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DEPARTMENT OF DEFENSE HANDBOOK

RUBBER PRODUCTS: RECOMMENDED SHELF LIFE

THIS HANDBOOK IS FOR GUIDANCE ONLY.
DO NOT CITE THIS HANDBOOK AS A REQUIREMENT

AMSC N/A **FSC 9320**

FOREWORD

1. This handbook is approved for use by all Departments and Agencies of the Department of Defense (DoD).

2. This handbook is for guidance only. The handbook covers elastomeric products of Military, Federal, and recognized industry specifications. It provides guidance as to the time periods during which these elastomeric products may be stored without deterioration.

3. Comments, suggestions, or questions on this document should be addressed to Commander, Naval Inventory Control Point, Attn: Code N24, 700 Robbins Avenue, Philadelphia, PA 19111-5098 or emailed to matthew.l.fee@navy.mil. Since contract information can change you may want to verify the currency of this address information using the ASSIST Online database at https://assist.dla.mil .

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APPENDIX A TABLES

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1 SCOPE

1.1 Scope. This handbook provides guidance for establishing time periods for the expected life of elastomeric products during shelf storage. The use of the expected shelf storage lives listed herein is NOT MADE MANDATORY by this handbook. This handbook is for guidance only and cannot be cited as a requirement. The decision as to whether or not a product will have a limit placed upon the time that it may remain in storage is a function of the agency responsible for the product's ultimate use.

1.2 Applicability. The handbook covers only elastomeric products described by Government specifications and standards or by nationally recognized technical society specifications and standards. The documents defining the items covered by this handbook were selected from the following sources:

a. Acquisition Streamlining and Standardization Information System (ASSIST) (available from https://assist.dla.mil/ or from the Standardization Document Order Desk, 700 Robbins Avenue, Philadelphia, PA 19111-5094).
b. SAE International (available from www.sae.org or from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001).
c. National Aerospace Standards (NAS) (available from www.aia-aerospace.org or from Aerospace Industries Association of America, Inc., 1000 Wilson Boulevard, Suite 1700, Arlington, VA 22209).
d. ASTM International (available from www.astm.org or from ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959).

1.2.1 Products included. The types of elastomeric products covered by this handbook are as follows:

a. Products fabricated solely from rubber. These include solid rubber, cellular rubber and hard rubber (ebonite) items.
b. Composites in which the rubber is present as a discrete phase. Examples are cables, fabric reinforced gaskets, non-aerospace hoses, rubber coated fabrics, shock mounts and tires.
c. Kits, accessories and outfits. The shelf life for these items should be determined by the component with the earliest expiration date.

1.2.2 Products excluded. The types of products excluded from this handbook are as follows:

a. Rubber-base adhesives, coatings, sealers, and liquid rubber materials packaged in cans or tubes.
b. Rubber tapes.
c. Aerospace o-rings and other molded seals. Refer to SAE ARP5316 for recommended shelf lives.
d. Aerospace bulk hoses and hose assemblies. Consult SAE AS1933 for age control limits for acceptance of aerospace bulk hoses and hose assemblies.
e. Non-aerospace bulk hoses and hose assembles (surface vehicle, industrial and marine application). Consult SAE J517 for age control limits for acceptance of non-aerospace bulk hoses and hose assemblies.
f. Unvulcanized rubber, such as tread repair stock and tank lining sheet stock.

g. Composites in which the rubber is in admixture with other ingredients, for example, rubber-asbestos packings and rubber-cork gaskets.
h. Subassemblies, assemblies and systems which contain elastomeric items as component parts, such as small arms, weapons, vehicles, aircraft, missiles and space vehicles.
i. Products fabricated from flexible materials that are not elastomeric, for example, some plastics.

1.3 Application. The information contained in this handbook is intended to be used as a guide by those agencies whose responsibility it is to place control requirements on rubber products, as well as by those activities whose responsibility it is to control the age of products stocked in Government storage facilities. The handbook is not intended for use in controlling the age of rubber products prior to their acceptance by the Government or by Government contractors. The decision as to whether or not to dispose of "overage" products is not made mandatory by this handbook. Responsible activities should make every attempt to limit the procurements of rubber products to the extent that large volumes of "overage" products will not be accumulated in storage. Where technically feasible and economically practical, "overage" products should be reviewed to determine whether or not they still meet the requirements of the applicable specifications. Products within their shelf life range should also be reviewed if visual examination shows any signs of accelerated aging. Procurement documents should require the mold marking of the cure date, such as the year and month on the rubber product (or on its package) and careful records kept of the cure date of all stored rubber products. When age limitations of the item specification listed herein conflict with the requirements herein, the requirements of the item specification take precedence.

2 APPLICABLE DOCUMENTS

2.1 General. The documents listed below are not all of the documents referenced herein. See 4.4.1 - 4.4.3 for information on how specifications are referenced within this handbook.

2.2 Government documents. Government documents are available from http://quicksearch.dla.mil/ or from the Standardization Document Order Desk, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

DoD Manual 4140.27, Volume 2. Shelf-Life Management Manual

2.3 Non-Government publications. The following documents form part of this document to the extent specified herein. Unless otherwise specifies, the issues of these documents are those cited in the solicitation or contract.

SOCIETY OF AUTOMOTIVE ENGINEERS

SAE AS1933	Age Controls for Hose Containing Age-Sensitive Elastomeric Material (DoD adopted)
SAE ARP5316	Storage of Aerospace Elastomeric Seals and Seal Assemblies Which Include an Elastomer Element Prior to Hardware Assembly. (DoD adopted)
SAE J517	Hose, Hydraulic. (DoD adopted)

(Copies of these documents are available online at http://www.sae.org or from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001

3 DEFINITIONS

3.1 Age resistance – Resistance to deterioration in storage by environmental factors, such as heat, light, and ozone.

3.2 Cure date – The date the rubber is fully cured. Two methods in expressing the cure date are as follows:

a. Shelf life to a maximum of 3 years. Cure date stated in terms of month of calendar year and the year, e.g., 6-83.

b. Shelf life in excess of 3 years. Cure date stated in terms of the quarter of calendar year and the year, e.g., 2Q-83.

3.3 Shelf life – The maximum period of time between the cure date and the date the elastomeric product is first removed or unpackaged for installation or fabrication into a component part of a subassembly, assembly, or system. During the shelf life time, the stored elastomeric product is expected to retain its characteristics as originally specified, if it is stored under proper storage conditions.

3.4 Service life – A general term used to quantify the average or mean life of an item once put in use. Service life, which is depicted in years, is the number of years of economical service reasonably expected of equipment as established in applicable DoD, Service and /or Agency manuals, bulletins, regulations, instruction manuals, and/or the technical judgment of the item and/or equipment manage.

4 GENERAL GUIDANCE

4.1 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. Additionally, commodity specification requirements may contain criteria that influence end product shelf life. The relative importance of these factors is difficult to assess, especially because the age resistance of raw rubber does not always correspond to the age resistance of the finished product. Note: SAE ARP5316 was used as a basis for developing Table I 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 previous revisions of this handbook.

4.2 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.

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

4.3.1 Packaging. All rubber shelf life items should be adequately packaged to prevent any deterioration of the items. 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.

4.3.2 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 DoD Manual 4140.27, Volume 2.

4.3.2.1 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 temperature prior to installation. Optimum installation temperature may vary based on the end use or application of the product.

4.3.2.2 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.

4.3.2.3 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.

4.3.2.4 Light. Rubber products should not be stored in direct sunlight or ultraviolet light.

4.3.2.5 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.

4.4 Documents. The documents listed in Table II, Table III, and Table IV list only the documents which had procurements within 10 years of the date of this handbook. Tables III and IV do not list specific shelf life dates because the specific rubber types are not defined in the document. The shelf life values listed in Table II were determined based upon the optimum storage conditions and the type of rubber commonly used or required by the document.

4.4.1 Cancelled documents. Since shelf life items have been procured to cancelled documents and they are actively stocked, there is a need to list these documents in this handbook along with their corresponding shelf life.

