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## Compounds containing kr have been synthesized

Noble gas compounds are chemical compounds containing an element of noble gases, in accordance with the provisions of Table 18 of the Periodic Table. Although precious gases are generally non-reactive elements, many such compounds have been observed, especially those associated with element xenon. From a chemical point of view, precious gases can be divided into two groups:[the required quote] relatively reactive krypton (ionization energy 14.0 eV), xenon (12.1 eV) and radon (10,7 eV) on the one hand, and highly reactive argon (15,8 eV), neon (21,6 eV) and helium (24.6 eV) on the other. In accordance with this classification, Kr, Xe and Rn-form compounds that can be separated in bulk at or near standard temperature and pressure (at least in the case of essentially highly radioactive radon), while Tema, Ne, Ar have been observed to form real chemical bonds using spectroscopic methods, but only if frozen into a precious gas matrix at temperatures of 40 K or lower , supersonic precious gas or high pressure. Heavier noble gases have more electron shells than lighter. Thus, the outermost electrons are subject to shielding effects of internal electrons, which makes them more easily ionized because they are less strongly interested in a positively charged nucleus. This results in low enough ionization energy to form stable compounds with the most electron-negative elements, fluorine and oxygen, and even fewer electron-getive elements such as nitrogen and carbon under certain conditions. [1] [2] History and background When the nobility family was first identified in the 19th century, it was the first time that the nobility was found. With the evolution of atomic theory in the early twentieth century, their inertia was attributed to the complete bravery of electrons that make them very chemically stable and unresponsive. All precious gases are full s and p outer electron shells (except helium, which is not p at the lower level), and thus do not form chemical compounds easily. Their high ionization energy and near-zero electron meth explain their non-reactivity. In 1933, Linus Pauling predicted that heavier precious gases would be able to form compounds with fluorine and oxygenation. Specifically, he predicted the presence of kryptonite hexafluoride (KrF6) and xenon hexafluoride (XeF6), speculated that XeF8 might exist as an unstable compound, and suggested that xenon acid forms perxenon salts. [3] [4] These forecasts proved to be quite accurate, although subsequent forecasts for XeF8 showed that it would not only be thermodynamically unstable, but kinetically unstable. [5] By 2013, the covalently bound preciousgasia atom was still synthesized. The first noble gas compound report published in June 1962 was Neil Bartlett, who noticed that highly oxidizing platinum hexafluoride was ionized by O2 o+2. Since the O2 ionization energy to O+2 (1165 kJ mol−1) is almost equal to Xe's ionisation energy Xe+ (1170 kJ mol−1), he tried Xe's reaction to PtF6. This led to the crystalline product being obtained with xenon hefluoroplatinate formula Xe+[PtF6]−.[4] It later became clear that the compound was actually more complex, containing both XeFPtF5 and XeFPtF5 and XeFPt2F11. [8] Nevertheless, it was the first true mixture of every noble gas. The first binary precious gas compounds were later reported in 1962. Bartlett synthesized xenon-called ttrafluoride (XeF4), subjecting the mixture of xenon and fluorine to high temperatures. [9] Rudolf Hoppe synthesized xefat fluoride synthesized by reaction of elements among other groups. [10] Following the first successful synthesis of xenon compounds, it was announced in 1963[11] Real precious gas compounds This section deals with non-radioactive precious gases in descending order of atomic mass, which generally reflects the priority of their detection and the breadth of the information available on these compounds. The radioactive elements of radon and spike are harder to learn and are weighed at the end of the section. Xenon compounds Main product: Xenon § Compounds After preliminary studies of XeF4 and XeF2, synthesized xenon compounds include other fluorides (XeF6), oxyfluorides (XeOF2, XeOF4, XeO2F2, XeO3F2, XeO2F4) and oxides (XeO2, XeO3 and XeO4). Xenon fluoride reacts to fluoroxeneates with a number of other fluoride, such as sodium octafluoroxenate (Na+2XeF2−8) and fluoroxenonium salts such as trifluoroxenonium