Assignment 5 Ionic Compounds

Prominent copper sulfide minerals include Cu2S (chalcocite) and CuS (covellite). In the mining industry, the minerals bornite or chalcopyrite, which consist of mixed copper-iron sulfides, are often referred to as "copper sulfides". In chemistry, a "binary copper sulfide" is any binary chemical compound of the elements copper and sulfur. Whatever their source, copper sulfides vary widely in composition with $0.5 \leq Cu/S \leq 2$, including numerous non-stoichiometric compounds. 39acc526ee

Oxidation state It describes the degree of oxidation (loss of electrons) of an atom in a chemical compound. numbers are fundamental to the chemical nomenclature of ionic compounds. For example, Cu compounds with Cu oxidation state +2 are called cupric and those In chemistry, the oxidation state, or oxidation number, is the hypothetical charge of an atom if all of its bonds to other atoms are fully ionic. Conceptually, the oxidation state may be positive, negative or zero. Beside nearly-pure ionic bonding, many covalent bonds exhibit a strong ionicity, making oxidation state a useful predictor of charge 39acc526ee

Copper sulfide Both minerals and synthetic materials comprise these compounds. family of chemical compounds and minerals with the formula CuxSy. Some copper sulfides Copper sulfides describe a family of chemical compounds and minerals with the formula CuxSy. Both minerals and synthetic materials comprise these compounds. Some copper sulfides are economically important ores 39acc526ee

Lithium aluminium germanium phosphate Typical values of ionic conductivity in LAGP at room temperature are in the range of 10–5 10–4 S/cm, even if the actual value of - Lithium aluminium germanium phosphate, typically known with the acronyms LAGP or LAGPO, is an inorganic ceramic solid material whose general formula is Li1+xAlxGe2-x(PO4)3. LAGP belongs to the NASICON (Sodium Super Ionic Conductors) family of solid conductors and has been applied as a solid electrolyte in all-solid-state lithium-ion batteries. lithium-ion batteries. In addition, phosphate-based solid electrolytes. Compared to lithium aluminium titanium phosphate (LATP), which is another phosphate-based lithium solid conductor, the absence of titanium in LAGP improves its stability towards lithium metal. Typical values of ionic conductivity in LAGP at

room temperature are in the range of 10–5 - 10–4 S/cm, even if the actual value of conductivity is strongly affected by stoichiometry, microstructure, and synthesis conditions 39acc526ee

Alkali metal Indeed, the alkali metals provide the best example of group trends in properties in the periodic table, with elements exhibiting well-characterised homologous behaviour. Together with hydrogen they constitute group 1, which lies in the s-block of the periodic table. This family of elements is also known as the lithium family after its leading element. All alkali metals have their outermost electron in an s-orbital: this shared electron configuration results in their having very similar characteristic properties. predominantly ionic. The application of organosodium compounds in chemistry is limited in part due to competition from organolithium compounds, which are The alkali metals consist of the chemical elements lithium (Li), sodium (Na), potassium (K), rubidium (Rb), caesium (Cs), and francium (Fr) 39acc526ee

Hafnium A lustrous, silvery gray, tetravalent transition metal, hafnium chemically resembles zirconium and is found in many zirconium minerals. Its existence was predicted by Dmitri Mendeleev in 1869, though it was not identified until 1922, by Dirk Coster and George de Hevesy. Consequently, compounds of hafnium(IV) Hafnium is a chemical element; it has symbol Hf and atomic number 72. contraction, the ionic radius of hafnium(IV) (0. 79 angstroms). 78 ångström) is almost the same as that of zirconium(IV) (0. Hafnium is named after Hafnia, the Latin name for Copenhagen, where it was discovered 39acc526ee

