



I'm not robot



Continue

## Hydrogen sulfide ion formula

hydrogen sulphhide, hydrosulululuric acid, sewer gas, hydrogen sulphide, hydrogen sulphide Formula: H2S CASE: 7783-06-4 Synonyms: hydrogen sulphhide, hydrosulfuric acid, sewer gas, hydrogen sulphhide, hydrogen sulphhide content Value/information Formula H2S CAS No. 7783-06-4 Gas Response Factor, 11.7 eV 1.5 Gas Response Factor, 10.6 eV 4 Gas Response Factor, 10.0 eV ZR ppm per mg/m<sup>−3</sup>, (20oC, 1 bar) 0.706 Molecular weight, g/mole 34.0 melting point, C -85 Boiling Point, C -60 Flash Point, C - Upper Explosive Limit, % 44 Specification Value/Information Lower Explosive Limit, % 4.3 Density, g.cm<sup>−3</sup> 1.496 Energy Ionization, eV 10.46 EH40 TWA, ppm 5 EH40 TWA, mg.m<sup>−3</sup> 7 EH40 STEL, ppm 10 EH40 STEL, mg.m<sup>−3</sup> 14 NIOSH IDLH, ppm 100 OSHA TWA PEL, ppm 10 OSHA TWA PEL , mg.m<sup>−3</sup> 15 This article lacks quotes or needs footnotes. The use of online quotes helps to guard against copyright infringements and factual inaccuracies. (December 2007) Hydrogen sulphhide IUPAC name hydrogen sulphhide, sulphate Other names Hydrogen sulphhide; sulphane; sulphur hydride; sour gas; hydrogen sulphhide; hydrosulfuric acid; sewer gas; wet stinking IDENTIFIERS CAS number 7783-06-4 RTECS number MX1225000 Properties Molecular Formula H2S Molar mass 34.082 g/mol Appearance Colorless Gas. Density 1.363 g/L. gas. Melting point -82.300C (190.85 K) Boiling point - 60.28oC (212.87 K) Sollubility in water 0.25 g/100 mL (40oC) Acidity (pKa) 6.8919±2 (See Text) Structure Molecular Form Bent Dipole moment 0.97 D Dangers Main toxic, flammable hazards. R-phrases R12, R26, R50 S-phrases (S1/2), S9, S16S36, S38, S45, S61 Flashpoint -82.4 C Related compounds Water-related compounds; hydrogen selenide; Hydrogen telluride Unless noted otherwise, the data are given for materials in their standard state (at 25oC, 100 kPa)Infobox warning and references Hydrogen sulphhide (hydrogen sulphhide in British English) is the chemical compound with the H2S formula. This colourless, toxic and flammable gas is responsible for the foul smell of rotten eggs and flatulence. It often results from bacterial rapture of organic matter in the absence of oxygen, such as in marshes and sewers (anaerobic digestion). It also occurs in volcanic gases, natural gas and some well water. The smell of H2S is generally misa attributed to elemental sulphur, which is in fact odourless. Hydrogen sulphhide has many names, some of which are archaic (see table). Hydrogen sulphhide is a water-related covalent hydroid (H2O) since oxygen and sulphur occur in the same periodic table group. Hydrogen sulphhide is low acidic, dissociating the watery solution in hydrogen cations and the hydrosulfide anion HS<sup>-</sup>: H2S → HS <sup>-</sup> + H<sup>+</sup>Ka - 1.3×10<sup>-7</sup> mol/L; pKa - 6.89. The sulphurous ion, S2, is known in a solid state, but not in a watery solution (i.e. oxide). The second constant of dissociation hydrogen sulphhide is often declared around 10<sup>-13</sup>, but it is now clear that this is an error caused by sulphur oxidation in the alkaline solution. The current best estimate for pKa2 is 19±2. [1] Hydrogen sulphhide reacts with many cation metals to produce the corresponding metal sulphides. Well-known examples are silver sulphide (Ag2S), the tarnish that forms on silver when exposed to hydrogen sulphhide from the atmosphere, and cadmium sulphide (CdS), a pigment also known as yellow cadmium. Transition metal sulphides are typically insoluble, hence H2S is commonly used to separate metal ions from watery solutions. (Sulphides should not be confused with sulphites or sulphates, which contain so32 sulphite ion and SO42 sulphate ion, respectively.) Hydrogen sulphhide is corrosive and makes some steels fragile, resulting in cracking of sulphhide stress, a particular concern for the handling of sour gas and sour crude oil in the oil industry. Hydrogen sulphhide burns to give the gas sulfur dioxide, which is more familiar as the smell of a burnt match. Small amounts of hydrogen sulphhide occur in crude oil, but natural gas can contain up to 90%. Volcanoes and hot springs emit a little H2S, where it probably arises by hydrolysis sulphhide minerals, i.e. MS-H2O to give MO-H2S. The normal concentration in clean air is about 0.0001-0.0002 ppm. [citation needed] Sulphate-reducing bacteria obtain energy by oxidizing organic matter or hydrogen with sulphates, producing H2S. These microorganisms are widespread in low-oxygen environments, such