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9. REFERENCES

- *Abe K, Kimura H. 1996. The possible role of hydrogen sulfide as an endogenous neuromodulator. J Neurosci 16:1066-1071.
- *ACGIH. 1991. Documentation of the threshold limit values and biological exposure indices. 6th ed. Cincinnati, OH: American Conference of Governmental Industrial Hygienists, Inc., 786-788.
- *ACGIH. 2005. Hydrogen sulfide. In: Threshold limit values for chemical substances and physical agents and biological exposure indices. Cincinnati, OH: American Conference of Governmental Industrial Hygienists, 34.
- Adachi J, Tatsuno Y, Fukunaga T, et al. 1986. [Formation of sulfhemoglobin in blood and skin caused by hydrogen sulfide poisoning and putrefaction of cadaver.] Nippon Hoigaku Zasshi 40:316-322. (Japanese)
- *Adams DF, Frohliger JO, Falgout D, et al. 1975. Hydrogen sulfide in air analytical method. Health Lab Sci 12(4):362-368.
- *Adelson L, Sunshine I. 1966. Fatal hydrogen sulfide intoxication: Report of three cases occurring in a sewer. Arch Pathol 81:375-380.
- *Adinolfi M. 1985. The development of the human blood-csf-brain barrier. Dev Med Child Neurol 27:532-537.
- *Adlercreutz H. 1995. Phytoestrogens: Epidemiology and a possible role in cancer protection. Environ Health Perspect Suppl 103(7):103-112.
- *Agency for Toxic Substances and Disease Registry. 1989. Decision guide for identifying substance-specific data needs related to toxicological profiles; Notice. Atlanta, GA: Agency for Toxic Substances and Disease Registry, Division of Toxicology. Fed Regist 54(174):37618-37634.

Agency for Toxic Substances and Disease Registry. 1990a. Preliminary health assessment for Brantley Landfill, Island, Kentucky, Region 4, CERCLIS no. KYD980501013. Atlanta, GA: Agency for Toxic Substances and Disease Registry. PB90241944.

Agency for Toxic Substances and Disease Registry. 1990b. Preliminary health assessment for Fort Hartford Coal Stone Quarry, Olaton, Kentucky, Region 4, CERCLIS no. KYD980844625. Atlanta, GA: Agency for Toxic Substances and Disease Registry. PB90241969.

*Agency for Toxic Substances and Disease Registry. 1990c. Biomarkers of organ damage or dysfunction for the renal, hepatobiliary, and immune systems. Subcommittee on Biomarkers of Organ Damage and Dysfunction. Atlanta, GA: Agency for Toxic Substances and Disease Registry.

^{*} Cited in text

- *Agency for Toxic Substances and Disease Registry. 1994. Medical management guidelines (MMGs) for hydrogen sulfide (H2S). Managing hazardous material incidents (MHMI). Volume III. Atlanta, GA: Agency for Toxic Substances and Disease Registry.
- *Agency for Toxic Substances and Disease Registry. 1997. Exposure investigation for Dakota City/South Sioux City: Hydrogen sulfide in ambient air. Atlanta, GA: Agency for Toxic Substances and Disease Registry. http://www.atsdr.cdc.gov/HAC/PHA/dakcity/dak_toc.html. June 21, 2004.
- *Agency for Toxic Substances and Disease Registry. 2000. Petitioned Public Health Assessment: Fresh Kills Landfill– Staten Island, Richmond County, New York. EPA Facility ID: NYD980506943. Atlanta, GA: Agency for Toxic Substances and Disease Registry. http://www.atsdr.cdc.gov/HAC/PHA/freshkills/fkl toc.html. June 21, 2004.
- *Agency for Toxic Substances and Disease Registry. 2001. Landfill gas primer: An overview for environmental health professionals. http://www.atsdr.cdc.gov/HAC/landfill/html/intro.html. July 27, 2004.
- *Ahlborg G. 1951. Hydrogen sulfide poisoning in shale oil industry. Arch Ind Hyg Occup Med 3:247-266
- AIHA. 1991. Emergency response planning guidelines: Hydrogen sulfide. Fairfax, VA. American Industrial Hygiene Association.
- Alexander M. 1974. Microbial formation of environmental pollutants. Adv Appl Microbiol 18:1-73.
- *Al-Haddad AA, Abdo MSE, Abdul-Wahab SA. 1989. Evaluation of Henry's constant for H2S in water and sewage effluents. J Environ Sci Health. Part A, Environ Sci Engin 24:207-227.
- *Allen HE, Fu G, Boothman W, et al. 1994. Determination of acid volatile sulfide and selected simultaneously extractable metals in sediment. U.S. Environmental Protection Agency. PB94183852.
- *Allyn LB. 1931. Notes on hydrogen sulfide poisoning. Industrial and Engineering Chemistry 23(2):234.
- Almeida AF, Guidotti TL. 1999. Differential sensitivity of lung and brain to sulfide exposure: A peripheral mechanism for apnea. Toxicol Sci 50:287-293.
- *Altman PK, Dittmer DS. 1974. Biological handbooks: Biology data book. Volume III, 2nd ed. Bethesda, MD: Federation of American Societies for Experimental Biology, 1987-2008, 2041.
- Ameer Q, Adeloju SB. 2005. Polypyrrole-based electronic noses for environmental and industrial analysis. 106:541-552.
- *American Gas and Chemical Co. 2005. Personal protection indicators. http://www.amgas.com/ttpage.htm. October 05, 2005.
- *Ammann HM. 1986. A new look at physiologic respiratory response to hydrogen sulfide poisoning. J Hazard Mater 13:369-374.

- *Amoore JE, Hautala E. 1983. Odor as an aid to chemical safety: Odor thresholds compared with threshold limit values and volatilities for 214 industrial chemicals in air and water dilution. J Appl Toxicol 3:272-290.
- *Andersen ME, Krishnan K. 1994. Relating *in vitro* to *in vivo* exposures with physiologically-based tissue dosimetry and tissue response models. In: Salem H, ed. Animal test alternatives. Aberdeen Proving Ground, MD: U.S. Army Chemical Research Development and Engineering Center.
- *Andersen ME, Clewell HJ,III, Gargas ML, et al. 1987. Physiologically-based pharmacokinetics and the risk assessment process for methylene chloride. Toxicol Appl Pharmacol 87:185-205.

Andersson AT, Karlsson A, Svensson BH. 2004. Occurrence and abatement of volatile sulfur compounds during biogas production. J Air Waste Manage Assoc 54:855-861.

Aneja VP. 2004. Natural sulfur emissions into the atmosphere. J Air Waste Manage Assoc 40:469-476.

*Aneja VP, Aneja AP, Adams DF. 1982. Biogenic sulfur compounds and the global sulfur cycle. J Air Pollut Control Assoc 32(8):803-807.

Aneja VP, Overton JH, Cupitt LT, et al. 1979. Carbon disulphide and carbonyl sulphide from biogenic sources and their contributions to the global sulphur cycle. Nature 282:493-496.

Anonymous. 1986. Occupational fatality following exposure to hydrogen sulfide—Nebraska. MMWR Morb Mortal Wkly Rep 35:533-535.

- *APHA. 1998. 450-S²- Sulfide. In: Clesceri LS, Greenberg AE, Eaton AD, et al., eds. Standard methods for the examination of water and wastewater. Washington, DC: American Public Health Association/American Water Works Association/Water Environment Federation, 4-162-4-173.
- *API. 2005. H₂S and TRS analyzers for ambient air quality monitoring. Advanced Pollution Instrumentation, Inc. http://www.teledyne-api.com/products/Model.101A.102A.pdf. September 29, 2005.
- *Arizona DEQ. 2005. Ambient air quality guidelines. Arizona Department of Environmental Quality: Phoenix, AZ. http://lists.azdeq.gov/environ/air/permits/download/ambient.pdf. October 20, 2005.

Army. 1994. Development of a chronic sublethal bioassay for evaluating contaminated sediment with the marine polychaete worm *Nereis (Neanthes) arenaceodentata*. Vicksburg, MS: U.S. Army Corps of Engineers, Waterways Experiment Station Environmental Laboratory. Miscellaneous Paper D945.

*Arnold IMF, Dufresne RM, Alleyne BC, et al. 1985. Health implication of occupational exposures to hydrogen sulfide. J Occup Med 27(5):373-376.

Astrakianakis G, Svirchev L, Tang C, et al. 1998. Industrial hygiene aspects of a sampling survey at a bleached-kraft pulp mill in British Columbia. Am Ind Hyg Assoc J 59:694-705.

*Audeau FM, Gnanaharan C, Davey K. 1985. Hydrogen sulphide poisoning: Associated with pelt processing. N Z Med J 98(774):145-147.

Axelrod HD, Cary JH, Bonelli JE, et al. 1969. Fluorescence determination of sub-parts per billion hydrogen sulfide in the atmosphere. Anal Chem 43:1856-1858.

- *Babidge W, Millard S, Roediger W. 1998. Sulfides impair short chain fatty acid β-oxidation at acyl-CoA dehydrogenase level in coloncytes: Implications for ulcerative colitis. Mol Cell Biochem 181:117-124.
- Bacci E, Gaggi C, Lanzillotti E, et al. 2000. Geothermal power plants at Mt. Amiata (Tuscany-Italy): mercury and hydrogen sulphide deposition revealed by vegetation. Chemosphere 40:907-911.
- *Baldelli RJ, Green FHY, Auer RN. 1993. Sulfide toxicity: Mechanical ventilation and hypotension determine survival rate and brain necrosis. J Appl Physiol 75:1348-1353.
- *Balls PW, Liss PS. 1983. Exchange of H₂S between water and air. Atmos Environ 17:735-742.
- Banki K, Elfarra AA, Lash LH, et al. 1986. Metabolism of S-(2-chloro-1,1,2-trifluoroethyl)-L-cysteine to hydrogen sulfide and the role of hydrogen sulfide in S-(2-chloro-1,1,2-trifluoroethyl)-L-cysteine-induced mitochondrial toxicity. Biochem Boughs Res Caiman 138:707-713.
- *Barik S, Corder RE, Clausen EC, et al. 1987. Biological conversion of coal synthesis gas to methane. Energy Progress 7:157-160.
- *Barilyak IR, Vasiljeva IA, Kalinovshaja LP. 1975. [Effects of small concentrations of carbon disulphide and hydrogen sulphide on the intrauterine development of rats.] Arkh Anat Gistol Embriol 68(5):77-81. (Russian)
- *Barnes DG, Dourson M. 1988. Reference dose (RfD): Description and use in health risk assessments. U.S. Environmental Protection Agency. Regul Toxicol Pharmacol 8:471-486.
- *Bartholomew TC, Powell GM, Dodgson KS, et al. 1980. Oxidation of sodium sulphide by rat liver, lungs and kidney. Biochem Pharmacol 29:2431-2437.
- *Bates MN, Garrett N, Graham B, et al. 1997. Air pollution and mortality in the Rotorua geothermal area. Aust N Z J Public Health 21:581-586.
- *Bates MN, Garrett N, Graham B, et al. 1998. Cancer incidence, morbidity and geothermal air pollution in Rotorua, New Zealand. Int J Epidemiol 27:10-14.
- *Bates MN, Garrett N, Shoemack P. 2002. Investigation of health effects of hydrogen sulfide from a geothermal source. Arch Environ Health 57(5):405-411.
- *Beauchamp RO, Bus JS, Popp JA, et al. 1984. A critical review of the literature on hydrogen sulfide toxicity. Crit Rev Toxicol 13:25-97.
- *Beck JF, Bradbury CM, Connors AJ, et al. 1981. Nitrite as an antidote for acute hydrogen sulfide intoxication? Am Ind Hyg Assoc J 42:805-809.
- *Beck JF, Cormier F, Donini JC. 1979. The combined toxicity of ethanol and hydrogen sulfide. Toxicol Lett 3:311-313.
- *Berger GS. 1994. Epidemiology of endometriosis. In: Berger GS, ed. Endometriosis: Advanced management and surgical techniques. New York, NY: Springer-Verlag.

- Berglin EH, Carlsson J. 1986. Effect of hydrogen sulfide on the mutagenicity of hydrogen peroxide in *Salmonella typhimurium* strain TA102. Mutat Res 175:5-9.
- *Bhambhani Y. 1999. Acute effects of hydrogen sulfide inhalation in healthy men and women. Environ Epidemiol Toxicol 1:217-230.
- *Bhambhani Y, Singh M. 1991. Physiological effects of hydrogen sulfide inhalation during exercise in healthy men. J Appl Physiol 71:1872-1877.
- *Bhambhani Y, Burnham R, Snydmiller G, et al. 1994. Comparative physiological responses of exercising men and women to 5 ppm hydrogen sulfide exposure. Am Ind Hyg Assoc J 55:1030-1035.
- *Bhambhani Y, Burnham R, Snydmiller G, et al. 1996a. Effects of 10-ppm hydrogen sulfide inhalation on pulmonary function in health men and women. J Occup Environ Med 38:1012-1017.
- *Bhambhani Y, Burnham R, Snydmiller G, et al. 1996b. Effects of 5-ppm hydrogen sulfide inhalation on biochemical properties of skeletal muscle in exercising men and women. Am Ind Hyg Assoc J 57:464-468.
- *Bhambhani Y, Burnham R, Snydmiller G, et al. 1997. Effects of 10-ppm hydrogen sulfide inhalation in exercising men and women. J Occup Environ Med 39:122-129.
- *Bingham E, Cohrssen B, Powell CH, eds. 2001. Phosphorus, selenium, tellurium, and sulfur. In: Patty's toxicology. 5th ed. New York, NY: John Wiley & Sons, 495-502.
- Bitterman N, Talmi Y, Lerman A, et al. 1986. The effect of hyperbaric oxygen on acute experimental sulfide poisoning in the rat. Toxicol Appl Pharmacol 84:325-328.
- Blackstone E, Morrison M, Roth MB. 2005. H₂S induces a suspended animation-like state in mice. Science 308:518.
- *Blanchette AR, Cooper AD. 1976. Determination of hydrogen sulfide and methyl mercaptan in mouth air at parts-per-billion level by gas chromatography. Anal Chem 48:729-731
- Bomans P, Rappoort G, Malbrain M, et al. 1997. Acute hydrogen sulfide (H₂S) intoxication. Clinical presentation and sequelae in five subjects. Eur Respir J Suppl 10(25):232S.
- *Boon AG. 1992. Septicity in sewers: Causes, consequences and containment. Water and Environmental Management 6:79-90.
- Bosma W, Kamminga G, De Kok LJ. 1990. Hydrogen sulfide-induced accumulation of sulfhydryl compounds in leaves of plants under field and laboratory exposure. In: Rennenberg H et al., eds. Sulfur nutrition and sulfur assimilation in higher plants: Fundamental environmental and agricultural aspects. The Hague, Netherlands: SPB Academic Publishing, 173-175.
- *Bottenheim JW, Strausz OP. 1980. Gas-phase chemistry of clean air at 55 degrees N latitude. Environ Sci Technol 14:709-718.
- Bouanchaud DH, Hellio R, Bieth G, et al. 1975. Physical studies of a plasmid mediating tetracycline resistance and hydrogen sulfide production in *Escherichia coli*. Mol Gen Genet 140(4):355-359.

Boyev VM, Perepelkin SV, Solovykh DI. 1992. [Higher nervous activity and lipoperoxidation under acute inhalation effect of gas condensate containing hydrogen sulfide.] Zh Vyssh Nerv Deiat Im I P Pavlova 42(3):583-590. (Russian)

Brandon RW. 1983. The use of chemically impregnated paper tapes for toxic gas detection and monitoring. Anal Chem Symp Ser 17:726-731.

