Substance	Uses (General)	Uses EEE	Is this substance in use in additional applications?	Is substitution underway for one of these applications (please specify with which alternative chemical substance)?	Quantities in use (general)	Quantities in use (EEE)	Do you agree with the provided information? Do you assume the actual uses to be higher or lower?	If not, please estimate the quantity range in which this substance is in use (in general and/or in EEE).	Please explain the basis for quantity usage estimations and provide references or further data if relevant	Further Comments and/or references
Beryllium metal	**Beryllium Metal (>99%Be) and High Beryllium Alloy (Beryllium Aluminium >60% Be) are used in applications that require combinations of :**	**Beryllium Metal and High beryllium Alloys are used in such applications in the EU as:**	Yes	Substituition is not possible.	No reliable data available	Approximately 2 tonnes per year of beryllium are incorporated into EEE applications in Europe	Information corrected by industry stakeholders	2 -10 tonnes/yr aprox 0.2 MT in EEE	Sales figures and industry estimates. Shipments vary by year driven by research demands	
	Low density (1.85 gm/cc) High Stiffness (modulus) Extreme low temperature physical properties Transparency to X-Rays Reflectivity / Moderation of neutrons Non Magnetic Highest velocity of sound / Vibration dampening capacity **Applications include:**									
	Space Exploration / Science:	• High energy physics experiment particle stream guidance beam-pipes • ITER Fusion Reactor main chamber wall lining and neutron blanket material • Medical Isotope production nuclear reactor safety and control linings • Space mounted telescope reflectors • Structural support in space mounted optical benches • Heat shields to protect satellites and orbital telescopes.								
	Audio devices	• High fidelity audio loudspeaker diaphragms								
	Defence & Security: Beryllium is a critical component of systems for e.g. Guidance; Targeting; Surveillance & Reconnaisance	• Tank weapon laser targeting mirrors • Aircraft and missile guidance systems • Air launched weapon targeting systems								
	Medical and Analytical X-Ray Tube Windows	• Medicine: X-Ray windows allowing advances in imaging equipment, diagnostics and laser medicine								
	Beryllium-containing alloys; copper and nickel alloys contain from 0.15-2.0 % weight beryllium are used in applications that require combinations of: • High electrical conductivity • High Thermal Conductivity • High Strength • Bearing Properties - Extremely low friction against steel and **Typical Application include:**	Applications in communication applications, medical devices, in the automibile industry. • Safety: Used in automobile airbags and electronic braking systems, weather forecasting satellites, chemical detection, fire suppression sprinkler systems and emergency rescue equipment. • Oil, Gas & Alternative Energy: Beryllium is in wide use in the energy field to extract oil and gas. • Transportation: Beryllium alloys are used in automobile components and airplane equipment to ensure the reliable operation of vital equipment and to enhance fuel efficiency.	Yes	Substituition is not possible without loss of performance			Information corrected by industry stakeholders	50 -55 MT -Total 25 - 28 MT - EEE	Sales figures and industry estimates. Demand driven by economy and employment.	
	Spring terminals, used to carry current and signals in electrical and electronic connectors • Current carrying springs; • Integrated circuitry sockets; • Electrical and electronic connectors;	**Current and signal conductive spring terminals, used in electrical and electronic connectors for e.g.** • Communications equipment, mobile phones, cell phone systems • Medical device connections • High reliability automobile electrical and electronic safety related uses in e.g. Air bag triggers; anti-lock brakes; steer by wire; traction controls; dynamic suspension controls; engine sensors; emission control sensors. • Fire suppression sprinkler systems and emergency rescue equipment.								
	• Non sparking, high strength structural applications • Non magnetic high strength applications • Thermally conductive, high hardness mold and die applications • Low friction, high strength bearings	**Copper beryllium structural components are used in such fields as:** • Oil, Gas & Alternative Energy: Beryllium is in wide use to fabricate non magnetic structural components of oil and gas drilling, extraction and production equipment, e.g. Directional drilling steering; Blow-out protectors. • Thermally conductive, high hardness mold and die applications to reduce cycle time, lower energy consumption and improve dimesional integrity • Energy saving low weight high strength aircraft landing gear bearings								
	Beryllium-containing master/casting alloys in the form of ingots, shapes and granules for the manufacture of semi-finished billets, slabs and castings, widely used in the EU as input raw materials to produce semi- finished alloys; foundry castings; rods; thin strip etc.	•Property modifier for aluminium and magnesium casting alloys used to make components that are stronger, lighter and safer for applications like automobile and truck components while improving recyclability and helping to reduce carbon dioxide emissions •Plastic and metal casting moulds that improve productivity and product tolerances that maintain the leadership of EU producers								
Beryllium oxide (BeO)	Beryllium oxide ceramic applications (Containing 20% to 37% beryllium) are used in applications that require combinations of : • High thermal conductivity • High electrical resistance / insulation • Readily machined and polished • High hardness and strength Typical Applications are: • Substrates for high power electronic devices • Laser beam guidance	• Substrates for devices such as high power transistors; integrated circuitry • Medical surgical devices such as excimer laser bores and tubes;	Yes	No		beryllium oxide applied to high-end products and rarely to consumer EEE.	Information corrected by industry stakeholders	2-3 tonnes/yr BeO Powder		