Nameplate & Panel
TECHNOLOGY
A division of Photo Techniques

# Metalphoto® vs Etched Aluminum

## White Paper 2.1

Nameplate & Panel Technology

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# Metalphoto® vs Etched Aluminum

When choosing between Metalphoto® and etched aluminum, it's important to consider durability, image quality, customization options, and cost-effectiveness. While both processes use aluminum as the base material, Metalphoto provides significant advantages over chemical etching that make it the preferred choice for long-lasting, high-resolution, and cost-effective identification solutions.

## Superior in Durability, Image Quality, Customization, & Faster Production

Metalphoto's durability comes from its photographic image that is sealed inside anodized aluminum, offering the uncommon combination of high durability, image resolution and variable information capability. Metalphoto parts remain readable for more than 20 years, even after prolonged exposure to cleaners, salt spray, fuels, heat, humidity, sunlight and abrasion. The National Association of Graphic and Product Identification Manufacturers (GPI) Industry Standards and Practices Manual identifies Metalphoto photosensitive anodized aluminum as the most durable printed aluminum substrate available, citing its applicability for extreme environmental conditions and outdoor exposure.

## Advantages of Metalphoto® over Etched Aluminum

### Superior Durability & Longevity

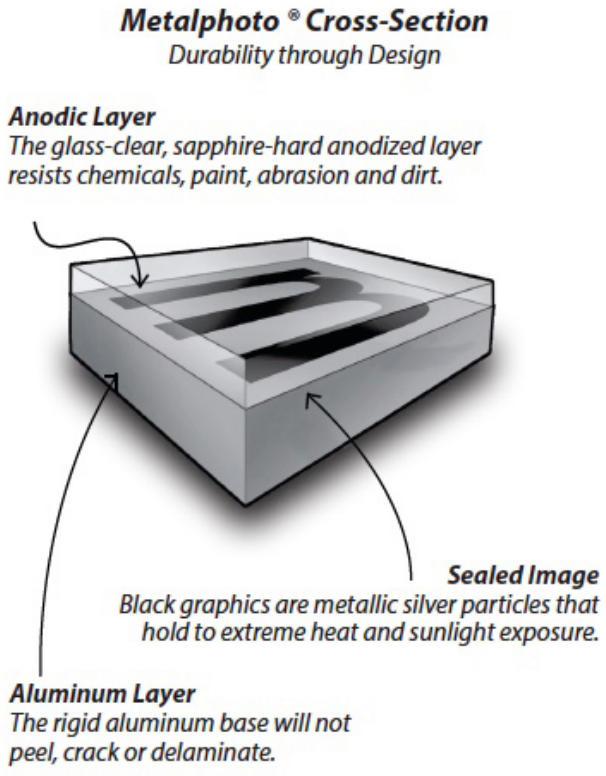
- Metalphoto images are sealed within the anodized aluminum, making them resistant to UV exposure, chemicals, abrasion, and extreme temperatures.
- Etched aluminum exposes bare metal, which can oxidize over time and requires additional coatings for protection.

### High-Resolution, Permanent Graphics

- Metalphoto offers ultra-high-resolution imaging, allowing fine details such as barcodes, QR codes, serial numbers, and small text.
- Etched aluminum is limited to simple text and basic graphics since the process removes material rather than embedding an image.

### Customized & Variable Data

- Metalphoto allows for unlimited design flexibility, including variable data such as unique serial numbers and barcodes.
- Etched aluminum requires a separate chemical process for each variation, making it impractical for highly customized or serialized parts.



