Report On Neon Essay, Research Paper

Neon was discovered in 1898 by British chemists Sir William Ramsay and Morris W. Travers as a component of the most volatile fraction of liquefied crude argon obtained from air. Upon applying an electric current to it, the chemists found that it had an orange glow, and they decided that it was not argon, but rather a new element altogether.

Neon is not a very common element, but the places it is most abundant in are the earth’s atmosphere, and trapped within rocks in the earth’s crust. The place where it is most abundant, however, is the throughout the cosmos. In the earth’s atmosphere, neon only comprises 0.0018 percent of the volume. On the earth, neon is always present as a gas.

There are many physical properties of neon, such as the fact that it is colorless, odorless, and tasteless. Also, neon is lighter than air. With a density of density 0.89990 g/liter. The freezing point of neon is -248.67? C, and the boiling point of neon is -246.048? C, which is even lower than the boiling point of nitrogen (-195.8?C). When under low pressure, neon emits a bright orange-red glow if a small electric current is passed through it. The electron configuration of neon is 1s22s22p6. The chemical properties of neon include the fact that it is not reactive because it has a full outer shell, and therefore cannot gain or lose any electrons. Because of this, neon belongs to a group of elements called “noble gases.” These are all gases which have a full outer shell and cannot react in nature. The period of neon is 2, and the group is 18.

Neon has an atomic number of 10, and a mass of 20.180. Neon has three stable isotopes: neon 20, 21, and 22. These three isotopes comprise 90.92 percent of natural neon, 0.26 percent of natural neon, and 8.82 percent of natural neon, respectively. There are five other isotopes of neon, and they are all radioactive. None of these five isotopes occur in nature.

There is only one common use for neon, and that is in electric and fluorescent lights to produce a bright orange-red glow.

Neon is produced industrially by distillation of liquefied air. The most volatile part of the liquid air is comprised of nitrogen, neon, and helium. The nitrogen is removed by condensation under increased pressure, and lowered temperature. Then, the nitrogen is adsorbed by highly cooled charcoal. Neon is separated from helium by selective adsorption on activated charcoal at low temperatures. Extracting neon from air is lengthy, and produces only 1 pound of neon for every 88,000 pounds of air that is processed.

Bibliography

Neon. Encyclopedia Britannica CD, 1999.