Fluorine has valence electrons

Fluoride (F) is the first element of the Halogen group (group 17) in the periodic table. Its atomic number is 9 and its atomic weight is 19, and it is a gas at room temperature. This is the most electronegative element, since it is the top element of the Halogen group, and is therefore very reactive. It is a non-metal, and is one of the few elements that can form diatomic molecules (F2). It has 5 valence electrons in the 2p level. Its electronic configuration is 1s22s22p5. It will usually form the F-anion since it is extremely electronegative and a strong oxidizing agent. Fluoride is a Lewis acid in weak acid, which means it accepts electrons during the reaction. Fluoride has many isotopes, but the only stable found in nature is F-19. In the late 1600s, minerals that we now know contain fluoride were used in et al. The discovery of the element was caused by the search for the chemical that could attack the glass (it is HF, a weak acid). The early history of isolation and work with fluoride and hydrogen fluoride is filled with accidents since both are extremely dangerous. Subsequently, the electrolysis of a mixture of KF and HF (carefully ensuring that the resulting hydrogen and fluoride would not come into contact) in a platinum device gave the element. Figure 1: Image courtesy of Wikipedia Fluor was discovered in 1530 by Georgius Agricola. He originally found it in the Fluorspar compound, which was used to promote metal fusion. It was under this application until 1670, when Schwanhard discovered its usefulness in the engraving of glass. Pure fluorine (from the Latin fluere, for the flow) was not isolated until 1886 by Henri Moissan, burning and even killing many scientists along the way. It has many uses today, one particular being used in the manhattan project to help create the first nuclear bomb. Fluoride is the most electronegative element on the periodic table, which means that it is a very strong oxidizing agent and accepts electrons from other elements. The configuration of Fluor's atomic electrons is 1s22s22p5. (see Figure 2) Figure 2: The electronic configuration of fluoride is the most electronegative element because it has 5 electrons in its 2P shell. The optimal configuration of the electrons of the orbital 2P contains 6 electrons, so that since the fluoride is so close to the ideal configuration of the electrons, the electrons are held very closely to the nucleus. The strong electronegativity of the fluoride explains its small radius because the positive protons have a very strong attraction to negative electrons, holding them closer to the nucleus than larger and less electronegative. Because of its reactivity, elemental fluoride is never found in nature and no other chemical element can displace fluoride from its compounds. Fluor binds with almost any element, both metals and non-metals, because it is a very strong Agent. It is very unstable and reactive because it is so close to its ideal electron configuration. It forms covalent bonds with non-metals, and as it is the most electronegative element, will always be the element that is reduced. It can also form a diatomic element with itself (F_2), or covalent bonds where it oxidizes other halogens (ClF), ClF_3, ClF_5). It will react explosively with many elements and compounds such as hydrogen and water. Elemental fluorine is slightly basic, which means that when it reacts with water, it forms .(OH--). When combined with hydrogen, fluoride forms hydrofluoric acid ( )HF) when combined with hydrogen.{1} O_2 2H_2O 3F_2 This acid is very dangerous and when dissociated can cause serious damage to the body because although it may not be painful at first, it passes through the tissues quickly and can cause deep burns that interfere with nerve function. There are also a few organic compounds made of fluoride, ranging from non-toxic to highly toxic. {2} H_3O H_2O Fluoride forms covalent bonds with carbon, which sometimes form in stable aromatic rings. When the carbon reacts with fluoride, the reaction is complex and forms a mixture of 'CF_4'), 'C_2F_6', 'C_5F_{12}'). C_ The fluoride reacts with oxygen F_ to form OF_2{3} C_5F_{12} C_2F_6 CF_ OF_2 because fluoride is more electrogeative than oxygen. The reaction goes:{4} 2OF_2 O_2 2F_2 fluoride is so electrogebraal that sometimes it will even form molecules with noble gases such as xenon, such as the molecule Xenon Difluoride, XeF_2. Fluoride also forms strong XeF_2 F_2 ion compounds with metals{5}. Some common ion reactions of fluoride are: '[F_2 ' 2NaOH 'rightarrow O_2 '2NaF 'H_2 'tag{6}'] '[4F_2 ' HCl 'H_2O 'rightarrow 3HF ' OF_2 ' ClF_3 OF_2 OF_2 Fluor{8} H_2 2NO_3F 2HNO_3 F_2{7}ide compounds are found in fluoride toothpaste and in many municipal water systems in many municipal water systems where they help prevent tooth decay. And, of course, fluorocarians like Teflon had a major impact on life in the 20th century. There are many applications of fluoride: Rocket Polymer fuels and plastic teflon production and tefzel production When combined with oxygen, used as a refrigerator cooler hydrofluoric acid used for glass engraving Purify the public water supplies Uranium production Air conditioning Fluor can be found in nature or produced in a laboratory. To do this in the laboratory, compounds such as Potassium fluoride are electrolysis put with hydrofluoric acid to create pure fluoride and other compounds. It can be performed with a variety of compounds, usually ion involving fluorine and metal. Fluoride can also be found in nature in various minerals and compounds. The two main compounds Fluorspar CaF_2 and Cryolite(Na_3AlF_6). References Newth, G. S. Inorganic chemistry. Longmans, Green, and Co.:New York, 1903. Latimer, Wendell M., Hildebrand, Joel H. Reference Book of Inorganic Chemistry. The Macmillan Company: New York, 1938. (Highlight to view responses) Q. Q. What is the electronic configuration of fluoride? F-? A. 1s22s22p5 1s22s22p6 2. Q. Is fluoride usually oxidized or reduced? Explain. R. Fluoride is usually reduced because it accepts an electron from other elements because it is so electronegative. Q. Q. What are the common uses of fluoride? A. Toothpaste, plastics, rocket fuels, glass engraving, etc. 4. Q. Does fluoride form compounds containing non-metals? if so, give two examples, one of which is oxide. A. OF2, CLF 5. Q. What group is fluoride in? (include the name of the group and the number) A. 17, Halogens Contributors and Assignments Rachel Feldman (University of California, Davis) Stephen R. Marsden In order to continue to enjoy our site, we ask you to confirm your identity as a human being. Thank you very much for your cooperation. If you see this message, it means that we have difficulty loading external resources onto our website. If you're behind a web filter, make sure the kastatic.org and .kasandbox.org domains are unlocked. We found a book related to your question. SEE SOLUTIONS We found a book related to your question. SEE SOLUTIONS We found a book related to your question. SEE SOLUTIONS