

CHAPTER 8. REFERENCES

- AAR. 1994. Emergency handling of hazardous materials in surface transportation. Washington, DC: Association of American Railroads, Bureau of Explosives.
- Abbott SM, Malkani RG, Zee PC. 2018. Circadian disruption and human health: A bidirectional relationship. *Eur J Neurosci*. 51: 567-583. 10.1111/ejn.14298.
- Abe M, Usuda K, Hayashi S, et al. 2008. Carcinogenic risk of copper gluconate evaluated by a rat medium-term liver carcinogenicity bioassay protocol. *Arch. Toxicol*. 82(8):563-571. 10.1007/s00204-008-0294-x.
- Abuja PM, Albertini R. 2001. Methods for monitoring oxidative stress, lipid peroxidation and oxidation resistance of lipoproteins. *Clin Chim Acta* 306(1-2):1-17. 10.1016/s0009-8981(01)00393-x.
- ACGIH. 2018. TLVs and BEIs based on the documentation of the threshold limit values for chemical substances and physical agents and biological exposure indices. Cincinnati, OH: American Conference of Governmental Industrial Hygienists.
- AEGIs. 2018. Compiled AEGl values. U.S. Environmental Protection Agency. https://www.epa.gov/sites/production/files/2018-08/documents/compiled_aegls_update_27jul2018.pdf.
- Agarwal K, Sharma A, Talukder G. 1990. Clastogenic effects of copper sulfate on the bone marrow chromosomes of mice in vivo. *Mutat. Res*. 243(1):1-6. [https://doi.org/10.1016/0165-7992\(90\)90115-z](https://doi.org/10.1016/0165-7992(90)90115-z).
- Agilent Technologies. 2012. Handbook of hyphenated ICP-MS applications. 2nd edition. <https://www.ohsu.edu/sites/default/files/2018-08/Handbook-of-Hyphenated-ICP-MS-Applications.pdf>.
- Ahasan HA, Chowdhury MA, Azhar MA, et al. 1994. Copper sulphate poisoning. *Trop Doct* 24(2):52-53. 10.1177/004947559402400203.
- AIHA. 2016. Current ERPG Values (2016). 2016 ERPG/WEEL Handbook. American Industrial Hygiene Association. <https://www.btfire.org/ftp/Documents/2016%20ERPG%20Table.pdf>.
- Akintonwa A, Mabadeje AFB, Odutola TA. 1989. Fatal poisonings by copper sulfate ingested from "spiritual water". *Vet. Hum. Toxicol* 31(5):453-454.
- Alarifi S, Ali D, Verma A, et al. 2013. Cytotoxicity and genotoxicity of copper oxide nanoparticles in human skin keratinocytes cells. *Int J Toxicol* 32(4):296-307. 10.1177/1091581813487563.
- Alharbi B, Fadda L, Ali HM. 2019. Evaluation of the renoprotective effect of nano turmeric against toxic dose of copper sulfate: Role of vascular cell adhesion molecule-1, kidney injury molecule-1, and signal transducer and activator of transcription 3 protein expressions. *J. Biochem. Mol. Toxicol*. 33(2):e22243. 10.1002/jbt.22243.
- Alhusaini A, Hasan IH, Aldowsari N, et al. 2018a. Prophylactic administration of nanocurcumin abates the incidence of liver toxicity induced by an overdose of copper sulfate: Role of CYP4502E1, NF-kappaB and bax expressions. *Dose Response* 16(4):1559325818816284. 10.1177/1559325818816284.
- Alhusaini A, Fadda L, Hassan I, et al. 2018b. Liposomal curcumin attenuates the incidence of oxidative stress, inflammation, and DNA damage induced by copper sulfate in rat liver. *Dose Response* 16(3):1559325818790869. 10.1177/1559325818790869.
- Allen SK, Allen JM, Lucas S. 1996. Dissolved metal concentrations in surface waters from west-central Indiana contaminated with acidic mine drainage. *Bull. Environ. Contam. Toxicol*. 56(2):240-243. 10.1007/s001289900036.
- Allen-Gil SM, Gubala CP, Landers DH, et al. 1997. Heavy metal accumulation in sediment and freshwater fish in US Arctic lakes. *Environmental Toxicology Chemistry: An International Journal* 16(4):733-741. <https://doi.org/10.1002/etc.5620160418>.
- Ameh T, Sayes CM. 2019. The potential exposure and hazards of copper nanoparticles: A review. *Environ Toxicol Pharmacol* 71:103220. 10.1016/j.etap.2019.103220.

8. REFERENCES

- Amrhein C, Strong JE, Mosher PA. 1992. Effect of deicing salts on metal and organic matter mobilization in roadside soils. *Environmental Science Technology* 26(4):703-78a006.
- Anchordoquy JM, Anchordoquy JP, Nikoloff N, et al. 2017. High copper concentrations produce genotoxicity and cytotoxicity in bovine cumulus cells. *Environ Sci Pollut Res Int* 24(24):20041-20049. 10.1007/s11356-017-9683-0.
- Anderson JR, Aggett FJ, Buseck PR, et al. 1988. Chemistry of individual aerosol particles from Chandler, Arizona, an arid urban environment. *Environ. Sci. Technol.* 22(7):811-818. 10.1021/es00172a011.
- Annibaldi A, Truzzi C, Illuminati S, et al. 2007. Determination of water-soluble and insoluble (dilute-HCl-extractable) fractions of Cd, Pb and Cu in Antarctic aerosol by square wave anodic stripping voltammetry: distribution and summer seasonal evolution at Terra Nova Bay (Victoria Land). *Anal Bioanal Chem* 387(3):977-998. 10.1007/s00216-006-0994-0.
- Anreddy RNR. 2018. Copper oxide nanoparticles induces oxidative stress and liver toxicity in rats following oral exposure. *Toxicol Rep* 5:903-904. 10.1016/j.toxrep.2018.08.022.
- Arafa MH, Amin DM, Samir GM, et al. 2019. Protective effects of tribulus terrestris extract and angiotensin blockers on testis steroidogenesis in copper overloaded rats. *Ecotoxicol. Environ. Saf.* 178:113-122. 10.1016/j.ecoenv.2019.04.012.
- Araya M, Koletzko B, Uauy R. 2003d. Copper deficiency and excess in infancy: Developing a research agenda. *J Pediatr Gastroenterol Nutr* 37(4):422-429. 10.1097/00005176-200310000-00005.
- Araya M, Peña C, Pizarro F, et al. 2003a. Gastric response to acute copper exposure. *Science of The Total Environment* 303(3):253-257. 10.1016/s0048-9697(02)00495-3.
- Araya M, Olivares M, Pizarro F, et al. 2003b. Gastrointestinal symptoms and blood indicators of copper load in apparently healthy adults undergoing controlled copper exposure. *Am J Clin Nutr* 77(3):646-650. 10.1093/ajcn/77.3.646.
- Araya M, Olivares M, Pizarro F, et al. 2004. Community-based randomized double-blind study of gastrointestinal effects and copper exposure in drinking water. *Environ. Health Perspect.* 112(10):1068-1073. 10.1289/ehp.6913.
- Araya M, McGoldrick MC, Klevay LM, et al. 2001. Determination of an acute no-observed-adverse-effect level (NOAEL) for copper in water. *Regul Toxicol Pharmacol* 34(2):137-145. 10.1006/rtp.2001.1492.
- Araya M, Nunez H, Pavez L, et al. 2012. Administration of high doses of copper to capuchin monkeys does not cause liver damage but induces transcriptional activation of hepatic proliferative responses. *J. Nutr.* 142(2):233-237. 10.3945/jn.111.140103.
- Araya M, Chen B, Klevay LM, et al. 2003c. Confirmation of an acute no-observed-adverse-effect and low-observed-adverse-effect level for copper in bottled drinking water in a multi-site international study. *Regul Toxicol Pharmacol* 38(3):389-399. 10.1016/j.yrtph.2003.08.001.
- Arcega-Cabrera F, Fargher LF. 2016. Education, fish consumption, well water, chicken coops, and cooking fires: Using biogeochemistry and ethnography to study exposure of children from Yucatan, Mexico to metals and arsenic. *Sci. Total. Environ* 568:75-82. 10.1016/j.scitotenv.2016.05.209.
- Arendsen LP, Thakar R, Sultan AH. 2019. The use of copper as an antimicrobial agent in health care, including obstetrics and gynecology. *Clin Microbiol Rev* 32(4):e00125-e00128. 10.1128/CMR.00125-18.
- Armstrong CW, Moore LW, Jr., Hackler RL, et al. 1983. An outbreak of metal fume fever. Diagnostic use of urinary copper and zinc determinations. *J Occup Med* 25(12):886-888.
- Askergren A, Mellgren M. 1975. Changes in the nasal mucosa after exposure to copper salt dust. A preliminary report. *Scand J Work Environ Health* 1(1):45-49. 10.5271/sjweh.2861.
- ATSDR. 1989. Decision guide for identifying substance-specific data needs related to toxicological profiles. Atlanta, GA: Agency for Toxic Substances and Disease Registry, Division of Toxicology
- ATSDR. 2004. Toxicological profile for copper. Atlanta, GA: Agency for Toxic Substances and Disease Registry, Public Health Service, U.S. Department of Health and Human Servi2.pdf.

8. REFERENCES

- ATSDR. 2019. Copper. Full SPL data. Substance priority list (SPL) resource page. Agency for Toxic Substances and Disease Registry, Centers for Disease Control and Prevention. <https://www.atsdr.cdc.gov/SPL/resources/index.html>. February 20, 2020.
- Aulenbach DB, Meyer MA, Beckwith E, et al. 1987. Removal of heavy metals in POTW. *Environ Prog* 6(2):91-60210.
- Aulerich RJ, Ringer RK, Bleavins MR, et al. 1982. Effects of supplemental dietary copper on growth, reproductive performance and kit survival of standard dark mink and the acute toxicity of copper to mink. *J. Anim. Sci.* 55(2):337-343. 10.2527/jas1982.552337x.
- Babaei H, Abshenas J. 2013. Zinc therapy improves adverse effects of long term administration of copper on epididymal sperm quality of rats. *Iran J Reprod Med* 11(7):577-582.
- Babaei H, Roshangar L, Sakhaee E, et al. 2012. Ultrastructural and morphometrical changes of mice ovaries following experimentally induced copper poisoning. *Iran Red Crescent Med J* 14(9):558-568.
- Badaloni C, Cesaroni G, Cerza F, et al. 2017. Effects of long-term exposure to particulate matter and metal components on mortality in the Rome longitudinal study. *Environ. Int.* 109:146-154. 10.1016/j.envint.2017.09.005.
- Badri MA, Aston SR. 1983. Observations on heavy metal geochemical associations in polluted and non-polluted estuarine sediments. *Environmental Pollution Series B, Chemical Physical* 6(3):181-1033-2.
- Balogh S. 1996. The fate of metals in sewage sludge incinerators. *Water, Air, Soil Pollution* 91(3-4):249-266261.
- Banavi P, Sadeghi E, Garavand F, et al. 2020. Release behavior of metals from tin-lined copper cookware into food simulants during cooking and cold storage. *Environ Sci Pollut Res Int* 27(31):38591-38601. 10.1007/s11356-020-09970-z.
- Barranco VP. 1972. Eczematous dermatitis caused by internal exposure to copper. *Arch Dermatol* 106(3):386-387.
- Barrie LA, Lindberg S, Chan W, et al. 1987. On the concentration of trace metals in precipitation. *Atmospheric Environment* 21(5):1133-11240-X.
- Behera C, Rautji R, Dogra TD. 2007. An unusual suicide with parenteral copper sulphate poisoning: a case report. *Med Sci Law* 47(4):357-358. 10.1258/rsmmsl.47.4.357.
- Behzadfar L, Abdollahi M, Sabzevari O, et al. 2017. Potentiating role of copper on spatial memory deficit induced by beta amyloid and evaluation of mitochondrial function markers in the hippocampus of rats. *Metallomics* 9(7):969-980. 10.1039/c7mt00075h.
- Benson NU, Anake WU, Adedapo AE, et al. 2017. Toxic metals in cigarettes and human health risk assessment associated with inhalation exposure. *Environ. Monit. Assess* 189(12):6348-x.
- Bentur Y, Koren G, McGuigan M, et al. 1988. An unusual skin exposure to copper; clinical and pharmacokinetic evaluation. *J Toxicol Clin Toxicol* 26(5-6):371-380. 10.1080/15563658809167101.
- Beveridge SJ, Boettcher B, Walker WR, et al. 1984. Biodistribution of ⁶⁴Cu in rats after topical application of two lipophilic anti-inflammatory Cu(II) formulations. *Agents Actions* 14(2):291-295. 10.1007/BF01966655.
- Beyer WN, Cromartie EJ. 1987. A survey of Pb, Cu, Zn, Cd, Cr, As, and Se in earthworms and soil from diverse sites. *Environmental Monitoring Assessment* 8(1):27-96605.
- Bhandari P, Andrews PL. 1991. Preliminary evidence for the involvement of the putative 5-HT₄ receptor in zacopride- and copper sulphate-induced vomiting in the ferret. *Eur. J. Pharmacol.* 204(3):273-280. 10.1016/0014-2999(91)90852-h.
- Bhave SA, Pandit AN, Tanner MS. 1987. Comparison of feeding history of children with Indian childhood cirrhosis and paired controls. *J Pediatr Gastroenterol Nutr* 6(4):562-567. 10.1097/00005176-198707000-00013.
- Bhave SA, Pandit AN, Pradhan AM, et al. 1982. Liver disease in India. *Arch Dis Child* 57(12):922-928. 10.1136/adc.57.12.922.

8. REFERENCES

- Bhunya SP, Pati PC. 1987. Genotoxicity of an inorganic pesticide, copper sulfate in mouse in vivo test system. *Cytologia (Tokyo)* 52:801-82.801.
- Bhunya SP, Jena GB. 1996. Clastogenic effect of copper sulphate in chick in vivo test system. *Mutat. Res.* 367(2):57-061-5.
- Bilal M, Ali Shah J, Ashfaq T, et al. 2013. Waste biomass adsorbents for copper removal from industrial wastewater - a review. *J Hazard Mater* 263(2):322-37.071.
- Blanusa M, Ivicic N, Simeon V. 1990. Lead, iron, copper, zinc and ash in deciduous teeth in relation to age and distance from a lead smelter. *Bull. Environ. Contam. Toxicol.* 45(4):478-485. 10.1007/BF01700618.
- Blevins RD, Pancorbo OC. 1986. Metal concentrations in muscle of fish from aquatic systems in East Tennessee, USA. *Water, Air, Soil Pollution* 29(4):361-383.443.
- Bolan NS, Khan MA, Donaldson J, et al. 2003. Distribution and bioavailability of copper in farm effluent. *Sci. Total. Environ* 309(1-3):225-236. 10.1016/S0048-9697(03)00052-4.
- Boogaard H, Fischer PH, Janssen NA, et al. 2013. Respiratory effects of a reduction in outdoor air pollution concentrations. *Epidemiology* 24(5):753-761. 10.1097/EDE.0b013e31829e1639.
- Bopp R, Simpson H, Chillrud S, et al. 1993. Sediment-derived chronologies of persistent contaminants in Jamaica Bay, New York. *Estuaries* 16(3):608-652.798.
- Borak J, Cohen H, Hethmon T. 2000. Copper exposure and metal fume fever: Lack of evidence for acausal relationship. *Am Ind Hyg Assoc J* 61(6):832-884.594.
- Bost M, Houdart S, Oberli M, et al. 2016. Dietary copper and human health: Current evidence and unresolved issues. *J Trace Elem Med Biol* 35:107-115. 10.1016/j.jtemb.2016.02.006.
- Boullata J, Muthukumaran G, Piarulli A, et al. 2017. Oral copper absorption in men with morbid obesity. *J Trace Elem Med Biol* 44:146-150. 10.1016/j.jtemb.2017.07.005.
- Boyden E, Potter VE, Elvehjem CA. 1938. Effect of feeding high levels of copper to albino rats. *The Journal of Nutrition* 15(4):397-44.397.
- Bradley RW, Morris JR. 1986. Heavy metals in fish from a series of metal-contaminated lakes near Sudbury, Ontario. *Water, Air, Soil Pollution* 27(3-4):341-349.416.
- Breault R, Colman J, Aiken G, et al. 1996. Copper speciation and binding by organic matter in copper-contaminated streamwater. *Environmental Science Technology* 30(12):3477-3486.
- Breslin V. 1999. Retention of metals in agricultural soils after amending with MSW and MSW-biosolids compost. *Water, Air, Soil pollution* 109(1-4):163-131.978.
- Brewer G. 2010. Copper toxicity in the general population. *Clin Neurophysiol* 121:459-460. 10.1016/j.clinph.2009.12.015.
- Brewer GJ, Askari F, Lorincz MT, et al. 2006. Treatment of Wilson disease with ammonium tetrathiomolybdate: IV. Comparison of tetrathiomolybdate and trientine in a double-blind study of treatment of the neurologic presentation of Wilson disease. *Arch Neurol* 63(4):521-527. 10.1001/archneur.63.4.521.
- Brown KW, Thomas JC, Slowey JF. 1983. The movement of metals applied to soils in sewage effluent. *Water, Air, Soil Pollution* 19(1):43-76.794.
- Bruce BW, McMahon PB. 1996. Shallow ground-water quality beneath a major urban center: Denver, Colorado, USA. *Journal of Hydrology* 186(1-4):129-1031-4.
- Buchanan SD, Diseker RA, 3rd, Sinks T, et al. 1999. Copper in drinking water, Nebraska, 1994. *Int J Occup Environ Health* 5(4):256-261. 10.1179/oeh.1999.5.4.256.
- Buchholz B, Landsberger S. 1995. Leaching dynamics studies of municipal solid waste incinerator ash. *Journal of the Air Waste Management Association* 45(8):579-567.388.
- Budavari S, O'Neil M, Smith A, et al. 2001. *The Merck index: an encyclopedia of chemicals, drugs and biologicals*. Whitehouse Station, NJ: Merck & Co. Inc.:440, 462.
- Buseck PR, Pósfai M. 1999. Airborne minerals and related aerosol particles: effects on climate and the environment. *Proc. Natl. Acad. Sci. U. S. A* 96(7):3372-3379. 10.1073/pnas.96.7.3372.

