metalphoto®

Metalphoto Whitepaper:
NADCAP Exemption Granted By Several Leading Airframe Manufacturers and Their Suppliers

Metalphoto® photosensitive anodized aluminum has been exempted from NADCAP AC7108 (Audit Criteria for Chemical Processing) by several aerospace Primes and Suppliers including Cessna, Hamilton Sundstrand and Lockheed Martin. This whitepaper explains why Metalphoto has been exempted; and why it is important for others to exempt Metalphoto from NADCAP.

The establishment of the National Aerospace & Defense Contractors Accreditation Program (NADCAP) in 1990 was a major step forward for cost and quality control in aerospace manufacturing. Since its inception, however, many material suppliers have received exemption from the NADCAP standards. Metalphoto has been exempted from NADCAP by Cessna, Hamilton Sundstrand, Lockheed Martin and several others. This white paper explains why Metalphoto has been exempted; and why it is important for others to exempt Metalphoto from NADCAP.

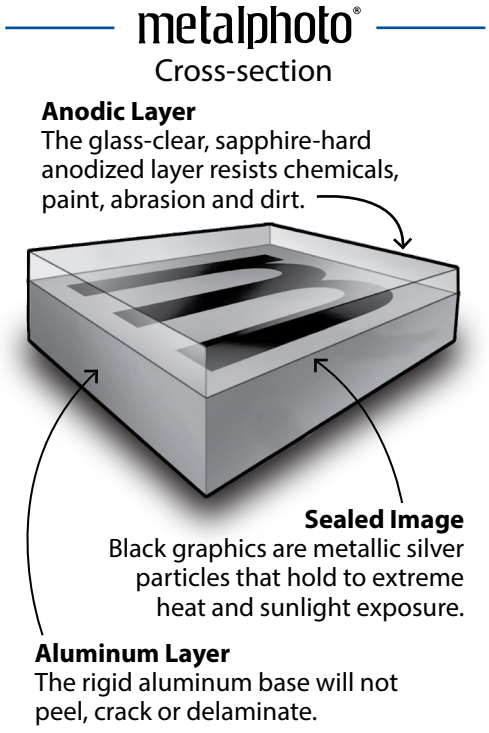
Background: What is Metalphoto and Why the Aerospace Industry Uses It?

Metalphoto, known generically as photosensitive anodized aluminum, is a durable and lightweight material used to make labels, nameplates and other permanent graphics on aircraft.

Metalphoto was introduced in 1954 to solve the problems of corrosion and fading of nameplates and labels for the US Navy. It has since become the standard for aircraft labels and nameplates on hydraulic lines, electrical panels, landing gear, galley equipment, and components that require durable, fuel & fluids resistant, light-weight identification.

Metalphoto's durability comes from its photographic image which is sealed inside an anodized aluminum substrate, providing resistance to abrasion, cleaners, lubricants, and fuels, salt spray, temperature extremes, and UV-degradation.

The Metalphoto process is unique and does not involve the manufacture of parts that could affect the structural integrity of aircraft. Metalphoto is used exclusively for labels, data plates and other metal graphics on the aircraft.



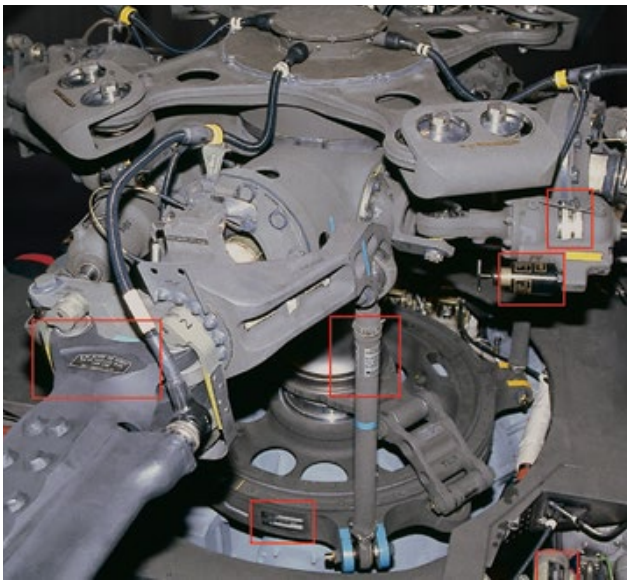
NADCAP EXEMPTION REASON #1: Metalphoto Anodizing Is Not Standard Anodizing Described in NADCAP

Although anodizing is a part of the Metalphoto process, the Metalphoto anodizing process differs from standard contract anodizing used for structural aircraft components; it is designed specifically for Metalphoto and is only one part of the manufacturing process.

Metalphoto does meet the performance requirements for type II anodic coatings under MIL-A-8625. However, an amendment to that specification was added in September 2003 to describe Metalphoto as distinct from other anodized materials:

> *"3.4.2.2 Photosensitized (identification) nameplates. When type II anodic coatings are specified for use in photosensitized nameplates, oxalic acid anodizing may be used in lieu of sulfuric acid anodizing. If oxalic acid anodizing is used, the resultant coating shall meet the requirements of this specification for type II anodic coatings. If copy and background color are added to photosensitive nameplates, silver compounds or dyes shall be used."*

NADCAP AC7108 describes standard contract anodizing used for structural aircraft components. Specialized anodizing is a small part of the manufacturing process developed for Metalphoto. Requiring Metalphoto anodizing to fit NADCAP AC7108 would render Metalphoto products defective, causing failure and resultant operator errors and potential safety hazards.



