IBC Engineered Materials

An Advanced Materials Company Providing Application Specific Material Solutions for its Customers.

IBC Engineered Materials produces a family of beryllium aluminum alloys that overcomes the limitations of pure beryllium and existing powder metal beryllium aluminum products, while retaining the benefits of the two metals.

The family of alloys, marketed as **Beralcast®**, combine beryllium's lightweight and high stiffness with aluminum's excellent processing characteristics and low cost. Beralcast® is made using a process similar to conventional vacuum investment casting and can be cast into complex shapes that require minimal machining. This metal matrix composite material has been effectively used for such products as optical and mechanical components for guidance, control, targeting and stabilizing applications and satellite structures for aerospace and defense purposes.

Other Beralcast® applications include mechanical table components and optical sensors for the semiconductor industry and mainstream commercial applications such as bicycle rims and golf shafts.

Beralcast® alloys can be used in military applications requiring complex, lightweight, high-stiffness parts. In general, it serves as a higher performance, lower cost replacement material for cast aluminum, magnesium, titanium, other metal matrix composites, nonmetallic composites, and pure beryllium or powder metallurgy beryllium aluminum.

Beralcast® alloys are an attractive, lower cost alternative for lightweight, high-stiffness applications because they combine the high modulus of elasticity and low-density characteristics of beryllium with the excellent processing characteristics and lower cost of aluminum.

Utilizing the synergistic properties of the two primary components, beryllium and aluminum, Beralcast® materials offer a unique combination of improvements in properties when compared to aluminum A356 castings such as:

- **22% lower density**
- **300% increase in modulus of elasticity**
- **35% lower thermal expansion**

IBC Advanced Alloys Corp.

The low coefficient of thermal expansion also makes Beralcast® better suited to mate with steel and germanium than aluminum. The unique combination of properties present in Beralcast® can result in as much as a 30 to 50 percent savings in weight over aluminum based upon the straight density advantages and stiffness driven design benefits (i.e. reducing the required casting thickness). Currently, Beralcast® can be precision cast, depending on the part configuration, to wall thickness of less than 2 mm and more than 20 mm. The maximum casting size is approximately 0.75 meters wide by 0.85 meters deep and 1.2 meters high.

Success Stories:

The Beralcast® family of alloys has a proven track record over a 15-year period of use in the aerospace and defense sectors for companies such as;

- Northrup Grumman (SBIRS High Program)
- Raytheon
- Lockheed Martin
- Boeing
- NASA
- Goodrich Aerospace
- L-3 Communications
- European Space Agency

Additionally, a material characterization development effort with Lockheed Martin for electro-optical components for the Comanche helicopter, with costs in excess of $20 million, produced technical data that allowed Beralcast® to be included in the Mil-5 Handbook. Beralcast® also can be found in the SAE Aerospace Materials Specifications as AMS-7918. Over 400 types of different components have been produced by investment casting Beralcast®. Most recently, the Company has produced over 500 ATFLIR targeting systems for the Naval Air Systems Command that is being flown on the U.S. Navy's F/A-18 fighter jet.

About IBC Advanced Alloys

IBC is an integrated manufacturer and distributor of rare metals (beryllium) based alloys and related products serving a variety of sectors including aerospace, automotive, telecommunications and a range of industrial applications. IBC has 86 employees and production facilities in Indiana, Massachusetts, Pennsylvania and Missouri. IBC is creating a dynamic global advanced alloys company. IBC's common shares are traded on the TSX Venture Exchange under the symbol "IB" and the OTCQX under the symbol "IAALF".

TSX-V:IB / OTCQX:IAALF
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