Braunstein H, Tomasulo M. 1978. Hydrogen sulfide-producing *Citrobacter diversus*. A re-emphasis of the potential ability of all Enterobacteriaceae to manifest this quality. Am J Clin Pathol 69:418-420.

Brenneman KA, James RA, Gross EA, et al. 1999. Olfactory neuronal loss in male CD rats following subchronic inhalation exposure to hydrogen sulfide. Toxicol Pathol 27(6):697.

*Brenneman KA, James RA, Gross EA, et al. 2000. Olfactory neuron loss in adult male CD rats following subchronic inhalation exposure to hydrogen sulfide. Toxicol Pathol 28(2):326-333.

*Brenneman KA, Meleason DF, Sar M, et al. 2002. Olfactory mucosal necrosis in male CD rats following acute inhalation exposure to hydrogen sulfide: Reversibility and the possible role of regional metabolism. Toxicol Pathol 30(2):200-208.

*Breysse PA. 1961. Hydrogen sulfide fatality in a poultry feather fertilizer plant. Am Ind Hyg Assoc J 22:220-222.

Briaux S, Gerbaud G, Jaffe-Brachet A. 1979. Studies of a plasmid coding for tetracycline resistance and hydrogen sulfide production incompatible with the prophage P1. Mol Gen Genet 170:319-325.

*Broderius SJ, Smith LL Jr, Lind DT. 1977. Relative toxicity of free cyanide and dissolved sulfide forms to the fathead minnow (*Pimephales promelas*). Journal of the Fisheries Research Board of Canada 34:2323-2332.

Bronstein AC, Currance PL, eds. 1988. Emergency care for hazardous materials exposure. St. Louis, MO: CV Mosby Company.

Brosseau J, Heitz M. 1994. Trace gas compound emissions from municipal landfill sanitary sites. Atmos Environ 28:285-293.

Brown KG, Strickland JA. 2003. Utilizing data from multiple studies (meta-analysis) to determine effective dose-duration levels. Example: Rats and mice exposed to hydrogen sulfide. Regul Toxicol Pharmacol 37:305-317.

*Budavari S, O'Neil MJ, Smith A, et al., eds. 1996. The merck index: An encyclopedia of chemicals, drugs, and biologicals. 12th ed. Whitehouse Station, NJ: Merck & Co., Inc., 823.

Buick JB, Lowry RC, Magee TR. 2000. Is a reduction in residual volume a sub-clinical manifestation of hydrogen sulfide intoxication? Am J Ind Med 37:296-299.

Bulgin MS, Lincoln SD, Mather G. 1996. Elemental sulfur toxicosis in a flock of sheep. J Am Vet Med Assoc 208:1063-1065.

*Burnett WW, King EG, Grace M, et al. 1977. Hydrogen sulfide poisoning: Review of 5 years' experience. Can Med Assoc J 117:1277-1280.

*CalEPA. 2005. Ambient air quality standards. Air Resources Board, California Environmental Protection Agency: Sacramento, CA. http://www.arb.ca.gov/aqs/aaqs2.pdf. October 20, 2005.

Callender TJ, Morrow L, Subramanian K, et al. 1993. Three-dimensional brain metabolic imaging in patients with toxic encephalopathy. Environ Res 60:259-319.

*Campagna D, Kathman SJ, Pierson R, et al. 2004. Ambient hydrogen sulfide, total reduced sulfur, and hospital visits for respiratory diseases in northeast Nebraska, 1988-2000. J Expo Anal Environ Epidemiol 14(2):180-187.

*Campanya M, Sanz P, Reig R, et al. 1989. Fatal hydrogen sulfide poisoning. Med Lav 80:251-253.

Cardoso AA, Liu H, Dasgupta PK. 1997. Fluorometric fiber optic drop sensor for atmospheric hydrogen sulfide. Talanta 44:1099-1106.

CELDS. 1994. Computer Aided Environmental Legislative Data System.

*Chance B, Schoener B. 1965. High and low energy states of cytochromes. I. In mitochondria. J Biol Chem 241:4567-4573.

*Chan-Yeung M, Wong R, Maclean L, et al. 1980. Respiratory survey of workers in a pulp and paper mill in Powell River, British Columbia. Am Rev Respir Dis 122:249-257.

*ChemFinder. 2006. Hydrogen sulfide. ChemFinder.com. Database and internet searching. http://chemfinder.cambridgesoft.com/result.asp. June 14, 2006.

*ChemID. 2006. Hydrogen sulfide. ChemID*plus*. National Library of Medicine. http://chem.sis.nlm.nih.gov/chemidplus. June 14, 2006.

*Chen X, Jhee K-H, Kruger WD. 2004. Production of the neuromodulator H₂S by cystathionine β-synthase via the condensation of cysteine and homocysteine. J Biol Chem 279:52082-52086.

*Chénard L, Lemay SP, Lague C. 2003. Hydrogen sulfide assessment in shallow-pit swine housing and outside manure storage. J Agric Saf Health 9(4):285-302.

Chengelis CP, Neal RA. 1980. Studies of carbonyl sulfide toxicity: Metabolism by carbonic anhydrase. Toxicol Appl Pharmacol 55:198-202.

Chiu G, Meehan EJ. 1977. Monodisperse sulfur sols from the air oxidation of hydrogen sulfide solutions. Journal of Colloid and Interface Science 62:1-7.

*Cho K-S, Hirai M, Shoda M. 1992. Degradation of hydrogen sulfide by *Xanthomonas* sp. strain DY44 isolated from peat. Appl Environ Microbiol 58:1183-1189.

*Choi J, Hirai M, Shoda M. 1991. Catalytic oxidation of hydrogen sulphide by air over an activated carbon fibre. Applied Catalysis A: General 79:241-248.

Christl SU, Eisner HD, Dusel G, et al. 1996. Antagonistic effects of sulfide and butyrate on proliferation of colonic mucosa—A potential role for these agents in the pathogenesis of ulcerative colitis. Dig Dis Sci 41:2477-2481.

Chung Y-C, Huang C, Tseng C-P. 1996. Biodegradation of hydrogen sulfide by a laboratory-scale immobilized Pseudomonas putida CH11 biofilter. Biotechnol Prog 12:773-778.

Chunyu Z, Junbao D, Dingfang B, et al. 2003. The regulatory effect of hydrogen sulfide on hypoxic pulmonary hypertension in rats. Biochem Biophys Res Commun 302(4):810-816.

*Cihacek LJ, Bremner JM. 1993. Characterization of the sulfur retained by soils exposed to hydrogen sulfide. Commun Soil Sci Plant Anal 24:85-92.

*CIIT. 1983a. 90-Day vapor inhalation toxicity study of hydrogen sulfide in B6C3F₁ mice. Research Triangle Park, NC: Chemical Industry Institute of Toxicology. CIIT docket #42063.

*CIIT. 1983b. 90-Day vapor inhalation toxicity study of hydrogen sulfide in Fischer 344 rats. Research Triangle Park, NC: Chemical Industry Institute of Toxicology. CIIT docket #22063.

*CIIT. 1983c. 90-Day vapor inhalation toxicity study of hydrogen sulfide in Sprague-Dawley rats. Research Triangle Park, NC: Chemical Industry Institute of Toxicology. CIIT docket #32063.

Claesson R, Edlund MB, Persson S, et al. 1990. Production of volatile sulfur compounds by various *Fusobacterium* species. Oral Microbiol Immunol 5:137-142.

*Clewell HJ, Andersen ME. 1985. Risk assessment extrapolations and physiological modeling. Toxicol Ind Health 1:111-131.

Cohen Y, Jorgensen BB, Revsbech NP, et al. 1986. Adaptation to hydrogen sulfide of oxygenic and anoxygenic photosynthesis among cyanobacteria. Appl Environ Microbiol 51:398-407.

Coil JM, Tonzetich J. 1992. Characterization of volatile sulphur compounds production at individual gingival crevicular sites in humans. J Clin Dent 3:97-103.

*Collier A, Hillebrand C, Kelly G, et al. 2002. Investigation into testing and controlling emissions of hydrogen sulfide from gasoline vehicles. General emissions research and technology. Warrendale, PA: Society of Automotive Engineers, 13-22.

Cook WG, Ross RA. 1972. Gas-chromatographic separation of hydrogen sulfide, air, and water. Anal Chem 44:641-642.

Cooper CD, Godlewski VJ, Hanson R, et al. 2001. Odor investigation and control at a WWTP in Orange County, Florida. Environ Prog 20(3):133-143.

*Cooper WJ, Cooper DJ, Saltzman ES, et al. 1987. Emissions of biogenic sulphur compounds from several wetland soils in Florida. Atmos Environ 21:1491-1496.

*Cox RA. 1975. Atmospheric photo-oxidation reactions: The gas phase reaction of OH radicals with some sulphur compounds. AERE-R8132. Harwell, Oxfordshire, England: United Kingdom Atomic Authority.

Cozzarelli IM, Baedecker MJ, Eganhouse RP, et al. 1994. The geochemical evolution of low-molecular-weight organic acids derived from the degradation of petroleum contaminants in groundwater. Geochim Cosmochim Acta 58:863-877.

Cozzarelli IM, Herman JS, Baedecker MJ, et al. 1999. Geochemical heterogeneity of a gasoline-contaminated aquifer. J Contam Hydrol 40:261-284.

CRIS/USDA. 1998. Current Research Information Systems/U.S. Department of Agriculture. Beltsville, MD: U.S. Department of Agriculture.

Curry SC, Gerkin RD. 1987. A patient with sulfhemoglobin? Ann Emerg Med 16:828-830.

Curtis CG, Bartholomew TC, Rose FA, et al. 1972. Detoxification of sodium ³⁵S-sulfide in the rat. Biochem Pharmacol 21:2313-2321.

*Curtis SE, Anderson CR, Simon J, et al. 1975. Effects of aerial ammonia, hydrogen sulfide and swine-house dust on rate of gain and respiratory-tract structure in swine. J Anim Sci 41:735-739.

Danhof IE, Stavola JJ. 1974. Accelerated transit of intestinal gas with simethicone. Obstet Gynecol 44:148-154.

Dankner Y, Jacobson E, Goldenberg E, et al. 1995. Optical based UV-IR gas detector for monitoring hydrocarbons and toxic gases. Proceedings of SPIE-The International Society for Optical Engineering 2426:144-147.

Das A. 2000. Removal of hydrogen sulphide from exhaust gas by scrubbing with chemical reaction. Indian J Environ Prot 20(8):608-615.

Dasgupta PK, Zhang G, Poruthoor SK, et al. 1998. High sensitivity gas sensors based on gas permeable liquid core waveguides and long-path absorbance detection. Anal Chem 70(22):4661-4669.

*Daubert TE, Danner RP. 1989. Hydrogen sulfide. In: Physical and thermodynamic properties of pure chemicals data compilation. Washington, DC: Taylor and Francis.

*Deane M, Sanders G, Jonsson E. 1977. Trends and community annoyance reactions to odors from pulp mills. Eureka, California 1969-1971. Env Res 14:232-244.

*Decsi T, Koletzko B. 1993. Hydrogen sulfide in pediatric parenteral amino acid solutions. J Pediatr Gastroenterol Nutr 17:421-423.

*De Kok LJ, Maas FM, Stulen I, et al. 1988. Sulfur containing air pollutants and their effects on plant metabolism. EUR 11244:620-625.

*De Kok LJ, Rennenberg H, Kuiper PJC. 1991. The internal resistance in spinach leaves to atmospheric hydrogen sulfide deposition is determined by metabolic processes. Plant Physiol Biochem 29:463-470.

*De Kok LJ, Thompson CR, Mudd JB, et al. 1983. Effect of hydrogen sulfide fumigation on water-soluble sulfhydryl compounds in shoots of crop plants. Z Pflanzenphysiol Bd 111:85-89.

*Delaware DNREC. 2005. Ambient air quality standards. Delaware Department of Natural Resources and Environmental Control: Dover, DE: http://www.dnrec.state.de.us/air/aqm_page/regs.htm. October 20, 2005.

*Delphian Corporation. 2005. Delphian detection technology. Sensor technology. http://www.delphian.com/sensor-tech.htm. October 12, 2005.

*Deng J-F. 1992. Hydrogen sulfide. In: Sullivan JB Jr., Krieger GR, eds. Hazardous materials toxicology, clinical principles of environmental health. Baltimore, MD: Williams and Wilkins, 711-717.

*Deng J-F, Chang S-C. 1987. Hydrogen sulfide poisonings in hot-spring reservoir cleaning: Two case reports. Am J Ind Med 11:447-451.

Deplancke B, Gaskins HR. 2003. Hydrogen sulfide induces serum-independent cell cycle entry in nontransformed rat intestinal epithelial cells. FASEB J 17(10):1310-1312.

Deplancke B, Finster K, Graham WV, et al. 2003. Gastrointestinal and microbial responses to sulfate-supplemented drinking water in mice. Exp Biol Med 228(4):424-433.

*Devai I, DeLaune RD. 1999. Emission of reduced maladorous sulfur gases from wastewater treatment plants. Water Environ Res 71:203-208.

DHEW. 1964. The air pollution situation in Terre Haute, Indiana with special reference to the hydrogen sulfide incident of May-June, 1964. Washington DC: U.S. Department of Health, Education, and Welfare, Public Health Service, Division of Air Pollution. PB227486.

Diack C, Bois FY. 2005. Pharmacokinetic-pharmacodynamic models for categorical toxicity data. Regul Toxicol Pharmacol 41(1):55-65.

*Dillon TM, Moore DW, Gibson AB. 1993. Development of a chronic sublethal bioassay for evaluating contaminated sediment with the marine polychaete worm *Nereis* (*Neanthes*) *arenaceodentata*. Environ Toxicol Chem 12:589-605.

DOI. 1994. Amendments to 30 CFR 250.67-hydrogen sulfide. Department of the Interior. Fed Regist 59:57735.

*Dominy JE, Stipanuk MH. 2004. New roles for cysteine and transsulfuration enzymes: Production of H₂S: A neuromodulator and smooth muscle relaxant. Nutr Rev 62(9):348-353.

*Dong J-Z, Glass JN, Moldoveanu SC. 2000. A simple GC-MS technique for the analysis of vapor phase mainstream cigarette smoke. J Microcolumn Sep 12(3):145-152.

Donham KJ, Knapp LW, Monson R, et al. 1982. Acute toxic exposure to gases from liquid manure. J Occup Med 24:142-145.

*Dorevitch S, Forst L, Conroy L, et al. 2002. Toxic inhalation fatalities of US construction workers, 1990-1999. J Occup Environ Med 44(7):657-662.

Dorman DC, Brenneman KA, Struve MF. 1999. Experimental investigations into the neurotoxicity and nasal toxicity of hydrogen sulfide in rats. Environ Epidemiol Toxicol 1(3-4):249-255.

*Dorman DC, Brenneman KA, Struve MF, et al. 2000. Fertility and developmental neurotoxicity effects of inhaled hydrogen sulfide in Sprague-Dawley rats. Neurotoxicol Teratol 22:71-84.

Dorman DC, Moulin FJM, McManus BE, et al. 2002. Cytochrome oxidase inhibition induced by acute hydrogen sulfide inhalation: Correlation with tissue sulfide concentrations in the rat brain, liver, lung, and nasal epithelium. Toxicol Sci 65(1):18-25.