hexafluoroantimonate (XeF+3SbF−6). [quote needed] In connection with other halides reactivity, short-term excimers of precious gas halides such as XeCl2 or XeCl are made locally, and used to function as excimer lasers. [quote needed] Recently, it has been demonstrated[if?] xenon produces a variety of XeOnX2 types of compounds where n is 1,2 or 3 and X is any electron negative group, such as CF3, C(SO2CF3)3, N(SO2F)2, N(SO2CF3)2, OTeF5, O(IO2F2), etc., the range of compounds is impressive, similar to the neighbouring element soldering, which comes into thousands and involves links between xenon and oxygen, nitrogen, carbon, boron and even gold, as well as peric acid, multiple halids and complex ions. [quote needed] The compound Xe2+Sb4F21− contains Xe-Xe communication, which is known as the longest element elements (308,71 pm = 3,0871 Å). [12] Xe2 short-lived excimers are allegedly present in the formation of an excimer. [quote needed] Compounds Main Article: Krypton § Chemistry Krypton gas reacts with fluoridating gas under extreme coercive conditions, forming KrF2 according to the following equation: Kr + F2 → KrF2 KrF2 reacts with strong Lewis acids, forming KrF+ and Kr2F+3 cation salts. [11] Then, in 1963, Grosse was found to be kryptonian compounds without K.F bonds (compounds with no fluoride atoms). KrF2 responds with b(OTeF5)3 to create an unstable compound, Kr(OTeF5)2, which has a kryptonian oxygen connection. From the cation [HC≡N-Kr-F]+, which occurs when KrF2 is reacting to [HC≡NH]+[AsF−6] below -50 °C.[14] Argon compounds Main article: Argon compounds This section needs expansion. You can help by adding it. (January 2015) The discovery of HArF was announced in 2000 [15] [16] The compound may be present in low temperature argon matrices in experimental studies, and has also been studied computationally. [16] Argon hydra ine ArH+ was obtained in 1970 [18] There is a possibility that sbF−6 or AuF−6 anions can be used to produce solid salt of The Substance F+. [19] [20] Neon and helium compounds Main products: helium compounds and neon compounds Ions, Ne+, (NeAr)+, (NeH)+, and (HeNe+) are known for optical and mass spectrometry studies. Neon also forms unstable hydrate. [21] There is some empirical and theoretical evidence of some metastable helium compounds that may occur at very low temperatures or extreme pressures. Stable cation heh+ was reported in 1925[22] but was not considered a real compound because it is not neutral and cannot be isolated. In 2016, researchers created the helium compound disodium heelide (Na2He), the first acid detected. [23] Radon and oganesson compounds Main products: Radon § Chemical properties and Oganesson § The expected compounds of Radon are not chemically inert, but its short half-life (3.8 days for Rn222) and high radioactivity make it difficult to study its only fluoride (RnF2), its reported oxide (RnO3) and their reaction products. [24] The half-life of the Oganesson isotopes per millisecond is still known[25], although some are theoretically predicted. It should be even more reactive than radon, more like a normal element than a noble gas in its chemistry. [26] Reports before the xenonhefluoroplatinate and xenon-xenophlfluofluoride Cleethaadi Kr(H2)4 and H2 anvil containing solid anvils. Ruby was added to measure the pressure. [27] Structure of Cr(H2)4. Krypton octahedra (green) is surrounded by randomly oriented hydrogen molecules. [27] Before the only isolated compounds of precious gases were chlaats (including clatrate hydrates); other compounds, such as coordination compounds, were observed only by spectroscopic means. [4] Clathrates (also known as cage compounds) are compounds of precious gases in which they are trapped in the crystal lattice cavity of certain organic and inorganic substances. The basic condition of their formation is that the atoms of the guest (precious gas) should be of an appropriate size to fit in the cavities of the host crystal lattice; For example, Ar, Kr, and Xe may form β-quinone klathte, but He and Ne can't fit because they're too small. [quote needed] Kr and Xe may also appear as guests in melanological crystals. [quote needed] Helium nitrogen (He(N2)11) crystals are grown at room temperature at a pressure ca. 10 GPa diamond anvils in a cell. [28] Solid argon hydrogen concentrate (Ar(H2)2) has the same crystal structure as the MgZn2 Laves phase. This accounts for a pressure of between 4.3 and 220 GPa, although Raman measurements show that H2 molecules Ar(H2)2 dissociate