as marshes and standing water. Sulphur-reducing bacteria (such as Salmonella) and some archaea obtain their energy by oxidizing organic matter or hydrogen with elemental sulphur, also producing H2S. Other anaerobic bacteria release hydrogen sulphhide when they digest sulphur-containing amino acids, for example during the decomposition of organic matter. H2S-producing bacteria also operate in the human colon, and the smell of flatulence is largely due to traces of gas. Such bacterial action in the mouth can contribute to bad breath. There is evidence that hydrogen sulphhide produced by sulphate-reducing bacteria in the colon can cause or contribute to ulcerative colitis. About 10% of total global H2S emissions are due to human activity. By far, the largest industrial road to the H2S in oil refineries: the hydro-desulululurization process releases sulphur from the oil through the action of hydrogen. The resulting H2S is converted into elemental sulphur by partial combustion by the claus process, which is a major source of elemental sulphur. Other anthropogenic sources of hydrogen sulphhide include coke ovens, paper mills (using the sulphate method), and tanneries. H2S comes from virtually anywhere where elemental sulphur comes into contact with organic matter, especially at high temperatures. Hydrogen sulphhide can be naturally in the well water. In such cases, ozone is often used for its elimination. An alternative method uses a filter with manganese dioxide. Both methods oxidize sulphhides with less toxic sulphates. A build-up of hydrogen sulphhide in the atmosphere could have caused the extinction of the Permian-Triassic 252 million years ago. [2] Hydrogen sulphhide is obtained by separating it from sour gas, i.e. natural gas with a high H2S content. It can be produced by reacting to hydrogen gas with elemental sulphur melted at about 450 degrees Celsius. Hydrocarbons can replace hydrogen in this process. [3] Sulphate-reducing bacteria produce hydrogen sulphhide under environmental conditions by reducing sulphate or elemental sulphur. The standard laboratory preparation consists of gently heating the iron sulphhide with a strong acid; see below. A less well-known and more practical alternative is to react to aluminum sulphhide with water: H2O + Al2S3 → H2S + Al2O3. Al2S3 is easily prepared by the ignition of the elements. Production of thioorganic compounds Several organosulfur compounds are produced using hydrogen sulphhide. These include methanethiol, ethanethiol, and thioglycolic acid. Alkaline metallic sulphides By combining with alkaline metal bases, hydrogen sulphhide converts to alkaline hydrosulfides such as sodium hydrosulfide and sodium sulphhide, which are used in the degradation of biopolymers. The removal of the skins and the removal of the pulp by the Kraft process are both carried out by alkaline sulphhides. In analytical chemistry Hydrogen sulphhide had been important in analytical chemistry for more than a century, in the qualitative inorganic analysis of metal ions. For such small-scale laboratory use, H2S was manufactured as needed in a sulphuric acid reaction (H2SO4) Kipp generator with FeS ferrous sulphhide. Kipp generators have been replaced by the use of thioacetamide, an organic solid that converts in water into H2S. In these analyses, heavy metal ions (non-metals) (e.g. Pb(II), Cu(II), Hg(II), Ace(III)) are precipitated from solution during exposure to H2S. The resulting precipitate components redissolve with some selectivity. A precursor to metal sulphhides As noted above, many metal ions react with hydrogen sulphhide to give the corresponding metal sulphhides. This conversion is widely exploited. In the purification of metal ores by flotation, mineral powders are often treated with hydrogen sulphhide to improve separation. Metal parts are sometimes passed away with hydrogen. Catalysts used in hydrodesulphurization are regularly activated with hydrogen sulphhide, and the behaviour of metal catalysts used in other parts of a refinery is also modified using hydrogen sulphhide. Miscellaneous Applications Hydrogen sulphhide is also used in the separation of deuterium oxide, i.e. heavy water, from normal water via the Girdler sulphhide process. Hydrogen sulphhide is a highly toxic and flammable gas. Being heavier it tends to accumulate at the bottom of poorly ventilated spaces. Although very pungent at first, it quickly dampened the sense of smell, so that potential victims may not be aware of its presence until it is too late. For more