4.4.2 Supersession. In order to determine the proper shelf life of an item when referring to documents, the characteristics of the end item procured must be known. If a document has been superseded and is specified on the contract, then a determination must be made on which document the delivered item meets (i.e., does the delivered item meet the cancelled document or the superseding document?).

4.4.3 Superseding documents. The parenthetical documents (superseding documents) listed after the document title in Tables II, III, and IV are not listed solely for the purpose of supersession. A parenthetical document is listed with the cancelled document only if it has been procured. If the superseding document has been procured then it appears in the corresponding table under its own document identifier. If the superseding document had no procurement in 10 years then it is not listed with the cancelled document nor is it listed under its own document identifier.

5 NOTES

5.1 Intended use. This handbook established guideline for time periods for the expected shelf life of rubber products during storage. The information contained in this handbook is intended as a guide for use by those agencies whose responsibility is to place control requirements on rubber products, as well as those activities whose responsibility is to control the age of products stocked in federal government storage facilities.

5.2 Subject term (key word) listing.

Age control
Elastomeric
Silicone

5.3 Changes from previous issue. A number of specifications have been deleted based upon lack of procurement over the past 10 years. These documents can now be found in Table V of the appendix. Additionally, several specifications have been updated for technical content and have been moved to different tables depending upon the actual changes reflected in the documents.

Table I. Age resistance generally associated with products fabricated from various rubbers.

Type of Rubber 1/	Common or Trade Name	ASTM D1418 ABBREVIATION
20 Years Minimum		
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
15 Years Maximum		
Butadiene/acrylonitrile	Nitrile, NBR	NBR
Chlorosulfonated Polyethylene	Hypalon	CSM
Polychloroprene	Neoprene	CR
5 Years Maximum		
Polyester urethane 2/	Urethane	AU
Polyether urethane	Urethane	EU
3 Years Maximum		
Butadiene/styrene Cis	SBR	SBR
1, 4, polyisoprene	Natural, pale crepe	NR
Cis 1, 4, polyisoprene	Synthetic natural	IR

1/ Table I lists types of rubber used in end items that are actively procured. See Table V for rubber types listed in previous revisions.

2/ Some polyester urethanes have very poor resistance to water and humidity.

Table II. Documents

Identifier	Title/Description	Elastomers Required	Commonly Used	Expected Shelf Life (Yrs)
A-A-50855	Finger Cot, Surgical, Disposable	NR		3
A-A-52047	Tubing, Nonmetallic (Rubber And Plastic)	NR/SYN		*
		SYN		*
		NR		3
		NR, IR		3
A-A-52404	Insulation Sheet, Cellular, Plastic: Thermal (Metric)	AU,EU		5
A-A-52430	Pads, Cushioning: Personnel-Protection, Vehicular (Metric)			
	Class CS		NR	3
	Class FR	NBR		15
A-A-52518	Tire, Pneumatic: Retread And Repair Materials	NR, IR, BR SBR		*
A-A-53848	Tubing, Nonmetallic, Rubber	NR		3
A-A-55063	Apron, Utility, Impermeable Rubber Coated Fabric (General Purpose)	CR or IIR		15
AMS 3196	Sponge, Silicone Rubber, Closed Cell, Firm	Q		20
AMS R-83285	Rubber, Ethylene-Propylene, General Purpose		EPDM	20
AMS3195	Silicone Rubber Sponge Closed Cell, Medium	Q		20
AMS3197	Sponge, Chloroprene (CR) Rubber, Soft	CR		15
AMS3198	Sponge, Chloroprene (CR) Rubber, Medium Stiffness	CR		15
AMS3199	Sponge, Chloroprene (CR) Rubber, Firm	CR		15
AMS3200	Butadiene Acrylonitrile (NBR) Rubber Petroleum-Base Hydraulic Fluid Resistant 55 - 65	NBR		15
AMS3201	Butadiene Acrylonitrile (NBR) Rubber Dry Heat Resistant 35 - 45	NBR		15
AMS3202	Butadiene Acrylonitrile (NBR) Rubber Dry Heat Resistant 55 - 65	NBR		15
AMS3204	Rubber Synthetic Low-Temperature Resistant 25 - 35	CR		15
AMS3205	Synthetic Rubber Low-Temperature Resistant 45 – 55	CR		15
AMS3207	Chloroprene (CR) Rubber Weather Resistant 25 - 35	CR		15
AMS3208	Chloroprene (CR) Rubber Weather Resistant 45 - 55	CR		15
AMS3209	Chloroprene (CR) Rubber Weather Resistant 65 - 75	CR		15
AMS3210	Chloroprene (CR) Rubber Electrical Resistant 65 - 75	CR		15
AMS3216	Fluorocarbon (FKM) Rubber High-Temperature - Fluid Resistant Low Compression Set 70 to 80	FKM		20
AMS3218	Fluorocarbon (FKM) Rubber High-Temperature- Fluid Resistant Low Compression Set 85 to 95	FKM		20
AMS3220	Rubber, Synthetic General Purpose, Fluid Resistant 55 - 65	NBR		15

Table II. Documents – Continued.

Identifier	Title/Description	Elastomers Required	Commonly Used	Expected Shelf Life (Yrs)
AMS3222	Synthetic Rubber Hot Oil Resistant, High Swell 45 - 55	CR		15
AMS3270	Chloroprene (CR) Rubber Sheet, Cotton Fabric Reinforced, Weather Resistant	CR		15
AMS3274	Acrylonitrile Butadiene (NBR) Rubber Sheet and Molded Shapes Nylon Cloth Reinforced, Fuel Resistant	NBR		15
AMS3315	Silicone (VMQ) Rubber Sheet, Glass Cloth Reinforced	Q		20
AMS3320	Silicone (VMQ) Rubber Sheet, Glass Cloth Reinforced Heat & Weather Resistant 60 - 80	Q		20
AMS3570	Foam, Flexible Polyurethane Open Cell, Medium Flexibility	AU, EU		5
AMS7259	Rings, Sealing, Fluorocarbon (FKM) Rubber High-Temperature-Fluid Resistant Low Compression Set 85 To 95	FKM		20
AMS7276	Rubber: Fluorocarbon (FKM) High- Temperature-Fluid Resistant Low Compression Set For Seals In Fuel Systems and Specific Engine Oil Systems	FKM		20
AMS7277	Rings, Sealing, Synthetic Rubber Phosphate Ester Hydraulic Fluid Resistant Butyl Type (70-85)	IIR		20
AMS7280	Rings, Sealing, Fluorocarbon Rubber High- Temperature Fluid Resistant, Low Compression Set FKM Type (70-80) (see *AMS 7276)*	FKM		20
AMS-DTL-23053/1	Insulation Sleeving, Electrical, Heat Shrinkable, Crosslinked Chlorinated Polyolefin, Flexible	CR		15
AMS-DTL-23053/10	Insulation Sleeving, Electrical, Heat Shrinkable, Silicone Rubber, Flexible	Q		20
AMS-R-5001	Rubber Cellular Sheet, Molded And Hand- Built Shapes; Latex Foam		NR	3
AMS-R-6855	Elastomer, Synthetic, Sheets, Strips, Molded or Extruded Shapes, General Specification for (see MIL-PRF-6855)			
	Class 1 - All Grades		NBR	15
	Class 2 - All Grades		CR	15
	Class 3 - All Grades		SBR	3
	Class 4 - All Grades		CR	15
	Class 5 - All Grades		SBR	3
ASTM D1048	Rubber Insulating Blankets – Type I	NR or IR		3

Table II. Documents – Continued.