8. REFERENCES

- Bush J, Mahoney J, Markowitz H, et al. 1955. Studies on copper metabolism. XVI. Radioactive copper studies in normal subjects and in patients with hepatolenticular degeneration. *J Clin Invest* 34:1766-1703232.
- Cadle SH, Mulawa PA, Hunsanger EC, et al. 1999. Composition of light-duty motor vehicle exhaust particulate matter in the Denver, Colorado Area. *Environ Sci Technol* 33(14):2328-2339. 10.1021/es9810843.
- Cagnarini C, Lofts S, D'Acqui LP, et al. 2021. Modelling of long-term Zn, Cu, Cd and Pb dynamics from soils fertilised with organic amendments. *SOIL* 7(1):107-123. 10.5194/soil-7-107-2021.
- Cai M, McBride MB, Li K. 2016. Bioaccessibility of Ba, Cu, Pb, and Zn in urban garden and orchard soils. *Environ Pollut* 208:145-19.050.
- Cai R, Zhang C, Ding W, et al. 2009. Corneal melting induced by a presumed copper-containing foreign body. *Clin Exp Ophthalmol* 37(3):328-330. 10.1111/j.1442-9071.2009.02027.x.
- Caicedo M, Jacobs J, Reddy AH, NJ. 2008. Analysis of metal ion-induced DNA damage, apoptosis, and necrosis in human (Jurkat) T-cells demonstrates Ni²⁺, and V³⁺, are more toxic than other metals : Al³⁺, Be²⁺, Co²⁺, Cr³⁺, Cu²⁺, Fe³⁺, Mo⁵⁺, Nb⁵⁺, Zr²⁺. *J Biomed Mater Res A* 86(4):905-931789.
- Calabrese E, Moore G. 1979. Can elevated levels of copper in drinking water precipitate acute hemolysis in G-6-PD deficient individuals. *MedHypotheses* 5(4):493-4116-6.
- Campbell K. 1994. Concentrations of heavy metals associated with urban runoff in fish living in stormwater treatment ponds. *Archives of Environmental Contamination Toxicology* 27(3):352-313171.
- Cao ZH, Hu ZY. 2000. Copper contamination in paddy soils irrigated with wastewater. *Chemosphere* 41(1-2):3-6. 10.1016/s0045-6535(99)00383-5.
- Cao Y, Conklin M, Betterton E. 1995. Competitive complexation of trace metals with dissolved humic acid. *Environ. Health Perspect.* 103(Suppl 1):29-3s129.
- CDC. 2016. National Health and Nutrition Examination Survey. NHANES 2013-2014 Laboratory Data. Copper, Selenium & Zinc – Serum. <https://wwwn.cdc.gov/nchs/nhanes/search/datapage.aspx?Component=Laboratory&CycleBeginYear=2013>. October 21, 2020.
- CDC. 2018. National Health and Nutrition Examination Survey. NHANES 2015-2016 Laboratory Data. Copper, Selenium & Zinc – Serum. <https://wwwn.cdc.gov/nchs/nhanes/search/datapage.aspx?Component=Laboratory&CycleBeginYear=2015>. October 21, 2020.
- CEIDARS. 2000. Chemical speciation. California Emission Inventory and Reporting System.
- Chan W, Tang AJ, Chung D, et al. 1986. Concentration and deposition of trace metals in Ontario-1982. *Water, Air, Soil Pollution* 29(4):373-383444.
- Chang Y-N, Zhang M, Xia L, et al. 2012. The toxic effects and mechanisms of CuO and ZnO nanoparticles. *Materials* 5(12):2850-2871. 10.3390/ma5122850.
- Chen LC, Lippmann M. 2009. Effects of metals within ambient air particulate matter (PM) on human health. *Inhal Toxicol* 21(1):1-31. 10.1080/08958370802105405.
- Chen R, Wei L, Huang H. 1993. Mortality from lung cancer among copper miners. *Br J Ind Med* 50(6):505-56.505.
- Chen R, Wei L, Chen R-L. 1995. Lung cancer mortality update and prevalence of smoking among copper miners and smelters. *Scand J Work Environ Health* 21(6):513-5eh.68.
- Chen M, Ogunseitan OA, Wang J, et al. 2016. Evolution of electronic waste toxicity: Trends in innovation and regulation. *Environ. Int.* 89-90:147-154. 10.1016/j.envint.2016.01.022.
- Chen Z, Meng H, Xing G, et al. 2006. Acute toxicological effects of copper nanoparticles in vivo. *Toxicol Lett* 163(2):109-120. 10.1016/j.toxlet.2005.10.003.
- Cheng S, Mao H, Ruan Y, et al. 2020. Copper changes intestinal microbiota of the cecum and rectum in female mice by 16S rRNA gene sequencing. *Biol Trace Elem Res* 193(2):445-455. 10.1007/s12011-019-01718-2.

8. REFERENCES

- Cheng TF, Choudhuri S, Muldoon-Jacobs K. 2012. Epigenetic targets of some toxicologically relevant metals: a review of the literature. *Journal of Applied Toxicology* 32: 643-653. 10.1002/jat.2717.
- Chernenkov Y, Bochkova L, Kadymova L, et al. 2018. Copper concentration in the blood serum of low birth weight newborns. *Biomedical and Pharmacology Journal* 11(4):1807-18/1553.
- Cho YS, Moon JM, Jeong YH, et al. 2018. Successful extracorporeal life support in respiratory failure after copper sulphate ingestion. *Natl Med J India* 31(2):83-85. 10.4103/0970-258X.253166.
- Choi YK, Kim JM, Lee JE, et al. 2016. Association of maternal diet with zinc, copper, and iron concentrations in transitional human milk produced by Korean mothers. *Clin Nutr Res* 5(1):15-25. 10.7762/cnr.2016.5.1.15.
- Cholewinska E, Ognik K, Fotschki B, et al. 2018. Comparison of the effect of dietary copper nanoparticles and one copper (II) salt on the copper biodistribution and gastrointestinal and hepatic morphology and function in a rat model. *PLoS One* 13(5):e0197083. 10.1371/journal.pone.0197083.
- Christensen TH, Kjeldsen P, Albrechtsen HJ, et al. 1994. Attenuation of landfill leachate pollutants in aquifers. *Critical Reviews in Environmental Science Technology* 24(2):119-288463.
- Chugh KS, Sakhujia V. 1979. Acute copper intoxication. *Int J Artif Organs* 2(4):181-182.
- Chuttani HK, Gupta PS, Gulati S, et al. 1965. Acute copper sulfate poisoning. *Am J Med* 39(5):849-854. 10.1016/0002-9343(65)90105-1.
- Ciacci L, Fishman T, Elshkaki A, et al. 2020. Exploring future copper demand, recycling and associated greenhouse gas emissions in the EU-28. *Global Environ Change* 63:102002093.
- Clemens S. 2001. Molecular mechanisms of plant metal tolerance and homeostasis. *Planta* 212(4):475-486. 10.1007/s004250000458.
- Clewell HJI, Andersen ME. 1985. Risk assessment extrapolations and physiological modeling.
- Coale K, Bruland K. 1988. Copper complexation in the Northeast Pacific. *Limnol. Oceanogr* 33(5):1084-11.1084.
- Coelho FC, Squitti R, Ventriglia M, Cerchiaro G, Daher JP, Rocha JG, Rongioletti MC, Moonen AC. 2020. Agricultural Use of Copper and Its Link to Alzheimer's Disease. *Biomolecules*, 10: 897. 10.3390/biom10060897
- Cole RH, Frederick RE, Healy RP, et al. 1984. Preliminary findings of the priority pollutant monitoring project of the nationwide urban runoff program. *Journal (Water Pollution Control Federation)* 56(7):898-908.
- Coleman M, Elder R, Basu P, et al. 1992. Trace metals in edible tissues of livestock and poultry. *J AOAC Int* 75(4):615-64.615.
- Cordano A. 1998. Clinical manifestations of nutritional copper deficiency in infants and children. *Am J Clin Nutr* 67(5 Suppl):1012S-1016S. 10.1093/ajcn/67.5.1012S.
- Crawford DW, Bonnevie NL, Wenning RJ. 1995. Sources of pollution and sediment contamination in Newark Bay, New Jersey. *Ecotoxicol. Environ. Saf.* 30(1):85-100. 10.1006/eesa.1995.1010.
- Cui JZ, Lifeng. 2007. Metallurgical recovery of metals from electronic waste: A review. *Journal of Hazardous Materials* 158(2-3):228-22.001.
- Cui X, Okayasu R. 2008. Arsenic accumulation, elimination, and interaction with copper, zinc and manganese in liver and kidney of rats. *Food and Chemical Toxicology*. 46:3646-3650. 10.1016/j.fct.2008.09.040
- Cushing CA, Golden R, Lowney YW. 2007. Human Health risk evaluation of ACQ-treated wood. *Hum Ecol Risk Assess* 13(5):1014-1006173.
- Cyr F, Mehra MC, Mallet VN. 1987. Leaching of chemical contaminants from a municipal landfill site. *Bull. Environ. Contam. Toxicol.* 38(5):775-782. 10.1007/BF01616700.
- Danks DM. 1988. Copper deficiency in humans. *Annu. Rev. Nutr.* 8:235-257. 10.1146/annurev.nu.08.070188.001315.
- Daskalakis KD, O'Connor TP. 1995. Distribution of chemical concentrations in US coastal and estuarine sediment. *Mar Environ Res* 40(4):381-3150-N.

8. REFERENCES

- Davenport WG. 2001. Copper Production. In: Buschow KHJ, Cahn RW, Flemings MC, et al., ed. Encyclopedia of materials: Science and technology. Oxford: Elsevier, 1671-1680.
- Davidson CI, Wiersma GB, Brown KW, et al. 1985. Airborne trace elements in Great Smoky Mountains, Olympic, and Glacier National Parks. *Environmental Science Technology* 19(1):27-1a001.
- Davies N, Campbell J. 1977. The effect of cadmium on intestinal copper absorption and binding in the rat. *Life Sci.* 20(6):955-9281-8.
- Davies DJA, Bennett BG. 1985. Exposure of man to environmental copper—An exposure commitment assessment. *Science of the Total Environment* 46(1-4):215-2295-5.
- Davies-Colley RJ, Nelson PO, Williamson KJ. 1984. Copper and cadmium uptake by estuarine sedimentary phases. *Environmental Science Technology* 18(7):491-45a002.
- Davies-Colley RJ, Nelson PO, Williamson KJ. 1985. Sulfide control of cadmium and copper concentrations in anaerobic estuarine sediments. *Mar Chem* 16(2):173-1021-0.
- Davis AP, Shokouhian M, Ni S. 2001. Loading estimates of lead, copper, cadmium, and zinc in urban runoff from specific sources. *Chemosphere* 44(5):997-1009. 10.1016/s0045-6535(00)00561-0.
- De Craemer S, Croes K, van Larebeke N, et al. 2017. Metals, hormones and sexual maturation in Flemish adolescents in three cross-sectional studies (2002-2015). *Environ. Int.* 102:190-199. 10.1016/j.envint.2017.02.014.
- De Jong WH, De Rijk E, Bonetto A, et al. 2019. Toxicity of copper oxide and basic copper carbonate nanoparticles after short-term oral exposure in rats. *Nanotoxicology* 13(1):50-72. 10.1080/17435390.2018.1530390.
- De Olivera J, Bonfleur L, Dos Santos C, et al. 2012. Occupational genotoxicity among copper smelters. *Toxicol Ind Health* 28(9):789-722735.
- De Vries DJ, Sewell RB, Beart PM. 1986. Effects of copper on dopaminergic function in the rat corpus striatum. *Exp. Neurol.* 91(3):546-558. 10.1016/0014-4886(86)90051-8.
- Demerec M, Bertani G, Flint J. 1951. A survey of chemicals for mutagenic action on *E. coli*. *Am. Nat.* 85(821):119-136.
- Denizeau F, Marion M. 1989. Genotoxic effects of heavy metals in rat hepatocytes. *Cell Biol Toxicol* 5(1):15-25. 10.1007/BF00141061.
- Dieter HH, Schimmelpfennig W, Meyer E, et al. 1999. Early Childhood Cirrhoses (ECC) in Germany between 1982-1994 with special consideration of copper etiology. *Eur J Med Res* 4(6):233-242.
- Diks DM, Allen HE. 1983. Correlation of copper distribution in a freshwater-sediment system to bioavailability. *Bull. Environ. Contam. Toxicol.* 30(1):37-43. 10.1007/BF01610096.
- Dinu M, Moiseenko T, Baranov D. 2020. Snowpack as Indicators of Atmospheric Pollution: The Valday Upland. *Atmosphere* 11(5):462.
- DOE. 2018. Table 2: Protective Action Criteria (PAC) Rev. 29a based on applicable 60-minute AEGLs, ERPGs, or TEELs. The chemicals are listed in alphabetical order. June 2018.
- Domellof M, Lonnerdal B, Dewey KG, et al. 2004. Iron, zinc, and copper concentrations in breast milk are independent of maternal mineral status. *Am J Clin Nutr* 79(1):111-115. 10.1093/ajcn/79.1.111.
- Domellof M, Hernell O, Abrams SA, et al. 2009. Iron supplementation does not affect copper and zinc absorption in breastfed infants. *Am J Clin Nutr* 89(1):185-190. 10.3945/ajcn.2008.26887.
- Domergue F, Vedy J. 1992. Mobility of heavy metals in soil profiles. *Int J Environ Anal Chem* 46(1-3):13-26993.
- Donahue J. 1997. New ideas after five years of the lead and copper rule: A fresh look at the MCLG for copper. In: Lagos GE & Badilla-Ohlbaum R, ed. *Advances in risk assessment of copper in the environment. Proceedings of the International Workshop "Risk Assessment of Copper in the Environment"*, Renaca, Chile, 7 - 9 May 1997. 265-272.
- Donley SA, Ilagan BJ, Rim H, et al. 2002. Copper transport to mammary gland and milk during lactation in rats. *Am. J. Physiol. Endocrinol. Metab.* 283(4):E667-E675. 10.1152/ajpendo.00115.2002.

8. REFERENCES

- Donoso A, Cruces P, Camacho J, et al. 2007. Acute respiratory distress syndrome resulting from inhalation of powdered copper. *Clin Toxicol (Phila)* 45(6):714-716. 10.1080/15563650701438912.
- Dörner K, Dziadzka S, Höhn A, et al. 1989. Longitudinal manganese and copper balances in young infants and preterm infants fed on breast-milk and adapted cow's milk formulas. *Br. J. Nutr.* 61(3):559-572. 10.1079/bjn19890143.
- DOT. 2000. Hazardous materials table, special provisions, hazardous materials communications, emergency response information, training requirements, and security plans. Subpart B-Table of hazardous materials and special provisions. U.S. Department of Transportation. Code of Federal Regulations.
- Dressler R, Storm G, Tzilkowski W, et al. 1986. Heavy metals in cottontail rabbits on mined lands treated with sewage sludge 1. *J Environ Qual* 15(3):278-20014x.
- Drummond J, Aranyi C, Schiff L, et al. 1986. Comparative study of various methods used for determining health effects of inhaled sulfates. *Environ Res* 41(2):514-5146-3.
- Du Y, Mou Y. 2019. The role of plasmapheresis in treating lethal cupric sulfate poisoning. *Am J Med Sci* 357(4):338-342. 10.1016/j.amjms.2018.11.014.
- Duby P. 1980. Extractive metallurgy. In:ed. Kirk-Othmer encyclopedia of chemical technology. New York, NY: John Wiley and Sons, 739-767.
- Durando J. 2005. Data review for acute oral toxicity testing. Washington, D.C.: U.S. Environmental Protection Agency.
- Eary L, Mattigod S, Rai D, et al. 1990. Geochemical factors controlling the mobilization of inorganic constituents from fossil fuel combustion residues: I. Review of the major elements. *J Environ Qual* 19(2):188-20004x.
- Eckel WP, Langley W. 1988. A background-based ranking technique for assessment of elemental enrichment in soils at hazardous waste sites. Superfund'88. Proceedings of the 9th National Conference. Nov. 28-30, 1988. Washington, DC:282-286.
- Eckel WP, Jacob TA. 1988. Ambient levels of 24 dissolved metals in US surface and ground waters. Preprints of Papers Presented at National Meeting, Division of Water, Air and Waste Chemistry, American Chemical Society; (USA) 28:371-372.
- Edwards M, Powers K, Hidmi L, et al. 2001. The role of pipe ageing in copper corrosion by-product release. *Water Supply* 1(3):25-32. 10.2166/ws.2001.0050.
- Effler S, Litten S, Field S, et al. 1980. Whole lake responses to low level copper sulfate treatment. *Water Res* 14(10):1489-14015-9.
- Eife R, Weiss M, Barros V, et al. 1999. Chronic poisoning by copper in tap water: I. Copper intoxications with predominantly gastrointestinal symptoms. *Eur J Med Res* 4(6):219-223.
- Eisenberg M, Topping JJ. 1986. Trace metal residues in finfish from Maryland waters, 1978-1979. *J Environ Sci Health B* 21(1):87-102. 10.1080/03601238609372512.
- El Bialy BE, Hamouda RA, Abd Eldaim MA, et al. 2020. Comparative toxicological effects of biologically and chemically synthesized copper oxide nanoparticles on mice. *Int J Nanomedicine* 15:3827-3842. 10.2147/IJN.S241922.
- Elliott HA, Liberati MR, Huang CP. 1986. Competitive Adsorption of Heavy Metals by Soils 1. *J Environ Qual* 15(3):214-219.
- EPA. 1979. Water-related environmental fate of 129 priority pollutants. Volume 1: Introduction and technical background, metals and inorganics, pesticides and PCBs. Washington, DC: Office of Water Planning and Standards, Office of Water and Waste Management, U.S. Environmental Protection Agency.
- EPA. 1980. Chapter 29 Primary Copper Industry. Industrial process profiles for environmental use. Cincinnati, OH: U.S. Environmental Protection Agency.
- EPA. 1981. Treatability manual. Volume 1. Treatability data Washington, DC: Office of Research and Development, U.S. Environmental Protection Agency.

