Ultimate Guide to Bronze Bearing Material: BS EN 1982 CuSn7Zn4Pb7-C (CC493K)

If you're searching for a durable, highly machinable, and reliable material for industrial bearings and castings, **BS EN 1982 CuSn7Zn4Pb7-C**—commonly referred to by its material number **CC493K**—is an outstanding option.
This leaded gunmetal (bronze) alloy falls under the European standard for copper and copper alloy castings. It is widely used across global manufacturing industries due to its excellent anti-friction properties and strong wear resistance.
In this guide, we explore the chemical composition, mechanical properties, international equivalents, and common applications of CuSn7Zn4Pb7-C (CC493K).

What is CuSn7Zn4Pb7-C (CC493K)?

CuSn7Zn4Pb7-C is a leaded tin-zinc bronze. The inclusion of lead (Pb) and zinc (Zn) acts as a solid lubricant within the metal matrix, offering superior machinability and preventing galling or seizing in sliding contact applications. This makes it the ideal choice for high-performance bronze bearings.

Chemical Composition

To meet the strict BS EN 1982 standard, CC493K bronze must follow a precise chemical formulation. The balanced combination of copper, tin, zinc, and lead delivers both strength and natural lubricity.

Primary Elements:

- **Copper + Nickel (Cu + Ni):** 81.0% – 85.0%
- **Tin (Sn):** 6.0% – 8.0%
- **Lead (Pb):** 5.0% – 8.0%
- **Zinc (Zn):** 2.0% – 5.0%

Maximum Trace Elements:

- Nickel (Ni): 2.0%
- Antimony (Sb): 0.3%
- Iron (Fe): 0.2%
- Phosphorus (P): 0.1%
- Sulphur (S): 0.1%
- Aluminium (Al): 0.01%
- Silicon (Si): 0.01%

Mechanical Properties & Heat Treatment

This bronze alloy is typically supplied in the as-cast condition, meaning no additional heat treatment is required. Despite this, it offers excellent structural integrity and is capable of withstanding medium to heavy operational loads.
★ **Tensile Strength:** 230 MPa (min.)
★ **Yield Strength:** 120 MPa (min.)
★ **Elongation:** 15% (min.)
★ **Hardness:** 60 HBW (min.)
Note: Reduction of area and impact energy (Joules) are not specified under this standard.

Global Cross-Reference Guide (Equivalent Grades)

Metal specifications vary by region, so understanding equivalent grades is essential for international sourcing. CC493K aligns with ingot and casting standards across several European countries.

Country	Standard	Material Grade	Industry Application
Germany	DIN	CuSn7Zn4Pb7-B	Ingot and Casting
France	AFNOR NF	CB493K	Ingot and Casting
Italy	UNI	CB493K	Ingot and Casting
Spain	UNE	CuSn7Zn4Pb7-B	Ingot and Casting
Finland	SFS	CuSn7Zn4Pb7-B	Ingot and Casting
Austria	ONORM	CB493K	Ingot and Casting
Czech Republic	CSN	CB493K	Ingot and Casting

Key Applications of CC493K Bronze

Thanks to its combination of strength, corrosion resistance, and self-lubricating properties—largely due to its lead content—CuSn7Zn4Pb7-C is primarily used in friction-intensive applications.

Typical uses include:

- **Industrial Bearings:** Ideal for plain bearings operating under moderate loads and speeds.
- **Bushings & Wear Plates:** Commonly used in heavy machinery to reduce metal-on-metal friction.
- **Pump & Valve Components:** Offers excellent pressure tightness and corrosion resistance in fluid handling systems.
- **Fittings & Gears:** Suitable for general engineering components that require machinability and long-term durability.

Your Manufacturing Partner

Looking to source high-quality CuSn7Zn4Pb7-C (CC493K) bronze or need custom cast and machined components for your next engineering project?
We are your **one-stop solution for metal parts**. From raw material casting to precision CNC machining, we deliver top-tier metal components tailored to your exact specifications.
Contact us today to request a quote or discuss your custom metal part requirements!