Methane

General information

Key Points

- Toxic by inhalation and skin exposure
- Chemicals classification: extremely flammable
- Inhalation causes agitation, slurred speech, nausea, vomiting, facial flushing and headache. In severe cases breathing and heart complications, coma and death may occur
- Skin contact with liquefied gas may cause frostbite
Methane is a colourless, tasteless gas which is the primary component of natural gas. It is present beneath the earth’s surface in vast quantities, but levels in the atmosphere are relatively low. Methane is produced naturally by volcanoes, ruminant animals such as cattle and sheep, decaying plants, extraction of natural gas, coal mining and waste disposal such as landfills. It is a major ‘greenhouse gas’ that results from such human activities. Methane can be released into the environment during its extraction from the earth, emissions from industries, agriculture, distribution and use in residential and commercial buildings. A large quantity of the gas is released from decaying rubbish in landfill sites. Methane released into soil or water will eventually escape into the air where it will degrade slowly in the atmosphere by sunlight.

Background

Because methane is present naturally in the atmosphere, the general public may be exposed to very low levels when breathing in air. Using gas appliances in the home may also increase exposure due to improper use or leakage. Occupational exposure to methane may occur in the workplace where it is extracted, produced or used.

If exposed to methane, the potential adverse health effects that may occur depend on the way people are exposed and the amount to which they are exposed. High levels of methane can displace oxygen in the air and cause oxygen deprivation, which can lead to suffocation. Breathing high levels of the gas can also lead to agitation, slurred speech, nausea, vomiting, facial flushing and headache. In severe cases, breathing and heart complications, coma and death may occur. Skin contact with liquefied gas may cause frostbite.

There are no data on whether children are more sensitive to methane exposure than adults. Exposure during pregnancy is not likely to cause damage to the unborn child at doses where the mother appears unaffected. However, at high concentrations maternal suffocation may occur that increases the risk of adverse effects in the unborn child.

There are no data on whether methane causes cancer in humans.
Frequently Asked Questions

What is methane?

Methane is a colourless, tasteless gas that is the primary component of natural gas.

What is methane used for?

Being a major constituent of natural gas, methane is used for cooking and heating. In industry, methane is used to refine petrochemicals and is used in power stations to drive turbines to create electricity.

How does methane get into the environment?

Methane can be released into the environment during its extraction from the earth, emissions from industries, agriculture, distribution and use in residential and commercial buildings. A large quantity of the gas is released from decaying rubbish in landfill sites. Methane released into soil or water will eventually escape into the air where it will degrade slowly in the atmosphere by sunlight.

How will I be exposed to methane?

Because methane is present naturally in the atmosphere, the general public may be exposed to very low levels when breathing in air. Using gas appliances in the home may also increase exposure due to improper use or leakage. Occupational exposure to methane may occur in the workplace where it is extracted, produced or used.

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

The presence of methane 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 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 methane cause cancer?

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

Does methane affect children or damage the unborn child?

There are no data to suggest there is increased sensitivity to methane exposure in children compared to adults. Exposure during pregnancy is not likely to cause damage to the unborn child at doses where the mother appears unaffected. However, at high concentrations maternal suffocation may occur that increases the risk of adverse effects in the unborn child.
What should I do if I am exposed to methane?

You should remove yourself from the source of exposure.

If you have got liquefied gas 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 inhaled high levels of methane seek medical advice.

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