8. REFERENCES

- EPA. 1984. Air quality data for metals 1977 through 1979 from the National Air Surveillance Networks. Research Triangle Park, NC: Environmental Monitoring Systems Laboratory, U.S. Environmental Protection Agency.
- EPA. 1987. Assessment of copper as a potentially toxic air pollutant. U.S. Environmental Protection Agency. Fed Regist 52(35):5496-5499.
- EPA. 1991. Maximum contaminated level, goals and national primary drinking-water regulation for lead and copper. Final rule. Fed Regist 56:438-447.
- EPA. 1994a. Method 200.7: Determination of metals and trace elements in water and wastes by inductively coupled plasma-atomic emission spectrometry. Revision 4.4. Cincinnati, OH: Environmental Monitoring Systems Laboratory, Office of Research and Development, U.S. Environmental Protection Agency. pdf.
- EPA. 1994b. Method 200.8: Determination of trace elements in waters and wastes by inductively coupled plasma – mass spectrometry. Revision 5.4. Cincinnati, OH: Environmental Monitoring Systems Laboratory, Office of Research and Development, U.S. Environmental Protection Agency. https://www.epa.gov/sites/production/files/2015-08/documents/method_200-8_rev_5-4_1994.pdf. October 21, 2020.
- EPA. 1994c. Method 200.9: Determination of trace elements by stabilized temperature graphic furnace atomic absorption. Revision 2.2. Cincinnati, OH: Environmental Monitoring Systems Laboratory, Office of Research and Development, U.S. Environmental Protection Agency. pdf.
- EPA. 1995. Effect of pH, DIC, orthophosphate and sulfate on drinking water cuprosolvency. Washington, DC: Office of Research and Development, U.S. Environmental Protection Agency. TXT.
- EPA. 2002. National Recommended Water Quality Criteria: 2002. Human health criteria calculation matrix. Office of Water, U.S. Environmental Protection Agency.
- EPA. 2003. Method 200.5: Determination of trace elements in drinking water by axially viewed inductively coupled plasma - atomic emission spectrometry. Revision 4.2. Cincinnati, OH: National Exposure Research Laboratory, Office of Research and Development, U.S. Environmental Protection Agency. pdf.
- 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.
- EPA. 2007. National recommended water quality criteria-Aquatic life criteria table. U.S. Environmental Protection Agency. <https://www.epa.gov/wqc/national-recommended-water-quality-criteria-aquatic-life-criteria-table>. October 21, 2020.
- EPA. 2009a. National primary drinking water regulations. Office of Groundwater and Drinking Water, U.S. Environmental Protection Agency. pdf.
- EPA. 2009b. Reregistration eligibility decision (RED) for coppers. Prevention, Pesticides and Toxic Substances, U.S. Environmental Protection Agency.
- EPA. 2010. Lead and copper rule: Monitoring and reporting guidance for public water systems. Office of Water, U.S. Environmental Protection Agency. PDF.
- EPA. 2018. 2018 edition of the drinking water standards and health advisories tables. Washington, DC: Office of Water, U.S. Environmental Protection Agency. pdf.
- EPA. 2019. Determination of reportable quantities for hazardous substances. U.S. Environmental Protection Agency. Code of Federal Regulations. pdf.
- EPA. 2020a. Air quality system (AQS): Copper. U.S. Environmental Protection Agency. <https://www.epa.gov/aqs>. August 18, 2020.
- EPA. 2020b. Sampling methods for all parameters. AQS reference table. U.S. Environmental Protection Agency. https://aqs.epa.gov/aqsweb/documents/codetables/methods_all.html. October 21, 2020.
- EPA. 2021. 40 CFR Part 141. National Primary Drinking Water Regulations: Lead and Copper Rule Revisions (LCRR). U.S. Environmental Protection Agency. <https://www.regulations.gov/document/EPA-HQ-OW-2017-0300-1836>. March 21, 2021.

8. REFERENCES

- Epstein O, Spisni R, Parbhoo S, et al. 1982. The effect of oral copper loading and portasystemic shunting on the distribution of copper in the liver, brain, kidney, and cornea of the rat. *Am J Clin Nutr* 35(3):551-555. 10.1093/ajcn/35.3.551.
- Evans G, Majors P, Cornatzer W. 1970. Mechanism for cadmium and zinc antagonism of copper metabolism. *Biochem. Biophys. Res. Commun.* 40(5):1142-11913-7.
- Fahmy MA. 2000. Potential genotoxicity in copper sulphate treated mice. *Cytologia (Tokyo)* 65:235-242.
- Fahmy HM, O AA, A AH, et al. 2020. Biodistribution and toxicity assessment of copper nanoparticles in the rat brain. *J Trace Elem Med Biol* 61:126505. 10.1016/j.jtemb.2020.126505.
- Farrer P, Mistilis S. 1967. Absorption of exogenous and endogenous biliary copper in the rat. *Nature* 213(5073):291-2291b0.
- FDA. 2017. Analytical results of the Total Diet Study. Individual year analytical results: Copper. <https://www.fda.gov/food/total-diet-study/analytical-results-total-diet-study>. August 18, 2020.
- FDA. 2019a. Direct food substances affirmed as generally recognized as safe. Copper sulfate. U.S. Food and Drug Administration. Code of Federal Regulations.
- FDA. 2019b. Listing of color additives exempt from certification. Copper powder. U.S. Food and Drug Administration. Code of Federal Regulations.
- FDA. 2019c. Beverages. Subpart B-Requirements for specific standardized beverages. U.S. Food and Drug Administration. Code of Federal Regulations.
- FDA. 2020. Elemental analysis manual for food and related products. 4.7 Inductively coupled plasma-mass spectrometric determination of arsenic, cadmium, chromium, lead, mercury, and other elements in food using microwave assisted digestion. Version 1.2. U.S. Food and Drug Administration. <https://www.fda.gov/media/87509/download>. October 21, 2020.
- Feiler H, Storch T, Southworth R. 1980. Organics in municipal sludges: survey of forty cities. *Proceedings of The National Conference on Municipal Industrial Sludge Utility Disposal*:53-57.
- Feng X, Melander AP, Klaue B. 2000. Contribution of municipal waste incineration to trace metal deposition on the vicinity. *Water Air Soil Pollut* 119(1-4):295-320637.
- Fergusson J, Stewart C. 1992. The transport of airborne trace elements copper, lead, cadmium, zinc and manganese from a city into rural areas. *Science of the Total Environment* 121:247-2319-n.
- Finelli V, Boscolo P, Salimei E, et al. 1981. Anemia in men occupationally exposed to low levels of copper. 4th Heavy Metals in the Environment, International Conference, Amsterdam:475-478.
- Finley EB, Cerklewski FL. 1983. Influence of ascorbic acid supplementation on copper status in young adult men. *Am J Clin Nutr* 37(4):553-556. 10.1093/ajcn/37.4.553.
- Fleckman P. 1985. Anatomy and physiology of the nail. *Dermatol Clin* 3(3):373-3874-X.
- Ford ES. 2000. Serum copper concentration and coronary heart disease among US adults. *Am J Epidemiol* 151(12):1182-1110168.
- Franchitto N, Gandia-Mailly P, Georges B, et al. 2008. Acute copper sulphate poisoning: A case report and literature review. *Resuscitation* 78(1):92-96. 10.1016/j.resuscitation.2008.02.017.
- Franke SI, Pra D, Giulian R, et al. 2006. Influence of orange juice in the levels and in the genotoxicity of iron and copper. *Food Chem Toxicol* 44(3):425-435. 10.1016/j.fct.2005.08.016.
- Frazier L, Hage M. 1998. Appendix 1 Occupational exposure limits for chemicals. In:ed. *Reproductive hazards of the workplace*. New York: Van Nostrand Reinhold, 537-543.
- Fuentealba I, Mullins J, Aburto E. 2000. Effect of age and sex on liver damage due to excess dietary copper in Fischer 344 rats. *Clin Toxicol* 38(7):709-702384.
- Fuhrer G. 1986. Extractable cadmium, mercury, copper, lead, and zinc in the lower Columbia River Estuary, Oregon and Washington. U.S. Geological Survey Water Resources Investigations Report 86(4088). . Portland, OR: U.S. Department of the Interior.
- Fukui H, Yamamoto M, Sasaki S, et al. 1994. Possible involvement of peripheral 5-HT₄ receptors in copper sulfate-induced vomiting in dogs. *Eur. J. Pharmacol.* 257(1-2):47-52. 10.1016/0014-2999(94)90692-0.

8. REFERENCES

- Furst A. 1971. Trace elements related to specific chronic diseases: Cancer. *Environmental geochemistry in health and disease*. The Geological Society of America, Inc. 123:109-130.
- Galloway J, Thornton J, Norton S, et al. 1982. Trace metals in atmospheric deposition: A review and assessment. *Atmospheric Environment* 16(7):1677-17262-1.
- Gamakaranage CS, Rodrigo C, Weerasinghe S, et al. 2011. Complications and management of acute copper sulphate poisoning; a case discussion. *J Occup Med Toxicol* 6(1):34. 10.1186/1745-6673-6-34.
- Gao S, Walker W, Dahlgren R, et al. 1997. Simultaneous sorption of Cd, Cu, Ni, Zn, Pb, and Cr on soils treated with sewage sludge supernatant. *Water Air Soil Pollut* 93:331-304765.
- Gao P, Lei T, Jia L, et al. 2018. Bioaccessible trace metals in lip cosmetics and their health risks to female consumers. *Environ Pollut* 238:554-53.072.
- Garrett N, Lewtas J. 1983. Cellular toxicity in Chinese hamster ovary cells culture. I. Analysis of cytotoxicity endpoints for twenty-nine priority pollutants. *Environ. Res.* 32(2):455-465.
- Gehring U, Beelen R, Eeftens M, et al. 2015. Particulate matter composition and respiratory health: the PIAMA Birth Cohort study. *Epidemiology* 26(3):300-309. 10.1097/EDE.0000000000000264.
- Georgieva S, Popov B, Petrov V. 2013. Genotoxic effects of copper sulfate in rabbits. *Archive Biology Science* 65(3):963-93963G.
- Georgopoulos PG, Roy A, Yonone-Lioy MJ, et al. 2001. Environmental copper: Its dynamics and human exposure issues. *J Toxicol Environ Health B Crit Rev* 4(4):341-394. 10.1080/109374001753146207.
- Gerritse RG, Van Driel W. 1984. The relationship between adsorption of trace metals, organic matter, and pH in temperate soils. *J Environ Qual* 13(2):197-20005x.
- Gibson A, Faucher L, Schurr M. 2011. Molten copper inhalation. *Burns* 37(6):e50-e53. 10.1016/j.burns.2011.05.009.
- Giesy JP, Briese LA, Levesee GJ. 1978. Metal binding capacity of selected Maine surface waters. *Environ Geol* 2(5):257-230672.
- Giesy JP, Newell A, Levesee GJ. 1983. Copper speciation in soft, acid, humic waters: Effects on copper bioaccumulation by and toxicity to *Simocephalus serrulatus* (Daphnidae). *Science of the Total Environment* 28(1-3):23-005-9.
- Gill JS, Bhagat CI. 1999. Acute copper poisoning from drinking lime cordial prepared and left overnight in an old urn. *Med. J. Aust.* 170(10):510. 10.5694/j.1326-5377.1999.tb127863.x.
- Gilman J. 1962. Metal carcinogenesis: II. A study on the carcinogenic activity of cobalt, copper, iron, and nickel compounds. *Cancer Res* 22:158-162.
- Giusquiani PL, Gigliotti G, Businelli D. 1992. Mobility of heavy metals in urban waste-amended soils. *J Environ Qual* 21(3):330-30004x.
- Giusti L, Yang YL, Hewitt CN, et al. 1993. The solubility and partitioning of atmospherically derived trace metals in artificial and natural waters: A review. *Atmospheric Environment. Part A. General Topics* 27(10):1567-1578. 10.1016/0960-1686(93)90156-s.
- Gleason RP. 1968. Exposure to copper dust. *Am Ind Hyg Assoc J* 29(5):461-462. 10.1080/00028896809343035.
- Goldberg ED. 1986. The Mussel Watch concept. *Environ. Monit. Assess* 7(1):91-103. 10.1007/BF00398031.
- Goldin A, Bigelow C, Veneman PLJC. 1992. Concentrations of metals in ash from municipal solid waste combustors. *Chemosphere* 24(3):271-2296-4.
- Gollan JL, Deller DJ. 1973. Studies on the nature and excretion of biliary copper in man. *Clin Sci* 44(1):9-15. 10.1042/cs0440009.
- Golomb D, Ryan D, Eby N, et al. 1997. Atmospheric deposition of toxics onto Massachusetts Bay—I. Metals. *Atmospheric Environment* 31(9):1349-13276-2.
- Gorter RW, Butorac MC, Eloy Pulido. 2004. Examination of the cutaneous absorption of copper after the use of copper-containing ointments. *Am J Ther* 11(6):453-465.e5.

8. REFERENCES

- Gotteland MA, M., Pizarro F, Olivares M. 2001. Effect of acute copper exposure on gastrointestinal permeability in healthy volunteers. *Dig Dis Sci* 46(9):1909-1914390.
- Gralak MA, Leontowicz M, Morawiec M, et al. 1996. Comparison of the influence of dietary fibre sources with different proportions of soluble and insoluble fibre on Ca, Mg, Fe, Zn, Mn and Cu apparent absorption in rats. *Arch Tierernahr* 49(4):293-299. 10.1080/17450399609381892.
- Greene F, Lamb L, Barwick M, et al. 1987. Effect of dietary copper on colonic tumor production and aortic integrity in the rat. *J Surg Res* 42(5):503-5025-4.
- Grillo C, Reigosa M, Fernandez Lorenzo de Mele M. 2010. Does over-exposure to copper ions released from metallic copper induce cytotoxic effects on mammalian cells? *Contraception* 81(4):343-32.003.
- Griswold MK, Nordberg A, Babu KM, et al. 2017. Accidental copper sulfate toxicity after flame colorant ingestion. *Clin Toxicol (Phila)* 55(8):943-945. 10.1080/15563650.2017.1330958.
- Gu XY, Wang X, Guo LN, et al. 2012. [The related study of first pregnancy women with Cu-IUD on copper content of blood serum and decidua, chorion tissues]. *Zhonghua Yi Xue Za Zhi* 92(5):324-326 (Chinese).
- Gunay N, Yildirim C, Karcioğlu O, et al. 2006. A series of patient in the emergency department diagnosed with copper poisoning: Recognition equals treatment. *Tohoku. J. Exp. Med* 209(3):243-29.243.
- Gupta U. 1979. Copper in agricultural crops. In: Nriagu JO, ed. *Copper in the environment. Part I: Ecological Cycling*. New York: John Wiley & Sons Inc.
- Gupta D, Kerai S, Budoo MS. 2018. A fatal and deceiving case of copper sulphate poisoning. *Indian J Anaesth* 62(10):819-820. 10.4103/ija.IJA_71_18.
- Gutenmann W, Rutzke M, Kuntz T, et al. 1994. Elements and polychlorinated biphenyls in sewage sludges of large cities in the United States. *Chemosphere* 28(4):725-7225-9.
- Guttmann S, Bernick F, Naorniakowska M, et al. 2018. Functional characterization of Novel ATP7B variants for diagnosis of Wilson Disease. *Front Pediatr* 6:106. 10.3389/fped.2018.00106.
- Ha JH, Doguer C, Wang X, et al. 2016. High-iron consumption impairs growth and causes copper-deficiency anemia in weanling Sprague-Dawley rats. *PLoS One* 11(8):e0161033. 10.1371/journal.pone.0161033.
- Haddad DS, Al-Alousi LA, Kantarjian AH. 1991. The effect of copper loading on pregnant rats and their offspring. *Funct Dev Morphol* 1(3):17-22.
- Hagemann C. 1992. 28 day repeated dose dermal toxicity study in the rat. Basel, Switzerland: CIBA-GEIGY Limited, Plant Protection.
- Haines R. 1984. Environmental contamination: Surveys of heavy metals in urban soils and hazard assessment. *Trace Subst Environ Health* 18:450-460.
- Hall A, Young B, Bremner I. 1979. Intestinal metallothionein and the mutual antagonism between copper and zinc in the rat. *J. Inorg. Biochem.* 11(1):57-054-9.
- Harada M, Honma Y, Yoshizumi T, et al. 2020. Idiopathic copper toxicosis: Is abnormal copper metabolism a primary cause of this disease? *Med Mol Morphol* 53:50-55. 10.1007/s00795-019-00227-4.
- Hardman B, Michalczyk A, Greenough M, et al. 2007. Distinct functional roles for the Menkes and Wilson copper translocating P-type ATPases in human placental cells. *Cell. Physiol. Biochem* 20(6):1073-1010718.
- Harris ED. 1993. The transport of copper. *Essential and Toxic Trace Elements in Human Health and Disease: An Update* 380:163-179.
- Harrison F, Bishop D. 1984. Review of the impact of copper released into freshwater environments. U.S. Nuclear Regulatory Commission. Livermore, CA: Lawrence Livermore National Lab.
- Harrison F, Bishop D, Emerson R, et al. 1980. Concentration and speciation of copper in waters collected near the San Onofre and Diablo Canyon nuclear power stations. Livermore, CA: Lawrence Livermore National Laboratory.