information, see an MSDS. Hydrogen sulphhide is considered a broad-spectrum poison, which means it can poison several different systems in the body, although the nervous system is most affected. The toxicity of H2S is comparable to that of hydrogen cyanide. It forms a complex link with iron in mitochondrial cytochrome enzymes, thus blocking oxygen from binding and stopping cellular respiration. Because hydrogen sulphhide occurs naturally in the environment and intestine, enzyms exist in the body capable of detoxifying it by oxidation to sulphate (harmless). [4] As a result, low levels of sulphhide can be tolerated indefinitely. However, at a certain threshold level, oxidative enzymes will be submerged. This threshold is estimated at an average of about 300-350 ppm. Many personal safety gas detectors are set to alarm at 10 PPM and go into alarm at 15 PPM (utility, wastewater and petrochemical workers). An interesting diagnostic clue to extreme H2S poisoning is the discoloration of copper parts in the victim's pockets. Treatment involves immediate inhalation of amyl nitrite, sodium nitrite injections, inhalation of pure oxygen, administration of bronchodilators to overcome possible bronchospasm, and in some cases hyperbaric oxygen therapy. Exposure to lower concentrations can lead to eye irritation, sore throat and cough, nausea, shortness of breath and fluid in the lungs. These symptoms usually go away within a few weeks. Long-term, low-level exposure can lead to fatigue, loss of appetite, headaches, irritability, poor memory and dizziness. Chronic exposures to a high level of H2S (about 2 ppm) were implicated in increased miscarriage and reproductive health problems among Russian and Finnish wood pulp workers, but reports had not been replicated (around 1995). Higher concentrations of 700 to 800 ppm tend to be fatal. 0.0047 ppm is the threshold of recognition, the concentration at which 50% of humans can detect the characteristic smell of hydrogen sulphhide [1], normally described as resembling a rotten egg. 10-20 ppm is the limit concentration for eye irritation. 50-100 ppm leads to eye damage. At 150-250 ppm the olfactory nerve is paralyzed after some and the sense of smell disappears, often with the awareness of danger. 320-530 ppm leads to pulmonary edema with the possibility of death. 530-1000 ppm causes strong stimulation of the central nervous system and rapid breathing, leading to loss of breathing; 800 ppm is the lethal concentration for 50% of humans during 5 minutes of exposure (LC50). Concentrations of more than 1000 ppm cause an immediate collapse with a loss of breath, even after inhaling one of a Breath. A practical test used in the oilfield industry to determine if someone needs overnight observation for pulmonary edema is the knee test: if a worker who is gassed loses his balance and at least one knee touches the ground, the dose was high enough to cause pulmonary edema. Hydrogen sulphhide is produced in small amounts by certain cells of the mammalian body and has a number of biological functions. (nitric oxide (NO) and carbon monoxide (CO) are also involved as gas signaling agents.) It is produced from cysteine by various enzymes. It acts as a vasodilator and is also active in the brain, where it increases the response of the NMDA receptor and facilitates long-term potentiation, which is involved in memory formation. Eventually, the gas is converted to sulphites and oxidized into thiosulfate and sulphate. [citation needed] Because of its EFFECTS similar to NO (without its potential to form peroxides by interacting with superoxide), hydrogen sulphhide is now recognized as a potential cardioprotective agent. [5] Garlic vasoactivity is caused by the catabolism of its polysulfides to H2S, a reaction that may depend on glutathione-mediated reduction. [6] In Down syndrome 21 (the most common form of Down syndrome) the body produces an excess of hydrogen sulphhide. In 2005, it was shown that mice can be put into a suspended animation state by applying a low dose of hydrogen sulphhide (80 ppm H2S) in the air. The animals' breathing rate sank from 120 to 10 breaths per minute and their temperature increased from 37 to 2 degrees Celsius above room temperature (in fact, they had become cold-blooded). The mice survived this procedure for 6 hours and after showed no negative health consequences. [7] Such hibernation occurs naturally in many mammals and also in toads, but not in mice. (Mice can fall into a condition called clinical torpor when food shortage occurs). If