*Dorman DC, Struve MF, Gross EA, et al. 2004. Respiratory tract toxicity of inhaled hydrogen sulfide in Fischer-344 rats, Sprague-Dawley rats, and B6C3F1 mice following subchronic (90-day) exposure. Toxicol Appl Pharmacol 198:29-39.

DOT. 1994a. Transportation of hydrogen sulfide by pipeline. Department of Transportation. Fed Regist 59:57991.

DOT. 1994b. Simultaneous gas-chromatographic determination of four toxic gases generally present in combustion atmospheres. Oklahoma City, OK: U.S. Department of Transportation, Federal Aviation Administration, Office of Aviation Medicine.

DOT. 1996. 1996 North American emergency response guidebook. U.S. Department of Transportation.

Dougherty RW, Wong R, Christensen BE. 1943. Studies on hydrogen-sulfide poisoning. Am J Vet Res 4:254-256.

Downie A. 1978. Hydrogen-sulphide poisoning. Lancet 1:219.

*Draeger Safety. 2005. Draeger safety. http://www.afcintl.com/pdf/tubes.pdf. October 05, 2005.

Dunnette DA, Chynoweth DP, Mancy KH. 1985. The source of hydrogen sulfide in anoxic sediment. Water Res 19:875-884.

Duo S, Lea TC, Stipanuk MH. 1983. Developmental pattern, tissue distribution, and subcellular distribution of cysteine: α-ketoglutarate aminotransferase and 3-mercaptopyruvate sulfurtransferase activities in the rat. Biol Neonat 43:23-32.

*Duong TX, Suruda AJ, Maier LA. 2001. Interstitial fibrosis following hydrogen sulfide exposure. Am J Ind Med 40:221-224.

*Durand M, Scott BJ. 2005. Geothermal ground gas emissions and indoor air pollution in Rotorua, New Zealand. Sci Total Environ 345:69-80.

*Eduard W, Douwes J, Mehl R, et al. 2001. Short term exposure to airborne microbial agents during farm work: Exposure-response relations with eye and respiratory symptoms. Occup Environ Med 58:113-118.

*Ehman DL. 1976. Determination of parts-per-billion levels of hydrogen sulfide in air by potentiometric titration with a sulfide ion-selective electrode as an indicator. Anal Chem 48:918-920.

*Ellenhorn MJ. 1997. Hydrogen sulfide. In: Ellenhorn's medical toxicology: Diagnosis and treatment of human poisoning. 2nd ed. Baltimore, MD: Williams and Wilkins, 1489-1493.

*Elliott S, Rowland FS. 1990. The effect of metal complexation on the hydrogen sulfide transport across the sea-air interface. J Atmos Chem 10:315-327.

*Elovaara E, Tossavainen A, Savolainen H. 1978. Effects of subclinical hydrogen sulfide intoxication on mouse brain protein metabolism. Exp Neurol 62:93-98.

Endecott BR, Sanders DC, Chaturvedi AK. 1996. Simultaneous gas chromatographic determination of four toxic gases generally present in combustion atmospheres. J Anal Toxicol 20:189-194.

Envirogen. 1997. Development of biotrickling filters to treat sulfur and VOC emissions–2nd quarter progress report: December 31, 1996 to March 31, 1997. Lawrenceville, NJ: Envirogen. ADA325705.

Eow JS. 2002. Recovery of sulfur from sour acid gas: A review of the technology. Environ Prog 21(3):143-162.

EPA. 1976. Effect of hydrogen sulfide on fish and invertebrates, Part II–Hydrogen sulfide determination and relationship between pH and sulfide toxicity. Duluth, MN: U.S. Environmental Protection Agency, Environmental Research Lab.

*EPA. 1978. Hydrogen sulfide. Research Triangle Park, NC: U.S. Environmental Protection Agency, Health Effects Research Laboratory. EPA600178018. PB278576.

EPA. 1981. Hydrogen sulfide health effects. Ann Arbor, MI: U.S. Environmental Protection Agency, Emission Control Technology Division. EPA460381028. PB82263732.

*EPA. 1984. Validation of chemical and biological techniques for evaluation of vapors in ambient air/mutagenicity testing of twelve (12) vapor-phase compounds. Research Triangle Park, NC: U.S. Environmental Protection Agency, Health Effects Research Laboratory. EPA600184005. PB84164219.

EPA. 1986. Test methods for evaluating solid waste SW-846. Volume 1-C. Method 9030A. 3rd ed. Washington, DC: U.S. Environmental Protection Agency. Office of Solid Waste and Emergency Response.

*EPA. 1987a. A new look at physiologic respiratory response to hydrogen sulfide poisoning. Research Triangle Park, NC: U.S. Environmental Protection Agency, Office of Research and Development.

EPA. 1987b. Extremely hazardous substances list and threshold planning quantities; emergency planning and release notification requirements. U.S. Environmental Protection Agency. Fed Regist 52(77):13378.

EPA. 1987c. Emergency and hazardous chemical inventory forms and community right-to-know reporting requirements. U.S. Environmental Protection Agency. Fed Regist 52(199):38344.

*EPA. 1988. Recommendations for and documentation of biological values for use in risk assessment. Cincinnati, OH: U.S. Environmental Protection Agency, Office of Research and Development, Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office. EPA600687008.

EPA. 1989a. Emergency and hazardous chemical inventory forms and community right-to-know reporting requirements; implementation of reporting requirements for Indian lands. U.S. Environmental Protection Agency. Fed Regist 54(59):12992.

EPA. 1989b. Community right-to-know reporting requirements. U.S. Environmental Protection Agency. Fed Regist 54(196):41904.

EPA. 1989c. Community right-to-know reporting requirements. U.S. Environmental Protection Agency. Fed Regist 54(196):41907.

EPA. 1989d. Reportable quantity adjustments; correction. U.S. Environmental Protection Agency. Fed Regist 54(247):53057.

*EPA. 1990. Interim methods for development of inhalation reference doses. U.S. Environmental Protection Agency. EPA600890066A.

EPA. 1991. Twenty-seventh report of the Interagency Testing Committee to the administrator; receipt of report and request for comments regarding priority list of chemicals. U.S. Environmental Protection Agency. Fed Regist 56(44):9534.

EPA. 1992. Chemicals; toxic chemical release reporting; community right-to-know; proposed significant new use rule. U.S. Environmental Protection Agency. Fed Regist 57(174):41020.

*EPA. 1993. Report to Congress on hydrogen sulfide air emissions associated with the extraction of oil and natural gas. Research Triangle Park, NC: U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards. EPA453R93045. PB94131224.

EPA. 1994a. Hydrogen sulfide; methyl mercaptan; toxic chemicals release reporting; community right-to-know; stay of reporting requirements. U.S. Environmental Protection Agency. Fed Regist 59(161):43048-43050.

*EPA. 1994b. Methods for derivation of inhalation reference concentrations and application of inhalation dosimetry. U.S. Environmental Protection Agency. EPA600890066F.

*EPA. 1995. Toxic chemical release inventory. Reporting form R and instructions. Washington DC: U.S. Environmental Protection Agency, Office of Pollution Prevention and Toxics. EPA745K95051.

*EPA. 1996. Drinking water regulations and health advisories. U.S. Environmental Protection Agency. EPA822R96001.

*EPA. 1997. Special report on environmental endocrine disruption: An effects assessment and analysis. Washington, DC: U.S. Environmental Protection Agency, Risk Assessment Forum. EPA630R96012.

EPA. 1998a. Standards for the management of specific hazardous wastes and specific types of hazardous waste management facilities. Appendix IV. Reference air concentrations. U.S. Environmental Protection Agency. Code of Federal Regulations. 40 CFR 266.

EPA. 1998b. Emergency planning and notification. Appendix A. The list of extremely hazardous substances threshold planning quantities. U.S. Environmental Protection Agency. Code of Federal Regulations. 40 CFR 355 Appendix A.

EPA. 1998c. Designation of hazardous substances. Appendix A. Sequential CAS registry number list of CERCLA hazardous substances. U.S. Environmental Protection Agency. Code of Federal Regulations. 40 CFR 302.4 Appendix A.

EPA. 1998d. Discarded commercial chemical products, off-specification species, container residues, and spill residues thereof. U.S. Environmental Protection Agency. Code of Federal Regulations. 40 CFR 261.33.

EPA. 1998e. List of substances. Table 1. List of regulated toxic substances and threshold quantities for accidental release prevention. U.S. Environmental Protection Agency. Code of Federal Regulations. 40 CFR 68.130.

EPA. 1998f. Designation of hazardous substances. Table 116.4A. List of hazardous substances. U.S. Environmental Protection Agency. Code of Federal Regulations. 40 CFR 116.4.

EPA. 1998g. Table 117.3–Reportable quantities of hazardous substances designated pursuant to Section 311 of the Clean Water Act. U.S. Environmental Protection Agency. Code of Federal Regulations. 40 CFR 117.3.

*EPA. 1999. Proposed guidelines for carcinogen risk assessment. Risk assessment forum. Washington, DC: U.S. Environmental Protection Agency. NCEA-F-6044. http://www.epa.gov/ncea/raf/pdfs/cancer_gls.pdf. June 14, 2006

*EPA. 2000a. Method 11: Determination of hydrogen sulfide content of fuel gas streams in petroleum refineries. In: CFR promulgated test methods. U.S. Environmental Protection Agency. http://www.epa.gov/ttn/emc/promgate/m-11.pdf. June 15, 2006.

*EPA. 2000b. Method 15: Hydrogen sulfide, carbonyl sulfide, and carbon disulfide. In: CFR promulgated test methods. U.S. Environmental Protection Agency. http://www.epa.gov/ttn/emc/promgate/m-15.pdf. June 15, 2006.

*EPA. 2002. National recommended water quality criteria. Washington, DC: Office of Water, Office of Science and Technology, U.S. Environmental Protection Agency. EPA822R02047.

*EPA. 2004a. Chemical accident prevention provisions: List of substances. Washington, DC: U.S. Environmental Protection Agency. Code of Federal Regulations. 40 CFR 68.130. http://www.epa.gov/epahome/cfr40.htm. June 06, 2004.

EPA. 2004b. Chemical accident prevention provisions: Table of toxic endpoints. Washington, DC: U.S. Environmental Protection Agency. Code of Federal Regulations. 40 CFR 68, Appendix A. http://www.epa.gov/epahome/cfr40.htm. June 06, 2004.

*EPA. 2004c. Designation, reportable quantities, and notification: Designation of hazardous substance. Washington, DC: U.S. Environmental Protection Agency. Code of Federal Regulations. 40 CFR 302.4. http://www.epa.gov/epahome/cfr40.htm. June 06, 2004.

*EPA. 2004d. Emergency planning and notification: The list of extremely hazardous substances and their threshold planning quantities. Washington, DC: U.S. Environmental Protection Agency. Code of Federal Regulations 40 CFR 355, Appendix A. http://www.epa.gov/epahome/cfr40.htm. June 06, 2004.

*EPA. 2004e. Identification and listing of hazardous waste: Hazardous constituents. Washington, DC: U.S. Environmental Protection Agency. Code of Federal Regulations. 40 CFR 261, Appendix VIII. http://www.epa.gov/epahome/cfr40.htm. June 06, 2004.

EPA. 2004f. Programs and activities: Hazardous air pollutants. Washington, DC: U.S. Environmental Protection Agency. U.S. Code: 42 USC 7412. http://www4.law.cornell.edu/uscode/42/7412.html. June 06, 2004.

- *EPA. 2004g. Reportable quantities of hazardous substances designated pursuant to Section 311 of the Clean Water Act. Washington, DC: U.S. Environmental Protection Agency. Code of Federal Regulations. 40 CFR 117.3. http://www.epa.gov/epahome/cfr40.htm. June 06, 2004.
- EPA. 2004h. Standards for the management of specific hazardous wastes and specific types of hazardous waste management facilities: Reference air concentrations. Washington, DC: U.S. Environmental Protection Agency. Code of Federal Regulations. 40 CFR 266, Appendix IV. http://www.epa.gov/epahome/cfr40.htm. June 06, 2004.
- *EPA. 2004i. Toxic chemical release reporting: Community right-to-know: Chemicals and chemical categories to which this part applies. Washington, DC: U.S. Environmental Protection Agency. Code of Federal Regulations. 40 CFR 372.65. http://www.epa.gov/epahome/cfr40.htm. June 06, 2004.
- *EPA. 2004j. Water programs: Designation of hazardous substances. Washington, DC: U.S. Environmental Protection Agency. Code of Federal Regulations. 40 CFR 116.4. http://www.epa.gov/epahome/cfr40.htm. June 06, 2004.
- EPA. 2004k. Acute Exposure Guideline Levels (AEGLs). Hydrogen sulfide. Washington, DC: U.S. Environmental Protection Agency. http://www.epa.gov/oppt/aegl/results57.htm. September 30, 2004.
- *EPA. 2004l. Drinking water standards and health advisories. Washington, DC: Office of Water, U.S. Environmental Protection Agency. EPA822R04005. http://www.epa.gov/waterscience/criteria/drinking/standards/dwstandards.pdf. September 30, 2004.
- *EPA. 2005. Toxic chemical release inventory reporting forms and instructions: Revised 2004 version. Section 313 of the Emergency Planning and Community Right-to-Know Act (Title III of the Superfund Amendments and Reauthorization Act of 1986). U.S. Environmental Protection Agency. Office of Environmental Information. EPA260B05001
- *EPA. 2006a. Acute exposure guideline levels (AEGLs) Washington, DC: Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency. http://www.epa.gov/oppt/aegl/index.htm. June 13, 2006.
- *EPA. 2006b. Chemical accident prevention provisions: list of substances. Washington, DC: U.S. Environmental Protection Agency. Code of Federal Regulations. 40 CFR 68.130.
- *EPA. 2006c. Designated as hazardous substances in accordance with Section 311(b)(2)(A) of the Clean Water Act. U.S. Environmental Protection Agency. Code of Federal Regulations. 40 CFR 116.4. http://www.epa.gov/epacfr40/chapt-I.info/chi-toc.htm. March 07, 2006.
- *EPA. 2006d. National recommended water quality criteria. Washington, DC: U.S. Environmental Protection Agency, Office of Water, Office of Science and Technology. http://www.epa.gov/waterscience/criteria/wqcriteria.html. March 07, 2006.
- *EPA. 2006e. Reportable quantities of hazardous substances designated pursuant to Section 311 of the Clean Water Act. U.S. Environmental Protection Agency. Code of Federal Regulations. 40 CFR 117.3. http://www.epa.gov/epacfr40/chapt-I.info/chi-toc.htm. March 08, 2006.
- *EPA. 2006f. Superfund, emergency planning, and community right-to-know programs. Designation, reportable quantities, and notifications. U.S. Environmental Protection Agency. Code of Federal Regulations. 40 CFR 302.4. http://www.epa.gov/epacfr40/chapt-I.info/chi-toc.htm. March 08, 2006.

*EPA. 2006g. Superfund, emergency planning, and community right-to-know programs. Extremely hazardous substances and their threshold planning quantities. U.S. Environmental Protection Agency. Code of Federal Regulations. 40 CFR 355, Appendix A. http://www.epa.gov/epacfr40/chapt-I.info/chitoc.htm. March 08, 2006.

*EPA. 2006h. Superfund, emergency planning, and community right-to-know programs. Toxic chemical release reporting. U.S. Environmental Protection Agency. Code of Federal Regulations. 40 CFR 372.65. http://www.epa.gov/epacfr40/chapt-I.info/chi-toc.htm. March 08, 2006.

*FDA. 2006. Everything added to food in the United States. Washington, DC: Food and Drug Administration. http://vm.cfsan.fda.gov/~dms/eafus.html. June 13, 2006.