8. REFERENCES

- Harvey LJ, Majsak-Newman G, Dainty JR, et al. 2003. Adaptive responses in men fed low- and high-copper diets. *Br. J. Nutr.* 90(1):161-168. [10.1079/bjn2003887](https://doi.org/10.1079/bjn2003887).
- Harvey LJ, Dainty JR, Hollands WJ, et al. 2005. Use of mathematical modeling to study copper metabolism in humans. *Am J Clin Nutr* 81(4):807-813. [10.1093/ajcn/81.4.807](https://doi.org/10.1093/ajcn/81.4.807).
- Haschke F, Ziegler EE, Edwards BB, et al. 1986. Effect of iron fortification of infant formula on trace mineral absorption. *J Pediatr Gastroenterol Nutr* 5(5):768-773. [10.1097/00005176-198609000-00018](https://doi.org/10.1097/00005176-198609000-00018).
- Hashimyousif E, Obaid HM, Karim AJ, et al. 2019. Toxicopathological study of copper sulfate modulate by zinc oxide and coriandrum sativum plant treatment in mice. *Plant Archives* 19(1):299-308.
- Hashish EA, Elgaml SA. 2016. Hepatoprotective and nephroprotective effect of curcumin against copper toxicity in rats. *Indian J. Clin. Biochem* 31(3):270-277. [10.1007/s12291-015-0527-8](https://doi.org/10.1007/s12291-015-0527-8).
- Hassan S, Shaikh MU, Ali N, et al. 2010. Copper sulphate toxicity in a young male complicated by methemoglobinemia, rhabdomyolysis and renal failure. *J Coll Physicians Surg Pak* 20(7):490-491. [07.2010/JCPSP.490491](https://doi.org/10.2010/JCPSP.490491).
- Haynes W. 2015. *CRC handbook of chemistry and physics: A ready-reference book of chemical and physical data*. 95th ed. Boca Raton, FL: CRC Press
- Haywood S. 2019. Brain–Barrier Regulation, Metal (Cu, Fe) Dyshomeostasis, and Neurodegenerative Disorders in Man and Animals. *Inorganics*. 7:108. [10.3390/inorganics7090108](https://doi.org/10.3390/inorganics7090108).
- He XT, Logan TJ, Traina SJ. 1995. Physical and chemical characteristics of selected US municipal solid waste composts. *J Environ Qual* 24(3):543-552. <https://doi.org/10.2134/jeq1995.00472425002400030022x>.
- Heit M, Klusek CS. 1985. Trace element concentrations in the dorsal muscle of white suckers and brown bullheads from two acidic Adirondack lakes. *Water Air Soil Pollut* 25:87-96. <https://doi.org/10.1007/BF00159627>.
- Hellman NE, Gitlin JD. 2002. Ceruloplasmin metabolism and function. *Annu. Rev. Nutr.* 22:439-458. [10.1146/annurev.nutr.22.012502.114457](https://doi.org/10.1146/annurev.nutr.22.012502.114457).
- Helz GR, Huggett RJ, Hill JM. 1975. Behavior of Mn, Fe, Cu, Zn, Cd and Pb discharged from a wastewater treatment plant into an estuarine environment. *Water Res* 9(7):631-636. [https://doi.org/10.1016/0043-1354\(75\)90168-2](https://doi.org/10.1016/0043-1354(75)90168-2).
- Henckens MLCM, Worrell E. 2020. Reviewing the availability of copper and nickel for future generations. The balance between production growth, sustainability and recycling rates. *Journal of Cleaner Production* 264:121460. <https://doi.org/10.1016/j.jclepro.2020.121460>.
- Herawati N, Suzuki S, Hayashi K, et al. 2000. Cadmium, copper, and zinc levels in rice and soil of Japan, Indonesia, and China by soil type. *Bull. Environ. Contam. Toxicol.* 64:33-39. <https://doi.org/10.1007/s001289910006>.
- Hermann R, Neumann-Mahlkau P. 1985. The mobility of zinc, cadmium, copper, lead, iron and arsenic in ground water as a function of redox potential and pH. *Science of the Total Environment* 43(1-2):1-12. [https://doi.org/10.1016/0048-9697\(85\)90027-0](https://doi.org/10.1016/0048-9697(85)90027-0).
- Herrero M, Rovira J, Esplugas R, et al. 2020. Human exposure to trace elements, aromatic amines and formaldehyde in swimsuits: Assessment of the health risks. *Environ. Res.* 181:108951. [10.1016/j.envres.2019.108951](https://doi.org/10.1016/j.envres.2019.108951).
- Hickey C, Gordon C, Galdanes K, et al. 2020. Toxicity of particles emitted by fireworks. *Part Fibre Toxicol* 17:28. [10.1186/s12989-020-00360-4](https://doi.org/10.1186/s12989-020-00360-4).
- Higny J, Vanpee D, Boulouffe C. 2014. Bluish vomiting: A rare clinical presentation of poisoning. *Acta Clin Belg* 69(4):299-301. [10.1179/2295333714Y.0000000033](https://doi.org/10.1179/2295333714Y.0000000033).
- Hirano S, Sakai S, Ebihara H. 1990. Metabolism and pulmonary toxicity of intratracheally instilled cupric sulfate in rats. *Toxicology* 64(3):223-233. [https://doi.org/10.1016/0300-483x\(90\)90115-w](https://doi.org/10.1016/0300-483x(90)90115-w).
- Holbert M. 1990. *Acute inhalation toxicity study in rats*. Houston, Texas: Stillmeadow, Inc.
- Holtzman NA, Elliott DA, Heller RH. 1966. Copper intoxication. Report of a case with observations on ceruloplasmin. *N Engl J Med* 275(7):347-352. [10.1056/NEJM196608182750702](https://doi.org/10.1056/NEJM196608182750702).

8. REFERENCES

- Hoogenraad T, Koevoet R, de Ruyter Kover E. 1979. Oral zinc sulphate as long-term treatment in Wilson's disease (hepatolenticular degeneration) *Eur Neurol* 18(3):205-211. <https://doi.org/10.1159/000115077>.
- Hopps H. 1977. The biologic bases for using hair and nail for analyses of trace elements. *Sci. Total Environ* 7(1):71-89. [https://doi.org/10.1016/0048-9697\(77\)90018-3](https://doi.org/10.1016/0048-9697(77)90018-3).
- Horn CC, Meyers K, Lim A, et al. 2014. Delineation of vagal emetic pathways: intragastric copper sulfate-induced emesis and viral tract tracing in musk shrews. *Am. J. Physiol. Regul. Integr. Comp. Physiol.* 306(5):R341-351. 10.1152/ajpregu.00413.2013.
- Hostynek JJ, Dreher F, Maibach HI. 2010. Human skin retention and penetration of a copper tripeptide in vitro as function of skin layer towards anti-inflammatory therapy. *Inflamm. Res* 59(11):983-988. 10.1007/s00011-010-0214-4.
- Huang H-I, Shih H-Y, Lee C-M, et al. 2008. In vitro efficacy of copper and silver ions in eradicating *Pseudomonas aeruginosa*, *Stenotrophomonas maltophilia* and *Acinetobacter baumannii*: Implications for on-site disinfection for hospital infection control. *Water Res* 42(1):73-80. <https://doi.org/10.1016/j.watres.2007.07.003>.
- Huh C-A. 1996. Fluxes and budgets of anthropogenic metals in the Santa Monica and San Pedro Basins off Los Angeles: Review and reassessment. *Science of The Total Environment* 179:47-60. 10.1016/s0048-9697(96)90048-0.
- Hunt JR, Vanderpool RA. 2001. Apparent copper absorption from a vegetarian diet. *Am J Clin Nutr* 74(6):803-807. 10.1093/ajcn/74.6.803.
- Husain N, Mahmood R. 2019. Copper (II) generates ROS and RNA, impairs antioxidant system and damages membrane and DNA in human blood cells. *Environmental Science and Pollution Research* 26(20):20654-20668. <https://doi.org/10.1007/s11356-019-05345-1>.
- Hutchinson TC. 1979. Copper contamination of ecosystems caused by smelter activities. In: Nriagu JO, ed. *Copper in the environment. Part I: Ecological cycling*. New York: John Wiley and Sons Inc.
- Iannuzzi TJ, Huntley SL, Schmidt CW, et al. 1997. Combined sewer overflows (CSOs) as sources of sediment contamination in the lower Passaic River, New Jersey. I. Priority pollutants and inorganic chemicals. *Chemosphere* 34(2):213-231. 10.1016/s0045-6535(96)00373-6.
- IARC. 2020. Agents classified by the IARC monographs, volumes 1–127. International Agency for Research on Cancer, World Health Organization. <https://monographs.iarc.who.int/list-of-classifications>. December 3, 2020.
- Igic PG, Lee E, Harper W, et al. 2002. Toxic effects associated with consumption of zinc. *Mayo Clin Proc* 77(7):713-716. 10.4065/77.7.713.
- Institute of Medicine. 2006. *Dietary reference intakes: The essential guide to nutrient requirements*. Washington, DC: The National Academies Press. https://www.nal.usda.gov/sites/default/files/fnic_uploads/DRIEssentialGuideNutReq.pdf.
- IRIS. 1988. Integrated risk information system (IRIS). Chemical assessment summary. Copper; CASRN 7440-50-8. U.S. Environmental Protection Agency, National Center for Environmental Assessment.
- Isaac RA, Gil L, Cooperman AN. 1997. Corrosion in drinking water distribution systems: A major contributor of copper and lead to wastewaters and effluents. *Environ. Sci. Technol.* 31(11):3198-3203. <https://doi.org/10.1021/es970185i>.
- Iyanda AA, Anetor J, Adeniyi FAA. 2011. Altered copper level and renal dysfunction in Nigerian women using skin-whitening agents. *Biol Trace Elem Res* 143(3):1264-1270. <https://doi.org/10.1007/s12011-011-8962-8>.
- Jacob A. 2020. Evaluation of lead and copper content in hair of workers from oil product distribution companies in Iraq. *Braz J Pharm Sci* 56:e18061. <https://doi.org/10.1590/s2175-97902019000318061>.
- Jacob RA, Skala JH, Omaye ST, et al. 1987. Effect of varying ascorbic acid intakes on copper absorption and ceruloplasmin levels of young men. *J. Nutr.* 117(12):2109-2115. 10.1093/jn/117.12.2109.

8. REFERENCES

- Janssen RPT, Posthuma L, Baerselman R, et al. 1997. Equilibrium partitioning of heavy metals in Dutch field soils. II. Prediction of metal accumulation in earthworms. *Environ Toxicol Chem* 16(12):2479-2488. 10.1002/etc.5620161207.
- Jenkins D, Russell LL. 1994. Heavy metals contribution of household washing products to municipal wastewater. *Water Environ Res* 66(6):805-813.
- Jing M, Liu Y, Song W, et al. 2016. Oxidative damage induced by copper in mouse primary hepatocytes by single-cell analysis. *Environ Sci Pollut Res Int* 23(2):1335-1343. 10.1007/s11356-015-5360-3.
- Johansson A, Camner P, Jarstrand C, et al. 1983. Rabbit alveolar macrophages after inhalation of soluble cadmium, cobalt, and copper: A comparison with the effects of soluble nickel. *Environ. Res.* 31(2):340-354. 10.1016/0013-9351(83)90012-9.
- Johansson A, Curstedt T, Robertson B, et al. 1984. Lung morphology and phospholipids after experimental inhalation of soluble cadmium, copper, and cobalt. *Environ. Res.* 34(2):295-309. 10.1016/0013-9351(84)90098-7.
- Johnson CA, Sigg L, Zobrist J. 1987. Case studies on the chemical composition of fogwater: The influence of local gaseous emissions. *Atmospheric Environment* 21(11):2365-2374. 10.1016/0004-6981(87)90371-4.
- Johnson PE, Milne DB, Lykken GI. 1992. Effects of age and sex on copper absorption, biological half-life, and status in humans. *Am J Clin Nutr* 56(5):917-925. 10.1093/ajcn/56.5.917.
- Johnson DB, Hedrich S, Pakostova E. 2017. Indirect redox transformations of iron, copper, and chromium catalyzed by extremely acidophilic bacteria. *Front Microbiol* 8:211. <https://doi.org/10.3389/fmicb.2017.00211>.
- Kadammatil AV, Sajankila SP, Prabhu S, et al. 2018. Systemic toxicity and teratogenicity of copper oxide nanoparticles and copper sulfate. *J Nanosci Nanotechnol* 18(4):2394-2404. 10.1166/jnn.2018.14542.
- Kalita J, Kumar V, Misra UK, et al. 2020. Movement disorder in copper toxicity rat model: Role of inflammation and apoptosis in the corpus striatum. *Neurotox Res* 37(4):904-912. 10.1007/s12640-019-00140-9.
- Kamamoto Y, Makiura S, Sugihara S, et al. 1973. The inhibitory effects of copper on DL-ethionine carcinogenesis in rats. *Cancer Res* 33(5):1129-1135.
- Kang J, Lin C, Chen J, Liu Q. 2004. Copper induces histone hypoacetylation through directly inhibiting histone acetyltransferase activity. *Chemico-Biological Interactions.* 148:115-123. 10.1016/j.cbi.2004.05.003
- Karlsson B, Noren L. 1965. Ipecacuanha and copper sulphate as emetics in intoxications in children. *Acta Paediatr Scand* 54:331-335. <https://doi.org/10.1111/j.1651-2227.1965.tb06380.x>.
- Karlsson HL, Cronholm P, Gustafsson J, et al. 2008. Copper oxide nanoparticles are highly toxic: A comparison between metal oxide nanoparticles and carbon nanotubes. *Chem Res Toxicol* 21(9):1726-1732. 10.1021/tx800064j.
- Kasperczyk A, Dobrakowski M, Czuba ZP, et al. 2016. Environmental exposure to zinc and copper influences sperm quality in fertile males. *Ann. Agric. Environ. Med.* 23(1):138-143. 10.5604/12321966.1196869.
- Keeler GJ, Pirrone N. 1993. Deposition of trace metals in urban and rural areas in the lake Michigan basin. *Water Sci Technol* 28(3-5):261-270. 10.2166/wst.1993.0427.
- Keller JC, Kaminski EJ. 1984. Toxic effects of Cu implants on liver. *Fundam Appl Toxicol* 4(5):778-783. 10.1016/0272-0590(84)90099-x.
- Khaghani S, Ezzatpanah H, Mazhari N, et al. 2010. Zinc and copper concentrations in human milk and infant formulas. *Iran J Pediatr* 20(1):53-57.
- Kheirandish R, Askari N, Babaei H. 2014. Zinc therapy improves deleterious effects of chronic copper administration on mice testes: histopathological evaluation. *Andrologia* 46(2):80-85. 10.1111/and.12047.

8. REFERENCES

- Khushboo M, Murthy MK, Devi MS, et al. 2018. Testicular toxicity and sperm quality following copper exposure in Wistar albino rats: ameliorative potentials of L-carnitine. *Environ Sci Pollut Res Int* 25(2):1837-1862. 10.1007/s11356-017-0624-8.
- Kilbride KM, Paveglio FL, Altstatt AL, et al. 1998. Contaminant loading in drainage and fresh water used for wetland management at Stillwater National Wildlife Refuge. *Arch. Environ. Contam. Toxicol.* 35(2):236-248. 10.1007/s002449900372.
- Kim N, Fergusson J. 1993. Concentrations and sources of cadmium, copper, lead and zinc in house dust in Christchurch, New Zealand. *Sci. Total. Environ* 138(1-3):1-21. 10.1016/0048-9697(93)90400-z.
- Kim SY, Park JH, Kim EA, et al. 2012. Longitudinal study on trace mineral compositions (selenium, zinc, copper, manganese) in Korean human preterm milk. *J Korean Med Sci* 27(5):532-536. 10.3346/jkms.2012.27.5.532.
- Kim JS, Adamcakova-Dodd A, O'Shaughnessy PT, et al. 2011. Effects of copper nanoparticle exposure on host defense in a murine pulmonary infection model. *Part Fibre Toxicol* 8(1):29. 10.1186/1743-8977-8-29.
- Kimball KD. 1973. Seasonal fluctuations of ionic copper in Knights Pond, Massachusetts. *Limnology and Oceanography* 18(1): 169-172. <https://doi.org/10.4319/lo.1973.18.1.0169>.
- Kjaergaard K, Sandah T, Frisch T, et al. 2020. Intravenous and oral copper kinetics, biodistribution and dosimetry in healthy humans studied by [⁶⁴Cu] Copper PET/CT. *EJNMMI Radiopharmacy and Chemistry* 5(1):15. <https://dx.doi.org/10.1186%2Fs41181-020-00100-1>.
- Kline RD, Hays VW, Cromwell GL. 1971. Effects of copper, molybdenum and sulfate on performance, hematology and copper stores of pigs and lambs. *J. Anim. Sci.* 33(4):771-779. 10.2527/jas1971.334771x.
- Knobeloch L, Schubert C, Hayes J, et al. 1998. Gastrointestinal upsets and new copper plumbing - is there a connection? *Wis Med J* 97(1):49-53.
- Knobeloch L, Ziarnik M, Howard J, et al. 1994. Gastrointestinal upsets associated with ingestion of copper-contaminated water. *Environ. Health Perspect.* 102(11):958-961. 10.1289/ehp.94102958.
- Kodama H, Fujisawa C, Bhadrprasit W. 2012. Inherited copper transport disorders: Biochemical mechanisms, diagnosis, and treatment. *Curr Drug Metab* 13(3):237-250. 10.2174/138920012799320455.
- Koo YJ, Pack EC, Lee YJ, et al. 2020. Determination of toxic metal release from metallic kitchen utensils and their health risks. *Food Chem Toxicol* 145:111651. <https://doi.org/10.1016/j.fct.2020.111651>.
- Krishnan K, Andersen ME, Clewell HJI, et al. 1994. Physiologically based pharmacokinetic modeling of chemical mixtures. In: Yang RSH, ed. *Toxicology of Chemical Mixtures*.
- Kuhn JO. 1989a. Acute oral toxicity in rats. Houston, Texas: Stillmeadow, Inc.
- Kuhn JO. 1989b. Acute dermal toxicity study in rabbits. Houston, Texas: Stillmeadow, Inc.
- Kumar A, Sharma CB. 1987. Hematological indices in copper-poisoned rats. *Toxicol Lett* 38(3):275-278. 10.1016/0378-4274(87)90009-9.
- Kumar J, Sathua KB, Flora SJS. 2019. Chronic copper exposure elicit neurotoxic responses in rat brain: Assessment of 8-hydroxy-2-deoxyguanosine activity, oxidative stress and neurobehavioral parameters. *Cell Mol Biol* 65(1):27-35. 10.14715/cmb/2019.65.1.5.
- Kumar V, Kalita J, Misra UK, et al. 2015. A study of dose response and organ susceptibility of copper toxicity in a rat model. *J Trace Elem Med Biol* 29:269-274. 10.1016/j.jtemb.2014.06.004.
- Kumar V, Kalita J, Bora HK, et al. 2016a. Temporal kinetics of organ damage in copper toxicity: A histopathological correlation in rat model. *Regul Toxicol Pharmacol* 81:372-380. 10.1016/j.yrtph.2016.09.025.
- Kumar V, Kalita J, Bora HK, et al. 2016b. Relationship of antioxidant and oxidative stress markers in different organs following copper toxicity in a rat model. *Toxicol Appl Pharmacol* 293:37-43. <https://doi.org/10.1016/j.taap.2016.01.007>.
- Kvietkauskaitė R, Dringeliene A, Markevicius A, et al. 2004. Effect of low copper exposure on the antioxidant system and some immune parameters. *Vet. Hum. Toxicol* 46(4):169-172.

