

Beryllium

- stronger
- lighter
- faster
- reliable

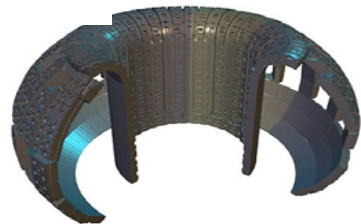


Beryllium

.... a sustainable strategic material



ITER Blanket Wall



- ❖ Three forms of beryllium are of strategic importance to the EU:
 - ▶ Metallic beryllium and alloys containing > 50% beryllium
 - ▶ Copper beryllium containing 0.25 – 10.0% beryllium
 - ▶ Beryllium Oxide ceramic

- ❖ The use of beryllium enables reduced materials consumption, energy savings, a reduced carbon footprint and provides a degree of reliability that cannot be matched by alternative materials: e.g.
 - ▶ The replacement of bronze aircraft landing gear bearing bushings with lower weight copper beryllium bushings has reduced fuel consumption by 24 billion litres/year, thus reducing carbon dioxide emissions by 61 million tons/year
 - ▶ The high strength and conductivity of Beryllium alloys that endure over long product life-cycles enable a reduction in the size of electronic devices and longer use, with a consequent reduced consumption of materials.
 - ▶ Commercial aircraft can be designed with weight saving fly-by-wire electronic control systems, using the reliability that beryllium alloys provide to the 3 million connector terminals found in a modern airliner like the Airbus A380.
 - ▶ Fire control water sprinkler heads rely upon beryllium alloys to reliably release the water in the event of a fire, over an expected life of a building that can exceed 75 years.

- ❖ Beryllium and alloys containing beryllium can be recycled indefinitely, with 70% energy savings compared to producing it from ore.

- ❖ Beryllium is used in the advanced technology industries in which the EU is a world leader, and which provide rewarding employment that is not at risk from low wage developing nation competition.

❖ **EU WORLD LEADING INDUSTRIES:**

- ▶ Aerospace:
 - * Satellite structures and components
 - * Aircraft landing gear, wing and airframe bearings
 - * Aircraft electronics and avionics

- ▶ Medical:
 - * X-Ray and CT Scanner x-ray systems
 - * Medical isotope production for cancer treatment
 - * Analytical devices

- ▶ Energy:
 - * Oil & Gas Exploration and production equipment
 - * Mining equipment
 - * Alternative energy: Wind Power, Solar, Fusion reactors

- ▶ Defence:
 - * Aircraft and missile navigation and guidance systems
 - * Target acquisition and weapon control systems
 - * EU member state independent nuclear deterrent systems

- ▶ Science:
 - * Space and terrestrial astronomical telescope mirrors
 - * Space probe systems

- ▶ Telecommunications:
 - * Mobile phone infrastructure and systems
 - * Mobile phone handsets

- ▶ Consumer Products:
 - * High fidelity audio system loudspeakers
 - * PC's, Netbooks, Tablets
 - * Home appliances

❖ **Importance of beryllium to the EU:**

▶ Use in kg / year of beryllium in all forms	55,000
▶ Number of SME that use beryllium	>500
▶ Number of larger enterprises using beryllium	>40
▶ Total employee numbers	10,000
▶ Of which, this number contact beryllium	3,000