more than 175 GPa. Similar solid forms of Kr(H2)4 at a pressure exceeding 5 GPa. It is a face-centered cubic structure in which krypton octane is surrounded by randomly oriented hydrogen molecules. Meanwhile, solid Xe(H2)8 xenon atoms form dimers inside solid hydrogen. [27] Coordination compounds Coordination compounds, such as Ar- BF3 is assumed to exist at low temperatures, but this has never been confirmed. [quote needed] Also, compounds such as WHe2 and HgHe2 were reported to have formed electron bombardment, but recent studies have shown that these are probably due to It adsorbed on the surface of the metal; therefore, these compounds cannot indeed be considered as chemical compounds. [quote needed] Hydrates Hydrates are formed by the compression of noble gases in water, where it is thought that the water molecule, a strong dipole, produces a weak dipol in precious gas atoms, resulting in a dipool-dipol interaction. Heavier atoms are more affected than smaller ones, so Xe+5.75 H2O was the most stable hydrate; [29] its melting point is 24 °C.[30] The deutedated version of this hydrant has also been produced. Fullerene adducts Main article: Non-metal doped fullerenes noble-gas atom structure, which is caged in a buckminsterfullerene (C60) molecule. Precious gases can also form endohedral fullereee compounds, where the precious gas atom is trapped in a fullerene molecule. In 1993, when the C60 came into contact with about 3 bars of He or Ne, the complexes He@C60 and Ne@C60. [32] In these conditions, only one of each 650 000 C60 cages doped with helium atom; higher pressure (3000 bar), yields can be achieved up to 0.1%. Endohedral complexes argon, kryptonite and xenon are also obtained, as well as numerous adducts He@C60. [33] Applications This section has several problems. Please help fix this or discuss these issues on the call page. (See how and when to remove these template messages) This section requires additional citations for verification. Please help improve this article by adding quotes to trusted sources. Unsubsigned material may be challenged and removed. (January 2015) (See how and when to remove this template message) This section needs expansion. You can help by adding it. (January 2015) (See how and when to remove this template message) Most of the use of precious gas compounds is either oxidising substances or tools for dense storage of precious gases. Xenocic acid is a valuable oxidiser because it has no potential to introduce additives-xenon is simply released from gas and so is competing only with ozone in this regard. [4] Perxenates are even more powerful oxidising substances. [quote needed] Xenon-based oxidizers are also used to synthesize carbocations at stable room temperature, the SO2ClF solution. [34] [non-primary source required] Stable xenon salts containing a very high degree of fluorine (e.g. tetrafluoroammonium heptafluoroxenate, NF4XeF7 and associated tetrafluoroctafluoroxate (NF4)2XeF8) have been developed as highly energetic oxidizers for use as rocket carriers. [35] [non-primary source required] [36] [non-primary source required] Xenon fluorides are good fluoridants. [quote needed] Clathrates have been used for the separation of His and Ne from Ar, Kr, and Xe, as well as transport ks, Kr and Xe. [quote needed] (For example, radioactive isotopes of kryptonian and xenon are difficult to store and dispose of, and compounds of these elements can be more easily handled than gaseous forms. [4]) In addition, radioisotope clusters may provide suitable mixtures for tests requiring certain types of radiation sources; Therefore. 85Kr klawire provides a safe source for beta particles, while 133Xe clathrate provides a useful source of gamma rays. [quote needed] Oganesson has no applications. Links ^ Smith GL, Mercier HP, Schrobilgen GJ (February 2007). [F3S=NXeF] [AsF6] synthesis and structural study using multiple NMR and Raman spectroscopy, electronic structural calculations and X-ray crystallography. Inorganic chemistry. 46 (4): 1369–78. doi:10.1021/ic061899+. 2008, Tamm became the island's chief of staff. F5SN(H)Xe+; a rare example of sp3-hybridised nitrogen-related xenon; [F5SN(H)Xe] [AsF6]synthesis and structural characterisation. Inorganic chemistry. 47 (10): 4173–84. doi:10.1021/ic702039f. 20, 2014 in New York City. Antimony acid and antimonate formulas. J.Am. Chem. Soc. 55 1895–1900. doi:10.1021/and 01332a016. June 1968. Noble gas chemistry. London: Methuen. 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