metalphoto®

metalphoto® CERTIFIED CONVERTER 2017-2018

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## Metalphoto® Case Study

# Transportation Asset Identification

A leading manufacturer of tractor trailers and shipping containers found that nameplates made of Metalphoto® photosensitive anodized aluminum have greater durabiltiy and legibility than etched stainless steel at a fraction of the price.

**Problem: Difficult to Read Data Plates**

Many truck trailer and container manufacturers historically used etched and filled stainless steel for CSC Safety Approval Plates and VIN Data Plates. However, after years of abuse from road salt, impact abrasion and sunlight exposure, the etched plates can be difficult to read. Illegible nameplates can lead to replacement costs, inability to track trailer location and maintenance, safety hazards and, in some cases, regulatory fines.

Also, because etched plates are stamped with human-readable numbers, they can lead to human error and added labor cost. After a series of failures from damaged or illegible plates, a leading transportation equipment OEM needed a VIN Data Plate solution that would both last the life of the trailer and support machine readable bar codes.

**Solution: Metalphoto®**

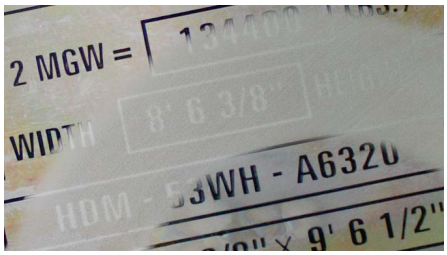
Metalphoto® photosensitive anodized aluminum was identified as a solution. Metalphoto incorporates variable data barcode labels into VIN Data Plates while providing better image durability and lower cost than etched steel. Metalphoto has five key advantages over etched stainless steel:

**1) Durability:** Metalphoto remains readable after prolonged exposure to salt water, synthetic road salts, sunlight/weather and impact abrasion.

**Causes of VIN Plate readability failure.**

Weather/Sunlight Degradation and Fading

Road Salt Corrosion Damage




Abrasion Damage

**2) Legibility:** Metalphoto graphics are cleaner and of higher resolution than etched stainless steel. That makes for great looking VIN plates, but more importantly, it allows one to effectively incorporate the use of machine readable bar codes for asset tracking.

**3) Affordability:** Metalphoto parts typically cost 10-20% less than etched and filled stainless steel.

**4) Availability:** Metalphoto is available from The Print Source, Inc., centrally located in Wichita, Kansas.

**5) Sustainability:** Metalphoto is an environmentally sustainable process that has minimal environmental impact.

## Metalphoto Durability

Trailers, chassis and converter dollies and shipping containers are subject to prolonged exposure to extreme elements. Degradation from road salt, ocean spray, abrasion, sunlight and weather threatens the readability of CSC Safety Approval Plates and VIN Data Plates. Metalphoto photosensitive anodized aluminum is a unique imaging technology that stands up to harsh operating conditions. The UV-stable, inorganic Metalphoto image is permanently sealed inside of anodized aluminum, for unparalleled durability and image resolution. Since 1958, Metalphoto has been specified for applications where durability is critical.

| Metalphoto Application | Environmental Conditions | In Use Since |
|---|---|---|
| Aircraft Landing Gear Labels | • Extreme temperature cycling<br>• Hydraulic & brake fluid exposure<br>• Sunlight & humidity exposure | 1988 to present |
| International Space Station Labels | • Extreme temperature cycling<br>• Sunlight UV radiation exposure | 2000 to present |
| Off-Shore Crane Nameplates, Labels and Operator Control Panels | • Sustained sunlight/weather exposure<br>• Impact abrasion<br>• Salt-spray corrosion<br>• Hydraulic fluid exposure | 1987 to present |
| Bradley Fighting Vehicle & Abrams Tank | • Sustained sunlight/weather exposure<br>• Sand & impact abrasion<br>• Extreme temperature cycling | 1995 to present |
| USS Ronald Reagan Nimitz-Class Nuclear-Powered Aircraft Carrier Shipboard Labels | • Sustained sunlight/weather exposure<br>• Salt-spray corrosion<br>• Impact abrasion | 1998 to present |

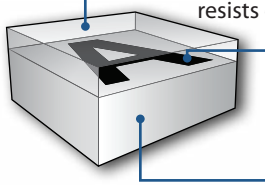
## Metalphoto Legibility

As a photographic medium, Metalphoto affords ultra-high image resolution and contrast – ideal for bar code labels. Machine readable bar code labels reduce human error and labor cost.

Reducing errors and saving time is especially critical in the transportation industry where equipment must be where it needs to be, when it needs to be there and in working order. Etch and filled stainless steel is simply unable to hold consistently readable linear and data matrix bar

code symbols. For this transportation OEM, Metalphoto's ability to hold durable bar code labels was a key advantage.

### Metalphoto Technology



**Anodized Layer**
The glass-clear, sapphire-hard anodized layer resists chemicals, paint, abrasion and dirt.

**Sealed Image**
The black graphics are metallic silver particles that hold up to extreme heat and sunlight.

**Aluminum Layer**
The rigid aluminum base won't peel, crack or delaminate.

## Metalphoto Affordability

In addition to the ability to incorporate long-lasting and durable bar codes, the high cost of stainless steel was of concern. Metalphoto nameplates can cost up to 30% less than etched and filled stainless steel due to material cost and processing labor costs.

- **Material Costs:** an equivalently sized Metalphoto nameplate (same gauge, same area) is typically 10-20% less than a similar product made of stainless steel due to the lower cost and weight of aluminum (aluminum = 2.70 g/cm$^3$ vs. steel = 7.85 g/cm$^3$).
- **Labor Processing Costs:** imaging and fabricating Metalphoto is a less labor intensive process than etched and filled stainless steel. Etching steel requires four steps (coat, expose, acid etch, ink fill) where as Metalphoto only requires three quick (expose, develop, seal). Moreover, steel's hardness adds complexity to fabrication.

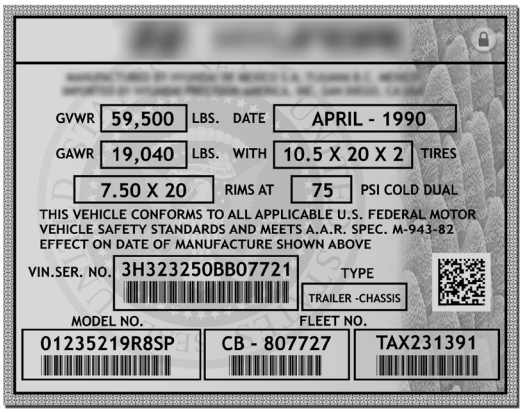
## Metalphoto Sustainability

The Metalphoto Processing System is designed for reduced environmental impact. Processing solutions use low VOCs and all waste streams are neutralized or collected during the production process. Additionally, Metalphoto is designed for permanency – it will not need to be replaced. If replacement is desired, Metalphoto is easily recycled.

## Conclusion

Leading OEMs trust Metalphoto because of its superior durability, ability to hold variable information bar codes and affordable price. However, others are beginning to take notice of Metalphoto's versatile characteristics. Beyond durability, the Metalphoto material enables several value-added options that remove human error and protect assets from counterfeiting and destruction:

- **Anti-counterfeit:** because Metalphoto is a photographic technology, it affords covert and overt anti-counterfeit measures that make it a trusted deterrent for highly counterfeited products.




- **SandShield™:** for extreme durability in caustic or ultra-abrasive environments, Metalphoto's SandShield over-laminate adds extra protection.

The Print Source, Inc.
Roll Labels, Decals, Business Printing, Large Format Printing & so much more ...
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