8. REFERENCES

- Lacerda LD, Santos JA, Lopes DV. 2009. Fate of copper in intensive shrimp farms: bioaccumulation and deposition in pond sediments. *Braz. J. Biol.* 69(3):851-858. 10.1590/s1519-69842009000400012.
- Lagos GE, Cuadrado CA, Letelier MV. 2001. Aging of copper pipes by drinking water. *Journal AWWA* 93(11):94-103. <https://doi.org/10.1002/j.1551-8833.2001.tb09338.x>.
- LaGow B, eds ea. 2007. PDR lab advisor: A comprehensive point-of-care guide for over 600 lab tests (Vol. First Edition). Montvale, NJ: Thomson PDR
- Lamont DL, Duflou JALC. 1988. Copper sulfate. Not a harmless chemical. *Forensic Toxicology* 9(3):226-227. <https://doi.org/10.1097/00000433-198809000-00010>.
- Landing WM, Perry JJ, Guentzel JL, et al. 1995. Relationships between the atmospheric deposition of trace elements, major ions, and mercury in Florida: The FAMS project (1992–1993). *Water Air Soil Pollut* 80(1-4):343-352. 10.1007/bf01189684.
- Lapid O. 2008. Copper sulphate burns to the hands, a complication of traditional medicine. *J Burn Care Res* 29(3):544-547. 10.1097/BCR.0b013e3181711183.
- Lavigne A, Freni Sterrantino A, Liverani S, et al. 2019. Associations between metal constituents of ambient particulate matter and mortality in England: An ecological study. *BMJ Open* 9(12):e030140. 10.1136/bmjopen-2019-030140.
- Law LW. 1938. The effects of chemicals on the lethal mutation rate in drosophila melanogaster. *Proc. Natl. Acad. Sci. U. S. A* 24(12):546-550. <https://dx.doi.org/10.1073%2Fpnas.24.12.546>.
- Lecy M. 1980. Toxicity of CuSO₄ in mice embryonic development. *Zool. Pol* 28:101-105.
- Levenson CW, Janghorbani M. 1994. Long-term measurement of organ copper turnover in rats by continuous feeding of a stable isotope. *Anal. Biochem.* 221(2):243-249. 10.1006/abio.1994.1408.
- Levy DB, Barbarick KA, Siemer EG, et al. 1992. Distribution and partitioning of trace metals in contaminated soils near Leadville, Colorado. *J Environ Qual* 21(2):185-195. 10.2134/jeq1992.00472425002100020006x.
- Lifset RJ, Gordon RB, Graedel TE, et al. 2002. Where has all the copper gone: The stocks and flows project, part 1. *Jom* 54(10):21-26. 10.1007/bf02709216.
- Lifset RJ, Eckelman MJ, Harper EM, et al. 2012. Metal lost and found: dissipative uses and releases of copper in the United States 1975-2000. *Sci. Total. Environ* 417-418:138-147. <https://doi.org/10.1016/j.scitotenv.2011.09.075>.
- Lioy P, Daisey J, Morandi M, et al. 1987. The airborne toxic element and organic substances (ATEOS) study design. In: Lioy P & Daisey J, ed. *Toxic air pollution: A comprehensive study of non-criteria air pollutants*. Chelsea, MI: Lewis Publishing, Inc., 3-42.
- Liszewski W, Warshaw M. 2019. Pigments in American tattoo inks and their propensity to elicit allergic contact dermatitis. *Journal of American Academy of Dermatology* 81(2):379-385. <https://doi.org/10.1016/j.jaad.2019.01.078>.
- Liu R, Zhao D, Barnett MO. 2006. Fate and transport of copper applied in channel catfish ponds. *Water Air Soil Pollut* 176(1-4):139-162. 10.1007/s11270-006-9155-5.
- Liu H-L, Zhou J, Li M, et al. 2021. Chemical speciation of trace metals in atmospheric deposition and impacts on soil geochemistry and vegetable bioaccumulation near a large copper smelter in China. *J Hazard Mater* 413:125346. <https://doi.org/10.1016/j.jhazmat.2021.125346>.
- Liu J, Luan J, Zhou X, et al. 2017. Epidemiology, diagnosis, and treatment of Wilson's disease. *Intractable Rare Dis Res* 6(4):249-255. 10.5582/irdr.2017.01057.
- Liu JY, Yang X, Sun XD, et al. 2016. Suppressive effects of copper sulfate accumulation on the spermatogenesis of rats. *Biol Trace Elem Res* 174(2):356-361. 10.1007/s12011-016-0710-7.
- Lodenius M, Braunschweiler H. 1986. Volatilisation of heavy metals from a refuse dump. *Science of The Total Environment* 57:253-255. 10.1016/0048-9697(86)90027-6.
- Longerich HP, Friel JK, Fraser C, et al. 1991. Analysis of the drinking water of mothers of neural tube defect infants and of normal infants for 14 selected trace elements by Inductively Coupled Plasma-Mass Spectrometry (ICP-MS). *Canadian Journal of Applied Spectroscopy* 36(1):15-21.

8. REFERENCES

- Lu J, Wu D-M, Zheng Y-L, et al. 2009. Trace amounts of copper exacerbate beta amyloid-induced neurotoxicity in the cholesterol-fed mice through TNF-mediated inflammatory pathway. *Brain Behavior and Immunity* 23(2):193-203. <https://doi.org/10.1016/j.bbi.2008.09.003>.
- Lubica C, Rudolf M, Jiri L. 2017. Acute copper sulphate poisoning. *J Coll Physicians Surg Pak* 27(8):527-528. 2690.
- Luncan-Bouche ML, Couderchet M, Vernet G, et al. 1997. The simultaneous influence of pH and temperature on binding and mobilization of metals in sand: 1-Copper. *Fresenius. Environ. Bull* 6:711-718.
- Luo J, Hao S, Zhao L, et al. 2020. Oral exposure of pregnant rats to copper nanoparticles caused nutritional imbalance and liver dysfunction in fetus. *Ecotoxicol. Environ. Saf.* 206:111206. [10.1016/j.ecoenv.2020.111206](https://doi.org/10.1016/j.ecoenv.2020.111206).
- Ma LQ, Rao GN. 1997. Chemical fractionation of cadmium, copper, nickel, and zinc in contaminated soils. *J. Environ. Qual.* 26(1):259-264. <https://doi.org/10.2134/jeq1997.00472425002600010036x>.
- Maessen O, Freedman B, McCurdy R. Metal mobilization in home well water systems in Nova Scotia. *Journal AWWA* 77(6): 73-80. <https://doi.org/10.1002/j.1551-8833.1985.tb05557.x>.
- Mahdy A, Elkhatib E, Fathi N. 2007. Cadmium, Copper, Nickel, and Lead Availability in Biosolids-amended Alkaline Soils. *Australian Journal of Basic and Applied Sciences* 1(4): 354-363.
- Makale MT, King GL. 1992. Surgical and pharmacological dissociation of cardiovascular and emetic responses to intragastric CuSO₄. *Am. J. Physiol.* 263(2 Pt 2):R284-291. [10.1152/ajpregu.1992.263.2.R284](https://doi.org/10.1152/ajpregu.1992.263.2.R284).
- Malik M, Mansur A. 2011. Copper sulphate poisoning and exchange transfusion. *Saudi J Kidney Dis Transpl* 22(6):1240-1242.
- Mannsville Chemical Products. 1984. Chemical products synopsis: Copper sulfate. Cortland, NY: Mannsville Chemical Products Corp.
- Marinussen MPJC, Zee SEATM, Haan FAM, et al. 1997. Heavy metal (copper, lead, and zinc) accumulation and excretion by the earthworm, *Dendrobaena veneta*. *J Environ Qual* 26(1):278-284. [10.2134/jeq1997.00472425002600010039x](https://doi.org/10.2134/jeq1997.00472425002600010039x).
- Mark AB, Kapolna E, Laursen KH, et al. 2013. Consumption of organic diets does not affect intake and absorption of zinc and copper in men - evidence from two cross-over trials. *Food Funct* 4(3):409-419. [10.1039/c2fo30247k](https://doi.org/10.1039/c2fo30247k).
- Markert A, Baumann R, Gerhards B, et al. 2016. Single and combined exposure to zinc- and copper-containing welding fumes lead to asymptomatic systemic inflammation. *J Occup Environ Med* 58(2):127-132. [10.1097/JOM.0000000000000652](https://doi.org/10.1097/JOM.0000000000000652).
- Mart L, Nurnberg HW. 1984. Trace metal levels in the eastern Arctic Ocean. *Sci Total Environ* 39:1-14.
- Marzin D, Phi H. 1985. Study of the mutagenicity of metal derivatives with *Salmonella typhimurium*. *Mutat. Res.* 155:49-51. [https://doi.org/10.1016/0165-1218\(85\)90024-2](https://doi.org/10.1016/0165-1218(85)90024-2).
- Massie HR, Aiello VR. 1984. Excessive intake of copper: influence on longevity and cadmium accumulation in mice. *Mech. Ageing Dev.* 26(2-3):195-203. [10.1016/0047-6374\(84\)90093-9](https://doi.org/10.1016/0047-6374(84)90093-9).
- Mayo Clinic. 2020. Test Definition: CUU. Copper 24Hr, U. In: Mayo Clinic Laboratories.
- McArdle H. 1995. The metabolism of copper during pregnancy--a review. *Food Chem* 54(1):79-84. [https://doi.org/10.1016/0308-8146\(95\)92666-8](https://doi.org/10.1016/0308-8146(95)92666-8).
- Melino S, Nepravishta R, Bellomaria A, Di Marco S, Paci M. 2009. Nucleic Acid Binding of the RTN1-C C-Terminal Region: Toward the Functional Role of a Reticulon Protein. *Biochemistry.* 48(2):242-253. [10.1021/bi801407w](https://doi.org/10.1021/bi801407w).
- Meranger JC, Subramanian KS, Chalifoux C. 1979. A national survey for cadmium, chromium, copper, lead, zinc, calcium, and magnesium in Canadian drinking water supplies. *Environ Sci Tech* 13(6):707-711. <https://doi.org/10.1021/es60154a009>.
- Mercer JF, Lazdins I, Stevenson T, et al. 1981. Copper induction of translatable metallothionein messenger RNA. *Biosci. Rep.* 1(10):793-800. [10.1007/BF01114802](https://doi.org/10.1007/BF01114802).
- Mills GL, Quinn JG. 1984. Dissolved copper and copper-organic complexes in the Narragansett Bay estuary. *Mar Chem* 15(2):151-172. [10.1016/0304-4203\(84\)90013-6](https://doi.org/10.1016/0304-4203(84)90013-6).

8. REFERENCES

- Minear RA, Ball RO, Church RL. 1981. Project Summary: Data base for influent heavy metals in publicly owned treatment works. Cincinnati, OH: Municipal Environmental Research Laboratory, U.S. Environmental Protection Agency.
- Moffett J, Zika R. 1987. Photochemistry of copper complexes in sea water. *Photochemistry of environmental aquatic systems*. ACS Sump Ser 327: 116-130. 10.1021/bk-1987-0327.ch009.
- Moriya M, Ho YH, Grana A, et al. 2008. Copper is taken up efficiently from albumin and alpha2-macroglobulin by cultured human cells by more than one mechanism. *Am. J. Physiol. Cell Physiol.* 295(3):C708-C721. 10.1152/ajpcell.00029.2008.
- Morris AE, Wadsley M. 2001. Metal extraction: Phase stability diagrams. In: Buschow KHJ, Cahn RW, Flemings MC, et al., ed. *Encyclopedia of materials: Science and technology*. Oxford: Elsevier, 5362-5377.
- Mortazavi F, Jafari-Javid A. 2009. Acute renal failure due to copper sulfate poisoning: A case report. *Iran J Pediatr* 19(1):75-78.
- Motlhatlhedhi K, Firth JA, Setlhare V, et al. 2014. A novel and fatal method of copper sulphate poisoning. *African Journal of Emergency Medicine* 4(4):e23-e25. 10.1016/j.afjem.2014.02.002.
- Moussiagt A, Ferreira L, Aboab J, et al. 2020. She has the blues: An unusual case of copper sulphate intoxication. *Eur J Case Rep Intern Med* 7(2):001394. 10.12890/2020_001394.
- Mulder EG, van Veen WL. 1968. Effect of microorganisms on the transformation of mineral fractions in soil. *Trans Int Cong Soil Sci* 9:651-661.
- Müller T, Müller W, Feichtinger H. 1998. Idiopathic copper toxicosis. *Am J Clin Nutr* 67(5 Suppl):1082s-1086s. 10.1093/ajcn/67.5.1082S.
- Müller T, Feichtinger H, Berger H, et al. 1996. Endemic Tyrolean infantile cirrhosis: an ecogenetic disorder. *Lancet* 347(9005):877-880. 10.1016/s0140-6736(96)91351-3.
- Munley SM. 2003a. Copper hydroxide: Pilot developmental toxicity study in rabbits. Newark, DE: E. I. du Pont de Nemours and Company, Haskell Laboratory for Health and Environmental Sciences.
- Munley SM. 2003b. Copper hydroxide: Developmental toxicity study in rabbits. Newark, DE: E. I. du Pont de Nemours and Company, Haskell Laboratory for Health and Environmental Sciences.
- Murphy EA. 1993. Effectiveness of flushing on reducing lead and copper levels in school drinking water. *Environ. Health Perspect.* 101(3):240-241. 10.1289/ehp.93101240.
- Murthy RC, Lal S, Saxena DK, et al. 1981. Effect of manganese and copper interaction on behavior and biogenic amines in rats fed a 10% casein diet. *Chem Biol Interact* 37(3):299-308. 10.1016/0009-2797(81)90116-2.
- Musacco-Sebio R, Saporito-Magriñá C, Acosta JM, et al. 2017. Iron and copper toxicity in rat liver: A kinetic and holistic overview. *Liver Research – Open Journal* 2(1):9-13. 10.17140/lroj-2-110.
- Musci G, Bonaccorsi di Patti MC, Calabrese L. 1993. The state of the copper sites in human ceruloplasmin. *Arch. Biochem. Biophys.* 306(1):111-118. 10.1006/abbi.1993.1487.
- Myint ZW, Oo TH, Thein KZ, et al. 2018. Copper deficiency anemia: review article. *Ann Hematol* 97(9):1527-1534. 10.1007/s00277-018-3407-5.
- NAS/NRC. 1989. Report of the oversight committee. In:ed. *Biologic markers in reproductive toxicology*. Washington, DC: National Academy of Sciences, National Research Council, National Academy Press
- Naveed M, Moldrup P, Arthur E, et al. 2014. Simultaneous Loss of Soil Biodiversity and Functions along a Copper Contamination Gradient: When Soil Goes to Sleep. *Soil Science Society of America Journal* 78(4):1239-1250. <https://doi.org/10.2136/sssaj2014.02.0052>.
- Nayak NC, Chitale AR. 2013. Indian childhood cirrhosis (ICC) & ICC-like diseases: the changing scenario of facts versus notions. *Indian J. Med. Res* 137(6):1029-1042.
- Naz S, Gul A, Zia M. 2020. Toxicity of copper oxide nanoparticles: a review study. *IET Nanobiotechnol* 14(1):1-13. 10.1049/iet-nbt.2019.0176.