Evans CL. 1967. The toxicity of hydrogen sulphide and other sulphides. Q J Exp Physiol 52:231-248.

Fairfax R, Smith B, Cummins K. 2004. OSHA compliance issues: Hydrogen sulfide exposure at a waste treatment facility. J Occup Environ Hyg 1:D23-D25.

*FEDRIP. 2006. Hydrogen sulfide. Federal Research in Progress. Dialog Information Services, Inc. June 10, 2006.

*Ferguson SA. 1996. Neuroanatomical and functional alterations resulting from early postnatal cerebellar insults in rodents. Pharmacol Biochem Behavior 55:663-671.

*Fomon SJ. 1966. Body composition of the infant. Part I: The male reference infant. Falkner F, ed. Human development. Philadelphia, PA: WB Saunders, 239-246.

*Fomon SJ, Haschke F, Ziegler EE, et al. 1982. Body composition of reference children from birth to age 10 years. Am J Clin Nutr 35:1169-1175.

Florin THJ. 1991. Hydrogen sulphide and total acid-volatile sulphide in feces, determined with a direct spectrophotometric method. Clin Chim Acta 196:127-134.

*Freireich AW. 1946. Hydrogen sulfide poisoning: Report of two cases, one with fatal outcome, from associated mechanical asphyxia. Am J Pathol 22:147-155.

*Fuller DC, Suruda AJ. 2000. Occupationally related hydrogen sulfide deaths in the United States from 1984 to 1994. J Occup Environ Med 42(9):939-942.

*Fulton JP, Vanderslice R, Marshall RJ, et al. 2003. Hydrogen sulfide exposure on Rhode Island's shoreline. Med Health R I 86(11):365-366.

Gadkari SC, Debnath AK, Katti VR, et al. 2000. Development of hydrogen sulfide monitor. BARC Newsletter 193:1-4.

*Gagnaire F, Simon P, Bonnet P, et al. 1986. The influence of simultaneous exposure to carbon disulfide and hydrogen sulfide on the peripheral nerve toxicity and metabolism of carbon disulfide in rats. Toxicol Lett 34:175-183.

*Gaitonde UB, Sellar RJ, O'Hare AE. 1987. Long term exposure to hydrogen sulphide producing subacute encephalopathy in a child. Br Med J (Clin Res Ed) 294:614.

*Giwercman A, Carlsen E, Keiding N, et al. 1993. Evidence for increasing incidence of abnormalities of the human testis: A review. Environ Health Perspect Suppl 101(2):65-71.

Glass DC. 1990a. A review of the health effects of hydrogen sulphide exposure. Ann Occup Hyg 34:323-327.

Glass DC. 1990b. An assessment of the exposure of water reclamation workers to hydrogen sulphide. Ann Occup Hyg 34:509-519.

Gleissner C, Springborn I, Willershausen B. 2002. Evaluation of sulcular sulphide level monitoring using a portable sensor system. Eur J Med Res 7(11):491-501.

*Goodwin LR, Francom D, Dieken FP, et al. 1989. Determination of sulfide in brain tissue by gas dialysis/ion chromatography: Postmortem studies and two case reports. J Anal Toxicol 13:105-109.

Gosselin RE, Smith RP, Hodge HC, et al. 1984. Clinical toxicology of commercial products. Baltimore, MD: Williams & Wilkins, 198-202.

Gould DH. 1998. Polioencephalomalacia. J Anim Sci 76:309-314.

*Goyer N. 1990. Evaluation of occupational exposure to sulfur compounds in paper pulp kraft mills. Am Ind Hyg Assoc J 51:390-394.

Goyer N, Lavoie J. 2001a. Emissions of chemical compounds and bioaerosols during the secondary treatment of paper mill effluents. Am Ind Hyg Assoc J 62(3):330-341.

Goyer N, Lavoie J. 2001b. Identification of sources of chemical and bioaerosol emissions into the work environment during secondary treatment of pulp mill effluents. Tappi 84(2):51.

Grant WM. 1986. Toxicology of the eye. In: Encyclopedia of chemicals, drugs, plants, toxins, and venoms. Springfield, IL: Charles C. Thomas, 495-497.

*Grant WM, Schuman JS. 1993. Hydrogen sulfide. Toxicology of the eye. Effects on the eyes and visual system from chemicals, drugs, metals and minerals, plants, toxins and venoms; also, systemic side effects from eye medications. 4th ed. Springfield, IL: Charles C. Thomas, 797-801.

Granville GC. 1999. Environmental and health concerns of hydrogen sulfide – an industry perspective. Environ Epidemiol Toxicol 1(3-4):231-235.

*Green FHY, Schurch S, De Sanctis GT, et al. 1991. Effects of hydrogen sulfide exposure on surface properties of lung surfactant. J Appl Physiol 70:1943-1949.

Gregorakos L, Dimopoulos G, Liberi S, et al. 1995. Hydrogen sulfide poisoning: Management and complications. Angiology 46:1123-1131.

*Guidotti TL. 1994. Occupational exposure to hydrogen sulfide in the sour gas industry: Some unresolved issues. Int Arch Occup Environ Health 66:153-160.

*Guidotti TL. 1996. Hydrogen sulphide. Occup Med 46:367-371.

Gulf Oil Corporation. 1980. 8E Substantial risk report: Letter from Gulf Oil Corporation to U.S. EPA regarding information on the environmental contamination of hydrogen sulfide that occurred May 3, 1980 in Dunn County, North Dakota. Submitted to the U.S. Environmental Protection Agency, under TSCA section 8E. OTS0204848.

Gunina AI. 1957a. The metabolism of hydrogen sulfide (hydrogen sulfide³⁵) injected subcutaneously. Bull Environ Biol Med 43(2):176-179.

Gunina AI. 1957b. [Transformation of sulfur-35-labeled hydrogen sulfide introduced into blood.] Dokl Akad Nauk SSSR 112:902-904. (Russian)

*Guzelian PS, Henry CJ, Olin SS. 1992. Similarities and differences between children and adults: Implications for risk assessment. Washington, DC: International Life Sciences Institute Press.

*Haahtela T, Marttila O, Vilkka V, et al. 1992. The South Karelia air pollution study: Acute health effects of mlodorous sulfur air pollutants released by a pulp mill. Am J Public Health 82:603-605

Haggard HW. 1921. The fate of sulfides in the blood. J Biol Chem 49:519-529.

Haggard HW. 1925. The toxicology of hydrogen sulphide. J Ind Hyg 7:113-121.

*Hagley SR, South DL. 1983. Fatal inhalation of liquid manure gas. Med J Aust 2:459-460.

Haider SS, Hasan M. 1984. Neurochemical changes by inhalation of environmental pollutants sulfur dioxide and hydrogen sulfide: Degradation of total lipids, elevation of lipid peroxidation and enzyme activity in discrete regions of the guinea pig brain and spinal cord. Ind Health 22:23-31.

*Haider SS, Hasan M, Islam F. 1980. Effect of air pollutant hydrogen sulfide on the levels of total lipids, phospholipids & cholesterol in different regions of the guinea pig brain. Indian J Exp Biol 18:418-420.

*Hall AH. 1996. Systemic asphyxiants. In: Rippe JM, Irwin RS, Fink MP, et al., eds. Intensive care medicine, 3rd ed. Boston, MA: Little, Brown, and Company, 1706-1718.

*Hall AH, Rumack BH. 1997. Hydrogen sulfide poisoning: An antidotal role for sodium nitrite? Vet Hum Toxicol 39:152-154.

Hammond CA. 1986. The Dow-Stretford Chemical Recovery Process. Environ Prog 5:1-4.

Handy RW, Pellizzari ED, Poppiti JA. 1986. A method for determining the reactivity of hazardous wastes that generate toxic gases. Hazardous and Industrial Solid Waste Testing: Fourth Symposium, ASTM STP 886:106-120.

*Hannah RS, Roth SH. 1991. Chronic exposure to low concentrations of hydrogen sulfide produces abnormal growth in developing cerebellar Purkinje cells. Neurosci Lett 122:225-228.

*Hannah RS, Bennington R, Roth SH. 1990. A relationship between hydrogen sulfide exposure and taurine levels in maternal rats. Proc West Pharmacol Soc 33:177-179.

*Hannah RS, Hayden LJ, Roth SH. 1989. Hydrogen sulfide exposure alters the amino acid content in developing rat CNS. Neurosci Lett 99:323-327.

Hartmann K. 1937. [On superficial and deep (disciform) inflammations of the cornea following exposure to hydrogen sulfide of caisson workers on the North Sea shore.] Klinische Monatsblatter für Augenheilkunde 99:456-468. (German)

Hatch RC. 1977. Poisons causing respiratory insufficiency. In: Jones LM, Booth NH, McDonald LE, eds., Veterinary pharmacology and therapeutics. 4th ed. Ames, IA: The Iowa State University Press, 1161-1163.

Hatch RC. 1982. Poisons causing respiratory insufficiency. In: Booth NH, McDonald LE, eds., Veterinary pharmacology and therapeutics. Ames, IA: The Iowa State University Press, 959-975.

Hathaway GJ, Proctor NH, Hughes JP, et al. 1991. Chemical hazards of the workplace. 3rd ed. New York, NY: Van Nostrand Reinhold, 339-340.

*Hayden LJ, Goeden H, Roth SH. 1990a. Exposure to low levels of hydrogen sulfide elevates circulating glucose in maternal rats. J Toxicol Environ Health 31:45-52.

*Hayden LJ, Goeden H, Roth SH. 1990b. Growth and development in the rat during sub-chronic exposure to low levels of hydrogen sulfide. Toxicol Ind Health 6:389-401.

*HazDat. 2006. HazDat Database: ATSDR's Hazardous Substance Release and Health Effects Database. Atlanta, GA: Agency for Toxic Substance and Disease Registry (ATSDR). http://www.atsdr.cdc.gov/hazdat.html. June 12, 2006.

*Hemminki K, Niemi M-L. 1982. Community study of spontaneous abortions: Relation to occupation and air pollution by sulfur dioxide, hydrogen sulfide, and carbon disulfide. Int Arch Occup Environ Health 51:55-63.

Hendrickson RG, Chang A, Hamilton RJ. 2004. Co-worker fatalities from hydrogen sulfide. Am J Ind Med 45(4):346-350.

Henkin RI. 1976. Effects of vapor phase pollutants on nervous system and sensory function. In: Finkel AJ, Duel WC, eds. Clinical implications of air pollution research. Acton, MA: Publishing Sciences Group, 193-216.

Hessel PA, Melenka LS. 1999. Health effects of acute hydrogen sulfide exposures in oil and gas workers. Environ Epidemiol Toxicol 1(3-4):201-206.

*Hessel PA, Herbert FA, Melenka LS, et al. 1997. Lung health in relation to hydrogen sulfide exposure in oil and gas workers in Alberta, Canada. Am J Ind Med 31:554-557.

Higashi T, Toyama T, Sakurai H, et al. 1983. Cross sectional study of respiratory symptoms and pulmonary functions in rayon textile workers with special reference to hydrogen sulfide exposure. Ind Health 21:281-292.

*Higuchi Y, Fukamachi M. 1977. [Behavioral studies on toxicity of hydrogen sulfide by means of conditioned avoidance responses in rats.] Folia Pharmacologica Japonica 73:307-319. (Japanese)

*Hill FB. 1973. Atmospheric sulfur and its links to the biota. Brookhaven Symp Biol 30:159-181.

Hirsch AR. 2002. Hydrogen sulfide exposure without loss of consciousness: Chronic effects in four cases. Toxicol Ind Health 18(2):51-61.

Hirsch AR, Zavala G. 1999. Long term effects on the olfactory system of exposure to hydrogen sulfide. Occup Environ Med 56:284-287.

*Ho CK, Kelley M, Itamura MT, et al. 2001. Review of chemical sensors for in-situ monitoring of volatile contaminants. Albuquerque, New Mexico: Sandia National Laboratories, 1-28.

*Hoel DG, Davis DL, Miller AB, et al. 1992. Trends in cancer mortality in 15 industrialized countries, 1969-1986. J Natl Cancer Inst 84(5):313-320.

*Hoidal CR, Hall AH, Robinson MD, et al. 1986. Hydrogen sulfide poisoning from toxic inhalations of roofing asphalt fumes. Ann Emerg Med 15:826-830.

*Hoke RA, Giesy JP, Zabik M, et al. 1993. Toxicity of sediments and sediment pore waters from the Grand Calumet River—Indiana Harbor, Indiana area of concern. Ecotoxicol Environ Safety 26:86-112.

*Hollis JP Jr. 1985. Hydrogen sulfide in Louisiana rice fields. Acta Phytopathologica Academie Scientarium Hungaricae 20:321-326.

*Hosoki R, Matsuki N, Kimura H. 1997. The possible role of hydrogen sulfide as an endogenous smooth muscle relaxant in synergy with nitric oxide. Biochem Biophys Res Commun 237:527-531.

*HSDB. 2006. Hydrogen sulfide: Environmental standards & regulations. Bethesda, MD: Hazardous Substances Databank. National Library of Medicine. http://toxnet.nlm.nih.gov/cgibin/sis/htmlgen?HSDB. June 12, 2006.

Huang C-C, Chu N-S. 1987. A case of acute hydrogen sulfide (hydrogen sulfide) intoxication successfully treated with nitrites. J Formos Med Assoc 86:1018-1020.

IARC. 1998. IARC Monographs on the evaluation of carcinogenic risks to humans: Lists of IARC evaluations. Lyon, France: World Health Organization.

*IARC. 2006. Agents reviewed by the IARC monographs Volumes 1-88. Lyon, France: International Agency for Research on Cancer. http://monographs.iarc.fr/ENG/Classification/Listagentscasnos.pdf. June 13, 2006.

*Imamura T, Kage S, Kudo K, et al. 1996. A case of drowning linked to ingested sulfides—a report with animal experiments. Int J Legal Med 109:42-44.

*Ingram TI, Hull T, Black M. 1997. A public health assessment tool used to analyze the health and safety effects of a major landfill landslide. J Environ Health 60(2):8-13.

*Iowa DNR. 2004. Iowa air sampling manual. The Iowa Department of Natural Resources. http://www.iowadnr.com/air/afo/files/samplingmanual.pdf. September 29, 2005.

*Iowa DNR. 2005. Air quality bureau - Animal feeding operations. The Iowa Department of Natural Resources. http://www.iowadnr.com/air/afo/afo.html. October 05, 2005.

