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DURABLACK®

LASER MARKABLE ALUMINUM



CO₂ LASERABLE PRODUCT FOR EXTREME OUTDOOR CONDITIONS

At **Horizons Imaging Systems Group (ISG)**, there's a rich history of innovation, stretching back to the development of their photosensitive anodized aluminum product, **Metalphoto®**, in the years just after World War II. The Cleveland, Ohio-based company continues this tradition with **DuraBlack®**, the most recent addition to their identification product line. Sam Wainer, product manager for new product development, provided *MIM* with more details regarding **DuraBlack's capabilities in tough environments**.

manufacturer of unique, high-value aluminum-based identification products. Our products are known for quality, durability and ease of use. With approximately 140 employees and our corporate offices in Cleveland, Ohio, we manufacture and market six core technologies: Metalphoto® photosensitive anodized aluminum, AlumaMark® laser markable aluminum, DuraBlack® laser markable aluminum, AlumaJet® inkjet printable aluminum, DuraJet® sub-surface inkjet printable aluminum and ID-Mark® light sensitive aluminum and polyester.

CAN YOU PROVIDE SOME BACKGROUND ABOUT HORIZONS IMAGING SYSTEMS GROUP (ISG)?

Founded in 1946, Horizons Imaging Systems Group (ISG) is a developer and

WHAT IS DURABLACK AND HOW IS IT MADE? WHAT MAKES IT UNIQUE?

DuraBlack is the *only* laser markable metal certified for outdoor usage that



does not require a chemical pretreatment or protective topcoat. Engineered for application in outdoor, marine, abrasive, chemical and high-temperature operating environments, DuraBlack is composed of a multi-level coating upon an anodized aluminum base layer. Its integrated abrasion-resistant coating reduces the need to apply a secondary protective topcoat. Available in both 0.005-inch and 0.020-inch thicknesses, it can be attached to either curved or flat surfaces with adhesive, rivets or screws. DuraBlack is marked with any CO₂ laser to produce a durable, high-resolution barcode or human-readable image.

WHAT TYPES OF PRODUCTS CAN BE CREATED WITH IT?

It can be used to create outdoor signage and wayfinding signage; outdoor plaques/memorials; military and industrial asset tags and barcode labels; and industrial nameplates/schematics.

WHAT SHORTCOMING IN THE MARKET WERE YOU TRYING TO ADDRESS WITH THIS PRODUCT?

Several years ago, our sales team began to hear reports of laser marked black anodized aluminum fading outdoors. Field experience and laboratory tests confirmed that black anodized aluminum will fade outdoors, leading to label failure. In response to such reported failures, our R&D department sought to develop an outdoor durable product that could be marked with any CO₂ laser. DuraBlack was the result of that work.

HOW DID HORIZONS ISG TEST THE DURABILITY OF THIS PRODUCT?

We did both internal testing and hired an independent laboratory (Detroit Testing Laboratory) to evaluate the material in terms of UV/sunlight, abrasion, heat, salt-spray and chemical resistance. The result of those tests was certifications to several key military specifications, including: MIL-STD-130, A-A-50271 and MIL-DTL-15024F.



Identification sign.



Directory sign.

HOW DID DURABLACK PERFORM?

It exceeded expectations. In terms of outdoor exposure, DuraBlack endured 5,000 hours—an estimated eight to 10 years—of accelerated ultraviolet light and weather conditions in a Q-Sun UV chamber. As far as abrasive environments, it resisted 4,000 cycles on a Taber Abraser with a 1kg wheel load.

When tested in high temperature settings in an air oven, DuraBlack remained readable after one hour at 700 degrees. To simulate the conditions in marine environments, such as those found on commercial or military ships or on shipping containers, DuraBlack was placed in a salt spray corrosion chamber. It resisted 30 days of salt fog exposure per ASTM standards.

Finally, to gauge its performance in corrosive/chemical environments, it was submerged in industrial fluids per military requirements (MIL-STD-810G). DuraBlack withstood 96 hours of this harsh exposure and remained readable.

If you'd like to see the DuraBlack test results in greater detail, I would encourage you to visit our website, www.horizonsisg.com/durablack.html.

WHAT HAS BEEN THE FEEDBACK SO FAR FROM CUSTOMERS?

DuraBlack has been out for about 12 months. In that time, sales have reached over \$100,000—a pretty good start. Customers love the product, both its

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Specialty Ink Company, Inc.
20 Dunton Avenue, Deer Park
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Tel: +1 631 586 3666
Fax: +1 631 586 3874
sales@specialtyink.com
www.stampadinks.com

DuraBlack: CO₂ LASERABLE PRODUCT FOR EXTREME OUTDOOR CONDITIONS

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durability and the crisp, high-detail images that it engraves.

Two noteworthy applications come to mind: one is from a sign shop in Omaha, Nebraska. They used DuraBlack to make over 1,600 donor recognition plaques at a new baseball park. Another is a manufacturer of mobile military shelters and HVAC equipment. They use DuraBlack for nameplates and IUID labels on the equipment they manufacture. In both cases, durability was an issue, but so was availability. They needed labels or plates on-site, on-demand, so DuraBlack was a good choice.

HOW CAN THIS PRODUCT BENEFIT A BUSINESS INVOLVED IN LASER MARKING? WHAT MARKETS COULD IT OPEN UP FOR THEM?

Because Horizons ISG has gone to great lengths to get the product military certified, it opens up a lot of military and industrial business that is high value, repeat business for the laser marking/engraving shop. That is probably the most lucrative space that DuraBlack opens up, but it is also great for traditional outdoor signage or even utility signage.

HOW WOULD A USER PROCESS THE MATERIAL ON SITE?

It can be processed with any CO₂ marking laser. We recommend several brands: Epilog Laser, Trotec Laser, Universal Laser Systems and GCC.

YOU MENTIONED THAT IT'S AVAILABLE IN THICKNESSES OF 0.005 INCH AND 0.020 INCH. WHAT SIZES ARE AVAILABLE?

Sizes include 10 inches x 12 inches; 12 inches x 20 inches; and 20 inches x 24 inches. All sizes are available with or without 3M 350 high-performance adhesive.

**HORIZONS IMAGING SYSTEMS GROUP (ISG)
18531 S. MILES RD. • CLEVELAND, OH 44128
800/482-7758 • E-MAIL: INFO@HORIZONSISG.COM
WEB: WWW.HORIZONSISG.COM**



Seat plaque.