



LPR 4100.1B

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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.

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. 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.

P.3 AUTHORITY

NPD 4100.1C, "Supply Support and Material Management Policy"

P.4 APPLICABLE DOCUMENTS AND FORMS

- a. NPR 4100.1F, "NASA Supply Support and Material Management"
- b. LPR 1740.4O-1, "Facility System Safety Analysis"
- c. LMS-CP-4113, "Shelf Life Material Stored Within Organizations"
- d. LF 521, "Type II Shelf Life Log"
- e. LF 607, "Critical End-Use Item Usage Log"
- f. LF 608, "Expired Critical End-Use Item Usage Log"
- g. LF 609, "Approval for Usage of Expired CEU Item for CEU Application"
- h. FED-STD-793B "Federal Standard: Depot Storage Standards"

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

LPR 4100.1A, dated March 9, 2020

Original signed on file

David Ledoux

Associate Director

DISTRIBUTION

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

PROCEDURES

1. Responsibilities

1.1. General:

- a. Assign appropriate personnel responsibility to manage shelf-life materials used within organizations.
- b. Ensure personnel understand the requirements for managing shelf-life materials used on Critical End-Use (CEU) items.
- c. Ensure shelf-life materials 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 CEU items.
 - (3) Create an easily identifiable segregated location for CEU shelf life items, Non-CEU shelf life items, and expired shelf life items.
 - (4) CEU shelf life items used in organizations shall be managed in accordance LMS-CP-4113, "Shelf Life Material Stored within Organizations."
 - (5) Store shelf life items in a manner to ensure the oldest stock on hand is easily accessible and issued first, using the first in first out (FIFO) process.
 - (6) Organizations, to which personnel are assigned to manage shelf life items, will ensure those personnel conduct a monthly check to ensure the items are within the usable parameter window.
- d. If an organization finds that shelf life extension information is not available in the Shelf Life Extension System (SLES) for Type II shelf life items:
 - (1) VISUAL INSPECTIONS. All expired shelf-life materiel will require visual inspections:
 - (a.) For Type II items using the criteria in the visual defect characteristics codes listed in FED-STD-793B and SLES. In addition refer to and perform all applicable inspection criteria referenced in the service technical publications sited in the SLES.
 - (b.) Before laboratory testing, machine testing or restorative action. Materiel must pass visual inspection.
 - (2) LABORATORY OR MACHINE TESTING.
 - (a.) When Type II shelf-life items require laboratory or machine testing, material owners will:
 - (1) Initially assess whether prior testing has already been accomplished (SLES).
 - (2) Request for shelf-life extension by submitting the LF521 to the Supply Officer.
 - (3) Determine whether it would be cost-effective to submit a sample for testing by factoring in:
 - a) The quantity and cost of inventory on-hand, item application criticality, approved laboratory availability, testing costs, transportation costs, disposal costs to include hazardous waste when applicable, and availability of resupply.

- b) Consideration of on-hand inventories of the same National Stock Number (NSN) and lot or batch number to the greatest extent possible, e.g. visibility in enterprise inventory data systems.
- c) When these tests are accomplished, test results and extension data are entered into the SLES.

1.2. All Purchasers shall:

- a. Ensure, whenever practicable in accordance with NPR 4100.1F, 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 (commercial).
- b. Ensure, whenever practicable in accordance with NPR 4100.1F, 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) the performance of flight hardware or critical ground support equipment; 3) the prevention of facility system/equipment damage that could result in critical or catastrophic (Category I of II) injury/damage, as defined by LPR 1740.4O-1, “Facility System Safety Analysis.”

B. 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

C. Shelf Life – The maximum period of time (usually expressed as an expiration date) an item may be stored for which it was intended.

D. 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.

E. Type I Non-Extendable Shelf-Life Items – Assets that have a finite shelf life expiration date.
Add definition for Type II

F. 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

CEU- Critical End-Use

FIFO- First In/First Out

LaRC – Langley Research Center

SLES - Shelf Life Extension System

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