8. REFERENCES

- Ndilila W, Callan AC, McGregor LA, et al. 2014. Environmental and toenail metals concentrations in copper mining and non mining communities in Zambia. *Int J Hyg Environ Health* 217(1):62-69. 10.1016/j.ijheh.2013.03.011.
- Nerín C, Domeño C, García JI, et al. 1999. Distribution of Pb, V, Cr, Ni, Cd, Cu and Fe in particles formed from the combustion of waste oils. *Chemosphere* 38(7):1533-1540. 10.1016/s0045-6535(98)00373-7.
- Neuhauser EF, Cukic ZV, Malecki MR, et al. 1995. Bioconcentration and biokinetics of heavy metals in the earthworm. *Environ. Pollut.* 89(3):293-301. 10.1016/0269-7491(94)00072-1.
- Ni L, Li S. 2008. Effects of organic matters coming from Chinese tea on soluble copper release from copper teapot. *Sci. Total. Environ* 389(1):202-207. 10.1016/j.scitotenv.2007.08.039.
- NIOSH. 1989. National Occupational Exposure Survey (potential exposure agents list). Cincinnati, OH: U.S. Department of Health, Education and Welfare, Public Health Service, Centers for Disease Control, National Institute for Occupational Safety and Health.
- NIOSH. 2014a. Copper (dusts and mists, as Cu). Immediately Dangerous to Life or Health Concentrations (IDLH). Atlanta, GA: The National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention. <https://www.cdc.gov/niosh/idlh/7440508.html>. October 21, 2020.
- NIOSH. 2014b. Copper fume (as Cu). Immediately Dangerous to Life or Health Concentrations (IDLH). Atlanta, GA: The National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention.
- NIOSH. 2020. NIOSH manual of analytical methods (NMAM), 5th Edition (Andrews R & O'Connor PF Eds.). National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention
- Nishioka H. 1975. Mutagenic activities of metal compounds in bacteria. *Mutat. Res.* 31(3):185-189. 10.1016/0165-1161(75)90088-6.
- Nishito Y, Kambe T. 2018. Absorption Mechanisms of Iron, Copper, and Zinc: An Overview. *J Nutr Sci Vitaminol (Tokyo)* 64(1):1-7. 10.3177/jnsv.64.1.
- Nölte J. 1988. Pollution source analysis of river water and sewage sludge. *Environ. Technol. Lett.* 9(8):857-868. 10.1080/09593338809384642.
- NRC. 2000. Copper in drinking water. Washington, DC: The National Academies Press. <https://doi.org/10.17226/9782>.
- NRC. 1995. Nutrient requirements of laboratory animals, fourth revised edition. Washington, DC: Subcommittee on Laboratory Animal Nutrition, Committee on Animal Nutrition, Board of Agriculture, National Research Council.
- Nriagu JO, Pacyna JM. 1988. Quantitative assessment of worldwide contamination of air, water and soils by trace metals. *Nature* 333(6169):134-139. 10.1038/333134a0.
- Nriagu JO, Lawson G, Wong HKT, et al. 1996. Dissolved trace metals in Lakes Superior, Erie, and Ontario. *Environ Sci Technol* 30(1):178-187. 10.1021/es950221i.
- NSF. 2021. NSF product and service listings. NSF/ANSI/CAN 60. Drinking water treatment chemicals - health effects. NSF International. <http://info.nsf.org/Certified/PwsChemicals/Listings.asp?ChemicalName=Copper+Sulfate&PlantCountry=UNITED+STATES&>. April 9, 2021.
- NTP. 2016. Report on carcinogens, Fourteenth Edition. Substances listed in the fourteenth report on carcinogens. Research Triangle Park, NC: National Toxicology Program, Department of Health and Human Services. https://ntp.niehs.nih.gov/ntp/roc/content/listed_substances_508.pdf.
- NTP. 1993. NTP Technical Report on toxicity studies of cupric sulfate administered in drinking water and feed to F344/N rats and B6C3F1 mice. Research Triangle Park, NC: United States Department of Health and Human Services.
- Ocelli F, Lanier C, Cuny D, et al. 2020. Exposure to multiple air pollutants and the incidence of coronary heart disease: A fine-scale geographic analysis. *Sci. Total. Environ* 714:136608. 10.1016/j.scitotenv.2020.136608.

8. REFERENCES

- O'Connor JMB, M.P., Turley E, McKeown A, et al. 2003. Copper supplementation has no effect on markers of DNA damage and liver function in healthy adults (FOODCUE project). *Annals of Nutrition & Metabolic* 47:201-206. <https://doi.org/10.1159/000070486>.
- O'Donohue JW, Reid MA, Varghese A, et al. 1993. Micronodular cirrhosis and acute liver failure due to chronic copper self-intoxication. *Eur J Gastroenterol Hepatol* 5(7):561-562.
- Ognik K, Cholewińska E, Juskiewicz J, Zduńczyk Z, Tutaj K, Szalak R. 2019. The effect of copper nanoparticles and copper (II) salt on redox reactions and epigenetic changes in a rat model. *Journal of animal physiology and animal nutrition/Zeitschrift fuer Tierphysiologie Tierernaehrung und Futtermittelkunde*. 102(2):675-686. 10.1111/jpn.13025
- Ogra Y, Ohmichi M, Suzuki KT. 1996. Mechanisms of selective copper removal by tetrathiomolybdate from metallothionein in LEC rats. *Toxicology* 106(1-3):75-83. 10.1016/0300-483x(95)03171-b.
- Ogunbileje JO, Sadagoparamanujam VM, Anetor JI, et al. 2013. Lead, mercury, cadmium, chromium, nickel, copper, zinc, calcium, iron, manganese and chromium (VI) levels in Nigeria and United States of America cement dust. *Chemosphere* 90(11):2743-2749. 10.1016/j.chemosphere.2012.11.058.
- Ohgami RS, Campagna DR, McDonald A, et al. 2006. The Steap proteins are metalloreductases. *Blood* 108(4):1388-1394. 10.1182/blood-2006-02-003681.
- Olivares M, Araya M, Uauy R. 2000. Copper homeostasis in infant nutrition: Deficit and excess. *J Pediatr Gastroenterol Nutr* 31:102-111. <https://doi.org/10.1097/00005176-200008000-00004>.
- Olivares M, Lonnerdal B, Abrams S. 2002. Age and copper intake do not affect copper absorption, measured with the use of ⁶⁵Cu as a tracer, in young infants. *Am J Clin Nutr* 76(3):641-645. <https://doi.org/10.1093/ajcn/76.3.641>.
- Olivares M, Araya M, Pizarro F, et al. 2001. Nausea threshold in apparently healthy individuals who drink fluids containing graded concentrations of copper. *Regul Toxicol Pharmacol* 33(3):271-275. 10.1006/rtph.2000.1440.
- Olivares M, Pizarro F, Speisky H, et al. 1998. Copper in infant nutrition: safety of World Health Organization provisional guideline value for copper content of drinking water. *J Pediatr Gastroenterol Nutr* 26(3):251-257. 10.1097/00005176-199803000-00003.
- Olmedo P, Hernández AF, Pla A, et al. 2013. Determination of essential elements (copper, manganese, selenium and zinc) in fish and shellfish samples. Risk and nutritional assessment and mercury-selenium balance. *Food Chem Toxicol* 62:299-307. <https://doi.org/10.1016/j.fct.2013.08.076>.
- Oon S, Yap CH, Ihle BU. 2006. Acute copper toxicity following copper glycinate injection. *Intern Med J* 36(11):741-743. 10.1111/j.1445-5994.2006.01195.x.
- Osán J, Meirer F, Groma V, et al. 2010. Speciation of copper and zinc in size-fractionated atmospheric particulate matter using total reflection mode X-ray absorption near-edge structure spectrometry. *Spectrochimica Acta Part B: Atomic Spectroscopy* 65(12):1008-1013. <https://doi.org/10.1016/j.sab.2010.11.002>.
- OSHA. 2020a. Occupational safety and health standards. Subpart Z - Toxic and hazardous substances. Air contaminants. Table Z-1: Limits for air contaminants. Occupational Safety and Health Administration. Code of Federal Regulations: <https://www.osha.gov/annotated-pels/table-z-1>. October 21, 2020.
- OSHA. 2020b. Occupational safety and health standards for shipyard employment. Subpart Z - Toxic and hazardous substances. Air contaminants. Occupational Safety and Health Administration. Code of Federal Regulations. <https://www.osha.gov/laws-regs/regulations/standardnumber/1915/1915.1000>. October 21, 2020.
- OSHA. 2020c. Safety and health regulations for construction. Subpart D - Occupational health and environment controls. Gases, vapors, fumes, dusts, and mists. Occupational Safety and Health Administration. Code of Federal Regulations. <https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.55>. October 21, 2020.

8. REFERENCES

- Ostro BD, Feng WY, Broadwin R, et al. 2008. The impact of components of fine particulate matter on cardiovascular mortality in susceptible subpopulations. *Occup Environ Med* 65(11):750-756. 10.1136/oem.2007.036673.
- Ostro B, Hu J, Goldberg D, et al. 2015. Associations of mortality with long-term exposures to fine and ultrafine particles, species and sources: results from the California Teachers Study Cohort. *Environ. Health Perspect.* 123(6):549-556. 10.1289/ehp.1408565.
- Page GW. 2002. Comparison of groundwater and surface water for patterns and levels of contamination by toxic substances. *Environ Sci Technol* 15(12):1475-1481. 10.1021/es00094a008.
- Pandit A, Bhave S. 1996. Present interpretation of the role of copper in Indian childhood cirrhosis. *Am J Clin Nutr* 63(5):830S-835S. 10.1093/ajcn/63.5.830.
- Paode RD, Sofuoglu SC, Sivadechathep J, et al. 1998. Dry deposition fluxes and mass size distributions of Pb, Cu, and Zn Measured in Southern Lake Michigan during AEOLOS. *Environ Sci Technol* 32(11):1629-1635. 10.1021/es970892b.
- Park KS, Kwon JH, Park SH, et al. 2018. Acute copper sulfate poisoning resulting from dermal absorption. *Am J Ind Med* 61:783-788. 10.1002/ajim.22892.
- Pedersen M, Gehring U, Beelen R, et al. 2016. Elemental Constituents of Particulate Matter and Newborn's Size in Eight European Cohorts. *Environ. Health Perspect.* 124(1):141-150. 10.1289/ehp.1409546.
- Pekelharing H, Lemmens A, Beyen A. 1994. Iron, copper and zinc status in rats fed on diets containing various concentrations of tin. *Br. J. Nutr.* 71(1):103-109. <https://doi.org/10.1079/bjn19940115>.
- Pennington JA, Young BE, Wilson DB, et al. 1986. Mineral content of foods and total diets: the Selected Minerals in Foods Survey, 1982 to 1984. *J Am Diet Assoc* 86(7):876-891.
- Perwak J, Bysshe S, Goyer M, et al. 1980. An exposure and risk assessment for copper. Washington, DC: U.S. Environmental Protection Agency.
- Petruzzelli G. 1997. Chapter 5: Soil sorption of heavy metals. In:ed. *Ecological issues and environmental impact assessment.* 145-175.
- Pettersson R, Rasmussen F, Oskarsson A. 2003. Copper in drinking water: Not strong risk factor for diarrhoea among young children. A population-based study from Sweden. *Acta Paediatr* 92(4):473-480. <https://doi.org/10.1111/j.1651-2227.2003.tb00581.x>.
- Pimentel JC, Marques F. 1969. "Vineyard sprayer's lung": A new occupational disease. *Thorax* 24(6):678-688. 10.1136/thx.24.6.678.
- Pimentel JC, Menezes AP. 1975. Liver granulomas containing copper in vineyard sprayer's lung. A new etiology of hepatic granulomatosis. *Am Rev Respir Dis* 111(2):189-195. 10.1164/arrd.1975.111.2.189.
- Pirot F, Millet J, Kalia Y, et al. 1996a. In vitro study of percutaneous absorption, cutaneous bioavailability and bioequivalence of zinc and copper from five topical formulations. *Skin Pharmacol* 9(4):259-269. <https://doi.org/10.1159/000211423>.
- Pirot F, Panisset F, Agache P, et al. 1996b. Simultaneous absorption of copper and zinc through human skin in vitro: Influence of counter-ion and vehicle. *Skin Pharmacol* 9(1):43-52. <https://doi.org/10.1159/000211389>.
- Pizarro F, Olivares M, Araya M, et al. 2001. Gastrointestinal effects associated with soluble and insoluble copper in drinking water. *Environ. Health Perspect.* 109(9):949-952. 10.1289/ehp.01109949.
- Pizarro F, Olivares M, Uauy R, et al. 1999. Acute gastrointestinal effects of graded levels of copper in drinking water. *Environ. Health Perspect.* 107(2):117-121. 10.1289/ehp.99107117.
- Pizarro F, Araya M, Vasquez M, et al. 2007. Case study of complaints on drinking water quality: Relationship to copper content? *Biol Trace Elem Res* 116(2):131-145. 10.1007/BF02685926.
- Plamenac P, Santic Z, Nikulin A, et al. 1985. Cytologic changes of the respiratory tract in vineyard spraying workers. *Eur J Respir Dis* 67(1):50-55.
- Pohanka M. 2019. Copper and copper nanoparticles toxicity and their impact on basic functions in the body. *Bratisl Med J.* 120(6); 397-409. 10.4149/BLL_2019_065.

8. REFERENCES

- Prá D, Franke SI, Giulian R, et al. 2008. Genotoxicity and mutagenicity of iron and copper in mice. *BioMetals* 21(3):289-297. 10.1007/s10534-007-9118-3.
- Prasad R, Kumar S, Kumar S. 2006. Hydrogen peroxide commences copper induced DNA damage isolated from human blood: In vitro study. *Indian J Exp Biol* 44(5):377-380.
- Prasad AS, Brewer GJ, Schoomaker EB, et al. 1978. Hypocupremia induced by zinc therapy in adults. *JAMA* 240(20):2166-2168.
- Pratt WB, Omdahl JL, Sorenson JR. 1985. Lack of effects of copper gluconate supplementation. *Am J Clin Nutr* 42(4):681-682. 10.1093/ajcn/42.4.681.
- PubChem. 2020. Compound summaries for copper, copper sulfate, and cupric chloride. National Library of Medicine, National Center for Biotechnology Information. <https://pubchem.ncbi.nlm.nih.gov/>. October 21, 2020.
- Puchkova LV, Babich PS, Zatulovskaia YA, et al. 2018. Copper metabolism of newborns is adapted to milk ceruloplasmin as a nutritive source of copper: Overview of the current data. *Nutrients* 10(11):1591. 10.3390/nu10111591.
- Pujol J, Fenoll R, Macia D, et al. 2016. Airborne copper exposure in school environments associated with poorer motor performance and altered basal ganglia. *Brain and Behavior*. 6(6). 10.1002/brb3.467
- Que Hee SS, Finelli VN, Fricke FL, et al. 2006. metal content of stack emissions, coal and fly ash from some eastern and western power plants in the U.S.A. as obtained by ICP-AES. *Int J Environ Anal Chem* 13(1):1-18. 10.1080/03067318208071579.
- Raaschou-Nielsen O, Beelen R, Wang M, et al. 2016. Particulate matter air pollution components and risk for lung cancer. *Environ. Int.* 87:66-73. 10.1016/j.envint.2015.11.007.
- Rader KJ, Carbonaro RF, van Hullebusch ED, et al. 2019. The fate of copper added to surface water: Field, laboratory, and modeling studies. *Environ. Toxicol. Chem.* 38(7):1386-1399. 10.1002/etc.4440.
- Rajaratnam G, Winder C, An M. 2002. Metals in Drinking Water from New Housing Estates in the Sydney Area. *Environ Res* 89(2):165-170. <https://doi.org/10.1006/enrs.2002.4356>.
- Rana SV, Kumar A. 1980. Biological haematological and histological observations in copper poisoned rats. *Ind Health* 18(1):9-17. 10.2486/indhealth.18.9.
- Ranucci G, Di Dato F, Spagnuolo M, et al. 2014. Zinc monotherapy is effective in Wilson's disease patients with mild liver disease diagnosed in childhood: A retrospective study. *Journal of Rare Diseases* 9:41. <https://doi.org/10.1186/1750-1172-9-41>.
- Raspor B, Nürnberg HW, Valenta P, et al. 1984. Studies in seawater and lake water on interactions of trace metals with humic substances isolated from marine and estuarine sediments. *Mar Chem* 15(3):231-249. 10.1016/0304-4203(84)90020-3.
- Rauch JNGTE. 2007. Earth's anthrobiogeochemical copper cycle. *Global Biogeochemical Cycles* 21(2):GB2010. <https://doi.org/10.1029/2006GB002850>.
- Reed JS, Henningson JC. 1984. Acid precipitation and drinking water supplies. *J Am Water Works Assoc* 76:60-65.
- Rice KC. 1999. Trace-element concentrations in streambed sediment across the conterminous United States. *Environ Sci Technol* 33(15):2499-2504. 10.1021/es990052s.
- Richards BK, Steenhuis TS, Pevery JH, et al. 1998. Metal mobility at an old, heavily loaded sludge application site. *Environ Pollut* 99(3):365-377. 10.1016/s0269-7491(98)00011-6.
- Rieuwerts JS, Thornton I, Farago ME, et al. 2015. Factors influencing metal bioavailability in soils: preliminary investigations for the development of a critical loads approach for metals. *Chemical Speciation & Bioavailability* 10(2):61-75. 10.3184/095422998782775835.
- Ritter WF, Eastburn RP. 2008. Leaching of heavy metals from sewage sludge through coastal plain soils. *Commun Soil Sci Plant Anal* 9(9):785-798. 10.1080/00103627809366853.
- Rodriguez-Castro KI, Hevia-Urrutia FJ, Sturniolo GC. 2015. Wilson's disease: A review of what we have learned. *World J Hepatol* 7(29):2859-2870. 10.4254/wjh.v7.i29.2859.

