



Beryllium Science & Technology Association

Hard to Consider a World without Beryllium

Beryllium is a critical and irreplaceable component in life-saving products such as airbag sensors, fire extinguishing system sprinkler heads, x-ray windows for mammography, medical lasers, landing gear bearings, and severe weather forecasting satellites. In virtually every end use, especially those where failure is not an option, there is no other material that can deliver the performance and reliability demanded of beryllium.

A world without beryllium would be a place vastly different than the one we live in and enjoy today. For example, copper beryllium materials played an indispensable role in capping of the Macondo Well in the Gulf of Mexico oil spill disaster. Clamps that allowed the capping stack to be securely fastened to the damaged well pipe were made of copper beryllium due to the material's incredible strength, resilience to stress and ability to slip over other materials without galling. In addition, only copper beryllium has the strength, flexibility and transparency to magnetic fields that allowed the sensitive equipment to locate the blown out well and determine the precise location of the drill bit for the relief well bore.

Imagine if any of the following other beryllium-dependent applications were not available to society, or if quality or reliability of the end-use product or system were severely compromised by the unavailability of beryllium:

- Radiation shielding on cell phones
- Pressure sensors on fire fighter air packs
- Enemy-detecting radar targeting systems on fighter aircraft
- Pacemakers
- Computers and the Internet infrastructure
- Automobile air bag sensors
- Corrosion-free electronics housings that protect undersea fiber optic cables
- 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

Consider also if society is willing to trade away the sweeping benefits that beryllium brings to the additional end uses noted below:

- Inability to safely explore and drill for oil and gas
- By enabling high-frequency telecommunications, from cell phones to global positioning systems, to radar instruments, to tracking and monitoring systems, beryllium helps keep the homeland secure and military personnel out of harm's way.
- Beryllium is the premier material used to control the intensely hot temperature of plasma used in experimental fusion energy reactors, a technology promising for its potential to create unlimited amounts of clean, affordable energy.
- And, at home, it improves the efficiency of home appliances, helps make our portable phones and electronics smaller and multi-functional, and increases the efficiency and reliability of personal computers, gaming systems and flat screen televisions.