

BERYLLIUM

ASETSDefense 2009

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Agenda

- Beryllium Overview (Hawkins)
- Health and Safety Update (Bishop)
- Manufacturing Perspective (Fetter)
- Depot Repair Perspective (Luker)
- CuBe Bushing Replacement (Fetter)
- Light Weight Composite Alt. to AlBe (Baker)

Beryllium - Why So Popular?

Attractive Properties

- High Strength-to-Weight Ratio
 - Light but Strong
 - Seven Times the Stiffness of Steel
- Electrically Conductive
- Thermally Conductive
- Transparent to X-Rays
- Non-Magnetic

Beryllium's Various Forms

- Beryllium Metal
- Aluminum Beryllium
- Copper Beryllium
- Nickel Beryllium
- Beryllium Oxide
- Others

DoD Beryllium Applications

- Bushings
- Electro-Optical Sensing Systems
- Electrical Connectors
- Structural Components
 - Wing Leading Edge
 - Rudders
 - Cockpit Consoles
 - Weapon Bay Spoiler Arms

DoE Applications

- Heat Shields
- Nuclear Reactor Parts
- Neutron Windows (Control of Nuclear Rxn)
 - Beryllium is Very Important to DoE

“Unfortunately, due to disease incidence among its employees and contractors, DoE has become the best source of beryllium data related to human exposure outcomes and statistical analysis.” (Viet, et al 245; Barnard, et al 804)