

Metals chemical element with a small amount of

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Metals and alloys are materials that are characterized by a number of specific features, due to which they have become the foundation of modern technology. Metals consist of pure chemical element with a small amount of other element addition. They are portrayed by characteristic metal gloss, increased electrical and thermal conductivity, good mechanical properties, resistance to electrochemical influences and elevated temperatures, susceptibility of different techniques' processing (treating) in both cold and heated conditions and so on. All of the listed characteristics are conditioned by the properties of the internal structure of the atoms and their interconnections. The metal density ranges between 0.

59 g/cm³ (lithium) and 22.4 g/cm³ (osmium). Metal with the highest melting temperature point is tungsten (3400°C), while mercury is with the lowest one (-39°C). Alloys are complex materials that represent a mixture of a base element with other metals and non-metals. The alloying elements are called alloy components, and their number and specifics determine the complexity of the alloy and its characteristics. At least one metal enters the composition of alloys (e.

g. bronze: copper and tin alloy, steel: iron and carbon alloy, etc.). Alloys acquire completely new characteristics, which differ from the ones of their components: more favorable mechanical properties, increased corrosion resistance, color change, improved processing ability, etc. Most of the alloys are obtained by melting the constituents, but there are other methods as well - such is the case of metal-ceramic alloys that are made by sintering. In engineering practice, alloys are much more used than pure metals. The reasons are multiple: technically pure metals are difficult

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to obtain in purified state, they are expensive, generally have low damping capacity and strength levels, unfavorable chemical and physical properties, are often difficult to handle with standard processing methods and many more.