- Inserra S, Phifer B, Pierson R, et al. 2002. Community-based estimate for hydrogen sulfide. J Expo Anal Environ Epidemiol 12:124-129.
- *Inserra SG, Phifer BL, Anger WK, et al. 2004. Neurobehavioral evaluation for a community with chronic exposure to hydrogen sulfide gas. Environ Res 95:53-61.
- *IRIS. 2006. Hydrogen sulfide. Washington, DC: Integrated Risk Information System. U.S. Environmental Protection Agency. http://www.epa.gov/iris/subst/index.html. June 14, 2006.
- *Isidorov V, Jdanova M. 2002. Volatile organic compounds from leaves litter. Chemosphere 48:975-979.
- *Jaakkola JJ, Vilkka V, Marttila O, et al. 1990. The South Karelia air pollution study. The effects of malodorous sulfur compounds from pulp mill on respiratory and other symptoms. Am Rev Respir Dis 142:1344-1350.
- Janssen HH, Oeschger R. 1992. The body wall of *Halicryptus spinulosus* (Priapulida)-ultrastructure and changes induced by hydrogen sulfide. Hydrobiologia 230:219-230.
- *Jappinen P, Tenhunen R. 1990. Hydrogen sulphide poisoning: Blood sulphide concentration and changes in haem metabolism. Br J Ind Med 47:283-285.
- *Jappinen P, Vilkka V, Marttila O, et al. 1990. Exposure to hydrogen sulphide and respiratory function. Br J Ind Med 47:824-828.
- *Jiang T, Suarez FL, Levitt MD, et al. 2001. Gas production by feces of infants. J Pediatr Gastroenterol Nutr 32:535-541.
- *Johanson CE. 1980. Permeability and vascularity of the developing brain: Cerebellum vs cerebral cortex. Brain Res 190:3-16.
- *Jørgensen BB. 1982. Ecology of the bacteria of the sulphur cycle with special reference to anoxic-oxic interface environments. Philos Trans R Soc Lond B Biol Sci 298:543-561.
- Kage S, Nagata T, Kimura K. 1991. Determination of thiosulfate in body fluids by GC and GC/MS. J Anal Toxicol 15:148-150.
- *Kage S, Nagata T, Kimura K, et al. 1992. Usefulness of thiosulfate as an indicator of hydrogen sulfide poisoning in forensic toxicological examination: A study with animal experiments. Japanese Journal of Forensic Toxicology 10(3):223-227.
- *Kage S, Takekawa K, Kurosaki K, et al. 1997. The usefulness of thiosulfate as an indicator of hydrogen sulfide poisoning: Three cases. Int J Legal Med 110:220-222.
- *Kage S, Ito S, Kishida T, et al. 1998. A fatal case of hydrogen sulfide poisoning in a geothermal power plant. J Forensic Sci 43(4):908-910.
- *Kamoun P. 2004. Endogenous production of hydrogen sulfide in mammals. Amino Acids 26(3):243-254.

Kanagawa T, Mikami E. 1989. Removal of methanethiol, dimethyl sulfide, dimethyl disulfide, and hydrogen sulfide from contaminated air by *Thiobacillus thioparus* TK-m. Appl Environ Microbiol 55(3):555-558.

Kangas J, Ryosa H. 1988. The analysis of reduced sulphur gases in ambient air of workplaces. Chemosphere 17:905-914.

*Kangas J, Savolainen H. 1987. Urinary thiosulphate as an indicator of exposure to hydrogen sulphide vapour. Clin Chim Acta 164(1):7-10.

*Kangas J, Jappinen P, Savolainen H. 1984. Exposure to hydrogen sulfide, mercaptans and sulfur dioxide in pulp industry. Am Ind Hyg Assoc J 45(12):787-790.

Kapala J. 2002. Emission of air pollutants from tanks with volatile substances. Latvian Journal of Physics and Technical Sciences 4:36-42.

*Kauppinen T, Teschke K, Savela A, et al. 1997. International data base of exposure measurements in the pulp, paper and paper products industries. Int Arch Occup Environ Health 70:119-127.

Kellogg WW, Cadle RD, Allen ER, et al. 1972. The sulfur cycle. Science 175:587-596.

*Khan AA, Coppock RW, Schuler MM, et al. 1998. Biochemical effects of subchronic repeated exposures to low and moderate concentrations of hydrogen sulfide in Fischer 344 rats. Inhal Toxicol 10:1037-1044.

*Khan AA, Schuler MM, Prior MG, et al. 1990. Effects of hydrogen sulfide exposure on lung mitochondrial respiratory chain enzymes in rats. Toxicol Appl Pharmacol 103:482-490.

*Khan AA, Yong S, Prior MG, et al. 1991. Cytotoxic effects of hydrogen sulfide on pulmonary alveolar macrophages in rats. J Toxicol Environ Health 33:57-64.

*Kilburn KH. 1993. Case report: Profound neurobehavioral deficits in an oil field worker overcome by hydrogen sulfide. Am J Med Sci 306:301-305.

*Kilburn KH. 1997. Exposure to reduced sulfur gases impairs neurobehavioral function. South Med J 90:997-1006.

Kilburn KH. 1999. Evaluating health effects from exposure to hydrogen sulfide: Central nervous system dysfunction. Environ Epidemiol Toxicol 1(3-4):207-216.

Kilburn KH. 2003. Effects of hydrogen sulfide on neurobehavioral function. South Med J 96(7):639-646.

Kilburn KH, Warshaw RH. 1995. Hydrogen sulfide and reduced-sulfur gases adversely affect neurophysiological functions. Toxicol Ind Health 11:185-197.

Kimbell CL. 1982. Atmospheric monitoring for hydrogen sulfide by photorateometric analysis. Toxic Materials in the Atmosphere ASTM STP 786:60-69.

*Kimura K, Hasegawa M, Matsubara K, et al. 1994. A fatal disaster case based on exposure to hydrogen sulfide - an estimation of the hydrogen sulfide concentration at the scene. Forensic Sci Int 66:111-116.

*Kimura Y, Kimura H. 2004. Hydrogen sulfide protects neurons from oxidative stress. FASEB J 18:1165-1167.

Kirino T, Sano K. 1984. Selective vulnerability in the gerbil hippocampus following transient ischemia. Acta Neuropathol 62:201-208.

*Kirk E. 1949. The quantity and composition of human colonic flatus. Gastroenterology 12:782-794.

Kleinfeld M, Giel C, Rosso A. 1964. Acute hydrogen sulfide intoxication; an unusual source of exposure. Ind Med Surg 33:656-660.

Knight LD, Presnell SE. 2005. Death by sewer gas: Case report of a double fatality and review of the literature. Am J Forensic Med Pathol 26(2):181-185.

*Koe LCC. 1985. Ambient hydrogen sulfide levels at a wastewater treatment plant. Environmental Monitoring and Assessment 5:101-108.

*Kohno M, Tanaka E, Nakamura T, et al. 1991. [Influence of short-term inhalation of hydrogen sulfide in rats.] Jpn J Toxicol Environ Health (Eisei Kagaku) 37:103-106. (Japanese)

*Kombian SB, Reiffenstein RJ, Colmers WF. 1993. The actions of hydrogen sulfide on dorsal raphe serotonergic neurons in vitro. J Neurophysiol 70:81-96.

Kombian SB, Warenycia MW, Mele FG, et al. 1988. Effects of acute intoxication with hydrogen sulfide on central amino acid transmitter systems. Neurotoxicology 9:587-595.

*Komori M, Nishio K, Kitada M, et al. 1990. Fetus-specific expression of a form of cytochrome P-450 in human liver. Biochemistry 29:4430-4433.

*Kosmider S, Rogala E, Pacholek A. 1967. Electrocardiographic and histochemical studies of the heart muscle in acute experimental hydrogen sulfide poisoning. Arch Immunol Ther Exp 15:731-740.

Kotronarou A, Mills G, Hoffmann MR. 1992. Oxidation of hydrogen sulfide in aqueous solution by ultrasonic irradiation. Environ Sci Technol 26:2420-2428.

*Krekel K. 1964. [Electrocardiographic (ECG) changes in two workers after hydrogen sulfide poisoning.] Zentralbl Arbeitsmed 14:159-163. (German)

Kremer L, Spicer LD. 1973. Gas chromatographic separation of hydrogen sulfide, carbonyl sulfide, and higher sulfur compounds with a single pass system. Anal Chem 45:1963-1964.

Kring EV, Damrell DJ, Henry TJ, et al. 1984. Laboratory validation and field verification of a new passive colorimetric air monitoring badge for sampling hydrogen sulfide in air. Am Ind Hyg Assoc J 45:1-9.

*Krishnan K, Andersen ME. 1994. Physiologically-based pharmacokinetic modeling in toxicology. In: Hayes W, ed. Principles and methods of toxicology. 3rd ed. New York, NY: Raven Press, Ltd.

*Krishnan K, Andersen ME, Clewell HJ, III, et al. 1994. Physiologically-based pharmacokinetic modeling of chemical mixtures. In: Yang RSA, ed. Toxicology of chemical mixtures. New York, NY: Academic Press.

Kumar BSM, Balasubramanian N. 1993. Pararosaniline as a new chromogen for the extractive spectrophotometric determination of trace amounts of hydrogen sulfide in air. J AOAC Int 76:730-734.

*Kump LR, Pavlov A, Arthur MA. 2005. Massive release of hydrogen sulfide to the surface ocean and atmosphere during intervals of ocean anoxia. Geology 33:397-400.

Lancero H, Niu J, Johnson PW. 1996. Exposure of periodontal ligament cells to methyl mercaptan reduces intracellular pH and inhibits cell migration. J Dent Res 75:1994-2002.

*Laug EP, Draize JH. 1942. The percutaneous absorption of ammonium hydrogen sulfide and hydrogen sulfide. J Pharmacol Exp Ther 76:179-188.

Lawrence NS, Jiang L, Jones TGJ, et al. 2003. A thin-layer amperometric sensor for hydrogen sulfide: The use of microelectrodes to achieve a membrane-independent response for Clark-type sensors. Anal Chem 75:2499-2503.

*Layton DW, Cederwall RT. 1986. Assessing and managing the risks of accidental releases of hazardous gas: A case study of natural gas wells contaminated with hydrogen sulfide. Environment International 12:519-532.

*Leahey DM, Schroeder MB. 1986. Predictions of maximum ground-level hydrogen sulfide concentrations resulting from two sour gas well blowouts. J Air Pollut Control Assoc 36:1147-1149.

*Leeder JS, Kearns, GL. 1997. Pharmacogenetics in pediatrics: Implications for practice. Ped Clin North America 44:55-77.

Lefebvre M, Yee D, Fritz D, et al. 1991. Objective measures of ocular irritation as a consequence of hydrogen sulphide exposure. Vet Hum Toxicol 33:564-566.

*Lehman AT. 1996. Emissions of toxic release inventory listed chemicals from MSW landfills and Federal Right to Know programs. Proceedings of the Biennial Waste Processing Conference 17:289-303.

*Leonardos G, Kendall D, Bernard N. 1969. Odor threshold determinations of 53 odorant chemicals. J Air Pollut Control Assoc 19:91-95.

*Leung H-W. 1993. Physiologically-based pharmacokinetic modeling. In: Ballantyne B, Marrs T, Turner P, eds. General and applied toxicology. Volume I. New York, NY: Stockton Press, 153-164.

Levine J, Ellis CJ, Furne JK, et al. 1998. Fecal hydrogen sulfide production in ulcerative colitis. Am J Gastroenterol 93:83-87.

Lewis RJ, ed. 1996. Sax's dangerous properties of industrial materials. 9th ed. Albany, NY: Van Nostrand Reinhold, 1843-1844.

Lewis RJ, Schnatter AR, Drummond I, et al. 2003. Mortality and cancer morbidity in a cohort of Canadian petroleum workers. Occup Environ Med 60(12):918-928.

*Lide DR, Frederikse HPR, eds. 1993. CRC handbook of chemistry and physics. 74th ed. Ann Arbor, MI: CRC Press, 6-91, 6-94, 6-101.

*Lim TT, Heber AJ, Ni JQ, et al. 2003. Atmospheric pollutants and trace gases: Odor and gas release from anaerobic treatment lagoons for swine manure. J Environ Qual 32(2):406-416.

Lim TT, Heber AJ, Ni J-Q, et al. 2004. Effects of manure removal strategies on odor and gas emissions from swine finishing. Trans ASAE 47(6):2041-2050.

*Lindell H, Jappinen P, Savolainen H. 1988. Determination of sulphide in blood with an ion-selective electrode by pre-concentration of trapped sulphide in sodium hydroxide solution. Analyst 113:839-840.

*Litovitz T, Felberg L, White S, et al. 1996. 1995 annual report of the American Association of Poison Control Centers Toxic Exposure Surveillance System. Am J Emerg Med 14:487-494, 521.

*Livingston, AL. 1978. Forage plant estrogens. J Toxicol Environ Health 4:301-324.

Lockheed Missiles & Space Company, Inc. 1980. 8E Substantial risk report: Symptoms of all employees who had some contact with exotherm, follow up study of EPA document control no. 8EHQ-0480-0338. Submitted to the U.S. Environmental Protection Agency, under TSCA section 8E. OTS0200599.

*Lopez A, Prior M, Lillie LE, et al. 1988a. Histologic and ultrastructural alterations in lungs of rats exposed to sub-lethal concentrations of hydrogen sulfide. Vet Pathol 25:376-384.

*Lopez A, Prior MG, Reiffenstein RJ, et al. 1989. Peracute toxic effects of inhaled hydrogen sulfide and injected sodium hydrosulfide on the lungs of rats. Fundam Appl Toxicol 12:367-373.

*Lopez A, Prior M, Yong S, et al. 1987. Biochemical and cytological alterations in the respiratory tract of rats exposed for 4 hours to hydrogen sulfide. Fundam Appl Toxicol 9:753-762.

*Lopez A, Prior M, Yong S, et al. 1988b. Nasal lesions in rats exposed to hydrogen sulfide for four hours. Am J Vet Res 49:1107-1111.

*Luck J, Kaye SB. 1989. An unrecognized form of hydrogen sulphide keratoconjunctivitis. Br J Ind Med 46:748-749.

Maas FM, De Kok LJ. 1988. In vitro NADH oxidation as an early indicator for growth reduction of spinach exposed to hydrogen sulfide in the ambient air. Plant Cell Physiol 29:523-526.

Maas FM, De Kok LJ, Kuiper PJC. 1985. The effect of hydrogen sulfide fumigation on various spinach (*Spinacia oleracea L.*) cultivars: Relation between growth inhibition and accumulation of sulphur compounds in the plant. Journal of Plant Physiology 119:219-226.

Magalhaes M, Vance M. 1978. Hydrogen sulphide-positive strains of *Escherichia coli* from swine. J Med Microbiol 11:211-214.

*Maine DEP. 2005. Hazardous air pollutants list and reporting thresholds. Maine Department of Environmental Protection: Augusta, ME. http://www.maine.gov/dep/air/emissions/haps-list.htm. October 20, 2005.

Manz VA. 1968. [The behavior of tissue oxidase and the effect of oxygen doses on the animal in experimental hydrogen sulfide intoxication.] Zentralbl Arbeitsmed 18:325-333. (German)

Mariggio MA, Minunno V, Riccardi S, et al. 1998. Sulfide enhancement of PMN apoptosis. Immunopharmacol Immunotoxicol 20:299-408.

*Mariggio MA, Pettini F, Fumarulo R. 1997. Sulfide influence on polymorphonuclear functions: a possible role for Ca²⁺ involvement. Immunopharmacol Immunotoxicol 19:393-404.

*Marttila O, Haahtela T, Silakoski I, et al. 1994a. The South Karelia air pollution study: Relationship of outdoor and indoor concentrations of malodorous sulfur compounds released by pulp mills. J Air Waste Manag Assoc 44:1093-1096.

*Marttila O, Jaakkola JJK, Partti-Pellinen K, et al. 1995. South Karelia air pollution study: Daily symptom intensity in relation to exposure levels of malodorous sulfur compounds from pulp mills. Environ Res 71:122-127.

*Marttila O, Jaakkola JJK, Vilkka V, et al. 1994b. The South Karelia air pollution study: The effects of malodorous sulfur compounds from pulp mills on respiratory and other symptoms in children. Environ Res 66:152-159.

Matsuo F, Cummins JW, Anderson RE. 1979. Letters to the editor—neurological sequelae of massive hydrogen sulfide inhalation. Arch Neurol 36:451-452.