NADCAP EXEMPTION REASON #2: Metalphoto's Certifications Improperly Trigger NADCAP

Because of its durability and history of performance, Metalphoto has been certified to many military, commercial and government specifications, including MIL-A-8625, which covers anodizing processes. Metalphoto's certification to MIL-A-8625 often triggers engineers to seek compliance with NADCAP AC7108. As described above, Metalphoto meets the performance requirements for type II anodic coatings in MIL-A-8625, but is not typical of MIL-A-8625 anodizing, hence Amendment 1 above.

In addition to MIL-A-8625, Metalphoto has been certified Federal Specification GG-P-455b, MIL-DTL-15024, MIL-P-19834b, MIL-A-A-50271, MIL-STD-130N, Lockheed Martin LMA-PN010, BF Goodrich Aerospace Specification SMT0022, NASA Space Station Inventory Label Specification SSP 50007, Honeywell, Inc., Satellite Systems Operations A3-J024-M-9501786 Laboratory Case 161311 and many others (see www.metalphoto.com for a list).

NADCAP EXEMPTION REASON #3: Metalphoto Has Already Been Exempted From NADCAP by Several Primes.

Metalphoto has been exempted from NADCAP by Cessna, Hamilton Sundstrand, Lockheed Martin and several others. The appendix contains a draft exemption letter as a model.

NADCAP EXEMPTION REASON #4: Metalphoto Usage is Ubiquitous in Aerospace

Since its introduction in 1954, Metalphoto has become one of the most specified label and nameplate materials in aerospace. Several major aerospace primes, including Lockheed Martin, BF Goodrich, Honeywell, Northrop Grumman, Huntington Ingalls, Sikorski, General Dynamics, call out Metalphoto photosensitive anodized aluminum on their drawings.

Sub-primes who supply photosensitive anodized aluminum namplates face a dilemma. They can either seek a NADCAP exemption or replace Metalphoto with an inferior product that lacks the performance characteristics inherent in Metalphoto. Exempting Metalphoto from NADCAP will reduce confusion and insure that sub-primes get the quality items they require in a reasonable time frame.

Conclusion

Metalphoto photosensitive anodized aluminum should be exempted from NADCAP AC7108 (Audit Criteria for Chemical Processing). Primes and suppliers who have not taken this action are encouraged to promulgate letters of exemption to affected departments and to organizations in their supply chain. The appendix contains a draft exemption letter as a model.

About Metalphoto:

For over 50 years, industrial and military engineers have specified Metalphoto® photosensitive anodized aluminum in applications where permanent product identification is critical. Metalphoto's durability comes from its photographic image which is sealed inside of the anodized aluminum, providing resistance to corrosion, sunlight degradation, abrasion, extreme temperatures and chemical exposure.

Available from 0.003" to 0.125" thick, Metalphoto can be used for a wide variety of applications where permanent identification is critical including barcode labels, nameplates/rating plates, maintenance schematics, machine control panels and signage. Metalphoto can be imaged at your location where and when needed or purchased from global network of approved processors. For more information, visit www.metalphoto.com.

Metalphoto is produced by Horizons Imaging Systems Group, an internationally recognized manufacturer of printable aluminum technologies. Employing a range of processes, the company's state-of-the-art manufacturing lines are located in Cleveland, Ohio, USA.

About NADCAP:

NADCAP, short for National Aerospace & Defense Contractors Accreditation Program, was initially conceived by the Department of Defense as a means to control cost and ensure consistent aerospace product and process quality. NADCAP is an industry-managed approach to conformity assessment that brings together technical experts from both Industry and Government to establish requirements for accreditation, accredit Suppliers and define operational program requirements. This results in a standardized approach to quality assurance and a reduction in redundant auditing throughout the aerospace industry. Although NADCAP is governed by a broad group of Prime contractors, Suppliers and Government representatives, it is administered by the Performance Review Institute.

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Companies that have exempted Metalphoto photosensitive anodized aluminum from NADCAP AC7108:

Cessna
A Textron Company

Hamilton Sundstrand
A United Technologies Company

SAFRAN
AEROSPACE · DEFENCE · SECURITY

LOCKHEED MARTIN

Raytheon

Sample Exemption Letter

Hamilton Sundstrand
One Hamilton Road
Windsor Locks, CT 06096-1010
(860) 654-6000

Hamilton Sundstrand
A United Technologies Company

March 3, 2010

Horizons Incorporated
18531 South Miles Road
Cleveland, OH 44128

Attention: Robbie Pellon – Quality Manager

Subject: **Hamilton Sundstrand (HS) Approved Special Process Supplier – Vendor Code 8886217**

Dear Supplier:

Hamilton Sundstrand, a division of United Technologies Corporation (UTC), is pleased to inform you that your facility has recently been granted authorization to perform certain manufacturing special processes in accordance with applicable process specifications.

Horizons Incorporated is now approved for the following process specifications:

- MIL-A-8625 TY2 CL1 (Oxalic Acid Anodize – Photosensitized Name Plates)
- MIL-A-8625 TY2 CL2 (Oxalic Acid Anodize – Photosensitized Name Plates)

Please be aware that Hamilton Sundstrand continues to recognize the benefit and value of Nadcap, the aerospace industry managed accreditation program. Evidence of your current Nadcap certificate for applicable processes allows Hamilton Sundstrand to grant approval without the need for continuous onsite surveys. In addition, please note your approval will expire on **February 16, 2014**. Prior to the expiration date, Hamilton Sundstrand will conduct and onsite audit and/or a Nadcap review for applicable special processes being performed by your facility.

As such, we rely heavily on the integrity with which your system is implemented. Your effort and responsiveness to the importance of providing goods or services on schedule, at a competitive price, and compliant to our quality requirements are essential to the maintenance of your accreditation status and our combined competitive position.

Our sincere congratulations are extended to you and your personnel and our expectations are for your continued success.

Very Truly Yours,

Chris Reilly
Supplier Quality Development - Special Processes
Hamilton Sundstrand
United Technologies Corporation