



LPR 4100.1A

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Langley Research Center

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**MANAGEMENT OF SHELF LIFE
FOR CRITICAL-USE ITEMS**

National Aeronautics and Space Administration

Verify the correct revision before use by checking the LMS Web site.

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Responsible Office: Logistics Management Branch, Center Operations Directorate**PREFACE****P.1 PURPOSE**

This procedure establishes the requirements for management and control of shelf-life items in order to maximize their use prior to deterioration and to ensure that expired materials are not used beyond their shelf life on critical end-use items unless extended as described herein.

P.2 APPLICABILITY

This procedure applies to all Langley Research Center (LaRC) personnel, organizations, and activities involved with the acquisition, purchase, storage, and use of shelf-life items on critical end-use items, (see Appendix A definition). This procedure also applies to all LaRC contractors and employees operating under the auspices of LaRC as directed by contractual, grant, and agreement documents. Shelf life items not used on critical end-use items will be managed as directed in NPR 4100.1. Organizations have six months from the effective date to implement the procedures within this LPR.

P.3 AUTHORITY

NPD 4100.1, "Supply Support and Material Management Policy"

P.4 APPLICABLE DOCUMENTS AND FORMS

- a. NPR 4100.1, "NASA Materials Inventory Management Manual"
- b. LPR 1710.12, "Potentially Hazardous Materials-Hazard Communication Standard"
- c. LPR 1710.13, "Chemical Hygiene Plan"
- d. LPR 8500.1, "Environmental and Energy Program Manual"
- e. LF 521, "Type II Shelf Life Log for Non-Chemical Items"

P.5 MEASUREMENT/VERIFICATION

Internal and external third-party audits and evaluations shall be used to assess the effectiveness of this procedure.

P.6 CANCELLATION

None

Original signed on file

Cathy Mangum
Acting Associate Director

DISTRIBUTION

Approved for public release via the Langley Management System; distribution is unlimited.

PROCEDURES

1. Responsibilities

1.1. Organizations shall:

- a. Ensure shelf-life materials used on critical-end use items are managed according to the following requirements:
 - (1) Prior to use, ensure the product is not expired.
 - (2) Identify shelf-life materials that will be used on critical end-use items (example: color code, labeled for flight use or non-flight use, segregation, etc.).
 - (3) Ensure labels for critical end-use items include expiration date and shelf-life code using Appendix C.
 - (4) Segregate expired shelf-life items from unexpired items.
 - (5) Extend shelf-life items, where applicable, and label product with new expiration date.
 - (6) Shelf-life extensions shall be recommended and approved by the Chemical Material Tracking System (CMTS) Inventory Managers or Organizational Unit Managers (OUM) designee.
 - (7) Extensions should be granted only in those cases that are coordinated with the manufacturer or where material testing has shown the material has not degraded. Use Appendix C in determining if the shelf-life item is extendable.
- b. Assign appropriate personnel responsibility to manage shelf-life materials used on critical-end use items.
- c. Ensure personnel understand the requirements for managing shelf-life materials used on critical end-use items.
- d. Approve the extension of the shelf life on critical end-use items in accordance with NPR 4100.1.

1.2. CMTS Inventory Managers or OUM designee shall:

- a. Establish acceptance criteria for extensions of shelf life for critical end-use items.
- b. Perform shelf-life extension tests to ensure continued suitability of the materials for the intended use based on established procedures found in LPR 8500.1, LPR 1710.12, and NPR 4100.1.
- c. Document shelf-life review and extensions using LF 521 or similar documentation for non-hazardous material critical end-use items not tracked in CMTS.
- d. Enter expiration date and shelf-life code data into CMTS for hazardous materials used on critical end-use items.

- e. Document date of shelf-life inspections of hazardous materials in the “Remarks” field of the associated inventory records in CMTS.
- f. Update container information in CMTS with new expiration dates for hazardous materials with approved shelf-life extensions in remarks field.
- g. Affix CMTS labels with new expiration dates to containers whenever the date is updated and documented in CMTS.

