



AF-HB-9400-001

Materials, Genealogy and Inventory Handbook

Space / Aviation / Defense

FIRST EDITION

AF 9400 SUPPORTING DOCUMENT

Document identity and use

FIRST EDITION MANUSCRIPT - Prepared for Aerospace Federation review

Field	Controlled identity
Document	AF-HB-9400-001 - Materials, Genealogy and Inventory Handbook
Parent standard	AF 9400 - Aerospace Manufacturing, Materials & Supply Chain
Edition / language	FIRST EDITION / English master text
Family	Manuals
Primary source anchors	9-14, 27, 29, 31-35
Suggested local owner	Materials and inventory owner
Authority	Publisher approval and effective date are not assigned. Local use requires authorized adoption and completed parameters.

Use with the main standard

This document implements the identified AF 9400 clauses and annexes. Read the complete applicable requirements in the main standard. The source anchors are navigation references; a template does not replace technical judgement, evidence, permission or eligible approval.

AF-ML-9400-001 lists the complete supporting set. AF-CM-9400-001 maps the main clauses and annexes to working documents. AF-TP-9400-001 establishes the common local parameter baseline; add the relevant discipline profiles.

Record control

Identify the object, configuration, record owner and dates. Reference attachments by stable identifier and version. Keep superseded evidence and decisions traceable. Use the approved local retention, access and authentication arrangements. No process recipe, numerical limit, interval or acceptance value is assigned by a blank template.

Implementation model: Translate the stated responsibilities and controls into the actual organization. Informative examples remain explanatory; use approved programme-specific values for operational decisions.

1 Establish material and stock identity

The materials authority defines application suitability; the receiving owner accepts the delivered population; the custodian preserves identity and condition; the release owner verifies the output claim. These functions may be assigned within one organization but shall retain distinct evidence and authority.

1.1 Material application dossier

Use AF-PR-9400-008 and AF-FR-9400-008. Define specification, product form, condition, source, processing and intended use. Distinguish typical property values from design values and batch results. Evaluate compatibility, orientation, degradation and manufacturing effects before approving a substitution.

1.2 Receipt and original pedigree

Use AF-PR-9400-007, AF-FR-9400-007 and AF-WI-9400-001. Reconcile the order, manufacturer, heat/batch/serial, quantity, condition and documents. Preserve original packaging and source evidence where relevant. Do not make stock available merely because receiving administration is complete.

2 Design the genealogy model

2.1 Choose meaningful granularity

Select heat, batch, lot, serial or a combined structure based on product consequence, process variation and containment needs. Define what makes a population homogeneous. Avoid creating one acceptance lot from materials with different origins or processing histories merely because they arrived together.

2.2 Record transformations

Use AF-PR-9400-009, AF-FR-9400-009 and AF-WI-9400-002. Every split, merge, blend, machining operation, assembly, sample, scrap or return identifies parents, children, quantities, units, time, location and evidence. Preserve original manufacturer IDs when local IDs are introduced.

2.3 Reconcile without inventing transactions

Separate consumed, recovered, sampled, remaining and documented loss quantities. Investigate unexplained differences against the approved measurement basis. Do not create fictitious scrap or overwrite an origin to balance a ledger. A balanced mass account supports reconciliation but does not establish material authenticity.

3 Preserve condition and remaining life

3.1 Storage and monitoring

Use AF-PR-9400-010, AF-RG-9400-009 and AF-SC-9400-004. Define actual environmental needs, compatible storage locations, packaging and monitoring. Sensor location and alarm response shall represent material exposure. A storage label does not prove that conditions remained acceptable.

3.2 Life clocks and issue

Distinguish shelf life, out-time, pot life, open-container life and service life. Record start events and accumulation rules. Before issue, compare planned use and handling with remaining eligibility. A return to cold storage does not reset cumulative exposure without a specific approved basis.

3.3 Excursion and extension

Contain affected stock when conditions exceed limits or monitoring is missing. Evaluate exposure bounds and material sensitivity. A life extension preserves original dates and requires technical evidence and eligible authority. A supplier message or changed software date alone is insufficient.

4 Control returned, recovered and suspect material

4.1 Returns to stock

Assess actual custody, condition, exposure, packaging, configuration and quantity before a return becomes usable. Separate a warehouse return from a field return with possible prior use or repair. Functional success alone does not establish new condition or absence of latent damage.

4.2 Authenticity concerns

Preserve inconsistent labels, documents and packaging. Restrict the conservatively affected population and refer the issue to the eligible investigator. Avoid unsupported allegations while maintaining effective containment. Genuine origin and technical suitability are separate questions.

4.3 Circular material routes

Use AF-PR-9400-026 and AF-FR-9400-026. Recovered inputs require a defined technical population, contamination/degradation assessment and qualified transformation. Environmental attribute accounting is reviewed separately. Do not describe an allocation as measured physical content or count the same attribute twice.

5 Trace an affected population

5.1 Forward and backward exercises

Use AF-WI-9400-011. Start from an input heat or process interval and locate descendants in stock, WIP, assemblies and shipments. Start from a delivered item and recover relevant parents and operations. Include a split, merge, return and rework where these occur in the real route.

5.2 Missing links and conservative boundaries

Record facts separately from assumptions. Unknown parentage may require broader containment even when the quantity balance closes. Narrow the population only when evidence supports it. Retain the original gap and the reasoning used for any reconstruction.

6 Digital continuity and release interface

6.1 Validate transfers and recovery

Use AF-PR-9400-017 and AF-WI-9400-012. Challenge duplicate IDs, unit conversions, expired stock, quarantined material and missing inspections. After migration or recovery, reconcile genealogy, quantities, configuration and decision states. File readability is only one part of recovery.

6.2 Handover to product release

Provide exact material identities, accepted conditions, process relationships, restrictions and retained records to the release dossier. Record owners approve retention and disposal based on live claims and obligations. The material register is an index to evidence; it is not a substitute for the dossier.

Required evidence: A material can be followed from its original origin through every meaningful transformation to its final use, with quantities, condition, life and restrictions preserved.