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COBALT

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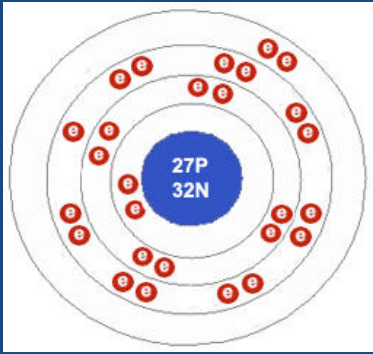
Co

Cobalt

58.933

Cobalt: An Introduction

Meet Cobalt, a frequently overlooked atom on the periodic table. Number 27 is a very important part of our life, even if you do not realize it. Now, read on to learn more about this silver-blue superhero.



A cobalt Atom

The Basics/Structure:

Now we are going to go over the basics of Cobalt. The number of Protons, Neutrons, Electrons, Valence Electrons, Atomic Number, Atomic Mass, and State(s) of Matter. Cobalt has twenty-seven protons, thirty-two neutrons, and twenty-seven electrons. Cobalt has two Valence Electrons. The atomic number of Cobalt is twenty-seven, the same number as the protons and electrons. The atomic mass is fifty-nine if you round up. The most common state of matter is a solid. However Cobalt can melt, but is not commonly melted. Cobalt has four electron shells, is shiny silver when solid, and turns blue when sintered with cobalt(II) oxide. Cobalt is found in transition metals. Chemical properties are electricity conductor, magnetic, relatively reactive, and dissolves in acids. Cobalt is abundance in the earth's crust: 25 parts per million by weight, 8 parts per million by moles. The amount of Cobalt in the solar system: 4 parts per million by weight, 0.7 parts per million by moles. That is the simple dissection of Cobalt.



Discovery

Cobalt comes from the German word *Kobald*, meaning goblin. It is also from the Greek word *Cobalos*, meaning mine. It formally became an element in 1939, first being isolated in 1935. Formerly, it had unofficially been used throughout history, but never recorded as a separate element. When discoverer George Brandt first proposed Cobalt to scientists they said that Cobalt was a mixture of Iron and Arsenic. Cobalt is found in Cobaltite, Skutterite, and Erythrite. These are found in Canada, Australia, Zambia, and Brazil, as a by-product of nickel refining. Cobalt can also be found in manganese minerals on the ocean floor.

George Brandt persevered and eventually was recognized as a father of an element.

Interesting Facts

- ▶ Cobalt is the element found in vitamins
- ▶ Cobalt-60 is used to treat cancer
- ▶ Cobalt is found in Vegemite
- ▶ Cobalt can be found in the ocean, in nodules that take thousands of years to form



Uses, Compounds, and Interesting Facts

Cobalt has a lot of compounds, too many to name, and they all have different purposes. The most commonly used however is Cobalt (II) Chloride. Another common compound is Cobalt (II) fluoride. Compounds of Cobalt are green, red, blue, or black,. Cobalt has two oxidation states, +2 and +3, which are what you see in between the different elements. Cobalt can also have compounds with mixed oxidation states like with Cobalt (II, III) oxide. Cobalt is used to color jewelry, create magnets, a ingredient jet engines and gas turbine generators, as a pigment in craft colors, and Cobalt-60 is used to treat cancer through radiotherapy, as it is radioactive. It is also part of the active site of vitamin B12, as well as found in high speed engines. Hazards of Cobalt include an asthma-like allergy, scarring of the lungs, exposure damage to main organs, and Cobalt is flammable.

Conclusion

Next time you wear something blue, or paint with "Cobalt Blue", remember this superhero. Cobalt is important, and very pretty, but is very important to you, your health, and your body. So, in conclusion, Cobalt really is the superhero of the element world.