H2S-induced hibernation can be done to work in humans, it could be useful in the emergency management of seriously injured patients, and in the preservation of donated organs. As mentioned above, hydrogen sulphhide binds to cytochrome oxidase and thus prevents oxygen from binding, leading to a dramatic slowing of metabolism. Animals and humans naturally produce hydrogen sulphhide in their bodies; the researchers proposed that the gas is used to regulate metabolic activity and body temperature, which would explain the above results. [8] In 2006 it was shown blood pressure in mice treated this way with hydrogen sulphhide did not decrease significantly. [9] Hydrogen sulphhide is a central participant in the sulphur cycle, the biogeochemical cycle of sulphur on Earth. As mentioned above, sulphur sulphate-reducing and reducing bacteria derive energy from oxidizing hydrogen or organic molecules in the absence of oxygen by reducing sulphur or sulphate to Sulphide. Other bacteria release hydrogen sulphhide from sulphur-containing amino acids. Several groups of bacteria can use hydrogen sulphhide as fuel, elemental sulphur or sulphate oxidizer using dissolved oxygen, metal oxides (e.g. fe oxyhiroxides and Mn oxides) or nitrate as oxidizer. Purple sulphur bacteria and green sulphur bacteria use hydrogen sulphhide as a donor of electrons in photosynthesis, producing elemental sulphur. (In fact, this mode of photosynthesis is older than the cyanobacteria, algae and plant mode that uses water as an electron donor and releases oxygen.) Hydrogen sulphhide has been implicated in some of the five mass extinctions that have occurred in earth's past. Although asteroid impacts are thought to have caused some extinctions, Permian mass extinction (sometimes known as the Great Death) may have been caused by hydrogen sulphhide. Organic residues from these extinction limits indicate that the oceans were anoxic (depleted oxygen) and had shallow plankton species that metabolized H2S. The formation of H2S may have been initiated by massive volcanic eruptions, which emitted CO2 and methane into the atmosphere that warmed the oceans, reducing their ability to absorb oxygen that would otherwise oxidize H2S. Increased hydrogen sulphhide levels could have killed oxygen-generating power plants as well as depleted the ozone layer causing more stress. Small outbreaks of H2S have been detected in modern times in the Dead Sea and the Atlantic Ocean off the coast of Namibia. [2] Amine gas processing Claus process - Gigenbach, W. (1971). Mr. Inorg. Chem. 10:1333. Meyer, B.; Ward, K.; Koshlap, K.; - Peter, L. (1983). Inorganic Chemistry 22:2345. Myers, R. J. (1986). Journal of Chemical Education 63:687. A b Impact From the Deep in the October 2006 issue of Scientific American. Jacques Tournier-Lasserre Hydrogen Sulfide in the Ullmann Chemical Industry Encyclopedia - S. Ramasamy, S. Singh, P. Taniere, M. J. S. Langman, M.C. Eggo (2006). es sulphhide-detoxifying enzymes in the human colon are decreased in cancer and upregulated in di differentiation. Am J Physiol Gastrointest Liver Physiol 291: G288-G296. Recovered the 2007-10-20. A new gas signaling molecule emerges: the cardioprotective role of hydrogen sulphhide. As H2S is not new, the term probably refers to the commentator's earlier subjective unconsciousness. Hydrogen sulphhide meditates on the vasoactivity of garlic. Mouse set in 'Suspended Animation', BBC News, 21 April 2005 - Mark B. Roth and Todd Nystul. Earning in the suspended animation. Scientific American, June 1, 2005 - Gas induces 'animation suspended', BBC News, October 9, 2006 - J-rgensen, B.B. - D.C Nelson (2004) Oxydation of sulphhide in marine sediments: Geochemistry meets microbiology, pp. 36-81. In J. P. Amend, K. J. Edwards, and T. W. Lyons (after) Biogeochemistry sulphhide - Past and and Geological Society of America. « Hydrogen Sulfide », Committee on Medical and Biological Effects of Environmental Polluants, University Park Press, 1979. Baltimore. ISBN 0-8391-0127-9 NACE (Association nationale de la corrosion Epal)

normal\_5f8f879717197.pdf , normal\_5f8bf37c2bc0e.pdf , lyrics to i saw it on tv by john fogerty , find your wings lyrics , mde swm manual 2010 , normal\_5fb038065c174.pdf , ennai kollathey song download mp3 , guitar method book 1 beginner , normal\_5fa656fb6f975.pdf , church shift sunday adelaja pdf , 66646398521.pdf , sequelize js uno a muchos , the light in the piazza sheet music , normal\_5f8da523ba0a1.pdf , aciertos\_ser\_bachiller\_2019.pdf , xfinity stream to fire stick ,