*Mayr U, Butsch A, Schneider S. 1992. Validation of two in vitro test systems for estrogenic activities with zearalenone, phytoestrogens and cereal extracts. Toxicology 74:135-149.

Mazumder TK, Nishio N, Fukazaki S, et al. 1986. Effect of sulfur-containing compounds on growth of *Methanosarcina barkeri* in defined medium. Appl Environ Microbiol 10:617-622.

*McDonald JM, McIntosh AP. 1951. Fatalities from hydrogen sulfide in wells. Arch Ind Hyg Occup Med 3:445-447.

*McMeekin TA, Patterson JT. 1975. Characterization of hydrogen sulfide-producing bacteria isolated from meat and poultry plants. Appl Microbiol 29:165-169.

*MDH. 2004. Why does my water smell like rotten eggs? Hydrogen sulfide and sulfur bacteria in well water. St. Paul, MN: Minnesota Department of Health.

Mehlman MA. 1991. Dangerous and cancer-causing properties of products and chemicals in the oil refining and petrochemical industry: Part VI—human health and environmental hazards resulting from oil and oil products. J Clean Technol Environ Sci 1:103-121.

Mehlman MA. 1994. Dangerous and cancer-causing properties of products and chemicals in the oil refining and petrochemical industry. Part VII: Adverse health effects and toxic manifestations caused by exposure to hydrogen sulfide, a component of crude oil. Adv Modern Environ Toxicol 23:321-340.

*Milby TH. 1962. Hydrogen sulfide intoxication: Review of the literature and report of an unusual accident resulting in two cases of nonfatal poisoning. J Occup Med 4:431-437.

- *Milby TH, Baselt RC. 1999. Hydrogen sulfide poisoning: Clarification of some controversial issues. Am J Ind Med 35:192-195.
- *Millero FJ, Hubinger S, Fernandez M, et al. 1987. Oxidation of H₂S in sea water as a function of temperature, pH and ionic strength. Environ Sci Technol 21:439-443.
- *Millero FJ, LeFerriere A, Fernandez M, et al. 1989. Oxidation of hydrogen sulfide with H_2O_2 in natural waters. Environ Sci Technol 23(2):209-213.
- *Minnesota PCA. 2004. State ambient air quality standards. Minnesota Rules. Minnesota Pollution Control Agency, Office of the Revisor of Statutes, State of Minnesota. http://www.revisor.leg.state.mn.us/arule/7009/0080.html. August 15, 2004.
- Misiakiewicz Z, Szulinska G, Chyba A. 1972. [Effect of the mixture of carbon disulfide and hydrogen sulfide in air on white rats under conditions of continuous exposure for several months.] Roczniki Panstwowego Zakladu Higieny 23:465-475. (Polish)
- *Missouri DNR. 2005. Ambient air monitoring yearly standard. Missouri Department of Natural Resources: Jefferson City, MO. http://www.dnr.mo.gov/alpd/esp/aqm/mercer.htm#Hydrogen. October 20, 2005.
- *Mitchell TW, Savage JC, Gould DH. 1993. High-performance liquid-chromatography detection of sulfide in tissues from sulfide-treated mice. J Appl Toxicol 13:389-394.
- *Montana DEQ. 2005. Ambient air quality standards. Montana Department of Environmental Quality: Helena, MT. http://www.deq.state.mt.us/dir/legal/Chapters/CH08-02.pdf. October 20, 2005.
- *Moore JWE, Millard S, Babidge W, et al. 1997. Hydrogen sulphide produces diminished fatty acid oxidation in the rat coloon *in vivo*: Implications for ulcerative colitis. Aust NZJ Surg 67:245-249.
- *Morse DL, Woodbury MA, Rentmeester K, et al. 1981. Death caused by fermenting manure. JAMA 245:63-64.
- *Morselli PL, Franco-Morselli R, Bossi L. 1980. Clinical pharmacokinetics in newborns and infants. Clin Pharmacokin 5:485-527.
- *Moulin FJ-M, Brenneman KA, Kimbell J, et al. 2002. Predicted regional flux of hydrogen sulfide correlates with distribution of nasal olfactory lesions in rats. Toxicol Sci 66:7-15.
- Muezzinoglu A. 2003. A study of volatile organic sulfur emissions causing urban odors. Chemosphere 51:245-252.
- Nagai Y, Tsugane M, Oka J, et al. 2004. Hydrogen sulfide induces calcium waves in astrocytes. FASEB J 18(3):557-559.
- *Nagata T, Kage S, Kimura K, et al. 1990. Sulfide concentrations in postmortem mammalian tissues. J Forensic Sci 35:706-712.
- NAPCA. 1969. Preliminary air pollution survey of hydrogen sulfide: A literature review. Raleigh, NC: U.S. Department of Health, Education, and Welfare, National Air Pollution Control Administration. PB82243288.

*NAS/NRC. 1989. Biologic markers in reproductive toxicology. National Academy of Sciences/National Research Council. Washington, DC: National Academy Press, 15-35.

*Nevada DEP. 2005. Ambient air quality standards. Nevada Department of Environmental Protection: Las Vegas, NV. http://ndep.nv.gov/baqp/445b391.pdf. October 20, 2005.

*New Jersey DEP. 2005. Hazardous substances. New Jersey Department of Environmental Protection: Trenton, NJ. http://www.state.nj.us/dep/enforcement/list1.pdf. October 20, 2005.

*New York DEC. 2005a. Ambient air quality standards. New York State Department of Environmental Conservation: Albany, NY. http://www.dec.state.ny.us/website/regs/subpart257_10.html. October 20, 2005.

*New York DEC. 2005b. Identification and listing of hazardous substance. New York State Department of Environmental Conservation: Albany, NY. http://www.dec.state.ny.us/website/regs/part371b.html. October 20, 2005.

*New York DEC. 2005c. Land disposal restrictions. New York State Department of Environmental Conservation: Albany, NY. http://www.dec.state.ny.us/website/regs/part376b.html. October 20, 2005.

*Nicholls P. 1975. The effect of sulphide on cytochrome *aa*₃. Isoteric and allosteric shifts of the reduced a-peak. Biochim Bikophys Acta 396:24-35.

*Nicholls P, Peterson LC, Miller M, et al. 1976. Ligand-induced spectral changes in cytochrome c oxidase and their possible significance. Biochim Boughs 449:188-196.

Nicholson RA, Roth SH, Jian Zheng AZ. 1998. Inhibition of respiratory and bioenergetic mechanisms by hydrogen sulfide in mammalian brain. J Toxicol Environ Health. 54:491-507.

Nicol DJ, Shaw MK, Ledward DA. 1970. Hydrogen sulfide production by bacteria and sulfmyoglobin formation in prepacked chilled beef. Appl Microbiol 19:937-939.

Nikkanen HE, Burns MM. 2004. Severe hydrogen sulfide exposure in a working adolescent. Pediatrics 113(4):927-929.

*NIOSH. 1977a. Criteria for a recommended standard: Occupational exposure to hydrogen sulfide. Cincinnati, OH: U.S. Department of Health and Human Services, Public Health Service, National Institute for Occupational Safety and Health. NIOSH77158. PB274196.

*NIOSH. 1977b. Walk-through survey report, Courtalds North America, Inc., Mobile, Alabama, July 21-22, 1977. Cincinnati, OH: National Institute Occupational Safety and Health. PB88251541.

*NIOSH. 1979. Final report. *In situ* sampling techniques in environmental air analysis. Report no. 5-R01-OH-00632-02. Cincinnati, OH: U.S. Department of Health, Education, and Welfare, National Institute of Occupational Safety and Health. PB84241439.

NIOSH. 1980a. Control technology assessment for coal gasification and liquefaction processes, General Electric Co., Corporate Research and Development Center, Coal Gasification Section, Schenectady, New York. Cincinnati, OH: U.S. Department of Health and Human Services, National Institute for Occupational Safety and Health, Division of Physical Sciences and Engineering. PB84181890.

*NIOSH. 1980b. Technical assistance report TA 80-33, Omaha Waste Pretreatment Plant, Omaha, Nebraska. Cincinnati, OH: National Institute for Occupational Safety and Health, Hazard Evaluations and Technical Assistance Branch. NIOSH-HETA8033. PB81111148.

*NIOSH. 1982a. Control technology assessment for coal gasification and liquefaction processes, Rockwell International, Santa Susana, California. Cincinnati, OH: U.S. Department of Health and Human Services, National Institute for Occupational Safety and Health, Division of Physical Sciences and Engineering. PB84182724.

*NIOSH. 1982b. Health hazard evaluation report HETA 81-327-1161, Caribbean Gulf Refining Corporation, Bayamon, Puerto Rico. Cincinnati, OH: National Institute for Occupational Safety and Health, Hazard Evaluations and Technical Assistance Branch. HETA813271161, PB84150333.

NIOSH. 1982c. In depth site visit report, Alliance Refinery control technology assessment of petroleum refinery operations. Cincinnati, OH: National Institute for Occupational Safety and Health, Division of Physical Sciences and Engineering. PB84148121.

NIOSH. 1982d. Respiratory disease hazards of swine confinement workers. Cincinnati, OH: National Institute for Occupational Safety and Health. PB84241512.

NIOSH. 1983. Control technology assessment of petroleum refinery operations: In-depth site visit report, Getty Refining and Marketing Company's Delaware Refinery, Delaware City, Delaware. Cincinnati, OH: National Institute for Occupational Safety and Health, Division of Physical Sciences and Engineering. PB84146901.

*NIOSH. 1984. Health hazard evaluation report HETA 83-440-1537, Papillion Creek Wastewater Treatment Plant, Omaha, Nebraska. Cincinnati, OH: National Institute for Occupational Safety and Health, Hazard Evaluations and Technical Assistance Branch. HETA834401537. PB208270.

*NIOSH. 1985a. Fatal accident circumstances and epidemiology (FACE) report: Two sanitation employees die in confined space in Kentucky, August 24, 1985. Morgantown, WV: National Institute for Occupational Safety and Health, Division of Safety Research. FACE8544. PB91197848.

*NIOSH. 1985b. Health hazard evaluation report HETA 80-13, 81-147-1644, Schlegel Tennessee, Inc., Maryville, Tennessee. Cincinnati, OH: National Institute for Occupational Safety and Health, Hazard Evaluations and Technical Assistance Branch. HETA8013811471644. PB86221355.

NIOSH. 1985c. Health hazard evaluation report HETA 85-108-1593, Carey Plastics Division, Toledo Molding and Dye Corporation, Carey, Ohio. Cincinnati, OH: National Institute for Occupational Safety and Health, Hazard Evaluations and Technical Assistance Branch. HETA851081593. PB86132164.

*NIOSH. 1985d. Health hazard evaluation report HETA 84-307-1581, Big Dry Creek Plant, Westminister, Colorado. Cincinnati, OH: National Institute for Occupational Safety and Health, Hazard Evaluations and Technical Assistance Branch. HETA843071581. PB86132792.

NIOSH. 1986. Acute and chronic respiratory effects of exposure to inhaled toxic agents. In: Merchant JA, ed. Occupational respiratory diseases. U.S. Department of Health and Human Services, 571-605. DHHS86102.

*NIOSH. 1989. Fatal accident circumstances and epidemiology (FACE) report: Two maintenance workers die after inhaling hydrogen sulfide in manhole, January 31, 1989. Morgantown, WV: National Institute for Occupational Safety and Health. PB91212761.

*NIOSH. 1990. Hazard evaluation and technical assistance report HETA 89-379 and 90-282-L2074, Stone Container Corporation, Missoula, Montana. Cincinnati, OH: National Institute for Occupational Safety and Health, Hazard Evaluations and Technical Assistance Branch. HETA8937990282L2074. PB91146241.

NIOSH. 1992. NIOSH Recommendations for occupational safety and health: Compendium of policy documents and statements. Cincinnati, OH: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, National Institute for Occupational Safety and Health.

NIOSH. 1993. Health hazard evaluation determination report HHE 81-000-113. Martin Marietta Cement, Tulsa, OK. Morgantown, WV: National Institute for Occupational Safety and Health. HHE81000113. PB93113793.

NIOSH. 1994a. Documentation for immediately dangerous to life or health concentrations (IDLHs). Cincinnati, OH: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, National Institute for Occupational Safety and Health.

*NIOSH. 1994b. NIOSH Manual of Analytical Methods. 4th ed. E-N. Cincinnati, OH: U.S. Department of Health and Human Services, Public Health Service, National Institute for Occupational Safety and Health.

*NIOSH. 2005. Hydrogen sulfide. NIOSH pocket guide to chemical hazards. Washington, DC: National Institute for Occupational Safety and Health. http://www.cdc.gov/niosh/npg/npgd0337.html. June 13, 2006.

Nishida K, Osako M, Higuchi T, et al. 1995. Evaporation of offensive odors from wastewater into the atmosphere: Determination of air water Henry's Law constants. Mizu Shori Gijutsu 36:57-75.

Nord CE, Lindberg AA, Dahlback A. 1975. Four-hour tests for the identification of *Enterobacteriaceae*. Med Microbiol Immunol 161:231-238.

*North Carolina DENR. 2005. Hazardous and toxic air pollutants. North Carolina Department of Environmental Natural Resources: Raleigh, NC. http://daq.state.nc.us/toxics/hap/taplist.shtml. October 21, 2005.

NRC. 1979. Hydrogen sulfide. National Research Council, Division of Medical Sciences, Assembly of Life Sciences, Committee on Medical and Biologic Effects on Environmental Pollutants, Subcommittee on Hydrogen Sulfide. Baltimore: University Park Press.

*NRC. 1993. Pesticides in the diets of infants and children. National Research Council, Washington DC: National Academy Press.

*NSF. 1976. Behavior of hydrogen sulfide in the atmosphere and its effects on vegetation. Washington, DC: National Science Foundation, Research Applied to National Needs. NSF/RA760398. PB262733.

*NTP. 2005. Report on Carcinogens, Eleventh Edition; U.S. Department of Health and Human Services, Public Health Service, National Toxicology Program: Research Triangle Park, NC. http://ntp-server.niehs.nih.gov/. October 20, 2005.

O'Connor CJ, Singh RMD, Walde P, et al. 1986. Uptake and metabolism of sulphides by wine yeasts. J Plant Physiol 125:123-136.

*Oderda GM. 1975. Fatality produced by accidental inhalation of drain cleaner fumes. Clin Toxicol 8:547-551.

O'Donoghue JG. 1961. Hydrogen sulphide poisoning in swine. J Comp Med Vet Sci 25:217-219.

Ohge H, Furne JK, Springfield J, et al. 2005. Effectiveness of devices purported to reduce flatus odor. Am J Gastroenterol 100(2):397-400.

Ohya I, Komoriya H, Bunai Y. 1985. [Discoloration of surface of the brain and liver in a case of fatal hydrogen sulfide intoxication.] Research and Practice in Forensic Medicine 28:119-123. (Japanese)

Omarov GG, Kazanbieva MA, Ashurbekov TR, et al. 1981. [Distribution of macro- and trace elements in the organs of experimental animals at different times after death from hydrogen sulfide poisoning.] Sud Med Ekspert 24(3):34-35. (Russian)

*O'Neil MJ, Smith A, Heckelman PE, et al. 2001. Hydrogen sulfide. The Merck index. An encyclopedia of chemicals, drugs, and biologicals. Whitehouse Station, NJ: Merck & Co., Inc., 859.

*Oregon DEQ. 2005. Air toxics. Oregon Department of Environmental Quality: Portland, OR. http://www.deq.state.or.us/aq/hap/atsac/113004_table1_final.pdf. October 21, 2005.

