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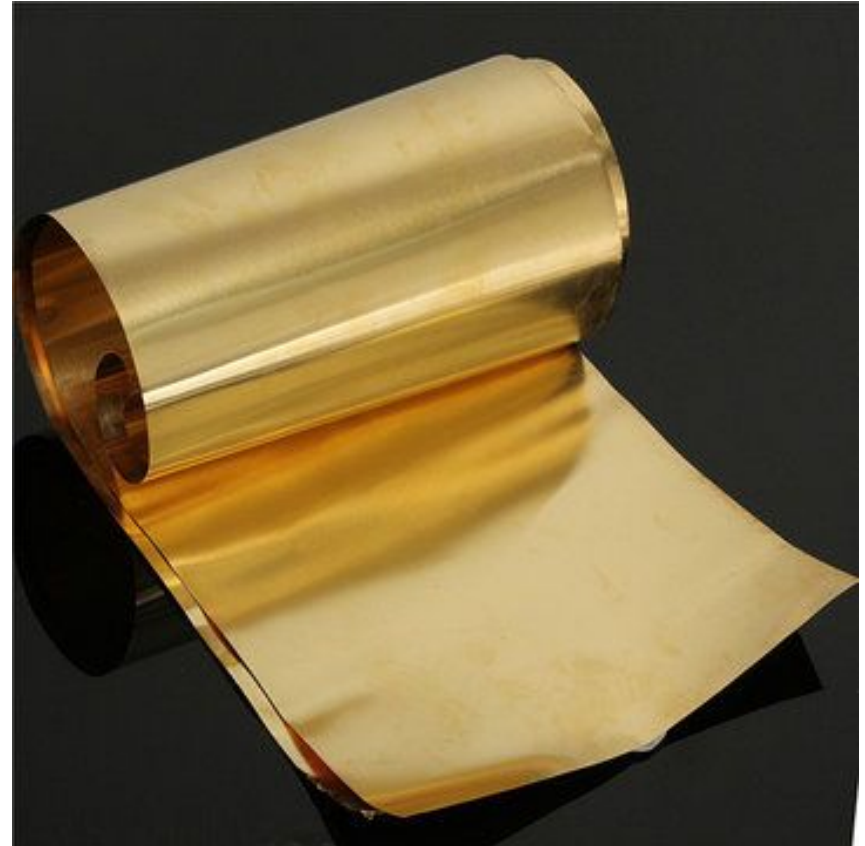
What is brass?

- ❑ **Brass** is an alloy of copper and zinc, in proportions which can be varied to achieve varying mechanical and electrical properties. It is a substitutional alloy: atoms of the two constituents may replace each other within the same crystal structure.
- ❑ Brass may include small proportions of a range of other elements including arsenic, lead, phosphorus, aluminium, manganese, and silicon.



Properties

- ❑ Brass has higher malleability than bronze or zinc. The relatively low melting point of brass (900 to 940 °C, 1,650 to 1,720 °F, depending on composition) and its flow characteristics make it a relatively easy material to cast. By varying the proportions of copper and zinc, the properties of the brass can be changed, allowing hard and soft brasses.
- ❑ Today, almost 90% of all brass alloys are recycled



Types

Class	Proportion by weight (%)	
	Copper	Zink
Alpha brasses	>65	<35
Alpha-beta brasses	55-65	35-45
Beta brasses	50-55	45-50
Gamma brasses	33-39	61-67
White brass	<50	>50

Usage

- ❑ Brass is used for decoration for its bright gold-like appearance;
- ❑ For applications where low friction is required such as locks, gears, bearings, doorknobs, ammunition casings and valves;
- ❑ For plumbing and electrical applications; and extensively in brass musical instruments such as horns and bells where a combination of high workability (historically with hand tools) and durability is desired.
- ❑ It is also used in zippers. Brass is often used in situations in which it is important that sparks not be struck, such as in fittings and tools used near flammable or explosive materials.

Thank you for attention