Identifier	Title/Description	Elastomers Required	Commonly Used	Expected Shelf Life (Yrs)
ASTM D1056	Flexible Cellular Materials-Sponge or Expanded Rubber			
	Types I & II Class A	NR		3
	Types I & II Class B	NBR		15
	Types I & II Class C	NBR		15
	Types I & II Class D	CR		15
ASTM D2000	Rubber Products In Automotive Applications Classification System for			
	Material Designation AA with Suffix A13	NR, SBR, or IIR		*
	Material Designation AK	T		20
	Material Designation BA with Suffices A14 & C12		SBR or IIR	*
	Material Designation BC		CR	15
	Material Designation BE		CR	5
	Material Designation BF		NBR	15
	Material Designation BG		AU, EU	5
	Material Designation BK		T	20
	Material Designation CE		CSM	15
	Material Designation CH		NBR	15
	Material Designation DH		ACM	20
	Material Designation FC		Q	20
	Material Designation FK		FVMQ	20
	Material Designation GE		Q	20
	Material Designation HK		FKM	20
ASTM D3574	Flexible Cellular Materials Slab, Bonded, and Molded Urethane Foams	AU, EU		5
HH-P-151	Packing; Rubber Sheet, Cloth Insert			
	Class 2	CR		15
	Class 3	SBR		3
	Class 4	NBR		15
J-C-175	Cable Assembly, Power, Electrical, For 125-Volt, 250-Volt, and 125/250-Volt, 50-60 Hz, Equipment (see *UL 817*)		CR	3
J-C-580	Cord, Electrical & Wire, Electrical (0- to 600-Volt Service)(see *UL 62*)			
	Types C, K, P, P-2, PD, PO-2, PW PW-2, S, SO, SJ, SJO, SP-2, AFS, HC, HPD, HS, HSJ, HSJO, HSO, HPN, SP-3, SV, SVO, E, EO, SRD, SRDT, RF-2, FF-2, RFH-2 and FFH-2	CR (outer jacket)		15
	Types SF-2 & SFF-2	Q		20

Table II. Documents – Continued.

Identifier	Title/Description	Elastomers Required	Commonly Used	Expected Shelf Life (Yrs)
J-L-2744	Leads, Electrical, Arc-Welding			
	GRADE A		CR	15
	GRADE B		CR	15
	GRADE C		EPDM	20
L-P-386	Plastic Material, Cellular, Urethane Flexible	AU, EU		5
MIL-B-41816	Boots, Cold Weather, Insulated, Rubber (Wet- Cold; Dry- Extreme Cold)	NR		3
MIL-B-4792	Bumper, Rubber, Duplex Round			
	Type I		SBR(core)	3
	Type II	NR/SYN		*
MIL-B-6362	Boots, Extreme Cold Weather, N-1B		NR	3
MIL-C-12189	Cloth, Coated, Butyl Coated, Toxicological Agents, Protective			
	All Types & Classes	IIR		20
MIL-C-14055	Cup, Hydraulic Brake Actuating Cylinder: Synthetic Rubber	SBR		3
MIL-C-16839	Cable, Special Purpose, Electrical (Underwater Use)	NR		3
MIL-C-19002	Cloth, Coated, & Strip, Coated Cloth - Polychloroprene on Nylon (Pneumatic Life Preserver)			
	Type I	CR		15
MIL-C-19787	Cable, Electric, Torpedo, 65 Conductor (For Torpedo Control, Electric Setting)	CR (sheath)		15
MIL-C-23020	Cable, Coaxial (For Submarine Use)	CR (jacket)		15
MIL-C-23070	Cloth, Laminated, & Tape, Coated Cloth, Polyisoprene, Natural or Synthetic, Rubber on Nylon	NR or IR		3
MIL-C-26712	Cloth, Coated, Nylon, Chloroprene-Coated	CR		15
MIL-C-3133	Cellular Elastomeric Materials, Molded or Fabricated Parts (see *ASTM D1056*)			
MIL-C-43006	Cloth and Strip, Laminated or Coated, Vinyl- Nylon or Polyester High Strength, Flexible	CSM		20
MIL-C-5651	Cord, Elastic, Exerciser & Shock Absorber for Aeronautical Use			
	All Types	NR		3
MIL-C-8068	Cloth, Coated, Nylon, Rubber-Coated, Fuel- Resistant			
	Type I, II, & III		NBR	15

Table II. Documents – Continued.

Identifier	Title/Description	Elastomers Required	Commonly Used	Expected Shelf Life (Yrs)
MIL-C-8603	Clamps, Loop Type, and Straps, Support	NBR Q CR FVMQ EPDM		15 20 15 20 20
MIL-C-882	Cloth, Duck, Cotton or Cotton – Polyester Blend, Synthetic Rubber, Impregnated, and Laminated, Oil Resistant Class I Class II	 CR NBR		 15 15
MIL-DTL-10392	Cord, Electrical (Audio, Miniature)	SBR		3
MIL-DTL-11891	Track Shoe Sets, Track Shoe Assemblies, Track Shoe Pads and Track Shoe Bushings, Vehicular: Elastomerized Types I & II		SBR, NR, or BR	3
MIL-DTL-13169	Wire, Electrical (For Instrument Test Leads)	SBR		3
MIL-DTL-13273	Cord, Electrical (Retractile, 2, 3 & 4 Conductor, WD-9/U, WT-2/U, WF-4/U)	NR (insulation)		3
MIL-DTL-13444	Hose & Hose Assemblies, Rubber: Fuel & Oil (For Automotive Application) Types I & II		NBR (tube)	15
MIL-DTL-13486	Cable, Special Purpose, Electrical: Low-Tension, Heavy-Duty, Single Conductor & Multiple Conductor, Shielded & Unshielded, General Specification for Types I & II		CR (jacket)	
MIL-DTL-13531	Hose and Hose Assembly, Rubber (Hydraulic, Pneumatic, Flexible)	NBR (tube)		3
MIL-DTL-13719	Hose and Hose Assembly, Rubber, Hydraulic Brake, Type I and Type II	CR (tube)		15

Table II. Documents – Continued.

Identifier	Title/Description	Elastomers Required	Commonly Used	Expected Shelf Life (Yrs)
MIL-DTL-17	Cables, Radio Frequency, Flexible and Semirigid, General Specification for (Coaxial, Dual Coaxial, Twin Conductor, & Twin Lead):			
	Core Dielectric:			
	Type D, E, and H	SYN		*
	Type J	IIR		20
	Type L	Q		20
	Jacket:			
	Type IV	CR		15
	Type VI	Q		20
	Type VIII	CR		15
MIL-DTL-20078	Gasket for Ballistic Doors and Hatches			
	Tybe B		SBR	3
MIL-DTL-20176	Hose & Hose Assembly, Rubber, Smooth Bore, Light-Weight Sewage Discharge and Oily Waste Discharge		NBR	15
MIL-DTL-22050	Gasket & Packing Material, Rubber, For Use with Polar Fluids, Steam and Air at Moderately High Temperatures		IIR	20
MIL-DTL-23053/1	Insulation Sleeving, Electrical, Heat Shrinkable, Crosslinked Chlorinated Polyolefin, Flexible (use SAE-AMS-DTL-23053/1)	CR		15
MIL-DTL-23053/10	Insulation Sleeving, Electrical, Heat Shrinkable, Silicone Rubber, Flexible (use *SAE-AMS-DTL-23053/10*)	Q		20
MIL-DTL-26633	Hose Assembly, Nonconductive, Polytetrafluoroethylene, Oxygen	CR (cover)		15
MIL-DTL-26666	Hose Assembly, Pneumatic, High Pressure	CR (cover)		15
MIL-DTL-27516	Hose and Hose Assembly, Nonmetallic, Suction and Discharge	NBR(tube)		15
MIL-DTL-29210	Hose Assembly, Rubber, Metal Lined, Wire Reinforced, 250 psig, Saturated Steam Service	IIR or EPDM (tube)		20
MIL-DTL-3432	Cable, (Power and Special Purpose) and Wire, Electrical (300 and 600 volts)			
	Class C	SBR		3
	Class O		SBR	3
	Class L	SBR		3
	Class D	SBR		3
MIL-DTL-3533	Rubber, Synthetic; Sheet, Strip & Molded			
	Types I & II - Classes 1 & 2		NBR	15

Table II. Documents – Continued.