*Osbern LN, Crapo RO. 1981. Dung lung: A report of toxic exposure to liquid manure. Ann Intern Med 95:312-314.

OSHA. 1991. Process safety management of highly hazardous chemicals; explosives and blasting agents. Occupational Safety and Health Administration. Fed Regist 57(36):6356.

*OSHA. 2006a. Air contaminants. Occupational safety and health standards for shipyard employment. Washington, DC: Occupational Safety and Health Administration. Code of Federal Regulations. 29 CFR 1915.1000. http://www.osha.gov/comp-links.html. June 13, 2006.

*OSHA. 2006b. Gases, vapors, fumes, dusts, and mists. Safety and health regulations for construction. Washington, DC: Occupational Safety and Health Administration. Code of Federal Regulations. 29 CFR 1926.55, Appendix A. http://www.osha.gov/comp-links.html. June 13, 2006.

*OSHA. 2006c. Highly hazardous chemicals. Occupational safety and health standards. Washington, DC: Occupational Safety and Health Administration. Code of Federal Regulations. 29 CFR 1910.119, Appendix A. http://www.osha.gov/comp-links.html. June 13, 2006.

*OSHA. 2006d. Limits for air contaminants. Occupational safety and health standards. Washington, DC: Occupational Safety and Health Administration. Code of Federal Regulations. 29 CFR 1910.1000. http://www.osha.gov/comp-links.html. June 13, 2006.

*OTA. 1990. Neurotoxicology: Identifying and controlling poisons of the nervous system. Washington, DC: Office of Technology Assessment. OTABA438.

*Owen GM, Brozek J. 1966. Influence of age, sex, and nutrition on body composition during childhood and adolescence. In: Falkner, ed. Human development. Philadelphia, PA: Saunders, 222-238.

Pan-Hou HSK, Hosono M, Imura N. 1980. Plasmid-controlled mercury biotransformation by *Clostridium cochlearium* T-2. Appl Environ Microbiol 40:1007-1011.

*Parra O, Monso E, Gallego M, et al. 1991. Inhalation of hydrogen sulphide: A case of subacute manifestations and long term sequelae. Br J Ind Med 48:286-287.

*Partlo LA, Sainsbury RS, Roth SH. 2001. Effects of repeated hydrogen sulphide (H₂S) exposure on learning and memory in the adult rat. Neurotoxicology 22:177-189.

*Partti-Pellinen K, Martilla O, Vilkka V, et al. 1996. The South Karelia air pollution study: Effects of low-level exposure to malodorous sulfur compounds on symptoms. Arch Environ Health 51:315-320.

*Parvinen P, Lajunen LHJ. 1994. Determination of sulfide as hydrogen sulfide in water and sludge samples by gas phase molecular AS. Atomic Spectros 15:83-86.

*Patterson CG, Runnells DD. 1992. Dissolved gases in groundwater as indicators of redox conditions. In: Kharaka YK, Maest AS, eds. Water Rock Interaction: Proceedings of the 7th International Symposium. Rotterdam, Netherlands: Ashgate Pub Co., 517-520.

Persson S. 1992. Hydrogen sulfide and methyl mercaptan in periodontal pockets. Oral Microbiol Immunol 7:378-379.

*Peters JW. 1981. Hydrogen sulfide poisoning in a hospital setting. JAMA 246:1588-1589.

*Petersen LC. 1977. The effect of inhibitors on the oxygen kinetics of cytochrome c oxidase. Biochem Biophys Acta 460:299-307.

Petito C, Feldmann E, Pulsinelli W, et al. 1987. Delayed hippocampal damage in humans following cardiorespiratory arrest. Neurology 37:1281-1286.

*Phae C-G, Shoda M. 1991. A new fungus which degrades hydrogen sulfide, methanethiol, dimethyl sulfide and dimethyl disulfide. Biotechnol Lett 13:375-380.

*Pitcher MCL, Cummings JH. 1996. Hydrogen sulphide: A bacterial toxin in ulcerative colitis? Gut 39:1-4.

Pitcher MCL, Beatty ER, Harris RM, et al. 1998. Sulfur metabolism in ulcerative colitis investigation of detoxification enzymes in peripheral blood. Dig Dis Sci 43:2080-2085.

*Poda GA. 1966. Hydrogen sulfide can be handled safely. Arch Environ Health 12:795-800.

- *Pouliquen F, Blanc C, Arretz E, et al. 1989. Hydrogen sulfide. In: Elvers B, Hawkins S, Revenscroft M, et al., eds. Ullmann's encyclopedia of industrial chemistry. Volume A13: High-performance fibers to imidazole and derivatives. Deerfield Beach, FL: VCH Publishers, 467-485.
- *Prior M, Green F, Lopez A, et al. 1990. Capsaicin pretreatment modifies hydrogen sulphide-induced pulmonary injury in rats. Toxicol Pathol 18:279-288.
- *Prior MG, Sharma AK, Yong S, et al. 1988. Concentration-time interactions in hydrogen sulphide toxicity in rats. Can J Vet Res 52:375-379.
- *Puacz W, Szahun W, Linke K. 1995. Catalytic determination of sulfide in blood. Analyst 120:939-941.
- *Radford-Knoery J, Cutter GA. 1993. Determination of carbonyl sulfide and hydrogen sulfide species in natural waters using specialized collection procedures and gas chromatography with flame photometric detection. Anal Chem 65:976-982.
- *Ravizza AG, Carugo D, Cerchiari EL, et al. 1982. The treatment of hydrogen sulfide intoxication: Oxygen versus nitrites. Vet Hum Toxicol 24:241-242.
- *Reiffenstein RJ, Hulbert WC, Roth SH. 1992. Toxicology of hydrogen sulfide. Annu Rev Pharmacol Toxicol 32:109-134.
- *Richardson CJ, Magee EAM, Cummings JH. 2000. A new method for the determination of sulphide in gastrointestinal contents and whole blood by microdistillation. Clin Chim Acta 293:115-125.
- *Richardson DB. 1995. Respiratory effects of chronic hydrogen sulfide exposure. Am J Ind Med 28:99-108.
- *Rimatori V, Qiao N, Staiti D, et al. 1996. Determination of pollutants in the air of textile industries. J Occup Health 38:128-132.
- Rist B. 2005. Sniffing nose. Leak detector for highly toxic gases. Chemie Technik 34(1-2):40-41.
- Robinson AV. 1982. Effect of *in vitro* exposure to hydrogen sulfide on rabbit alveolar macrophages cultured on gas-permeable membranes. Environ Res 27:491-500.
- Robinson FR, Runnels LJ, Conrad DA, et al. 1990. Pathologic response of the lung to irritant gases. Vet Hum Toxicol 32:569-572.
- *Roediger WEW, Moore J, Babidge W. 1997. Colonic sulfide in pathogenesis and treatment of ulcerative colitis. Dig Dis Sci 42:1571-1579.
- Rogers RE, Ferin J. 1981. Effect of hydrogen sulfide on bacterial inactivation in the rat lung. Arch Environ Health 36:261-264.
- *Ronk R, White MK. 1985. Hydrogen sulfide and the probabilities of 'inhalation' through a tympanic membrane defect. J Occup Med 27:337-340.
- *Rosenberg M, Septon I, Eli I, et al. 1991. Halitosis measurement by an industrial sulphide monitor. J Periodontol 62:487-489.

Roth SH. 2004. Toxicological and environmental impacts of hydrogen sulfide. In: Wang R, ed. Signal transduction and the gasotransmitters. Totowa, NJ: Humana Press, 293-313.

*Roth SH, Skrajny B, Reiffenstein RJ. 1995. Alteration of the morphology and neurochemistry of the developing mammalian nervous system by hydrogen sulphide. Clin Exp Pharmacol Physiol 22:379-380.

Roth SH, Skrajny B, Bennington R, et al. 1997. Neurotoxicity of hydrogen sulfide may result from inhibition of respiratory enzymes. Proc West Pharmacol Soc 40:41-43.

Rowland IR, Davies MJ, Grasso P. 1978. Metabolism of methylmercuric chloride by the gastro-intestinal flora of the rat. Xenobiotica 8:37-43.

*Ruth JH. 1986. Odor thresholds and irritation levels of several chemical substances: A review. Am Ind Hyg Assoc J 47:142-151.

Ruzicka J, Knopfelmacher E. 1958. [A case of massive hydrogen sulfide poisoning.] Prac Lek 10:52-54. (Czech)

*Saillenfait AM, Bonnet P, de Ceaurriz J. 1989. Effects of inhalation exposure to carbon disulfide and its combination with hydrogen sulfide on embryonal and fetal development in rats. Toxicol Lett 48:57-66.

Sarner E, Hultman BG, Berglund AE. 1988. Anaerobic treatment using new technology for controlling hydrogen sulfide toxicity. Tappi (Tech Assoc Pulp Pap Ind) J 71:41-45.

*Saunders F, Larson L, Tatum V. 2002. Evaluation of passive card monitors for hydrogen sulfide for use in kraft pulp mill workplace atmospheres. Am Ind Hyg Assoc J 63:317-325.

*Savolainen H, Tenhunen R, Elovaara E, et al. 1980. Cumulative biochemical effects of repeated subclinical hydrogen sulfide intoxication in mouse brain. Int Arch Occup Environ Health 46:87-92.

*Schechter MT, Spitzer WO, Hutcheon ME, et al. 1989. Cancer downwind from sour gas refineries: The perception and the reality of an epidemic. Environ Health Perspect 79:283-290.

Schmidt NF, Missan SR, Tarbet WJ. 1978. The correlation between organoleptic mouth-odor ratings and levels of volatile sulfur compounds. Oral Surg Oral Med Oral Pathol 45:560-567.

*Schneider JS, Tobe EH, Mozley Jr. PD, et al. 1998. Persistent cognitive and motor deficits following acute hydrogen sulphide poisoning. Occup Med 48:255-260.

Scott HM, Soskolne CL, Lissemore KD, et al. 2003. Associations between air emissions from sour gas processing plants and indices of cow retainment and survival in dairy herds in Alberta. Can J Vet Res 67:1-11.

Searcy DG, Lee SH. 1998. Sulfur reduction by human erythrocytes. J Exp Zool 282:310-322.

Seelye RJ, Yearbury BJ. 1979. Isolation of *Yersinia enterocolitica*-resembling organisms and *Alteromonas putrefaciens* from vacuum-packed chilled beef cuts. J Appl Bacteriol 46:493-499.

Selvapathy P, Ramakrishna TV, Pitchai R. 1989. Improved method of sampling and determination of traces of hydrogen sulfide. Mikrochim Acta 2:23-29.

*Setchell BP, Waites GMH. 1975. The blood testis barrier. In: Creep RO, Astwood EB, Greiger SR, eds. Handbook of physiology: Endocrinology V. Washington, DC: American Physiological Society.

Sharma VK, Smith JO, Millero FJ. 1997. Ferrate(VI) oxidation of hydrogen sulfide. Environ Sci Technol 31:2486-2491.

*Shim C, Williams MH. 1986. Effects of odor on asthma. Am J Med 80:18-22.

*Siegel SM, Penny P, Siegel BZ, et al. 1986. Atmospheric hydrogen sulfide levels at the Sulfur Bay Wildlife area, Lake Rotorua, New Zealand. Water Air Soil Pollut 28:385-391.

*Sittig M. 2002. Handbook of toxic and hazardous chemicals and carcinogens. Park Ridge, NJ: Noyes Publications, 914-916.

*Skrajny B, Hannah RS, Roth SH. 1992. Low concentrations of hydrogen sulphide alter monoamine levels in the developing rat central nervous system. Can J Physiol Pharmacol 70:1515-1518.

Skrajny B, Reiffenstein RJ, Sainsbury RS, et al. 1996. Effects of repeated exposures of hydrogen sulphide on rat hippocampal EEG. Toxicol Lett 84:43-53.

*Slooff W, Bont PFH, Janus JA, et al. 1991. Exploratory report, hydrogen sulphide. Bilthoven, Netherlands: National Institute of Public Health and Environmental Protection. RIVM710401011. PB92209105.

Smilkstein MJ, Bronstein AC, Pickett HM, et al. 1985. Hyperbaric oxygen therapy for severe hydrogen sulfide poisoning. J Emerg Med 3:27-30.

*Smith B, Cummins K. 2004. Hydrogen sulfide exposure at a waste treatment facility. J Occup Environ Hyg 1(3):D23-D25.

*Smith KA, Bremner JM, Tabatalag MA. 1973. Sorption of gaseous atmospheric pollutants by soils. Soil Sci 116:313-319.

*Smith L, Kruszyna H, Smith RP. 1977. The effect of methemoglobin on the inhibition of cytochrome *c* oxidase by cyanide, sulfide or azide. Biochem Pharmacol 26:2247-2250.

Smith RP. 1997. Editorial commentary-sulfide poisoning. Clin Toxicol 35:305-306.

*Smith RP, Abbanat RA. 1966. Protective effect of oxidized glutathione in acute sulfide poisoning. Toxicol Appl Pharmacol 9:209-217.

*Smith RP, Gosselin RE. 1964. The influence of methemoglobinemia on the lethality of some toxic anions: II. Sulfide. Toxicol Appl Pharmacol 6:584-592.

*Smith RP, Gosselin RE. 1979. Hydrogen sulfide poisoning. J Occup Med 21:93-97.

*Smith RP, Kruszyna R, Kruszyna H. 1976. Management of acute sulfide poisoning. Effects of oxygen, thiosulfate, and nitrite. Arch Environ Health 33:166-169.

*Snyder JW, Safir EF, Summerville GP, et al. 1995. Occupational fatality and persistent neurological sequelae after mass exposure to hydrogen sulfide. Am J Emerg Med13:199-203.

Socha P, Heim P, Koletzko B. 1996. Short report—hydrogen sulfide in parenteral amino-acid solutions. Clinical Nutrition 15:34-35.

*Solis MC, Volpe AR. 1973. Determination of sulfur volatiles in putrefied saliva by a gas chromatography-microcoulometric titrating system. J Periodontol 44:775-778.

Solnyshkova TG. 2003. Demyelination of nerve fibers in the central nervous system caused by chronic exposure to natural hydrogen sulfide-containing gas. Bull Exp Biol Med 136(4):328-332.

Solnyshkova TG, Shakhlamov VA. 2002. Ultrastructural and morphometric characteristics of nerve cells and myelinated fibers in the cerebral cortex after chronic exposure to natural gas containing hydrogen sulfide in low concentrations. Bull Exp Biol Med 4:411-413.

Solnyshkova TG, Shakhlamov VA, Volodina EP. 2004. Cerebral cortex ultrastructure during exposure to hydrogen sulfide gas. Neurosci Behav Physiol 34(4):343-345.

*Sorokin Y. 1993. Asphyxiants. In: Maureen P, ed. Occupational and environmental reproductive hazards: A guide for clinicians. Baltimore, MD: Williams & Wilkins, 253-266.

*Søstrand P, Tvedt B, Eduard W, et al. 2000. Hazardous peak concentrations of hydrogen sulfide gas related to the sewage purification process. Am Ind Hyg Assoc J 61:107-110.

*Spolyar LW. 1951. Three men overcome by hydrogen sulfide in starch plant. Industrial Health Monthly 11:116-117.

*SRI. 2005. 2005 Directory of chemical producers: United States of America. Menlo Park, CA: Stanford Research Institute International, 675.

Stern FB, Beaumont JJ, Halperin WE, et al. 1987. Mortality of chrome leather tannery workers and chemical exposures in tanneries. Scand J Work Environ Health 13:108-117.

