

# Heavy metal pollutant



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An ongoing debate regarding the exact definition for heavy metal pollutant, there are many different definitions have been proposed. For example, some based on density, some on atomic number or atomic weight, and some on chemical properties or toxicity. The commonly definition of heavy metal is the element with a high ( $> 5.0$ ) relative density and atomic weight. Kyung Ah Moon(2007) said that " heavy metals' as metal or metallic materials and described them as metals which are toxic and accumulated in the human body" Heavy metals normally occurring in nature are not harmful to our environment, because they are only present in very small amounts. The heavy metals only become pollution when they show up in huge amounts due to industrialization. The word of ' pollution' is an emotive term, meaning different things to different people: a reasonable general definition might be ' too much of something in the wrong place' (Harrison, 1990). To many people, heavy metal pollution is a problem associated with areas of intensive industry. However, roadways and automobiles now are considered to be one of the largest sources of heavy metals. The heavy metals causing pollution are mercury, arsenic, copper, barium, cadmium, chromium, lead, and zinc . Toxic heavy metals in air, soil, and water are global problems that are a growing threat to the environment. The sources of heavy metal pollutants are metal mining, metal smelting, metallurgical industries, and other metal-using industries, waste disposal, corrosions of metals in use, agriculture and forestry, forestry, fossil fuel combustion, and sports and leisure activities. Heavy metal contamination affects large areas worldwide. Hot spots of heavy metal pollution are located close to industrial sites, around large cities and in the vicinity of mining and smelting plants. Agriculture in these areas faces major problems due to heavy metal transfer into crops and

subsequently into the food chain. About half of the zinc and copper contribution to the environment from urbanization is from automobiles. For example, Brakes release copper, while tire wear releases zinc. Motor oil also tends to accumulate metals as it comes into contact with surrounding parts as the engine runs, so oil leaks become another pathway by which metals enter the environment. we know what is heavy metal pollution and the sources of it , but what is the effect of it for our body.

Generally, humans are exposed to these metals by ingestion (drinking or eating) or inhalation (breathing). Working in or living near an industrial site which utilizes these metals and their compounds increases one's risk of exposure, as does living near a site where these metals have been improperly disposed. Heavy metals are dangerous because they tend to bioaccumulate in food chain. László (2008) said that “ Bioaccumulation means an increase in the concentration of a chemical in a biological organism over time, compared to the chemical's concentration in the environment. Compounds accumulate in living things any time they are taken up and stored faster than they are broken down (metabolized) or excreted.” Now we are going to describe the kinds of heavy metals, their dangerous levels and the effects of these heavy metals to human health and environment. The heavy metals such as Lead, Cadmium, Copper, Chromium, Selenium and Mercury are very pollutants. Lead in humans, Long term exposure can occur acute or chronic damage to the nervous system on humans. Cadmium in humans, long-term exposure is associated with renal dysfunction. High exposure can lead to obstructive lung disease and has been linked to lung cancer, and damage to human's respiratory systems. Copper

is an essential substance to human life, but in high doses it can cause anemia, liver and kidney damage, and stomach and intestinal irritation. Effect of the Mercury is to cause damage to the brain and the central nervous system. Chromium (VI) compounds are toxins and known human carcinogens, whereas Chromium (III) is an essential nutrient. Breathing high levels can cause irritation to the lining of the nose; nose ulcers; runny nose; and breathing problems, such as asthma, cough, shortness of breath, or wheezing. Skin contact can cause skin ulcers. Allergic reactions consisting of severe redness and swelling of the skin have been noted. Long term exposure can cause damage to liver, kidney circulatory and nerve tissues (Martin, 2009), so heavy metal cause extremely effect for human, but what about environment.

Heavy metals may be used to extract gold and other raw materials from the earth, but it's left behind an extremely destruction. Bilal (2006) writes that “ Soil and water are considered a last resort for most of the chemicals produced by the rights.” heavy In natural pollution of environments, this pollution created through the dissolution of heavy metals with water during the natural cycle of water through the rocks or through the soil containing quantities of these metals such as mercury, lead, zinc, nickel, cadmium, chromium, copper, iron and others. This phenomenon exists in many countries, contamination may occur naturally in the ground because of the interactions of metals with sulfur oxidizing substances can activate such interactions the presence of nitrates that can come from many sources(Omadar, 2009). Artificial pollution may occur pollution in streams that come from the mines of these tables contain heavy metals and high

concentrations of these metals in turn can be grouped in the structure of exposed rock due to direct contact with oxygen in such a phenomenon found in the eastern provinces of Germany, where in the work of extracting minerals, and types of industrial pollution, mineral processing and manufacture of the final, produces large quantities of industrial wastes that contain many types of harmful metals such as chromium, mercury, lead, nickel, cadmium .. Etc.. These wastes discharged into the open water or drainage systems without careful elimination and therefore the move waste into rivers and lakes are the primary sources of drinking water, and in many cases heavy metal penetrate the soil to the water basins due to the illegal discharge of contaminated water into the ground. Sources of pollution, heavy elements are multiple and vary depending on the type of heavy metal and raw materials but most of these sources are industrial waste or transfer of these elements of air into the water by dissolution in rainwater. The risk of contamination of heavy metal elements: For the risks related to animals living in the aquatic environment, these heavy metals accumulate in their bodies and may lead to death in the event of a high concentration of heavy pollutants. While the health risks related to people up to him through the transition metals to fish and plants and then to humans through food, accumulate in the human body, causing serious illnesses by type of metal. There are risks associated with aquatic plants and soil planted with these plants that are irrigated with polluted water