Identifier	Title/Description	Elastomers Required	Commonly Used	Expected Shelf Life (Yrs)
MIL-DTL-43002	Shield, Stovepipe, Tent, Nonmetallic	Q		20
MIL-DTL-43976	Gloves And Glove Set, Chemical Protective	NBR		15
MIL-DTL-442	Cable, (Wire), Two Conductor, Parallel (Ripcord)			
	Types IV, V and VI	SBR		3
MIL-DTL-52286	Cable Assemblies, Power, Electrical (with Molded on Terminations)	SBR		3
MIL-DTL-5423	Boots, Dust & Moisture Seal (For Toggle and Push-Button Switches, Circuit Breakers, & Rotary-Actuated Parts), General Specification for			
	All Types & Styles	Q		20
MIL-DTL-6615	Hose Assemblies, Rubber, Fuel and Water, with Reattachable Couplings, Low Temperature, General Specification For	CR		15
MIL-DTL-81581	Hose Assembly, Breathing Oxygen & Air, General Specification for		Q	20
MIL-DTL-83797	Hose, Rubber, Lightweight, Medium Pressure, General Specification for		NBR	15
MIL-DTL-8777	Wire, Electrical, Silicone-Insulated, Copper, 600 Volt, 200 °C	Q		20
MIL-DTL-915	Cable, Electrical, for Shipboard Use, General Specification for			
	Type CVSF	SYN & CR		*
	Type DCOP	SYN & CR		*
	Type DHOF	IIR & CR		15
	Type DSS	SYN & CR		*
	Type DLT	NR & CR		*
	Type FSCF	IIR & CR		15
	Type FHOF	IIR & CR		15
	Type FSS	SYN & CR		*
	Type JAS	IIR & CR		15
	Type MCSC	SYN & CR		*
	Type MCOS	CR		15
	Type MSS	SYN & CR		*
	Type SDU	IIR & CR		15
	Type SSF	SYN & CR		*
	Type TCOP	SYN & CR		*
	Type THOF	IIR & CR		15
	Type TRF	SYN & CR		*
	Type TRXF	CR		15
	Type TSS	SYN & CR		*

Table II. Documents – Continued.

Identifier	Title/Description	Elastomers Required	Commonly Used	Expected Shelf Life (Yrs)
MIL-G-12223	Gloves, Toxicological Agents Protective	IIR		20
MIL-G-21569	Gaskets, Cylinder Liner Seal, Synthetic Rubber Class I			
	Class I	NBR		15
	Class II	Q		20
MIL-G-21610	Gaskets, Heat Exchanger, Various Cross Section Rings, Synthetic Rubber			
	Type I	NBR		15
	Type II	Q		20
MIL-G-23652	Gasket & Packing Material Petroleum & Phosphate Ester Fluid Resistant (see *MIL-R- 83248*)			
	Types I & II		FKM	20
MIL-G-23983	Gasket & Packing Material, Oil Resistant Rubber, Access Hull Applications		CR	15
MIL-G-3036	Grommets, Rubber, Hot-Oil & Coolant-Resistant (see *NASM 3036*)		NBR	15
MIL-G-82242	Glove Shells, Radioactive Contaminants, Protective	NR		3
MIL-H-18158	Hose Ducting, Low Pressure, Naval Shipboard Portable, Ventilating Set Use	CR		15
MIL-H-22240	Hose, Rubber, Petroleum Based Fuels and Water Services, Discharge Only, Smooth Bore, Lightweight Buoyant Type			
	Type A & B	NBR (tube)		15
MIL-H-24135	Hose, Synthetic Rubber, Wire Reinforced for Flexible Hose Assemblies, General Specification For		NBR	15
MIL-H-24136	Hose, Synthetic Rubber, Synthetic Fiber Reinforced for Flexible Hose Assemblies, General Specification For		SBR or NBR	*
MIL-H-24520	Hose & Hose Assembly for Water Cooling of Electronic Equipment	EPDM		20
MIL-H-24580	Hose Assemblies, Synthetic Rubber, Noncollapsible, Fire Fighting			
	Types A & B	EPDM		20
MIL-H-28596	Hose and Hose Assembly, Rubber, Steam (see A-A-59159)		IIR, CR, EPDM	15
MIL-H-3868	Hose Assemblies, Nonmetallic: Grease Gun High & Low Pressure (see *SAE J517*)	CR		15
MIL-I-18057	Insulation Sleeving, Electrical, Flexible, Glass Fiber, Silicon Rubber Treated (see *MIL-I-3190*)	Q		20

Table II. Documents – Continued.

Identifier	Title/Description	Elastomers Required	Commonly Used	Expected Shelf Life (Yrs)
MIL-I-3930	Insulating & Jacketing Compounds, Electrical (For Cables, Cords & Wires), General Specification for			
	Type IS	SBR		3
	Type IS-L	SBR		3
	Type IR	NR		3
	Type IL	NR		3
	Type IJ-S	SBR		3
	Type IL-H	NR		3
	Type IL-RN	NR		3
	Type JS	SBR		3
	Type JS-L	SBR		3
	Type JR	NR		3
	Type JN	CR		15
	Type JN-L	CR		15
MIL-L-741	Leads, Electrical, Arc Welding (see *J-L-2744*)	SBR		3
MIL-M-17508	Mounts, Resilient: Types 6E100, 6E150, 7E450, 6E900, 6E2000, 5E3500, 6E100BB, 6E150BB, 7E450BB, 6E900BB			
	Types 6E200, 6E900, & 7E450	CR or NBR		15
	Types 6E150 & 6E100	NR		3
MIL-M-18351	Mattress & Mattress Ticks, Berth, Synthetic Cellular Rubber, Naval Shipboard			
	All Types	CR		5
MIL-M-19379	Mounts, Resilient, Mare Island Types, Types 11M15, 11M25, & 10M50	CR or NBR		15
MIL-M-19863	Mount, Resilient, Type 5B5, 000H	NR		3
MIL-M-21649	Mount, Resilient, Type 5M10,000-H	NR		3
MIL-M-27274	Mask, Oxygen MBU-5/P	Q		20
MIL-P-11719	Packing, Preformed, Pneumatic Hose Couplings, Universal	CR		15
MIL-P-14401	Pads, Cushioning; Personnel-Protection, Vehicular (see *A-A-52430*)			
	Types I & II, Class CS		SBR	3
	Type I, Class FR		NR or CR	*
MIL-P-2693	Packing Material, Cold Storage Door Gasketing, Nonwatertight			
	Type A		CR	
	Type B		NR (core)	

Table II. Documents – Continued.

Identifier	Title/Description	Elastomers Required	Commonly Used	Expected Shelf Life (Yrs)
MIL-PRF-1149	Gasket Materials, Synthetic Rubber, 50 and 65 Durometer Hardness			
	Class 1 - Types I & II	CR		15
	Class 2 - Types I & II	SBR		3
	Class 3 - Types I & II	IIR		20
	Class 5 - Types I & II	NBR		15
MIL-PRF-11588	Hose Assemblies, Rubber, Synthetic, Liquid Petroleum Fuels, Dispensing, Collapsible, Standard and Low Temperature			
	All Types	NBR (tube)		15
MIL-PRF-15624	Gasket Material, Rubber, 50 Durometer Hardness (Maximum)			
	Class I	CR		15
	Class II	SBR		3
	Class III	NBR		15
MIL-PRF-17927	Gaskets, Flame Resistant Hinged Closure	Q		20
MIL-PRF-20092	Rubber or Plastic Sheets and Assembled and Molded Shapes, Synthetic, Foam or Sponge, Open Cell			
	Class 1 - Types I & II All Conditions	CR		15
	Class 3 - Types I & II All Conditions	CR		15
MIL-PRF-20696	Cloth, Waterproof, Weather Resistant Types I & II, Classes 1 & 3	CR		15
MIL-PRF-26514	Polyurethane Foam, Rigid or Flexible, for Packaging,			
	Type I	AU		5
MIL-PRF-2912	Synthetic Rubber Compound, Acid & Oil Resistant (For Lining Battery Compartments on Submarines)			
	Class 1 - Types I & II	CR		15
	Class 2 - Types I & II	NBR		15
MIL-PRF-43473	Cloth, Waterproof	AU or EU		5
MIL-PRF-46846	Rubber, Synthetic, Heat-shrinkable			
	Type I	CR		15
	Type II	Q		20
	Type III	FLM		20
	Type IV	IIR		20
	Type VI	EPDM		20

Table II. Documents – Continued.

