or separation with paper or polythene or keeping the diaphragms in the original packaging materials supplied by Saunders[®]

Contact between different products

Contact should be avoided between products made from rubbers of different compositions, including products differing only in colour.

Rotation of Stocks

Vulcanized or cured rubber should remain in storage for as short a time as possible. Therefore articles should be issued from stores in strict rotation.

Cleaning

Care must be taken in cleaning vulcanized rubber. Cleaning with soap and water is least harmful. Organic solvents such as trichloroethylene, carbon tetrachloride, or petroleum spirit, must not be used.

Saunders® HC4 Diaphragms

Storage and Shelf Life of Rubber (Elastomeric) and PTFE Diaphragms

Shelf life of Rubber (Elastomeric) Diaphragms

The shelf life of any article such as a diaphragm is dependent on many factors relating to the storage condition.

As a guide, the expected minimum storage life, if the conditions are followed and there are no extremes, are as follows.

Extended Storage

Shelf life can be extended beyond the end-date of the recommended shelf life, depending on the storage conditions above being met and inspection of the rubber article concerned.

Non destructive test where the diaphragm is visually inspected for deterioration in physical properties in a stressed condition, for signs of splitting, cracks, crazing or hardening can be undertaken.

Destructive testing of a sample from the same batch involving rapid flex is another alternative method of assessment.

Depending on the results of the test the product shelf life can be extended by up to 5 years.

Minimum Expected Life

ISO 2230 Group	Grade	Catalogue Codes	Material Designation (ISO 1629)	Recommended Shelf Life (without inspection)	Shelf Life Extension (after visual inspection)
C	ER	ER	Ethylene Propylene Diene Monomer (EPDM)	10 years	5 years
	SR	SR	Modified PTFE (TFM™) Faced Ethylene Propylene Diene Monomer (EPDM) Backed		
	PR	PR	Standard PTFE Faced Ethylene Propylene Diene Monomer (EPDM) Backed		
	EX	EX	Modified PTFE (TFM™) Faced Silicone (VMQ) Backed		
	500	Q1 Q2	Silicone (VMQ)		
	500 PC	Q3 Q4	Silicone (VMQ)		

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Saunders® HC4 Diaphragms

Storage and Shelf Life of Rubber (Elastomeric) and PTFE Diaphragms

Determination of Diaphragm Manufacturing Date

Diaphragm – Rubber (Elastomer)

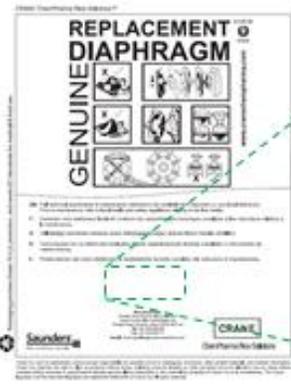
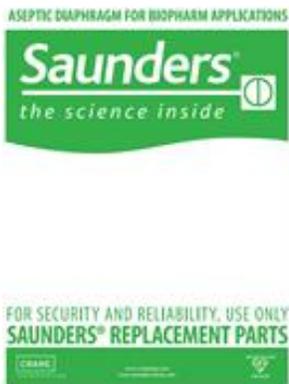


Diaphragm – PTFE



Diaphragm tab to always face towards you on both Rubber (Elastomer) and PTFE style diaphragms

Bag



GRADE:	CURE DATE	
A-050ER – 2"	Jan-22	
RE-ORDER CODE:	SHELF LIFE YEARS	
DA050ER	10	
PACKER ID:	DATE PACKED:	ORIGIN
336	30/01/22	UK

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