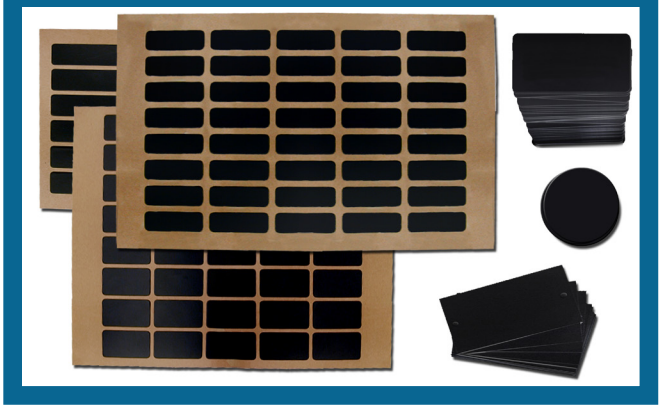
CAMCODE®
Durable Bar Code Solutions

www.camcode.com

Product: DuraBlack® Laser Markable Aluminum for CO_2 Lasers



Product Features

- Easy to mark with any CO_2 laser
- Very high contrast mark on black background
- Fade resistant black colorant
- Abrasion resistant top coat
- Chemical resistant

The new standard in durable on-demand marking!

Description

DuraBlack laser markable aluminum comes ready to mark, already laminated with industrial strength adhesive. DuraBlack is the easiest product choice you will ever make because it was designed for CO_2 lasers and outdoor performance. That combination of features has never been available in a laser markable aluminum product before. Because of its ability to perform across a range of challenging environments, DuraBlack meets an array of government, industrial and military specifications, including **MIL-STD-130**.

Protect your investment in Unique Identification (UID) or asset marking with a label that will last. Use DuraBlack for consistent results and lifetime performance. *Make labels when and where you want them.*

Please note it is normal for DuraBlack material to have a blotchy appearance when removed from the pouch. After lasing the product, clean DuraBlack with soapy water to eliminate the blotchy appearance.

Product Specifications

Material	.005" or .020" aluminum
Adhesive	.005" thick acrylic, performance to -40°F and +450°F
Mark Contrast	Very High "A" rating

Sizes

.005" Thick Labels	
.5" x 1.0" R.125"	1.0" x 1.825" R.125"
.5" x 1.50" R.125"	1.0" x 2.75" R.125"
.6" diameter round	1.5" x 2.25" R.125"
.69" x 2.0" R.125"	1.5" x 2.5" R.125"
.69" x 3.5" R.125"	1.625" x 1.813" R.125"
1.0" x 1.75" R.125"	2.0" x 3.0" R.125"

.020" Thick Labels
.75" x 1.50" R.125"
.75" x 2.00" R.156"
.968" x 2.50" R.063"
.968" x 2.50" R.063"
1.375" x 2.75" R.188"
1.625" x 3.0" R.125"

Many additional sizes available.

Many adhesives available, including those for CARC (Chemical Agent Resistant Coatings).

DuraBlack Labels

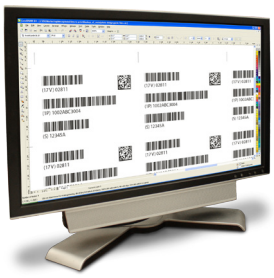
DuraBlack Application Characteristics		
Application Condition	***Test Condition***	***Result***
Weather/UV Resistance	As per DIN 53387, exposure to accelerated UV/weather cycle with Q-Sun XE-3/HS	**2,500 hours: PASS***
Abrasion Resistance	Taber Abraser, CS17 with 1Kg wheel load	**4,000 cycles: PASS**
Temperature Resistance	Exposure to heat from 300°F to 700°F in one hour increments for each 50°F increase	**700°F: PASS***
Salt Spray	As per ASTM B117, salt fog exposure: evaluation at 14 and 30 days	**30 days: PASS**
Fluid Resistance • Fuels: Jet, Diesel, Automobile • Hydraulic Oils: Mineral Oil, Phosphate Ester, Silicone • Lubricating Oils: Motor Oil, Ester (synthetic), Preservative • Cleaning Fluids: Isopropanol, Ethanol (denatured), d-Limonene, Stoddard Solvent, Aircraft Cleaner • Automotive Fluids: Deicing Fluid, Brake Fluid, Automatic Transmission Fluid, Deionized Water, 5% Salt Solution, Auto Anti-freeze • Lab Chemicals & Solvents: Methyl Ethyl Ketone, Ethyl Acetate, Glycol Ether PM, Xylene, 10% Ammonium Hydroxide, Greased Lightning	As per MIL-STD-810G, submersion in industrial and laboratory fluids at normal operating temperature; evaluated every 24 hours	**96 hours: PASS ALL FLUIDS**
• 10% Sulfuric Acid		Survived to 48 hours
Independent Laboratory Certifications	***Source***	
• A-A-50271, Composition A, Class 2	Detroit Testing Laboratory	
• MIL-STD-15024F, Type L (laser generated plate)	According to Type L, testing "shall be determined by the acquiring activity and the supplier". Horizons ISG recommends the standards of A-A-50271 be adopted for MIL-STD-15024F, Type L.	

* test ongoing

Note: Users must test products in the specific environment anticipated. Camcode does not warrant performance of its materials in any environment.

Test conducted in accordance with DoD Item Unique Identification (IUID) MIL-STD-130. Fluids tested include all MIL-STD-810G chemicals and several others (see footnotes for a full list). Outcomes were measured with a Siemens/Microscan verifier on 15mil 2D barcodes. A drop of more than two letter grades (typically below a "C" grade) indicates failure – in accordance with AIM DPM-1-2006 and MIL-STD-130N.

DuraBlack Process



1. Design your label graphic.

2. Load and mark material.

3. Mount your parts.

For free samples or to order: contact Camcode at 800-627-3917 or customer_service@camcode.com

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