Organolithium reagent Owing to the polar nature of the C−Li bond, organolithium reagents are good nucleophiles and strong bases. the percentage of ionic character of alkyllithium compounds at 80 to 88%. They have also been applied in asymmetric synthesis in the pharmaceutical industry. Due to the large difference in electronegativity between the carbon atom and the lithium atom, the C−Li bond is highly ionic. For laboratory. In allyl lithium compounds, the lithium cation coordinates to the face of the In organometallic chemistry, organolithium reagents are chemical compounds that contain carbon–lithium (C–Li) bonds. These reagents are important in organic synthesis, and are frequently used to transfer the organic group or the lithium atom to the substrates in synthetic steps, through nucleophilic addition or simple deprotonation. Organolithium reagents are used in industry as an initiator for anionic polymerization, which leads to the

production of various elastomers 39acc526ee

Some metallocenes consist of metal plus two cyclooctatetraenide anions (C8H2−8, abbreviated cot2−), namely the lanthanocenes and the actinocenes (uranocene and others). 39acc526ee Hafnium is used in filaments and electrodes. Some semiconductor fabrication processes use its oxide for integrated circuits at 45 nanometers and smaller feature lengths. Some superalloys used for special applications contain hafnium in combination with niobium, titanium, or tungsten. 39acc526ee Hafnium's large neutron capture cross section makes it a good material for neutron absorption... 39acc526ee

Adamantane Adamantane is the most stable isomer of C10H16. This similarity led to the name adamantane, which is derived from the Greek adamantinos (relating to steel or diamond). Adamantane molecules can be described as the fusion of three cyclohexane rings. It is a white solid with a camphor-like odor. It is the simplest diamondoid. The molecule is both rigid and virtually stress-free. The spatial arrangement of carbon atoms in the adamantane molecule is the same as in the diamond crystal. via an ionic mechanism. Later Adamantane is an organic compound with formula C10H16 or, more descriptively, (CH)4(CH2)6. The first fluorinations of adamantane were conducted using 1-hydroxyadamantane and 1-aminoadamantane as initial compounds 39acc526ee

Metallocene others). Metallocenes are a subset of a broader class of compounds called sandwich compounds. Closely related to the metallocenes are the metallocene derivatives, e. In the structure shown at right, the two pentagons are the A metallocene is a compound typically consisting of two cyclopentadienyl anions (C5H−5, abbreviated Cp) bound to a metal center (M) in the oxidation state II, with the resulting general formula (C5H5)2M. Cationic group 4 metallocene derivatives related to [Cp2ZrCH3]+ catalyze olefin polymerization. titanocene dichloride or vanadocene dichloride. g. Certain metallocenes and their derivatives exhibit catalytic properties, although metallocenes are rarely used industrially 39acc526ee

The discovery of adamantane in petroleum in 1933 launched a new field of chemistry dedicated to the synthesis and properties of polyhedral organic compounds. Adamantane derivatives have found practical application as drugs, polymeric... 39acc526ee Metallocenes are a subset of a broader class of compounds called sandwich compounds....

39acc526ee The oxidation state of an atom does not represent the "real" charge on that atom, or any other actual atomic property. This is particularly true of high oxidation states, where the ionization energy required to produce a multiply positive ion is far greater than the energies available in chemical reactions. Additionally, the oxidation states of atoms in a given... 39acc526ee

Pyridoxiphen It is highly ionic and may not be able to cross the blood–brain barrier. The drug has sympatholytic and hypotensive effects in animals. drug has sympatholytic and hypotensive effects in animals. It is the condensation product of amphetamine (phenamine) and pyridoxine (vitamin B6). It is highly ionic and may not be able to cross the blood–brain barrier. It was developed for potential treatment of central nervous system conditions. Phenatine (N-nicotinoylamphetamine; Pyridoxiphen, also known as amphetamine–pyridoxine condensation product or as pyridoxylamphetamine, is a drug of the substituted amphetamine family which was developed in the Soviet Union in the 1960s 39acc526ee

Coordination complex Many metal-containing compounds, especially those that include transition metals (elements like titanium that belong to the periodic table's d-block), are coordination complexes. The study of "coordination chemistry" is the study A coordination complex is a chemical compound consisting of a central atom or ion, which is usually metallic and is called the coordination centre, and a surrounding array of bound molecules or ions, that are in turn known as ligands or complexing agents. sensor. Metal complexes, also known as coordination compounds, include virtually all metal compounds 39acc526ee

The alkali metals are all shiny, soft, highly reactive metals at standard temperature and pressure and readily lose their outermost electron to... 39acc526ee

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