Identifier	Title/Description	Elastomers Required	Commonly Used	Expected Shelf Life (Yrs)
MIL-PRF-6855	Rubber, Synthetic, Sheets, Strips, Molded or Extruded Shapes, General Specification for			
	Class 1 - All Grades		NBR	15
	Class 2 - All Grades		CR	15
	Class 3 - All Grades		SBR	3
	Class 4 - All Grades		CR	15
	Class 5 - All Grades		SBR	3
MIL-PRF-900	Rubber Gasket Material, 45 Durometer Hardness	SBR		3
MIL-R-15058	Rubber, Shaft Covering Materials (For Marine Propeller Shafts)			
	Types I, II & III			
	Class I	CR		15
	Class II	SBR		3
	Class III	NBR		15
MIL-R-21252	Rubber Sheet, Solid, Synthetic, Shipboard Water Evaporator Gasketing	SBR		3
MIL-R-25897	Rubber, Fluorocarbon Elastomer, High- Temperature, Fluid Resistant (see *MIL-R- 83248*)	FKM		20
MIL-R-3065	Rubber, Fabricated Products (see *ASTM D 2000*)			
MIL-R-46089	Rubber Sponge, Silicone, Closed Cell (use *ASTM-D1056*)	Q		20
MIL-R-5001	Rubber, Cellular Sheet, Molded & Hand-Built Shapes; Latex Foam (see *SAE AMS-R-5001*)			
	Composition 1	NR		3
	Composition 2	NR		3
MIL-R-6130	Rubber, Cellular, Chemically Blown (see *ASTM D6576*)			
	Grade A - Types I & II		CR	15
	Conditions Soft, Medium & Firm			
	Grade B - Types I & II		SBR	3
	Conditions Soft, Medium & Firm			
	Grade C - Types I & II		NR	3
	Conditions Soft, Medium & Firm			
MIL-R-81090	Rubber, Electrically Conductive Fuel, Resistant		NBR	15
MIL-R-83248	Rubber, Fluorocarbon Elastomer, High Temperature, Fluid, And Compression Set Resistant (see SAE AMS 7276, SAE AMS 7259, SAE AMS 3216, and SAE AMS 3218)	FKM		20
MIL-R-83285	Rubber, Ethylene-Propylene, General Purpose (see *SAE AMS-R-83285*)	EPDM		20
MIL-S-21558	Seal, Oil, Plain or Plain Encased		NBR	15
MIL-S-27332	Seat Cushion Insert, Polyurethane Foam Plastic, General Specification for	AU, EU		5

Table II. Documents – Continued.

Identifier	Title/Description	Elastomers Required	Commonly Used	Expected Shelf Life (Yrs)
MIL-S-45005	Seal, Plain, & Seal, Plain Encased: Fluid, Radial, Single & Multiple Lip Sealing Member, Spring- Loaded (see *A-A-52524*)		NBR	15
MIL-STD-417	Classification System and Tests for Solid Elastomeric Materials (Rubber Compositions, Vulcanized General)			
	Purpose Solid			
	Class RN with Suffix A	NR		3
	Class RS with Suffices A_1 C_1		IIR or SBR	3
	Class SA		T	20
	Class SB		NBR	15
	Class SC		CR	15
	Class TA		Q	20
	Class TB		ACM	20
MIL-STD-670	Classification System and Tests for Cellular Elastomeric Materials			
	Type R – Styles C, E, O & U		NR or SBR	3
	Class SB – Styles E & O		NBR	15
	Class SC – Styles E & O		CR	15
	Types T – Styles E & O		Q	20
	Types U – Styles C & U		AU or EU	5
NAS 1369	Duct, Air, Flexible & Semi-Rigid			
	Type A	Glass Fabric impreg with CR		15
	Type B	Glass Fabric impreg with Q		20
NAS 1370 thru NAS 1379	Duct, Air, Flexible, Helix Wire Supported			
	-65 to +275 °F	Fiberglass impreg with CR		15
	-75 to +500 °F	Fiberglass impreg with Q		20

Table II. Documents – Continued.

Identifier	Title/Description	Elastomers Required	Commonly Used	Expected Shelf Life (Yrs)
NAS 1515	Washers - Plastic & Synthetic Rubber			
	Code Letter A	*ZZ-R-765*		20
	Code Letter B	*ZZ-R-765*		20
	Code Letter C		NBR	15
	Code Letter D		CR	15
	Code Letter E		CR	15
	Code Letter F		NBR	15
	Code Letter J	CR		15
	Code Letter K	IIR		20
	Code Letter L	FKM		20
	Code Letter M	FKM		20
NAS 1593	Packing, Preformed - *MIL-R-25897* Rubber, 75 Shore O-Ring	FKM		20
NAS 1598	Washer - Sealing			
	Code Y		NBR	15
	Code R		FVMQ	20
	Code N		IIR	20
NAS 617	Packing, Preformed, Straight Thread Tube Fitting Boss, Synthetic Lubricant Resistant		NBR	15
NASM 3036	Grommets, Rubber, Hot-Oil And Coolant Resistant		SYN	*
			Q	20
SAE J1037	Windshield Washer Tubing			
	Type 1	CR		5
SAE J1402	Automotive Air Brake Hose and Hose Assemblies	CR		15
SAE J20	Coolant System Hoses Class A			
	Class A		Q	20
	Class B		NBR	15
	Class C		CR	15
	Class D		EPDM	20

Table II. Documents – Continued.

Identifier	Title/Description	Elastomers Required	Commonly Used	Expected Shelf Life (Yrs)
SAE J200	Classification System for Rubber Materials			
	Material Designation AA with Suffix A13		NR, SBR, or IIR	*
	Material Designation AK		T	20
	Material Designation BA with Suffices A14 & C12		SBR or IIR	*
	Material Designation BC		CR	15
	Material Designation BE		CR	15
	Material Designation BF		NBR	15
	Material Designation BG		AU or EU	5
	Material Designation BK		T or NBR	20
	Material Designation CA		EPDM	20
	Material Designation CE		CSM	15
	Material Designation CH		NBR	15
	Material Designation DH		ACM	20
	Material Designation FC		Q	20
	Material Designation FE		Q	20
	Material Designation FK		FVMQ	20
	Material Designation GE		Q	20
	Material Designation HK		FKM	20
SAE J30	Fuel & Oil Hoses			
	SAE 30R1, 30R2, 30R3 & 30R5		NR (tube)	3
SAE J515	Specifications for Hydraulic O-Ring Materials, Properties, and Sizes for Metric and Inch Stud Ends, Face Seal Fitting and Four-Screw Flange Tube Connections			
	Type I		NBR	15
	Type II		IIR	20
UL 817	Standard For Safety: Cord Sets And Power- Supply Cords		CR or IIR	15
ZZ-C-101	Catheters, Urethral, Rubber All Types	NR		3
ZZ-G-100	Gloves, Rubber, Autopsy			
	Class 1	NR		3
	Class 2	CR		15
ZZ-G-401	Gloves, Rubber (For) Electrical Workers (For Use in Connection with Apparatus or Circuits not Exceeding 5,000 Volts to Ground) (see *ASTM D120*)		NR	3

Table II. Documents – Continued.

