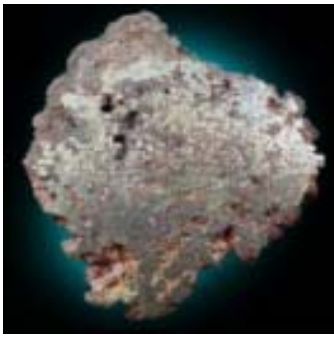

What you should know about cobalt

What is cobalt?

Cobalt is a hard, brittle metal that occurs naturally in the environment and is a common by-product of nickel and copper mining activities. Cobalt can enter the environment from burning coal or oil, processing of cobalt-containing ores, and the production and use of cobalt-containing chemicals.

Cobalt is often mixed with metals such as iron or nickel to make alloys (mixture of metals). These alloys are used for parts in gas turbine aircraft engines; corrosion resistant alloys; high-speed, heavy-duty, high-temperature cutting tools and dies; and in magnets and magnetic recording media. It is also used as a chemical agent in the petroleum and chemical industries. Cobalt is commonly used in electroplating because of its appearance, hardness, and resistance to oxidation. Cobalt compounds have been used for centuries to create a rich blue color in glass, glazes, ceramics, porcelain, pottery, tiles, and enamels.

Some forms of cobalt are radioactive. Radioactive cobalt is used for sterilizing medical equipment and various other consumer products. It is commonly used in radiation therapy for cancer patients and in manufacturing plastics. Radioactive cobalt can be used to irradiate food in order to destroy harmful bacteria, viruses, fungi, or insects that might promote spoilage or cause human disease.

What happens to cobalt in the environment?

* In the air, cobalt can stick to particles that settle to the ground.
* Some cobalt released into water or soil may stick to particles while some may dissolve.
* Cobalt cannot be destroyed once it has entered the environment; however, it may change form when combining with other particles.
* Plants may accumulate very small amounts of cobalt when grown in contaminated soil.
* Although cobalt can collect in fish and other animals that people may eat, the levels in them would not be harmful.

How might I be exposed to cobalt?

As cobalt is widely dispersed in the environment humans may be exposed to it by breathing air, drinking water, and/or eating food that contains cobalt. In the general population food and drinking water are the largest sources of exposure to cobalt. Skin contact with cobalt contaminated soil or water may also increase your risk of exposure.

Workers in industries that make or use cutting or grinding tools; mine, smelt, refine, or process cobalt metal or ores; or that produce cobalt alloys or use cobalt can have an increased risk of exposure. Others may come into contact with the dust containing cobalt carried on the clothes of these workers if worn inside the home.

Exposure to high levels of radioactive cobalt is a rare occurrence for the general population unless an individual is going through radiation therapy. However, workers at nuclear facilities, irradiation facilities, or nuclear waste storage sites may be exposed to radiation from these sources.

How can cobalt affect my health?

Exposure to high levels of cobalt in the air may result in health problems. Workers breathing air containing 100,000 times the concentration of cobalt normally found in ambient air experienced severe lung effects such as wheezing, asthma, and pneumonia. However, this level of exposure is unlikely to occur outside of a confined work-place setting.

Other health effects associated with exposure to high levels of cobalt through ingestion may include: nausea and vomiting, vision problems, dermatitis, thyroid damage, severe damage to the heart, and even death.

Uncontrolled exposure to radioactive cobalt can produce a severe radiation sickness with nausea, vomiting, bleeding, decreased white blood cell count, diarrhea, hair loss, sterility, coma, and even death depending on the size of the cobalt source, the parts of the body that are closest to the source, and how long the exposure lasts. Cancer patients being treated with radioactive cobalt sources sometimes experience burns, blisters, and/or localized hair loss in the areas being treated.

Exposure to high levels of radioactive cobalt can cause damage to the genetic materials within cells and may result in the development of some types of cancers. Therefore, it has been determined that cobalt and cobalt compounds may possibly cause cancer in humans. Nonradioactive cobalt has not been found to cause cancer in humans or animals following exposure in food or water.

It is important to remember that the effects of exposure to any substance depend on the type of exposure, concentration of the substance, and the length of time of exposure. Additional factors that must be considered are age, gender, diet, family traits, lifestyle, and health status.

How can I reduce my exposure to cobalt?

Special measures are not needed to reduce exposure, one can reduce exposure to cobalt simply by:

* Washing hands and faces before eating if you have been outdoors.
* Covering contaminated soil with clean soil or sod, paving stone, or a deck.
* Cleaning your home regularly with a damp mop/ cloth.
* Using removable rugs at entry points to the home and cleaning them outside to reduce dust getting into the house.
* Cleaning forced air ducts regularly, using better quality furnace filters, and changing or cleaning furnace filters more frequently.

* Brushing indoor pets often and outside if possible to reduce dust particles carried into the home.
* Thoroughly cleaning garden vegetables and peeling the outer skin from root crops.

For more information, contact the:
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