1.3. All Purchasers shall:

- a. Ensure, whenever practicable in accordance with NPR 4100.1, procurement documents and contracts contain the requirement for manufacturers and suppliers to mark the unit or container with the month and year of manufacture, shelf-life period, production and batch number on all shelf-life items procured from other than government sources of supply.
- b. Ensure, whenever practicable in accordance with NPR 4100.1, any purchase of shelf-life material meets the following age on delivery requirements from the date of manufacture:

Shelf-Life Period	Maximum Age on Delivery
25 months or more	6 months
19 - 24 months	4 months
13 - 18 months	3 months
7 - 12 months	2 months
6 months or less	1 month

APPENDIX A – DEFINITIONS

- A. Critical End-Use Item (CEU) – Any item having an application that is essential to or critical to 1) the preservation of life; 2) essential to the performance of a major flight hardware of ground support equipment; 3) the prevention of facility system/equipment damage that could result in critical or catastrophic (Category I or II) injury/damage, as defined by LPR 1740.4, “Facility System Safety Analysis and Configuration Management”; or 4) the successful and accurate outcome of research results and/or data.
- B. CMTS Inventory Manager – Manages the hazardous material inventory stored or used at the facility in accordance with all applicable health, safety, and environmental regulations found in LPR 8500.1, LPR 1710.12, and LPR 1710.13. Manages the inventory to reduce waste from shelf-life expiration.
- C. Hazardous Material (HAZMAT) – An item of supply consisting of material that because of its quantity; concentration; or physical, chemical, or infectious characteristics, may either cause or significantly contribute to an increase in mortality or an increase in serious, irreversible, or incapacitating reversible illness; or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed
- D. Date Manufactured – The date the item, material, or commodity was fabricated, processed, produced or formed for use. For drugs, chemicals, and biological, the date of manufacture for products submitted to the U.S. Food and Drug Administration (FDA) for certification prior to release is the date of the official certification notice
- E. OUM designee – any individual designated by the Organizational Unit Manager to perform any and/or all of the tasks associated with this LPR.
- F. Service Life – A general term used to quantify the average or standard life expectancy of an item or equipment while in use
- G. Shelf Life (SL) – The maximum period of time (usually expressed as an expiration date) an item may be stored for which it was intended.
- H. Shelf-Life Item – Product for which a storage period and/or storage conditions are assigned to ensure satisfactory performance because of characteristics that may deteriorate or change during storage.
- I. Type I Non-Extendable Shelf-Life Items – Assets that have a finite shelf life expiration date.
- J. Type II Extendable Shelf-Life Items – Assets with an extendable shelf-life after testing has been accomplished to ensure the item is suitable for its intended purpose beyond the original shelf-life date.

APPENDIX B – ACRONYMS

CMTS – Chemical Material Tracking System

FDA – U.S. Food and Drug Administration

LaRC – Langley Research Center

HAZMAT – Hazardous Material

OUM – Organizational Unit Manager

SL – Shelf Life

Appendix C – Shelf-Life Codes

Shelf-Life Period	Type I	Type II	Age on Delivery (Months)
Non-Deteriorative No Shelf-Life Applies	0 (zero)	0 (zero)	N/A
01 Month	A	N/A	1
02 Months	B	N/A	1
03 Months	C	1	1
04 Months	D	N/A	1
05 Months	E	N/A	1
06 Months	F	2	1
09 Months	G	3	2
12 Months (1.00 Year)	H	4	2
15 Months (1.25 Years)	J	N/A	3
18 Months (1.50 Years)	K	5	3
21 Months (1.75 Years)	L	N/A	4
24 Months (2.00 Years)	M	6	4
27 Months (2.25 Years)	N	N/A	6
30 Months (2.50 Years)	P	N/A	6
36 Months (3.00 Years)	Q	7	6
48 Months (4.00 Years)	R	8	6
60 Months (5.00 Years)	S	9	6
72 Months (6.00 Years)	I	N/A	6
84 Months (7.00 Years)	T	N/A	6
96 Months (8.00 Years)	U	N/A	6
120 Months (10 Years)	W	N/A	N/A

Shelf-Life Period	Type I	Type II	Age on Delivery (Months)
180 Months (15 Years)	Y	N/A	N/A
240 Months (20 Years)	Z	N/A	N/A
Shelf-Life Period Greater than 60 Months for Type II Extendible Items	N/A	X	N/A