



Manganese

General information

Key Points

- Toxic via inhalation and ingestion
- Inhalation causes irritation of the lungs and increases the susceptibility to infection.
- Inhalation may cause irritation and metal fume fever. Symptoms include cough, sore throat, tightening of the chest, headache and fever
- Ingestion of large doses causes gastrointestinal irritation

Background

Manganese is a silver-grey metal which occurs naturally in the earth's crust. It is found in water, soil and rocks as a compound combined with sulphur, oxygen and chlorine. Manganese is an essential element for all living organisms hence small amounts are needed in the body.



Manganese is mainly used in the manufacture of iron and steel to improve the strength, hardness and stiffness. It is also used in products such as fireworks, paint, cosmetics and dry-cell batteries and can be added to gasoline to improve performance. Manganese compounds are also used in ceramics, fertilisers, disinfectants and preservatives.



Manganese is normally present in air, soil water and food. It may also be released into the environment due to the manufacture, use and disposal of products containing manganese.

The general public may be exposed to low levels of manganese due to its natural presence in the environment. The main way people are exposed to manganese is

from eating food or drinking water. Nuts, grains, beans and tea are rich in manganese; hence vegetarians and tea drinkers may have a higher intake than the average person. People working in steel factories or welders may be exposed to higher levels of manganese but safe levels are enforced to protect workers.

If exposed to manganese, the potential adverse health effects that may occur depend on the way people are exposed and the amount to which they are exposed.

Breathing high levels of manganese can cause irritation and metal fume fever. Symptoms include cough, sore throat, tightening of the chest, headache and fever. Sometimes a metallic taste in the mouth, nausea, vomiting and blurred vision can occur. Eating food or drink contaminated with large amounts of manganese can cause stomach irritation.

Extremely high manganese exposure in children may effect brain development. Hence children may be more sensitive than adults. Exposure to manganese during pregnancy is not likely to cause damage to the unborn child at doses where the mother appears unaffected.

There are no data on whether manganese causes cancer in humans.

Frequently Asked Questions

What is manganese?

Manganese is a silver-grey metal which occurs naturally in the earth's crust. It is found in water, soil and rocks combined with sulphur, oxygen and chlorine.

What is manganese used for?

Manganese is mainly used in the manufacture of iron and steel by improving the strength, hardness and stiffness. It is also used in products such as fireworks, paint, cosmetics and dry-cell batteries and can be added to gasoline to improve performance and manganese compounds are used in ceramics, fertilisers, disinfectants and preservatives.

How does manganese get into the environment?

Manganese is normally present in air, soil water and food, but more may be released into the environment from the manufacture, use and disposal of products containing manganese.

How will I be exposed to manganese?

The general public may be exposed to low levels of manganese due to its natural presence in the environment and such levels are needed for good health. The main way people are exposed to manganese is from eating food or drinking water. Nuts, grains, beans and tea are rich in manganese hence vegetarians and tea drinkers may have a higher intake than the average person but such levels are unlikely to cause adverse health effects. People working in steel factories or welders may be exposed to higher levels of manganese.

If there is manganese in the environment will I have any adverse health effects?

The presence of Manganese in the environment does not always lead to exposure. Clearly, in order for it to cause any adverse health effects you must come into contact with it. You may be exposed by breathing or drinking the substance, or by skin contact. Following exposure to any chemical, the adverse health effects you may encounter depend on several factors, including the amount to which you are exposed (dose), the way you are exposed, the duration of exposure, the form of the chemical and if you were exposed to any other chemicals.

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Can manganese cause cancer?

There are no data on whether manganese causes cancer in humans.

Does manganese affect children or damage the unborn child?

Extremely high manganese exposure in children may effect brain development. However, it is not known whether children are more sensitive than adults. Exposure to manganese during pregnancy is not likely to cause damage to the unborn child at doses where the mother appears unaffected.

What should I do if I am exposed to manganese?

You should remove yourself from the source of exposure.

If you have got manganese on your skin, remove soiled clothing, wash the affected area with lukewarm water and soap for at least 10-15 minutes and seek medical advice.

If you have got manganese in your eyes remove contact lenses if necessary, wash the affected area with lukewarm water for at least 10 – 15 minutes and seek medical advice.

If you have inhaled or ingested manganese seek medical advice.

This document will be reviewed not later than 3 years or sooner if substantive evidence becomes available.