## Faster Production & Lower Costs for Complex Designs

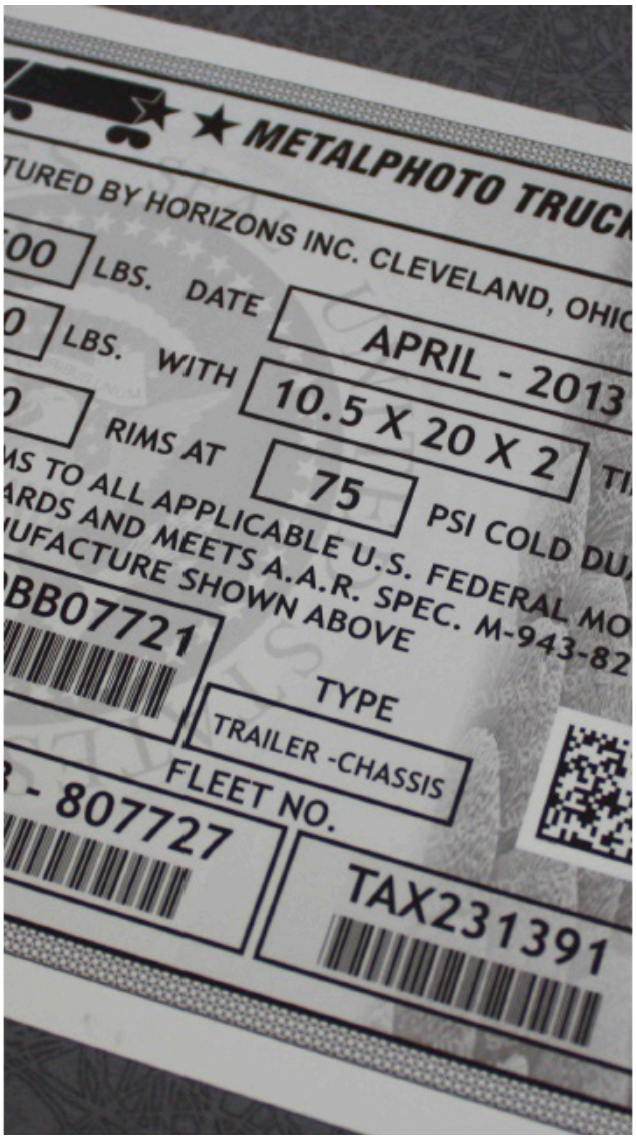
- Metalphoto is a single-step imaging process, which speeds up production and reduces labor costs.
- Etched aluminum requires multiple steps (masking, etching, cleaning, finishing), increasing lead time and cost.

## No Hazardous Chemicals or Environmental Concers

- Metalphoto uses a clean, non-toxic imaging process that does not involve hazardous chemicals.
- Etched aluminum requires strong acids, which pose environmental and workplace safety concerns.

## Proven in Aerospace, Military & Industrial Applications

- Metalphoto is specified by the U.S. Department of Defense **(MIL-DTL-15024F, MIL-STD-130N, and MIL-DTL-19834C)** and is widely used in aerospace, medical, and industrial applications..
- Etched aluminum lacks the same level of military and aerospace standardization due to its lower durability and limited imaging capabilities.and cost.



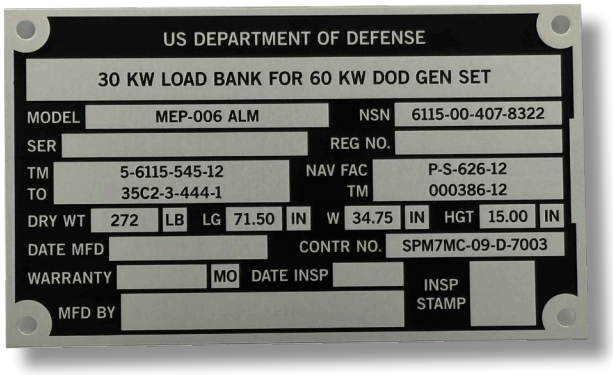

## Disadvantages of Etched Aluminum vs. Metalphoto®

| Features | Metalphoto | Etched Aluminum |
|---|---|---|
| **Durability** | Lifetime performance in harsh conditions | May require protective coatings to prevent oxidation |
| **Image Quality** | Photographic resolution (up to 2400 dpi) | Low-resolution, simple designs only |
| **Customization** | Unlimited variable data and designs | Limited to fixe designs per batch |
| **Production Speed** | Fast, one-step imaging | Multi-step, labor intensive process |
| **Environmental Impact** | Non-toxic process | Uses hazardous etching chemicals |
| **Cost Efficiency** | Lower cost for complex designs and high-volume production | Higher costs due to additonal processing and labor |
| **Government & Military Approval** | Meets MIL-STD-130 & MIL-DTL-15024F | Not widely specified for military applications |

## Conclusions

If you are looking for the most durable, high-resolution, cost-effective, and environmentally friendly solution, Metalphoto is the clear choice over etched aluminum. Whether you need asset tags, data plates, nameplates, or control panels, Metalphoto provides unmatched longevity, superior imaging, and greater customization capabilities.

Nameplate & Panel Technology has been providing high-quality, custom solutions, on-time, and at reasonable prices since 1956. Experience our award-winning expertise and USA-made capabilities in the creation of your next custom aluminum solution in Metalphoto!



LBS. DATE
APRIL - 2013
LBS. WITH
10.5 X 20 X 2
RIMS AT
75
PSI COLD DU
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TYPE
TRAILER -CHASSIS
FLEET NO.
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