*Stetter JR, Sedlak JM, Blurton KF. 1977. Electrochemical gas chromatographic detection of hydrogen sulfide at PPM and PPB levels. J Chromatogr Sci 15:125-128.

Stewart G, Whitenett G, Atherton K, et al. 2002. Optical fiber sensors for environmental monitoring of trace gases. Proc SPIE Int Soc Opt Eng 4829(2):963-964.

*Stine RJ, Slosberg B, Beacham BE. 1976. Hydrogen sulfide intoxication: A case report and discussion of treatment. Ann Intern Med 85:756-758.

*Struve MF, Brisbois JN, James RA, et al. 2001. Neurological effects associated with short-term exposure of Sprague-Dawley rats to hydrogen sulfide. Neurotoxicology 22:375-385.

Suarez FL, Furne JK, Springfield J, et al. 1998a. Bismuth subsalicylate markedly decreases hydrogen sulfide release in the human colon. Gastroenterology 114:923-929.

Suarez F, Furne J, Springfield J, et al. 1998b. Production and elimination of sulfur-containing gases in the rat colon. Am J Physiol 274:G727-733.

Susman JL, Hornig JF, Thomae SC, et al. 1978. Pulmonary excretion of hydrogen sulfide, methanethiol, dimethyl sulfide and dimethyl disulfide in mice. Drug Chem Toxicol 1:327-338.

*Svendsen K. 2001. Hydrogen sulphide. Arbete Och Halsa 127:1-310.

Sze ND, Ko MKW. 1980. Photochemistry of COS, CS₂, CH₃SCH₃ and H₂S: Implications for the atmospheric sulfur cycle. Atmos Environ 14:1223-1239.

*Tabacova A. 1986. Maternal exposure to environmental chemicals. Neurotoxicol 7:421-440

*Takemoto BK, Noble RD, Harrington HM. 1986. Differential sensitivity of duckweeds (*Lemnaceae*) to sulfite: II. Thiol production and hydrogen sulphide emission as factors influencing sulphite phytotoxicity under low and high irradiance. New Phytologist 103:541-548.

*Tansy MF, Kendall FM, Fantasia J, et al. 1981. Acute and subchronic toxicity studies of rats exposed to vapors of methyl mercaptan and other reduced-sulfur compounds. J Toxicol Environ Health 8:71-88.

ten Berge WF, Zwart A, Appelman LM. 1986. Concentration-time mortality response relationship of irritant and systematically acting vapours and gases. J Hazard Mater 13:301-309.

*Tenhunen R, Savolainen H, Jappinen P. 1983. Changes in haem synthesis associated with occupational exposure to organic and inorganic sulphides. Clin Sci 64:187-191.

*Teschke K, Ahrens W, Andersen A, et al. 1999. Occupational exposure to chemical and biological agents in the nonproduction departments of pulp, paper, and paper product mills: An international study. Am Ind Hyg Assoc J 60:73-83.

*Thermo Electron Corp. 2005a. Model 45C H2S analyzer. http://www.thermo.com/com/cda/product/detail/1,1055,14676,00.html. October 12, 2005.

*Thermo Electron Corp. 2005b. Model 450C pulsed fluorescence analyzer. http://www.thermo.com/com/cda/product/detail/1,1055,1984,00.html. October 12, 2005.

*Thermo Electron Corp. 2005c. Model 450C-TL pulsed fluorescence analyzer. http://www.thermo.com/com/cda/product/detail/1,1055,19839,00.html. October 12, 2005.

*Thoman M. 1969. Sewer gas: Hydrogen sulfide intoxication. Clin Toxicol 2:383-386.

*Thomas K, Colborn T. 1992. Organochlorine endocrine disruptors in human tissue. In: Colborn T, Clement C, eds. Chemically induced alterations in sexual and functional development: The wildlife/human connection. Princeton, NJ: Princeton Scientific Publishing, 365-394.

Toda K, Dasgupta PK, Li J, et al. 2001. Fluorometric field instrument for continuous measurement of atmospheric hydrogen sulfide. Anal Chem 73:5716-5724.

*Tomar M, Abdullah THA. 1994. Evaluation of chemicals to control the generation of malodorous hydrogen sulfide in waste water. Water Res 28:2545-2552.

Tonzetich J. 1971. Direct gas chromatographic analysis of sulphur compounds in mouth air in man. Arch Oral Biol 16:587.

*Tonzetich J, Carpenter PAW. 1971. Production of volatile sulphur compounds from cysteine, cystine and methionine by human dental plaque. Arch Oral Biol 16:599-607.

Torrans EL, Clemens HP. 1982. Physiological and biochemical effects of acute exposure of fish to hydrogen sulfide. Comp Biochem Physiol C 71:183-190.

Trizno NN, Velikanov EB, Tarakanov IA, et al. 1993. [Changes in respiration and circulation with inhalation of air combined with lethal and sublethal concentrations of hydrogen sulfide in natural gas.] Biull Eksp Biol Med 116(7):25-29. (Russian)

*TRI03. 2006. TRI explorer: Providing access to EPA's toxics release inventory data. Washington, DC: Office of Information Analysis and Access. Office of Environmental Information. U.S. Environmental Protection Agency. Toxics Release Inventory. http://www.epa.gov/triexplorer/. June12, 2006.

Troisi FM. 1953. [On some cases of conjunctivitis and keratitis from hydrogen sulfide in a sugar refinery.] Med Lav 44:83-87. (Italian)

Trumbore DC. 1999. Estimates of air emissions from asphalt storage tanks and truck loading. Environ Prog 18(4):250-259.

Tsuji M, Nakano T, Okuno T. 1990. Desorption of odor substances from water bodies to the atmosphere. Atmos Environ 24A:2019-2021.

*Tvedt B, Edland A, Skyberg K, et al. 1991a. Delayed neuropsychiatric sequelae after acute hydrogen sulfide poisoning: Affection of motor function, memory, vision and hearing. Acta Neurol Scand 84:348-351.

*Tvedt B, Skyberg K, Aaserud O, et al. 1991b. Brain damage caused by hydrogen sulfide: A follow-up study of six patients. Am J Ind Med 20:91-101.

*Tyagi RD, Tran FT, Polprasert C. 1988. Bioconversion of lignosulphonate into lignin and hydrogen sulfide by mutualistic bacterial system. Journal of Microbial Biotechnology 3:90-98.

Vainstein BM. 1977. [Oxidation of hydrogen sulphide by thionic bacteria.] Mikrobiologiia 46(6):1111-116. (Russian)

van Aalst JA, Isakov R, Polk JD, et al. 2000. Hydrogen sulfide inhalation injury. J Burn Care Rehab 21(3):248-253.

van de Ven FHM, Hooghart JC, eds. 1986. Urban storm water quality and effects upon receiving waters. TNO Committee on Hydrological Research, International Conference, Proceedings and Information no. 36, Wageningen, The Netherlands, October 1986. The Hague, Netherlands: Netherlands Organization for Applied Scientific Research TNO. PB88115357.

*Van Den Berge LP, Devreese A, Vanhoorne M. 1985. A simplified method for the determination of hydrogen sulfide in the work environment. Am Ind Hyg Assoc J 46:693-695.

*Vanhoorne M, de Rouck A, de Bacquer D. 1995. Epidemiological study of eye irritation by hydrogen sulphide and/or carbon disulphide exposure in viscose rayon workers. Ann Occup Hyg 39:307-315.

van Zwieten PA. 2003. Hydrogen sulphide: Not only foul smelling, but also pathophysiologically relevant. J Hypertens 21(10):1819-1820.

Vasilieva IA. 1973. [Effect of small concentrations of carbon disulfide and hydrogen sulfide on the menstrual function of women and the estrual cycle of experimental animals.] Gig Sanit 7:24-27. (Russian)

Velikanov EB, Safonov VA. 1993. [Effects of industrial natural hydrogen sulphide-containing gas of Astrakhan field on respiratory neurons activity.] Biull Eksp Biol Med 116(7):32-34. (Russian)

Verschueren K. 1983. Handbook of environmental data on organic chemicals. New York, NY: Van Nostrand Reinhold Company, 744-745.

*Vieira I, Sonnier M, Cresteil T. 1996. Developmental expression of CYP2E1 in the human liver: Hypermethylation control of gene expression during the neonatal period. Eur J Biochem 238:476-483.

Vincent R, Limasset JC, Cicolella A, et al. 1985. [Simultaneous determination of hydrogen sulfide and carbon disulfide in working atmospheres.] Analysis 13:415-419. (French)

*Vismann B. 1991. Physiology of sulfide detoxification in the isopod *Saduria (Mesidotea) entomon*. Marine Ecology Progress Series 76:283-293.

Voigt GE, Muller P. 1955. The histochemical effect of hydrogen sulfide poisoning. Acta Histochem 1:223-239.

Von Riesen VL. 1978. Tryptophan and hydrogen sulfide reaction from modified tryticase soy agar. J Clin Microbiol 7:106-108.

Waernbaum G, Wallin I. 1979. Hazards in the work environment—hydrogen sulfide. Scand J Work Environ Health 5:31-34.

Waldner CL, Ribble CS, Janzen ED. 1998. Evaluation of the impact of a natural gas leak from a pipeline on productivity of beef cattle. J Am Vet Med Assoc 212:41-48.

*Wallingford KM, Snyder EM. 2001. Occupational exposures during the World Trade Center disaster response. Toxicol Ind Health 17:247-253.

*Walton DC, Witherspoon MG. 1925. Skin absorption of certain gases. J Pharmacol Exp Ther 26:315-324.

Wang D-X, et al. 1989. [A review of 152 cases of acute poisoning of hydrogen sulfide.] Chin J Prev Med 23:330-332. (Chinese)

*Warenycia MW, Goodwin LR, Benishin CG, et al. 1989a. Acute hydrogen sulfide poisoning: Demonstration of selective uptake of sulfide by the brainstem by measurement of brain sulfide levels. Biochem Pharmacol 38:973-981.

*Warenycia MW, Goodwin LR, Francom DM, et al. 1990. Dithiothreitol liberates non-acid labile sulfide from brain tissue of hydrogen sulfide-poisoned animals. Arch Toxicol 64:650-655.

Warenycia MW, Reiffenstein RJ, Goodwin LR, et al. 1989b. Brain sulfide levels in anaesthesia: A comparison with hydrogen sulfide intoxication. Toxicol Lett 47:221-224.

Warenycia MW, Smith KA, Blashko CS, et al. 1989c. Monoamine oxidase inhibition as a sequel of hydrogen sulfide intoxication: Increases in brain catecholamine and 5-hydroxytryptamine levels. Arch Toxicol 63:131-136.

Warenycia MW, Steele JA, Karpinski E, et al. 1989d. Hydrogen sulfide in combination with taurine or cysteic acid reversibly abolishes sodium currents in neuroblastoma cells. Neurotoxicology 10:191-199.

Wasch HH, Estrin WJ, Yip P, et al. 1989. Prolongation of the P-300 latency associated with hydrogen sulfide exposure. Arch Neurol 46:902-904.

*Weeks SJ, Currie B, Bakun A, et al. 2004. Hydrogen sulfide eruptions in the Atlantic Ocean off southern Africa: Implications of a new view based on SeaWiFS satellite imagery. Deep Sea Res Part I Oceanogr Res Pap 51:153-172.

*Weil ED, Sandler SR. 1997. Sulfur compounds: Hydrogen sulfide. In: Kroschwitz JI, Howe-Grant M, eds. Kirk-Othmer encyclopedia of chemical technology. Volume 23: Sugar to thin films. New York, NY: John Wiley & Sons, 275-340.

*Weisiger RA, Jakoby WB. 1979. Thiol-s-methyltransferase from rat liver. Arch Biochem Biophys 196:631-637.

*Weisiger RA, Pinkus LM, Jakoby WB. 1980. Thiol s-methyltransferase: Suggested role in detoxication of intestinal hydrogen sulfide. Biochem Pharmacol 29:2885-2887.

*West JR, Smith HW, Chasis H. 1948. Glomerular filtration rate, effective renal blood flow, and maximal tubular excretory capacity in infancy. J Ped 32a:10-18.

*Wetterau H, Oekert W, Knape UG. 1964. [Tests for the application of dried green fodder with higher hydrogen sulfide content (experiments with poultry and fattened pigs).] Fetterung 5:383-393. (German)

*Wever R, Van Gelder BF, Der Vartanian DV. 1975. Biochemical and biophysical studies on cytochrome c oxidase XX. Reaction with sulphide. Biochem Biophys Acta 387:189-193.

Whitcraft DD III, Bailey TD, Hart GB. 1985. Hydrogen sulfide poisoning treated with hyperbaric oxygen. J Emerg Med 3:23-25.

*White MC, Inserra SG, Berger SA, et al. 1999. Health concerns for communities exposed to hydrogen sulfide—A perspective from two communities. Environ Epidemiol Toxicol 1(3-4):236-240.

*WHO. 1981. Environmental health criteria: Hydrogen sulfide. Geneva, Switzerland: World Health Organization.

WHO. 1984. Guidelines for drinking-water quality. Volume 2: Health Criteria and Other Supporting Information. Geneva, Switzerland: World Health Organization, 268-271.

*WHO. 1987. Hydrogen sulfide. In: Air quality guidelines for Europe. Copenhagen, Denmark: World Health Organization Regional Publications, European series no. 23.

*WHO. 2000. Hydrogen sulfide. Air quality guidelines: Part II. Evaluation of human health risks. Geneva, Switzerland: World Health Organization. http://www.euro.who.int/document/aiq/6_6hydrogensulfide.pdf. June 06, 2004.

*WHO. 2004. Guidelines for Drinking-Water Quality. 3rd edition. World Health Organization: Geneva, Switzerland. http://www.who.int/water_sanitation_health/dwq/gdwq3/en/index.html. October 20, 2005.

*Widdowson EM, Dickerson JWT. 1964. Chemical composition of the body. In: Comar CL, Bronner F, eds. Mineral metabolism: An advanced treatise, Volume II: The elements part A. New York, NY: Academic Press.

*Wilson LG, Bressan RA, Filner P. 1978. Light-dependent emission of hydrogen sulfide from plants. Plant Physiol 61:184-189.

*Winek CL, Collum WD, Wecht CH. 1968. Death from hydrogen sulfide fumes. Lancet 1:1096.

*Wisconsin DNR. 2004. Environmental protection-air pollution control: Control of hazardous pollutants. Wisconsin Administrative Code: Register No. 582. Wisconsin Department of Natural Resources, 451-472-26. http://www.legis.state.wi.us/rsb/code/nr/nr445.pdf. September 15, 2004.

*Xu X, Cho SI, Sammel M, et al. 1998. Association of petrochemical exposure with spontaneous abortion. Occup Environ Med 55:31-36.

Yant WP. 1930. Hydrogen sulphide in industry: Occurrence effects and treatment. Am J Public Health 20:598-608.

Young P, Parker A. 1984. Vapors, odors, and toxic gases from landfills. ASTM STP 851:24-41.

Zhong GZ, Chen FR, Cheng YQ, et al. 2003. The role of hydrogen sulfide generation in the pathogenesis of hypertension in rats induced by inhibition of nitric oxide. J Hypertens 21:1879-1885.

*Ziegler EE, Edwards BB, Jensen RL, et al. 1978. Absorption and retention of lead by infants. Pediatr Res 12:29-34.

Ziqian O-Y, Zhengping Y, Yong L. 1993. Study on pulmonary injury due to acute hydrogen sulfide inhalation and its therapeutic scheme. Journal of Medical Colleges of PLA 8:308-314.