



**HANNA RUBBER COMPANY**

**Resources**

## Storage and Shelf-Life Rubber Products

### Introduction

The key factor involved in the shelf life of rubber end products is the age resistance of the rubber from which the product was fabricated. External factors such as packaging and storage conditions (e.g. temperature, humidity, ozone, light, etc.) can reduce the effective shelf life of rubber products.

**Note:** SAE ARP5316 was used as a basis for developing shelf-life values and providing the external factors that influence an item's shelf life. Appendix A provides a cross reference of all materials (Table V) and specifications (Table VI) that have been removed from the previous revision of this handbook.

### Type of Rubber

Certain types of rubber are more age resistant than others. This is due to the inherent stability of the chemical bonds of those rubbers. For example, the bonds in silicone rubber are not susceptible to attack by oxygen or ozone, therefore it has a much higher age resistance than other rubbers. Table I indicates the age resistance generally associated with products based on various types of rubber.

### External Factors Influencing Shelf-Life

The following external factors should be considered so as to not shorten an item's shelf life.

#### Packaging

All rubber shelf-life items should be adequately packaged to prevent any deterioration of the item. As contact with other materials, such as liquids, semi-solids, metals, other elastomers, etc., can affect item shelf life, it is recommended that rubber shelf-life items be individually preserved.

#### Storage

Proper storage of rubber shelf-life items is critical so as not to shorten the shelf life of the item. Important factors to consider when storing rubber shelf-life items are specified in...

#### Temperature

Rubber end products should be stored below 100 °F (38 °C). It may be necessary to raise the temperature of the product if it was stored below its optimum use Source: <https://assist.dla.mil> -- Downloaded: 2016-08-18T18:14Z Check the source to verify that this is the current version before use. MIL-HDBK-695E 5 temperature prior to installation. Optimum installation temperatures may vary based on the end use or application of the product.

#### Humidity

Rubber end products should be stored in an atmosphere of less than 75 percent relative humidity. Extra care should be taken when storing polyurethane rubbers as they are more susceptible to degradation through exposure to humidity.

## Ozone

Minimize exposure to ozone, since ozone can degrade some unprotected rubber products. This is especially pertinent when products are stored in a manufacturing environment, as equipment that uses high voltage sources or emits combustion products generates precursors to ozone formation.

## Light

Rubber products should not be stored in direct sunlight or ultraviolet light. Stock rotation. In general, stock of rubber end products should be issued based on their shelf-life expiration date. Use of a first-in, first-out (FIFO) principle based on cure date may aid in this process.

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Type of Rubber	Common or Trade Name	ASTM D1418 Abbreviation
<b>20 Years Minimum</b>		
Silicone	Silicone	Q
Fluorosilicone	Silastic LS	FVMQ
Polysulfide	Thiokol	T
Fluorocarbons	Fluorel, Viton	FKM
Polyacrylate	Acrylic	ACM, ANM
Perfluorocarbon	KALREZ	FFKM
Isobutylene/Isoprene	Butyl	IIR
Ethylene/Propylene/Diene	Ethylene propylene diene terpolymer	EPDM
Ethylene propylene	Ethylene propylene copolymer	EPM
<b>15 Years Maximum</b>		
Butadiene/Acrylonitrile Chlorosulfonated	Nitrile, NBR	NBR
Polyethylene	Hypalon	CSM
Polychloroprene	Neoprene	CR
<b>5 Years Maximum</b>		
Polyester urethane	Urethane	AU
Polyether urethane	Urethane	EU
<b>3 Years Maximum</b>		
Butadiene/styrene	SBR	SBR
Cis 1, 4, polyisoprene	Natural, pale crepe	NR
Cis 1, 4, polyisoprene	Synthetic natural	IR