Identifier	Title/Description	Elastomers Required	Commonly Used	Expected Shelf Life (Yrs)
ZZ-H-428	Hose, Non-metallic and Hose, Preformed: (For The Coolant Systems of Automotive and Other Liquid-Cooled Engines) (see *SAE J20*)			
	Class 1		NBR	15
	Class 2		CR	15
	Class 3		EPDM	20
	Class 4		IIR	20
ZZ-H-461	Hose and Hose Assembly, Rubber, Gas (Acetylene - Hydrogen, Air and Oxygen)			
	All Grades & Types	SBR		3
ZZ-H-500	Hose, Rubber & Hose Assemblies, Rubber: Pneumatic (Yarn or Fabric Reinforced) (see *A-A- 59565*)		CR	15
ZZ-H-561	Hose, Rubber, and Hose Assemblies, Rubber, Smooth Bore, Water Suction and Discharge (see *A-A-59566*)		CR	15
ZZ-I-550	Inner Tube, Pneumatic Tire All Classes & Groups	NR or IIR		*
ZZ-R-1415	Rubber Band	NR, SBR, IR, or SYN		*
ZZ-R-768	Rubber for Mountings (Unbonded-spool and Compression Types)	NBR		15
ZZ-T-401	Tire, Pneumatic; Inner Tube, Pneumatic Tire; (Bicycle)			
	Tubes	IIR		20
ZZ-T-416	Tire, Pneumatic: Retread And Repair Materials (see *A-A-52518*)	NR, IR, BR SBR		*
ZZ-T-831	Tubing, Rubber and Plastic (see *A-A-52047*)			
	Grade C & L	NR		3

Table III. Documents having material composition of natural or synthetic rubber.

Identifier	Title/Description	Elastomers	Expected Shelf Life (Yrs)
A-A-30081	Tip, Cane And Crutch	**NR or SYN**	**TBD**
A-A-3034	Roller, Hand (Rubber Roller)		
A-A-50063	Boots, Knee And Hip (Rubber)		
A-A-50362	Overshoes, Men's, Rubber, 5 Buckle Type		
A-A-50371	Boots, Fireman's		
A-A-52155	Engine Accessory Drive V-Belts		
A-A-52160	Industrial V-Belts (Multiple Drives)		
A-A-52486	Mount, Shipping Container, Resilient: Shock and Vibration Damping		
A-A-52490	Belts, V: Light-Duty Or Fractional-Horsepower		
A-A-52546	Hose, Preformed: Semi-Flexible, Reinforced		
A-A-54194	Stopper, Bottle (Rubber, Solid)		
A-A-59159	Hose And Hose Assemblies, Rubber, Steam		
A-A-59226	Hose Assembly, Nonmetallic, Fire Fighting ,With Couplings		
A-A-59270	Hose And Hose Assemblies, Non-Metallic (Rubber, Plastic)		
A-A-59565	Hose, Rubber, And Hose Assemblies, Rubber: Pneumatic (Yarn Or Fabric Reinforced)		
A-A-59567	Hose And Hose Assemblies, Rubber (Yarn Or Fabric Reinforced) Water Service		
ASTM C534	Preformed Flexible Elastomeric Cellular Thermal Insulation In Sheet And Tubular Form		
ASTM D120	Rubber Insulating Gloves		
ASTM D6576	Flexible Cellular Rubber Chemically Blown		
HH-G-156	Gaskets Material, General Purpose, Rubber Sheets, Strips, & Special Shapes		
HH-P-151	Packing; Rubber Sheet, Cloth Insert Class 1		
JJ-W-155	Webbing, Textile, (Cotton, Elastic) Types I & II, All Classes		
L-H-520	Hose & Hose Assemblies, Nonmetallic (Rubber, Plastic) (see *A-A-59270*)		
MIL-B-52761	Belting, Flat: Conveyor, Rubber Industrial Synthetic Reinforcement		
MIL-C-5756	Cable, Power, Electric, Portable, General Specification for		
MIL-C-9074	Cloth, Laminated, Sateen, Rubberized		
MIL-D-26124	Duct and Duct Assembly, Pneumatic, Flexible (see *MIL-DTL-22706*)		
MIL-DTL-11040	Belt, V: Engine Accessory Drive		

Table III. Documents having material composition of natural or synthetic rubber. – Continued.

Identifier	Title/Description	Elastomers	Expected Shelf Life (Yrs)
MIL-DTL-22706	Duct and Scuff Cover, Pneumatic, Flexible		
MIL-DTL-32066	Gloves, Rubber, Industrial		
MIL-DTL-3885	Cable Assemblies & Cord Assemblies, Electrical (For Use in Electronic, Communication & Associated Electrical Equipment)		
MIL-H-15217	Hose, Rubber, Sandblast		
MIL-H-52079	Hose, Preformed: Semi-Flexible Reinforced (see *A-A- 52546*)		
MIL-H-52262	Hose Assembly, Elastomeric: Lightweight, Collapsible, 4-inch		
MIL-H-6439	Hose, Rubber, Aircraft Paint Finish Remover		
MIL-H-7365	Hose, Air Duct, For Ground Heaters		
MIL-I-14511	Insulation Sheet, Cellular, Plastic, Thermal (see *A-A-52404*)		
MIL-I-5014	Inner Tube, Pneumatic Tire, Aircraft (see *SAE AS50141*)		
MIL-M-17191	Mounts, Resilient: Portsmouth Bonded Spool Type		
MIL-M-910	Mats, Floor, Standing		
MIL-PRF-26385	Hose, Oxygen and Pressurization, Ozone Resistant		
MIL-PRF-5041	Tires, Ribbed Thread, Pneumatic, Aircraft, General Specification for		
MIL-R-45036	Rubber, Hard (Ebonite) Natural or Synthetic, Sheet, Strip, Rod, Tubing & Molded Parts (no superseding document) Grades A, B, C & D	**NR or SYN**	**TBD**
RR-T-650	Tread, Metallic & Nonmetallic, Skid-Resistant Type A		
SAE AS50141	Tube, Pneumatic Tire, Aircraft		
TT-I-600	Inking Pad, Rubber Stamp Type III		
UL 62	Standard For Safety: Flexible Cords And Cables		
ZZ-B-190	Belt, V, Engine-Accessory-Drive, Minus 40°F, General Specification for (see *A-A-52155*)		
ZZ-B-215	Belt, V, Light Duty or Fractional Horsepower (see *A-A-52490*)		
ZZ-B-225	Belt, V, Industrial (Multiple Drive) (see *A-A-52160*)		
ZZ-B-530	Boots, Knee & Hip (Rubber) (see *A-A-50063*) Type I & II		
ZZ-G-710	Gasket Material, Rubber 35 Durometer Hardness		
ZZ-H-451	Hose, Fire, Woven Jacketed Rubber or Latex or Rubber Coated Fabric Lined, with Couplings (see *A-A-59226*)		
ZZ-H-521	Hose and Hose Assemblies, Nonmetallic, Spray		
ZZ-H-601	Hose and Hose Assemblies, Rubber (Yarn or Fabric Reinforced) Water Service (see *A-A-59567*) Grade 1		
ZZ-H-617	Hose, Rubber, Windshield Wiper Type I and Type II		
ZZ-M-42	Mats, Floor, Dental-Chair, Rubber		

Table III. Documents having material composition of natural or synthetic rubber. – Continued.

Identifier	Title/Description	Elastomers	Expected Shelf Life (Yrs)
ZZ-T-1083	Tire, Pneumatic, Low Speed, Off Highway	**NR or SYN**	**TBD**
ZZ-T-1619	Pneumatic, Agricultural		
ZZ-T-391	Tire, Solid Rubber, and Wheels, Solid Rubber Tire, (Industrial)		
ZZ-T-401	Tire, Pneumatic; Inner Tube, Pneumatic Tire; (Bicycle) Tires, Classes A & B		
ZZ-T-410	Tires, Pneumatic, Industrial		

TBD - To Be Determined - Shelf life cannot be determined because type of rubber is not specified.

Table IV. Document havaing material composition of synthetic rubber.