8. REFERENCES

- Rohr U, Senger M, Selenka F, et al. 1999. Four years of experience with silver-copper ionization for control of legionella in a German university hospital hot water plumbing system. *Clin Infect Dis* 29(6):1507-1511. 10.1086/313512.
- Romeu-Moreno A, Aguilar C, Arola L, et al. 1994. Respiratory toxicity of copper. *Environ. Health Perspect.* 102 (Suppl 3):339-340. 10.1289/ehp.94102s3339.
- Romo-Kröger CM, Morales JR, Dinator MI, et al. 1994. Heavy metals in the atmosphere coming from a copper smelter in Chile. *Atmospheric Environment* 28(4):705-711. 10.1016/1352-2310(94)90047-7.
- Rösner U. 1998. Effects of historical mining activities on surface water and groundwater - an example from northwest Arizona. *Environ Geol* 33(4):224-230. 10.1007/s002540050241.
- Rossner Jr P, Vrbova K, Rossnerova A, et al. 2020. Gene Expression and Epigenetic Changes in Mice Following Inhalation of Copper(II) Oxide Nanoparticles. *Nanomaterials.* 10:550. 10.3390/nano10030550.
- Roy WR. 1994. Groundwater contamination from municipal landfills in the USA. In: Adriano D, ed. *Contamination of groundwaters: Case studies.* Northwood, UK: Scientific Review, 411-446.
- Roychoudury S, Massanyi P, Bulla J, et al. 2010. In vitro copper toxicity on rabbit spermatozoa motility, morphology and cell membrane integrity. *J Environ Sci Health A Tox Hazard Subst Environ Eng* 45(12):1482-1491. <https://doi.org/10.1080/10934529.2010.506092>.
- Rush R. 1990a. Acute dermal toxicity study in rabbits with Komeen. Spencerville, Ohio: Springborn Laboratories, Inc.
- Rush R. 1990b. Acute oral toxicity study in rats with Komeen (EPA-FIFRA). Spencerville, Ohio: Springborn Laboratories, Inc.
- Rush R. 1991. Acute inhalation toxicity study in rats with komeen (EPA-FIFRA). Spencerville, Ohio: Life Sciences Division, Springborn Laboratories, Inc.
- Rush R. 1990c. Acute oral toxicity study in rats with K-Tea. Spencerville, Ohio: Springborn Laboratories, Inc.
- Sacco JE, Dodd KW, Kirkpatrick SI, et al. 2013. Voluntary food fortification in the United States: Potential for excessive intakes. *Eur J Clin Nutr* 67(6):592-597. 10.1038/ejcn.2013.51.
- Saenko E, Yaropolov A, Harris E. 1994. Biological function of ceruloplasmin expressed through copper-binding sites and cellular receptor. *J Trace Elem Exp Med* 7:69-88.
- Saha A, Karnik A, Sathawara N, et al. 2008. Ceruloplasmin as a marker of occupational copper exposure. *Journal of Exposure Science and Environmetology* 18:332-337. <https://doi.org/10.1038/jes.2008.2>.
- Sakhaee E, Emadi L, Siahkouhi H. 2016b. Histopathological evaluation of supportive effects of Rosa damascene on mice testes, following long term administration of copper sulfate. *Asian Pacific Journal of Reproduction* 5(1):46-50. <https://doi.org/10.1016/j.apjr.2015.12.008>.
- Sakhaee E, Emadi L, Abshenas J, et al. 2012. Evaluation of epididymal sperm quality following experimentally induced copper poisoning in male rats. *Andrologia* 44(Suppl 1):110-116. 10.1111/j.1439-0272.2010.01147.x.
- Sakhaee E, Abshenas J, Emadi L, et al. 2014. Effects of vitamin C on epididymal sperm quality following experimentally induced copper poisoning in mice. *Comp Clin Path* 23(1):181-186. <https://doi.org/10.1007/s00580-012-1592-5>.
- Sakhaee E, Emadi L, Azari O, et al. 2016a. Effects of Cuminum cyminum L. essential oil on some epididymal sperm parameters and histopathology of testes following experimentally induced copper poisoning in mice. *Andrologia* 48(5):542-547. 10.1111/and.12476.
- Saleha Banu B, Ishaq M, Danadevi K, et al. 2004. DNA damage in leukocytes of mice treated with copper sulfate. *Food Chem Toxicol* 42(12):1931-1936. 10.1016/j.fct.2004.07.007.
- Saltzer EI, Wilson JW. 1968. Allergic contact dermatitis due to copper. *Arch Dermatol* 98(4):375-376. 10.1001/archderm.1968.01610160049009.
- Samuelsson C, Björkman B. 2014. Chapter 7 - Copper recycling. In: Worrell E & Reuter MA, ed. *Handbook of recycling.* Boston: Elsevier, 85-94.

8. REFERENCES

- Sani A, Gaya MB, Abubakar FA. 2016. Determination of some heavy metals in selected cosmetic products sold in kano metropolis, Nigeria. *Toxicology Reports* 3:866-869. <https://doi.org/10.1016/j.toxrep.2016.11.001>.
- Sansinanea AS, Cerone SI, Elperding A, et al. 1996. Glucose-6-phosphate dehydrogenase activity in erythrocytes from chronically copper-poisoned sheep. *Comp. Biochem. Physiol. C Pharmacol. Toxicol. Endocrinol.* 114(3):197-200. 10.1016/0742-8413(96)00034-5.
- Santschi PH, Nixon S, Pilson M, et al. 1984. Accumulation of sediments, trace metals (Pb, Cu) and total hydrocarbons in Narragansett Bay, Rhode Island. *Estuar Coast Shelf Sci* 19(4):427-449. 10.1016/0272-7714(84)90095-7.
- Scarl RT, Lawrence CM, Gordon HM, et al. 2017. STEAP4: its emerging role in metabolism and homeostasis of cellular iron and copper. *J. Endocrinol.* 234(3):R123-R134. 10.1530/JOE-16-0594.
- Scharenberg W, Ebeling E. 1996. Distribution of heavy metals in a woodland food web. *Bull. Environ. Contam. Toxicol.* 56(3):389-396. 10.1007/s001289900056.
- Scheinberg IH, Sternlieb I. 1996. Wilson disease and idiopathic copper toxicosis. *Am J Clin Nutr* 63(5):842S-845S. 10.1093/ajcn/63.5.842.
- Schilsky M. 2019. Wilson disease: Epidemiology and pathogenesis. UpToDate. <https://www.uptodate.com/contents/wilson-disease-epidemiology-and-pathogenesis>.
- Schipper BW, Lin H-C, Meloni MA, et al. 2018. Estimating global copper demand until 2100 with regression and stock dynamics. *Resources, Conservation and Recycling* 132:28-36. <https://doi.org/10.1016/j.resconrec.2018.01.004>.
- Schlesinger ME, King MJ, Sole KC, et al. 2011a. Chapter 1 - Overview. In: Schlesinger ME, King MJ, Sole KC, et al., ed. *Extractive metallurgy of copper* (fifth edition). Oxford: Elsevier, 1-12.
- Schlesinger ME, King MJ, Sole KC, et al. 2011b. Chapter 2 - Production and use. In: Schlesinger ME, King MJ, Sole KC, et al., ed. *Extractive metallurgy of copper* (fifth edition). Oxford: Elsevier, 13-30.
- Schlesinger ME, King MJ, Sole KC, et al. 2011c. Chapter 18 - Collection and processing of recycled copper. In: Schlesinger ME, King MJ, Sole KC, et al., ed. *Extractive metallurgy of copper* (fifth edition). Oxford: Elsevier, 373-387.
- Schock MR, Sandvig AM. 2009. Long-term effects of orthophosphate treatment on copper concentration. *Journal AWWA* 101(7):71-82. <https://doi.org/10.1002/j.1551-8833.2009.tb09925.x>.
- Schraufnagel DE. 2020. The health effects of ultrafine particles. *Experimental & Molecular Medicine* 52(3):311-371. <https://doi.org/10.1038/s12276-020-0403-3>.
- Schroeder HA, Nason AP, Tipton IH, et al. 1966. Essential trace metals in man: copper. *J Chronic Dis* 19(9):1007-1034. 10.1016/0021-9681(66)90033-6.
- Schroeder WH, Dobson M, Kane DM, et al. 1987. Toxic Trace Elements Associated with Airborne Particulate Matter: A Review. *JAPCA* 37(11):1267-1285. 10.1080/08940630.1987.10466321.
- Schwerdtle T, Hamann I, Jahnke G, et al. 2007. Impact of copper on the induction and repair of oxidative DNA damage, poly(ADP-ribosylation) and PARP-1 activity. *Mol Nutr Food Res* 51(2):201-210. 10.1002/mnfr.200600107.
- Sedlak DL, Phinney JT, Bedsworth WW. 1997. Strongly complexed Cu and Ni in wastewater effluents and surface runoff. *Environ Sci Technol* 31(10):3010-3016. 10.1021/es970271i.
- Seffner W, Schiller F, Lippold U, et al. 1997. Experimental induction of liver fibrosis in young guinea pigs by combined application of copper sulphate and aflatoxin B1. *Toxicol Lett* 92(3):161-172. 10.1016/s0378-4274(97)00052-0.
- Sethi S, Grover S, Khodaskar MB. 1993. Role of copper in Indian childhood cirrhosis. *Ann Trop Paediatr* 13(1):3-5. 10.1080/02724936.1993.11747618.
- Seven PT, Baykalir BG, Seven I, et al. 2018. The protective effects of chrysin and flunixin meglumine against excess copper in male rats. *Turkish Journal of Veterinary and Animal Sciences* 42(5):376-387. 10.3906/vet-1710-70.
- Sharda B, Bhandari B. 1984. Copper concentration in plasma, cells, liver, urine, hair and nails in hepatobiliary disorders in children. *Indian Pediatr* 21(2):167-171.

8. REFERENCES

- Sharma A. 2011. Acute copper sulphate poisoning: A case report and review of literature. *Medico-Legal Update* 11(2):7-8. <https://doi.org/10.1016/j.resuscitation.2008.02.017>.
- Sharma VK, Millero FJ. 1988. Oxidation of copper(I) in seawater. *Environmental Science & Technology* 22(7):768-771. 10.1021/es00172a004.
- Shen SG, Li H, Zhao YY, et al. 2005. The distribution patterns of trace elements in the blood and organs in a rabbit experimental model of copper pollution and study of haematology and biochemistry parameters. *Environ Toxicol Pharmacol* 19(2):379-384. 10.1016/j.etap.2004.09.008.
- Shen XL, Yu JH, Zhang DF, et al. 2014. Positive relationship between mortality from Alzheimer's disease and soil metal concentration in mainland China. *J Alzheimers Dis* 42(3):893-900. 10.3233/JAD-140153.
- Shubber E, Amin NS, El-Adhami BH. 1998. Cytogenetic effects of copper-containing intrauterine contraceptive device (IUCD) on blood lymphocytes. *Mutat. Res.* 417(2-3):57-63. 10.1016/s1383-5718(98)00090-4.
- Shukla AK, Pragma P, Chowdhuri DK. 2011. A modified alkaline Comet assay for in vivo detection of oxidative DNA damage in *Drosophila melanogaster*. *Mutat. Res.* 726(2):222-226. 10.1016/j.mrgentox.2011.09.017.
- Sideris EG, Charalambous SC, Tsolomyty A, et al. 1988. Mutagenesis; carcinogenesis and the metal elements--DNA interaction. *Prog. Clin. Biol. Res* 259:13-25.
- Sina J, Bean C, Dysart G, et al. 1983. Evaluation of the alkaline elution/rat hepatocyte assay as a predictor of carcinogenic/mutagenic potential. *Mutat. Res.* 113:357-391.
- Singh I. 1983. Induction of reverse mutation and mitotic gene conversion by some metal compounds in *Saccharomyces cerevisiae*. *Mutat. Res.* 117:149-152.
- Singh N, Duan H, Ogunseitan OA, et al. 2019. Toxicity trends in E-Waste: A comparative analysis of metals in discarded mobile phones. *J Hazard Mater* 380:120898. 10.1016/j.jhazmat.2019.120898.
- Sinkovic A, Strdin A, Svensek F. 2008. Severe acute copper sulphate poisoning: a case report. *Arh Hig Rada Toksikol* 59(1):31-35. 10.2478/10004-1254-59-2008-1847.
- Sirover MA, Loeb LA. 1976. Infidelity of DNA synthesis in vitro: screening for potential metal mutagens or carcinogens. *Science* 194(4272):1434-1436. 10.1126/science.1006310.
- Sood N, Verma P. 2011. Life-threatening haemolysis in a patient with acute copper sulphate poisoning. *Indian J Anaesth* 55(2):204-205. 10.4103/0019-5049.79878.
- Sora S, Carbone M, Pacciarini M, et al. 1986. Disomic and diploid meiotic products induced in *Saccharomyces cerevisiae* by the salts of 27 elements. *Mutagenesis* 1(1):21-28.
- Spitalny KC, Brondum J, Vogt RL, et al. 1984. Drinking-water-induced copper intoxication in a Vermont family. *Pediatrics* 74(6):1103-1106.
- Stark P. 1981. Vineyard sprayer's lung - a rare occupational disease. *J Can Assoc Radiol* 32(3):183-184.
- Stephen G, Darren AL, Mark NG. 2012. Control of new copper corrosion in high-alkalinity drinking water. *Journal (American Water Works Association)* 104(1):E15-E25.
- Stephenson T, Lester JN. 1987. Heavy metal behavior during the activated sludge process II. Insoluble metal removal mechanisms. *Science of The Total Environment* 63:215-230. 10.1016/0048-9697(87)90047-7.
- Strain WH, Hershey CO, McInnes S, et al. 1984. Hazards to groundwater from acid rain. *Trace Subst Environ Health* 18:178-184.
- Strickland G, Beckner W, Leu M. 1972. Absorption of copper in homozygotes and heterozygotes for Wilson's disease and controls: isotope tracer studies with ⁶⁷Cu and ⁶⁴Cu. *Clin Sci* 43:617-625.
- Suciu I, Prodan L, Lazar V, et al. 1981. Research on copper poisoning. *Med Lav* 72(3):190-197.
- Sugawara N, Li D, Katakura M, et al. 1994. Biliary excretion of copper in Fischer rats treated with copper salt and in Long-Evans cinnamon (LEC) rats with an inherently abnormal copper metabolism. *Biol Trace Elem Res* 46(1-2):125-134. 10.1007/BF02790073.
- Sugawara N, Sugawara C, Katakura M, et al. 1991. Harmful effect of administration of copper on LEC rats. *Res Commun Chem Pathol Pharmacol* 73(3):289-297.

8. REFERENCES

- Sugawara N, Sugawara C, Li D, et al. 1992. Copper metabolism in new mutant Long-Evans Cinnamon (LEC) rats causing hereditary hepatitis: Gastrointestinal absorption and distribution of radioisotopic copper (^{64}Cu). *Res Commun Chem Pathol Pharmacol* 76(2):233-243.
- Suttle NF, Mills CF. 1966. Studies of the toxicity of copper to pigs. 1. Effects of oral supplements of zinc and iron salts on the development of copper toxicosis. *Br. J. Nutr.* 20(2):135-148.
- Suzuki KT, Kanno S, Misawa S, et al. 1995. Copper metabolism leading to and following acute hepatitis in LEC rats. *Toxicology* 97(1-3):81-92. 10.1016/0300-483x(94)02927-m.
- Swastika M, Harahap AR, Panggalo LV, et al. 2020. Determining a critical threshold for G6PD activity below which red blood cell response to oxidative stress is poor. *Malar. J.* 19(1):208. 10.1186/s12936-020-03272-y.
- Sweet CW, Vermette SJ, Landsberger S. 2002. Sources of toxic trace elements in urban air in Illinois. *Environ Sci Technol* 27(12):2502-2510. 10.1021/es00048a030.
- Tang H, Xu M, Shi F, et al. 2018. Effects and mechanism of nano-copper exposure on hepatic cytochrome P450 enzymes in rats. *Int J Mol Sci* 19(7):2140. 10.3390/ijms19072140.
- Tanner MS. 1998. Role of copper in Indian childhood cirrhosis. *Am J Clin Nutr* 67(5):1074S-1081S. <https://doi.org/10.1093/ajcn/67.5.1074S>.
- Tanner MS, Kantarjian AH, Bhave SA, et al. 1983. Early introduction of copper-contaminated animal milk feeds as a possible cause of Indian childhood cirrhosis. *Lancet* 2:992-995.
- Tapia L, Gonzalez-Aguero M, Cisternas F, et al. 2004. Metallothionein is crucial for safe intracellular copper storage and cell survival at normal and supra-physiological exposure levels. *Biochem. J.* 378(2):617-624. <https://dx.doi.org/10.1042%2FBJ20031174>.
- Taylor GJ, Crowder AA. 1983. Accumulation of atmospherically deposited metals in wetland soils of Sudbury, Ontario. *Water Air Soil Pollut* 19(1):29-42. 10.1007/bf00176793.
- Taylor AA, Tsuji JS, Garry MR, et al. 2020. Critical review of exposure and effects: Implications for setting regulatory health criteria for ingested copper. *Environ. Manage.* 65(1):131-159. 10.1007/s00267-019-01234-y.
- Theresa OC, Onebunne OC, Dorcas W, et al. 2011. Potentially Toxic Metals Exposure From Body Creams Sold In Lagos, Nigeria. *Researcher* 3(1): 30-37.
- Tian Y, Wu B, Li X, et al. 2019. The resveratrol alleviates the hepatic toxicity of CuSO_4 in the rat. *Biol Trace Elem Res* 187(2):464-471. 10.1007/s12011-018-1398-7.
- Tinwell H, Ashby J. 1990. Inactivity of copper sulphate in a mouse bone-marrow micronucleus assay. *Mutat. Res.* 245(3):223-226. 10.1016/0165-7992(90)90054-n.
- Toyokuni S, Tanaka T, Nishiyama Y, et al. 1996. Induction of renal cell carcinoma in male Wistar rats treated with cupric nitrilotriacetate. *Lab Invest* 75(2):239-248.
- TRI18. 2020. TRI explorer: Providing access to EPA's toxics release inventory data. . Washington, DC: Toxics Release Inventory. U.S. Environmental Protection Agency. <http://www.epa.gov/triexplorer/>. July 28, 2020.
- Troost FJ, Brummer RJ, Dainty JR, et al. 2003. Iron supplements inhibit zinc but not copper absorption in vivo in ileostomy subjects. *Am J Clin Nutr* 78(5):1018-1023. 10.1093/ajcn/78.5.1018.
- Tso WW, Fung WP. 1981. Mutagenicity of metallic cations. *Toxicol Lett* 8(4-5):195-200. 10.1016/0378-4274(81)90100-4.
- Turek NF, Kasten L, Lytle DA, et al. 2011. Impact of plumbing age on copper levels in drinking water. *Journal of Water Supply: Research and Technology-Aqua* 60(1):1-15. 10.2166/aqua.2011.014.
- Turnlund JR, Swanson CA, King JC. 1983. Copper absorption and retention in pregnant women fed diets based on animal and plant proteins. *J. Nutr.* 113(11):2346-2352. 10.1093/jn/113.11.2346.
- Turnlund JR, King JC, Gong B. 1985. A stable isotope study of copper absorption in young men: Effect of phytate and alpha-cellulose 1-3. *Am J Clin Nutr* 42:18-23. <https://doi.org/10.1093/ajcn/42.1.18>.
- Turnlund JR, Keyes WR, Anderson HL, et al. 1989. Copper absorption and retention in young men at three levels of dietary copper by use of the stable isotope ^{65}Cu -4. *Am J Clin Nutr* 49(5):870-878. <https://doi.org/10.1093/ajcn/49.5.870>.

