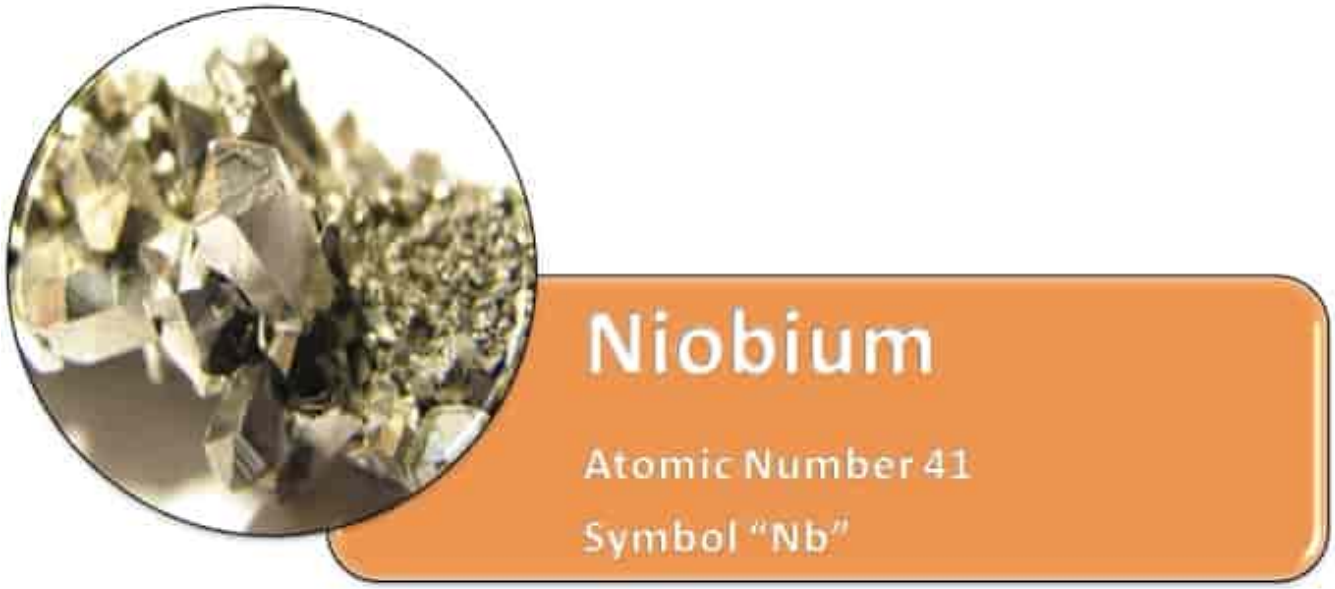
Niobium belongs to the chemical elements belonging to group 05 i.e. transition metals. Tantalum, vanadium and dubnium are other members of group V of the periodic table. The periodic table is commonly used by chemists, researchers and chemistry students due to its arrangement of elements in periods and group. It also helps in differentiating between two elements.

Occurrence of Niobium: Niobium is known as the 34th most abundant element in the earth. It is also said that existing of niobium in earth is greater while the high density of element is present in the earth’s core. The free niobium is not present in the nature while only niobium combined with minerals are present. The minerals that are combined with niobium sometimes also contain.

Some examples are: Coltan and coulumbite. The Coltan also known as Coulumbite Tantalite are usually used in Pegmatite intrusions while in alkaline intrusive rocks too. Very less common known minerals that contain niobium are uranium, thorium and calcium and also all the rare earth metals.

Physical Properties of Niobium: Niobium is a grey, lustrous and ductile element of group 5 from the periodic table. Niobium is also paramagnetic in nature i.e. they are too much weak in attraction with magnetic poles and they never retain their permanent magnetism.



Info-graphic Niobium

Niobium is also a metal with an electron configuration at the outermost shells. The structure of niobium is body centered cubic crystal structure from zero till its melting point. At cryogenic temperatures niobium becomes super conductor too. Niobium has the highest

critical temperature at the atmospheric pressure. When niobium is pure it is ductile as well as soft but due to all the impurities it becomes harder.

Alloying Behavior of Niobium: The quantity of niobium are usually used in the super alloys that also contain iron, nickel and cobalt in the proportion. Niobium also reacts with oxygen and it requires to be worked in an inert atmosphere.

P235GH, P265GH are steel containing niobium as alloy.

Chemical Properties of Niobium: When Niobium is exposed to air in the room temperature it takes in a bluish tinge for extended periods. In defiance of its high melting point niobium is a lower density metal. More than this niobium is resistant to corrosion and it also gives dielectric oxide layers.

Titanium, chromium, cobalt are some other chemical elements used as alloys.

Niobium even exhibits the properties of superconductivity. Niobium is also somehow less electro-positive than the other elements of group 5 of the periodic table while it is similar in size with tantalum so as a result both chemical characteristics are same.