Identifier	Title/Description	Elastomers	Expected Shelf Life (Yrs)
A-A-52524	Seal, Plain, And Seal, Plain, Encased: Fluid, Radial, Single And Multiple Lip Sealing Member	**SYN**	**TBD**
A-A-59566	Hose, Rubber, and Hose Assemblies, Rubber, Smooth Bore, Water Suction and Discharge		
MIL-B-17901	Bearing Components, Bonded Synthetic Rubber, Water Lubricated		
MIL-B-6362	Boots, Extreme Cold Weather, N-1B		
MIL-C-6183	Cork and Rubber Composition Sheet, for Aromatic Fuel and Oil Resistant Gaskets (see *AMS-C-6183*)		
MIL-DTL-15562	Matting or Sheet, Floor Covering, Insulating for High Voltage Application		
MIL-DTL-17505	Hose & Hose Assembly, Rubber, Oil & Gasoline, Suction & Discharge		
MIL-DTL-3992	Hose & Hose Assembly, Rubber: Air & Vacuum Brake, Systems - All Types and Classes		
MIL-DTL-52471	Hose & Hose Assemblies, Rubber, Hydraulic Pressure Type, General Specification for		
MIL-DTL-6000	Hose, Rubber (Fuel, Oil, Coolant Water and Alcohol)		
MIL-H-6399	Hose, Rubber, Wire-Wound, Synthetic, Ice Eliminating System		
MIL-H-82127	Hose Assembly, Rubber (Synthetic): Fuel, Discharge, Collapsible		
MIL-I-3190	Insulation Sleeving, Electrical, Flexible, Coated, General Specification for		
MIL-M-19417	Mask Assemblies, Oxygen & Smoke, Full Face		
MIL-P-2911	Packing Assembly, Hydraulic, Conical & V Types		
MIL-STL-26521	Hose Assembly, Nonmetallic, Fuel, Collapsible. Low Temperature, With Non-reusable Couplings		
MIL-T-1956	Tarpaulin, Waterproof, Special Purpose, 10 Feet Long by 8 Feet Wide - All Classes		
SAE J189	Power Steering Return Hose - Low Pressure		
SAE J517	Hydraulic Hose - All Types		

TBD - To Be Determined - Shelf life cannot be determined because type of rubber is not specified.

APPENDIX A

SHELF LIFE CROSS REFERENCE

A SCOPE. This appendix provides a historical cross reference of all deleted materials (Table V) and specifications (Table VI) deleted from the previous revisions of the document. The information contained herein is intended for guidance only.

A.2 APPLICABLE DOCUMENTS – This section is not applicable to this appendix.

A.3 REMOVAL CRITERIA - Deletion was based on procurement history for the most recent 10 year period. If no procurement was found, the specification was deleted from its residing table and moved to Table VI for tracking purposes in this revision. If a material was not found in any of the procured specifications, the material was deleted from Table I (MIL-HDBK-695E) and moved to Table V for tracking purposes in this revision. For any active or inactive document that was removed from MIL-HDBK-695F due to lack of procurement, the preparing activity should be notified and requested to cancel the document.

A.4 DISPOSITION TABLES. Tables V and VI are a list of materials and documents that have been deleted from this or previous revisions and are provided for cross reference purposes.

Table V. Material Cross Reference

Material Description	Common or Trade Name	ASTM D1418	Shelf life range MIL-HDBK-695D
Polypropylene oxide	Propylene oxide	GPO	5 to 10 years
Cis-polybutadiene	Butadiene	BR	3 to 5 years
Epichlorohydrin homopolymer	Hydrin 100, Herclor H	CO	5 to 10 years
Epichlorohydrin ethylene oxide	Hydrin 200, Herclor C	ECO	5 to 10 years

Table VI. Document cross reference.

Previous Versions		MIL-HDBK-695F
Identifier	**Expected Shelf Life (Yrs)**	**Status**
A-A-132	TBD	Deleted
A-A-1870	TBD	Deleted
A-A-2800	5	Deleted
A-A-2854	TBD	Deleted
A-A-2991	TBD	Deleted
A-A-300	TBD	Deleted
A-A-51294	TBD	Deleted
A-A-53986	3	Deleted
AMS 3193	20	Deleted
AMS 3194	20	Deleted
AMS 3228	15	Deleted
AMS 3273	5	Deleted
AMS 3332	20	Deleted
AMS 3344	20	Deleted
AMS 3386	3	Deleted
AMS 3387	3	Deleted
AMS 3388	3	Deleted
AMS 3389	3	Deleted
AMS 3650	TBD	Deleted
AMS 7261	20	Deleted
AMS 7278	20	Deleted
AMS7263	20	Deleted
AMS7275	20	Deleted
AMS7279	20	Deleted
ARP 610	3	Deleted
ASTM C443	3	Deleted
ASTM D1050	3	Deleted
ASTM D1055	3	Deleted
ASTM D1330	3	Deleted
ASTM D1352	10	Deleted
ASTM D1520	3	Deleted
ASTM D1521	3	Deleted
ASTM D1523	3	Deleted
ASTM D1564	3	Deleted
ASTM D1565	3	Deleted

TABLE VI. Document cross reference. Continued.

Previous Versions		MIL-HDBK-695F
Identifier	**Expected Shelf Life (Yrs)**	**Status**
ASTM D1667	3	Deleted
ASTM D1679	3	Deleted
ASTM D178	3	Deleted
ASTM D1869	3	Deleted
ASTM D1931	20	Deleted
ASTM D2903	5	Deleted
ASTM D296	3	Deleted
ASTM D353	3	Deleted
ASTM D469	3	Deleted
ASTM D532	3	Deleted
ASTM D574	3	Deleted
ASTM D752	8	Deleted
ASTM D753	8	Deleted
ASTM D754	3	Deleted
ASTM D755	3	Deleted
ASTM D866	3	Deleted
BBB-C-606	3	Deleted
DD-B-599	3	Deleted
DOD-P-15816	10	Deleted
DOD-P-15817	3	Deleted
GG-C-846	3	Deleted
GGG-R-00620	TBD	Deleted
GG-P-655	TBD	Deleted
GG-S-727	3	Deleted
HH-F-341	TBD	Deleted
HH-I-573	5	Deleted
J-C-96	5	Deleted
J-L-231	3	Deleted
MIL-A-41829	15	Deleted
MIL-A-8897	15	Deleted
MIL-B-18799	3	Deleted
MIL-B-20278	3	Deleted
MIL-B-2885	TBD	Deleted
MIL-B-45326	3	Deleted

TABLE VI. Document cross reference. Continued.

Previous Versions		MIL-HDBK-695F
Identifier	**Expected Shelf Life (Yrs)**	**Status**
MIL-B-50015	3	Deleted
MIL-C-10065	3	Deleted
MIL-C-10351	3	Deleted
MIL-C-10351	TBD	Deleted
MIL-C-10369	3	Deleted
MIL-C-10797	20	Deleted
MIL-C-11097	5	Deleted
MIL-C-11390	5	Deleted
MIL-C-11997	3	Deleted
MIL-C-12423	5	Deleted
MIL-C-13077	3	Deleted
MIL-C-13892	3	Deleted
MIL-C-14366	3	Deleted
MIL-C-14505	5	Deleted
MIL-C-14625	Type I-3; Type II-5	Deleted
MIL-C-15104	3	Deleted
MIL-C-15987	8	Deleted
MIL-C-17415	NR-3; SYN-5	Deleted
MIL-C-17694	5	Deleted
MIL-C-19635	3	Deleted
MIL-C-19654	5	Deleted
MIL-C-19699	5	Deleted
MIL-C-21109	3	Deleted
MIL-C-22524	15	Deleted
MIL-C-22731	3	Deleted
MIL-C-23926	5	Deleted
MIL-C-26861	3	Deleted
MIL-C-27212	3	Deleted
MIL-C-27347	20	Deleted
MIL-C-38149	10	Deleted
MIL-C-3849	-	Deleted
MIL-C-43062	8	Deleted
MIL-C-43285	10	Deleted
MIL-C-43303	3	Deleted

TABLE VI. Document cross reference. Continued.