8. REFERENCES

- Turnlund JR, Keyes WR, Peiffer GL, et al. 1998. Copper absorption, excretion, and retention by young men consuming low dietary copper determined by using the stable isotope ^{65}Cu . *Am J Clin Nutr* 67(6):1219-1225. 10.1093/ajcn/67.6.1219.
- Turnlund JR, Keyes WR, Kim SK, et al. 2005. Long-term high copper intake: effects on copper absorption, retention, and homeostasis in men. *Am J Clin Nutr* 81(4):822-828. 10.1093/ajcn/81.4.822.
- Turnlund JR, Michel MC, Keyes WR, et al. 1982. Copper absorption in elderly men determined by using stable ^{65}Cu . *Am J Clin Nutr* 36(4):587-591. <https://doi.org/10.1093/ajcn/36.4.587>.
- Turnlund JR, Wada L, King JC, et al. 1988. Copper absorption in young men fed adequate and low zinc diets. *Biol Trace Elem Res* 17:31-41. 10.1007/BF02795445.
- Turnlund JR, Jacob RA, Keen CL, et al. 2004. Long-term high copper intake: effects on indexes of copper status, antioxidant status, and immune function in young men. *Am J Clin Nutr* 79(6):1037-1044. 10.1093/ajcn/79.6.1037.
- Tyler LD, McBride MB. 1982. Mobility and extractability of cadmium, copper, nickel, and zinc in organic and mineral soil columns. *Soil Sci* 134(3):198-205.
- Urbina-Cano P, Bobadilla-Morales L, Ramirez-Herrera MA, et al. 2006. DNA damage in mouse lymphocytes exposed to curcumin and copper. *J. Appl. Genet.* 47(4):377-382. 10.1007/BF03194648.
- USDA. 2020. What we eat in America, NHANES 2017-2018. Table 1. Nutrient intakes from food and beverages: Mean amounts consumed per individual, by gender and age, in the United States, 2017-2018. U.S. Department of Agriculture, Agricultural Research Service.
- USDT. 2018. Title 31- Money and finance. Denominations, specifications, and design of coins. U.S. Department of the Treasury. United States Code. <https://www.govinfo.gov/content/pkg/USCODE-2018-title31/pdf/USCODE-2018-title31-subtitleIV-chap51-subchapII-sec5112.pdf>.
- USGS. 2009-. Copper - A metal for the ages: U.S. Geological Survey fact sheet 2009-3031. U.S. Department of the Interior, U.S. Geological Survey. <https://pubs.usgs.gov/fs/2009/3031/FS2009-3031.pdf>.
- USGS. 2009b. Quality of water from domestic wells in principal aquifers of the United States, 1991–2004: Overview of major findings. Reston, Virginia: US Geological Survey. <https://pubs.usgs.gov/circ/circ1332/includes/circ1332.pdf>. October 21, 2020.
- USGS. 2013. Geochemical and mineralogical data for soils of the conterminous United States: U.S. Geological Survey data series 801. U.S. Department of the Interior, U.S. Geological Survey.
- USGS. 2016. National geochemical database: Soil. U.S. Department of the Interior, U.S. Geological Survey.
- USGS. 2017a. 2013-2017 county-level pesticide use estimates. Estimated annual agricultural pesticide use. Pesticide national synthesis project. U.S. Department of the Interior, U.S. Geological Survey. <https://water.usgs.gov/nawqa/pnsp/usage/maps/county-level/>. August 14, 2020.
- USGS. 2017b. Copper [Advance Release]. 2015 Minerals Yearbook. U.S. Department of the Interior, U.S. Geological Survey. <https://s3-us-west-2.amazonaws.com/prd-wret/assets/palladium/production/mineral-pubs/copper/myb1-2015-coppe.pdf>. October 21, 2020.
- USGS. 2018. Regional stream quality assessment (RSQA). U.S. Department of the Interior, U.S. Geological Survey. <https://webapps.usgs.gov/rsqa/#!/download>. July 28, 2020.
- USGS. 2020a. Copper data sheet. Mineral commodity summaries. U.S. Department of the Interior, U.S. Geological Survey. <https://pubs.usgs.gov/periodicals/mcs2020/mcs2020-copper.pdf>.
- USGS. 2020b. Datasets from groundwater-quality and select quality-control data from the National Water-Quality Assessment Project, January through December 2016, and previously unpublished data from 2013 to 2015. U.S. Department of the Interior, U.S. Geological Survey. <https://doi.org/10.5066/P9W4RR74>. October 21, 2020.
- Valdes A, Zanobetti A, Halonen JI, et al. 2012. Elemental concentrations of ambient particles and cause specific mortality in Santiago, Chile: A time series study. *Environ Health* 11:82. <https://doi.org/10.1186/1476-069x-11-82>.

8. REFERENCES

- Valsami S, Stamoulis K, Lydataki E, et al. 2012. Acute copper sulphate poisoning: a forgotten cause of severe intravascular haemolysis. *Br. J. Haematol.* 156(3):294. 10.1111/j.1365-2141.2011.08881.x.
- Van den Berg GJ, Beynen AC. 1992. Influence of ascorbic acid supplementation on copper metabolism in rats. *Br. J. Nutr.* 68(3):701-715. 10.1079/bjn19920127.
- van den Berghe PV, Klomp LW. 2009. New developments in the regulation of intestinal copper absorption. *Nutr Rev* 67(11):658-672. 10.1111/j.1753-4887.2009.00250.x.
- Varada KR, Harper RG, Wapnir RA. 1993. Development of copper intestinal absorption in the rat. *Biochem Med Metab Biol* 50(3):277-283. 10.1006/bmmb.1993.1069.
- Venugopal V, Gopakumar K. 2017. Shellfish: Nutritive Value, Health Benefits, and Consumer Safety. *Comprehensive Reviews in Food Science and Food Safety* 16(6):1219-1242. <https://doi.org/10.1111/1541-4337.12312>.
- Vieira J, Oliveira P, Juliano Y, et al. 2012. Urinary copper excretion before and after oral intake of d-penicillamine in parents of patients with Wilson's disease. *Digestive and Liver Diseases* 44(4):323-327. 10.1016/j.dld.2011.11.001.
- Villar TG. 1974. Vineyard sprayer's lung. Clinical aspects. *Am Rev Respir Dis* 110(5):545-555. 10.1164/arrd.1974.110.5.545.
- Villar TG, Nogueira T. 1980. Radiology and respiratory function in "vineyard sprayer's lung". *Bronchopneumologie* 30(1):61-67.
- Vincent M, Hartemann P, Engels-Deutsch M. 2016. Antimicrobial applications of copper. *Int J Hyg Environ Health* 219(7):585-591. 10.1016/j.ijheh.2016.06.003.
- Vyskocil V, Viau C. 1999. Assessment of Molybdenum Toxicity in Humans. *Journal of Applied Toxicology.* 19: 185-192.
- Wahlin P, Berkowicz R, Palmgren, F. 2006. Characterisation of traffic-generated particulate matter in Copenhagen. *Atmos Environ* 40(12):2151-2159. <https://doi.org/10.1016/j.atmosenv.2005.11.049>.
- Wake SA, Mercer JF. 1985. Induction of metallothionein mRNA in rat liver and kidney after copper chloride injection. *Biochem. J.* 228(2):425-432. 10.1042/bj2280425.
- Walker WR, Reeves RR. 1977. Perfusion of intact skin by a saline solution of bis(glycinato) copper(II). *Bioinorg Chem* 7(3):271-276. 10.1016/s0006-3061(00)80100-3.
- Walsh FM, Crosson FJ, Bayley M, et al. 1977. Acute copper intoxication. Pathophysiology and therapy with a case report. *Am J Dis Child* 131(2):149-151. 10.1001/archpedi.1977.02120150031005.
- Wang SC, Borison HL. 1951. Copper sulphate emesis; a study of afferent pathways from the gastrointestinal tract. *Am. J. Physiol.* 164(2):520-526. 10.1152/ajplegacy.1951.164.2.520.
- Wang C, Hao L, Liu C, et al. 2020. Associations between fine particulate matter constituents and daily cardiovascular mortality in Shanghai, China. *Ecotoxicol. Environ. Saf.* 191:110154. 10.1016/j.ecoenv.2019.110154.
- Wang YX, Wang P, Feng W, et al. 2017. Relationships between seminal plasma metals/metalloids and semen quality, sperm apoptosis and DNA integrity. *Environ. Pollut.* 224:224-234. 10.1016/j.envpol.2017.01.083.
- Wapnir R, Devas G, Solans C. 1993. Inhibition of intestinal copper absorption by divalent cations and low-molecular-weight ligands in the rat. *Biol Trace Elem Res* 36:291-305. <https://doi.org/10.1007/BF02783963>.
- Weant GE. 1985. Sources of copper air emissions. Research Triangle Park, NC: Air and Energy Engineering Research Laboratory, U.S. Environmental Protection Agency.
- Weber PM, O'Reilly S, Pollycove M, et al. 1969. Gastrointestinal absorption of copper: Studies with ⁶⁴Cu, ⁹⁵Zr, a whole-body counter and the scintillation camera. *J Nucl Med* 10(9):591-596.
- Weiss KC, Linder MC. 1985. Copper transport in rats involving a new plasma protein. *Am. J. Physiol.* 249(1):E77-E88. <https://doi.org/10.1152/ajpendo.1985.249.1.E77>.
- Whanger PD, Weswig PH. 1971. Effect of supplementary zinc on the intracellular distribution of hepatic copper in rats. *J. Nutr.* 101(8):1093-1097. 10.1093/jn/101.8.1093.

8. REFERENCES

- Whitall D, Hively WD, Leight AK, et al. 2010. Pollutant fate and spatio-temporal variability in the choptank river estuary: Factors influencing water quality. *Sci Total Environ* 408(9):2096-2108. <https://doi.org/10.1016/j.scitotenv.2010.01.006>.
- Whitehead TP, Ward MH, Colt JS, et al. 2015. Dust metal loadings and the risk of childhood acute lymphoblastic leukemia. *J Expo Sci Environ Epidemiol* 25(6):593-598. 10.1038/jes.2015.9.
- WHO. 2004. Copper in Drinking-water, Background document for development of WHO Guidelines for Drinking-water Quality. Geneva, Switzerland: World Health Organization.
- WHO. 2010. WHO guidelines for indoor air quality: Selected pollutants. Geneva, Switzerland: World Health Organization. https://www.euro.who.int/_data/assets/pdf_file/0009/128169/e94535.pdf.
- WHO. 2017. Guidelines for drinking-water quality. Fourth edition incorporating the first addendum. Geneva, Switzerland: World Health Organization. <https://apps.who.int/iris/bitstream/handle/10665/254637/9789241549950-eng.pdf;jsessionid=8AD40533ABAFCC37B8C6ABE4EFF2AC2F?sequence=1>.
- Wildemeersch D, Sabbe PJ, Dowsett MG, et al. 2014. Assessment of copper corrosion from frameless copper IUDs after long-term in utero residence. *Contraception* 90(4):454-459. 10.1016/j.contraception.2014.05.009.
- Wilhelm M, Hafner D, Lombeck I. 1991. Monitoring of cadmium, copper, lead and zinc status in young children using toenails: Comparison with scalp hair. *Sci. Total. Environ* 103(2-3):199-207. [https://doi.org/10.1016/0048-9697\(91\)90145-5](https://doi.org/10.1016/0048-9697(91)90145-5).
- Windholz M. 1983. The Merck Index. 10th ed. Rahway, NJ: Merck & Co., 358-359; 2484-2485.
- Wong PK. 1988. Mutagenicity of heavy metals. *Bull. Environ. Contam. Toxicol.* 40(4):597-603. 10.1007/BF01688386.
- Woo SH, Lee DS, Lim SR. 2016. Potential resource and toxicity impacts from metals in waste electronic devices. *Integr Environ Assess Manag* 12(2):364-370. 10.1002/ieam.1710.
- WQP. 2020. Water quality portal data: Copper. Advisory Committee on Water Information (ACWI); Agricultural Research Service (ARS); Environmental Protection Agency (EPA); National Water Quality Monitoring Council (NWQMC); United States Geological Survey (USGS). . <https://www.waterqualitydata.us/portal/>. August 18, 2020.
- Wu J, Laird DA, Thompson ML. 1999. Sorption and desorption of copper on soil clay components. *J Environ Qual* 28(1):334-338. 10.2134/jeq1999.00472425002800010041x.
- Wu X, Jackson RT, Khan SA, et al. 2018. Human milk nutrient composition in the United States: Current knowledge, challenges, and research needs. *Curr Dev Nutr* 2(7):nzy025. 10.1093/cdn/nzy025.
- Wu H, Guo H, Liu H, et al. 2020. Copper sulfate-induced endoplasmic reticulum stress promotes hepatic apoptosis by activating CHOP, JNK and caspase-12 signaling pathways. *Ecotoxicol. Environ. Saf.* 191:110236. 10.1016/j.ecoenv.2020.110236.
- Xue H, Goncalves MdLS, Reutlinger M, et al. 1991. Copper(I) in fogwater: Determination and interactions with sulfite. *Environ Sci Technol* 25(10):1716-1722. 10.1021/es00022a006.
- Yadla M, John P, Kanth S, et al. 2015. An unusual case of acute kidney injury due to poisoning with blue stone. *Hong Kong J Nephrol* 17(2):26-27. 10.1016/j.hkjn.2015.08.002.
- Yalcin SS, Yalcin S, Gucus AI. 2015. Zinc and copper concentrations in breast milk during the first nine months of lactation: A longitudinal study. *Pediatrics* 135:S13-S14. <https://doi.org/10.1542/peds.2014-3330X>.
- Yamada Y, Prosser RA. 2018. Copper in the suprachiasmatic circadian clock: A possible link between multiple circadian oscillators. *Eur J Neurosci.* 51: 47-70. 10.1111/ejn.14181
- Yamamoto K, Ngan MP, Takeda N, et al. 2004. Differential activity of drugs to induce emesis and pica behavior in *Suncus murinus* (house musk shrew) and rats. *Physiol. Behav* 83(1):151-156. 10.1016/j.physbeh.2004.08.006.
- Yamane Y, Sakai K, Umeda T, et al. 1984. Suppressive effect of cupric acetate on DNA alkylation, DNA synthesis and tumorigenesis in the liver of dimethylnitrosamine-treated rats. *Gan* 75(12):1062-1069.

8. REFERENCES

- Yang CC, Wu ML, Deng JF. 2004. Prolonged hemolysis and methemoglobinemia following organic copper fungicide ingestion. *Vet. Hum. Toxicol* 46(6):321-323.
- Yang TH, Yuan TH, Hwang YH, et al. 2016. Increased inflammation in rheumatoid arthritis patients living where farm soils contain high levels of copper. *J Formos Med Assoc* 115(11):991-996. [10.1016/j.jfma.2015.10.001](https://doi.org/10.1016/j.jfma.2015.10.001).
- Yang X, Li Y, Li J, et al. 2020. Associations between exposure to metal mixtures and birth weight. *Environ Pollut* 263. [10.1016/j.envpol.2020.114537](https://doi.org/10.1016/j.envpol.2020.114537).
- Yannoni CC, Piorkowski T. 1995. Profile of lead and copper levels in house plumbing and service pipe. *J New Engl Water Works Assoc* 109(3):192-210.
- Yeats PA. 1988. The distribution of trace metals in ocean waters. *Sci Total Environ* 72:131-149. [https://doi.org/10.1016/0048-9697\(88\)90012-5](https://doi.org/10.1016/0048-9697(88)90012-5).
- Zhong W-S, Ren T, Zhao L-J. 2015. Determination of Pb (Lead), Cd (Cadmium), Cr (Chromium), Cu, (Copper), and Ni (Nickel) in Chinese tea with high-resolution continuum source graphite furnace atomic absorption spectrometry. *J Food Drug Anal* 24(1):46-55. <https://doi.org/10.1016/j.jfda.2015.04.010>.
- Zietz BP, De Vergara JD, Dunkleberg H. 2003b. Copper concentrations in tap water and possible effects on infant's health - results of a study in lower Saxony, Germany. *Environ Res* 92(2):129-138. [https://doi.org/10.1016/s0013-9351\(03\)00037-9](https://doi.org/10.1016/s0013-9351(03)00037-9).
- Zietz BP, Dieter HH, Lakomek M, et al. 2003a. Epidemiological investigation on chronic coppertoxicity to children exposed via the public drinking water supply. *Sci. Total. Environ* 302(1-3): 127-144. [https://doi.org/10.1016/s0048-9697\(02\)00399-6](https://doi.org/10.1016/s0048-9697(02)00399-6).