Previous Versions		MIL-HDBK-695F
Identifier	**Expected Shelf Life (Yrs)**	**Status**
MIL-C-43379	10	Deleted
MIL-C-43619	3	Deleted
MIL-C-43656	20	Deleted
MIL-C-5136	5	Deleted
MIL-C-55479	8	Deleted
MIL-C-55480	8	Deleted
MIL-C-55483	8	Deleted
MIL-C-6166	3	Deleted
MIL-C-7637	5	Deleted
MIL-C-7966	3	Deleted
MIL-C-82255	15	Deleted
MIL-C-83008	3	Deleted
MIL-C-83398	5	Deleted
MIL-D-17650	3	Deleted
MIL-D-2921	3	Deleted
MIL-D-3377	TBD	Deleted
MIL-DTL-13075	3	Deleted
MIL-DTL-2486	3	Deleted
MIL-DTL-25579	20	Deleted
MIL-DTL-26894	3	Deleted
MIL-DTL-3100	5	Deleted
MIL-DTL-3702	Grade B & D - 20, Grade C - 15	Deleted
MIL-DTL-5498	15	Deleted
MIL-DTL-55036	15	Deleted
MIL-DTL-55040	5	Deleted
MIL-E-12397	3	Deleted
MIL-E-18648	3	Deleted
MIL-F-10135	3	Deleted
MIL-F-50070	3	Deleted
MIL-F-51109	3	Deleted
MIL-G-1086	15	Deleted
MIL-G-13210	3	Deleted
MIL-G-23621	3	Deleted
MIL-G-432	3	Deleted

TABLE VI. Document cross reference. Continued.

Previous Versions		MIL-HDBK-695F
Identifier	**Expected Shelf Life (Yrs)**	**Status**
MIL-H-0015100	15	Deleted
MIL-H-10868	5	Deleted
MIL-H-19639	Class 8; Class-3; Class-5	Deleted
MIL-H-19992	3	Deleted
MIL-H-27508	3	Deleted
MIL-H-4497	3	Deleted
MIL-H-4536	3	Deleted
MIL-H-51059	5	Deleted
MIL-H-52544	3	Deleted
MIL-H-7938	4	Deleted
MIL-H-82142	3	Deleted
MIL-I-16562	3	Deleted
MIL-I-19254	TBD	Deleted
MIL-I-23578	3	Deleted
MIL-I-4997	NR 3, CR 8	Deleted
MIL-J-2829	3	Deleted
MIL-M-12863	3	Deleted
MIL-M-19018	3	Deleted
MIL-M-22322	3	Deleted
MIL-M-40024	3	Deleted
MIL-M-43968	3	Deleted
MIL-M-45907	3	Deleted
MIL-M-7585	20	Deleted
MIL-M-82272	3	Deleted
MIL-N-6748	20	Deleted
MIL-O-836	TBD	Deleted
MIL-P-10018	3	Deleted
MIL-P-12420	3	Deleted
MIL-P-14574	15	Deleted
MIL-P-19152	5	Deleted
MIL-P-19918	15	Deleted
MIL-PRF-19759	5	Deleted
MIL-PRF-19769	3	Deleted
MIL-PRF-28523	3	Deleted

TABLE VI. Document cross reference. Continued.

Previous Versions		MIL-HDBK-695F
Identifier	**Expected Shelf Life (Yrs)**	**Status**
MIL-PRF-62136	3	Deleted
MIL-R-1229	3	Deleted
MIL-R-14328	3	Deleted
MIL-R-14364	5	Deleted
MIL-R-16402	3	Deleted
MIL-R-16920	3	Deleted
MIL-R-1832	3	Deleted
MIL-R-23074	8	Deleted
MIL-R-3842	3	Deleted
MIL-R-6891	3	Deleted
MIL-R-82190	3	Deleted
MIL-R-83322	TBD	Deleted
MIL-S-12100	3	Deleted
MIL-S-21923	3	Deleted
MIL-S-40000	3	Deleted
MIL-S-40043	3	Deleted
MIL-S-43961	TBD	Deleted
MIL-S-82258	3	Deleted
MIL-T-12459	TBD	Deleted
MIL-T-14398	20	Deleted
MIL-T-36966	3	Deleted
MIL-T-5579	8	Deleted
MIL-T-62118	8	Deleted
MIL-T-62129	3	Deleted
MIL-T-62157	3	Deleted
MIL-T-82270	3	Deleted
MIL-W-17965	3	Deleted
MIL-W-21985	3	Deleted
MIL-W-46759	3	Deleted
MIL-W-5664	3	Deleted
NAS 11	3	Deleted
NAS 1570	3	Deleted
NAS 1577	3	Deleted
NAS 1594	20	Deleted

TABLE VI. Document cross reference. Continued.

Previous Versions		MIL-HDBK-695F
Identifier	**Expected Shelf Life (Yrs)**	**Status**
NAS 1595	20	Deleted
NAS 1596	20	Deleted
NAS 244	8	Deleted
NAS 485	8	Deleted
SAE J1010	5	Deleted
SAE J120	5	Deleted
SAE J14	3	Deleted
SAE J1401	3	Deleted
SAE J1403	TBD	Deleted
SAE J15	3	Deleted
SAE J1601	3	Deleted
SAE J1603	3	Deleted
SAE J1604	3	Deleted
SAE J1605	3	Deleted
SAE J17	3	Deleted
SAE J18	3	Deleted
SAE J188	3	Deleted
SAE J19	3	Deleted
SAE J2014	3	Deleted
SAE J2031	TBD	Deleted
SAE J50	3	Deleted
SAE J51	3	Deleted
SAE J557	3	Deleted
SAE J560	3	Deleted
SAE J60	3	Deleted
SAE J654	3	Deleted
SAE J80	3	Deleted
ZZ-B-101	3	Deleted
ZZ-B-117	3	Deleted
ZZ-B-206	3	Deleted
ZZ-B-220	TBD	Deleted
ZZ-B-586	3	Deleted
ZZ-B-616	TBD	Deleted
ZZ-B-71	TBD	Deleted

TABLE VI. Document cross reference. Continued.

Previous Versions		MIL-HDBK-695F
Identifier	**Expected Shelf Life (Yrs)**	**Status**
ZZ-C-450	5	Deleted
ZZ-C-766	3	Deleted
ZZ-C-796	TBD	Deleted
ZZ-C-811	3	Deleted
ZZ-D-800	3	Deleted
ZZ-E-661	TBD	Deleted
ZZ-F-1299	TBD	Deleted
ZZ-F-375	3	Deleted
ZZ-G-381	3	Deleted
ZZ-H-130	TBD	Deleted
ZZ-H-141	3	Deleted
ZZ-H-421	3	Deleted
ZZ-H-466	3	Deleted
ZZ-H-466	3	Deleted
ZZ-H-515	TBD	Deleted
ZZ-M-001033	3	Deleted
ZZ-M-46	3	Deleted
ZZ-M-71	TBD	Deleted
ZZ-M-81	TBD	Deleted
ZZ-M-85	3	Deleted
ZZ-M-91	3	Deleted
ZZ-P-351	TBD	Deleted
ZZ-P-46	3	Deleted
ZZ-P-75	3	Deleted
ZZ-R-001207	3	Deleted
ZZ-R-00675	3	Deleted
ZZ-R-690	3	Deleted
ZZ-R-785	3	Deleted
ZZ-R-800	3	Deleted
ZZ-R-804	TBD	Deleted
ZZ-S-666	TBD	Deleted
ZZ-S-751	TBD	Deleted
ZZ-T-351	TBD	Deleted
ZZ-T-381	TBD	Deleted

TABLE VI. Document cross reference. Continued.

Previous Versions		MIL-HDBK-695F
Identifier	**Expected Shelf Life (Yrs)**	**Status**
ZZ-T-441	TBD	Deleted
ZZ-T-721	3	Deleted
ZZ-T-751	10	Deleted
ZZ-T-791	3	Deleted
ZZ-T-831	TBD	Deleted
	TBD	Deleted

CONCLUDING MATERIAL

Custodians:
- Army – MR
- Navy – SA
- Air Force – 11

Preparing activity:
- Navy – SA
- (Project 9320-2016-001)

Review activities:
- Army – AR, CR, CR4, MI
- Navy – AS, OS, YD
- Air Force – 99
- DLA – CC, CT, GS, IS

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at https://assist.dla.mil.