Public Health England

Protecting and improving the nation's health

Xylene

General Information

Key Points

- xylene is a colourless, flammable liquid with a sweet odour
- it exists in three forms (or "isomers"): meta-xylene, ortho-xylene and para-xylene
- xylene occurs naturally in petroleum products and crude oil
- xylene is used in consumer and industrial solvents
- commercial xylene is usually a mix of the xylene isomers, with m-xylene being present in the highest concentration
- exposure to xylene can occur from cigarette smoke and vehicle exhaust emissions
- breathing in xylene vapours in the air can cause irritation to the eyes, nose and throat
- ingesting xylene can severely irritate the stomach; nausea and vomiting may follow
- xylene can cause irritation, redness and swelling to the skin or eyes
- exposure to xylene can also cause headaches, dizziness, vertigo and drowsiness
- low level exposure from the environment and the correct use of products that contain xylene would not be expected to cause any adverse health effects

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Public Health Questions

What is xylene?

Xylene is a colourless, flammable liquid with a sweet odour that exists in three forms: *meta*-xylene, *ortho*-xylene and *para*-xylene. The three different forms are known as isomers. Xylene occurs naturally in petroleum products and crude oil. The majority of commercial xylene is manufactured from crude oil.

What is xylene used for?

Xylene is used as a solvent and may be found in consumer and industrial solvents. It is used in various different products including glues and sealants, polishes and waxes, anti-freeze products and cleaning products. It is also used as a chemical intermediate in the production of other industrial chemicals and in the rubber, plastics and leather industries.

Commercial xylene is usually a mix of the xylene isomers, with m-xylene being present in the highest concentration.

How does xylene get into the environment?

Xylene is mainly released into the environment from industrial sites, motor vehicle exhausts, from waste sites and when it is used as a solvent.

The majority of xylene released into the environment (if not trapped underground) will evaporate into the air where it is broken down by sunlight within a few days.

How might I be exposed to xylene?

For the general population, low level exposure to xylene can occur from cigarette smoke and vehicle exhaust emissions.

People may breathe in small amounts when using household products that contain xylene, such as cleaning products. Skin contact with these products may also lead to exposure. Low level exposure from the correct use of xylene containing products would not be expected to cause adverse health effects.

Exposure can occur in the workplace, especially where it is produced or used as an industrial solvent. However safe levels are enforced to protect the employees. Such levels are below those that are thought to cause harmful effects.

If I am exposed to xylene how might it affect my health?

The presence of xylene in the environment does not always lead to exposure. In order for it to cause any adverse health effects you must come into contact with it. You may be exposed by breathing, drinking or by skin and eye contact with the substance. 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.

Low level exposure from the environment and from the correct use of products that contain xylene would not be expected to cause adverse health effects.

Breathing in xylene vapours in can cause irritation to the eyes, nose and throat.

Ingesting xylene can create a burning sensation in the throat and can severely irritate the stomach. Nausea and vomiting may follow. Xylene can cause irritation, redness and swelling if it comes into contact with the skin or eyes.

Xylene can also be absorbed into the body following inhalation, ingestion or skin contact. This can cause headaches, dizziness, vertigo and drowsiness. If larger amounts of xylene are absorbed this can result in breathing problems, damage to the liver and kidneys, cause a loss of consciousness, heart failure and death.

Can xylene cause cancer?

Due to the lack of human data and the limited data in animals, the International Agency for Research on Cancer (IARC) determined that it is not known whether xylene causes cancer so considered it as not being classifiable.

Does xylene affect pregnancy or the unborn child?

There are limited data available on the direct effects of over exposure to xylene during pregnancy. Therefore, is not possible to draw any definitive conclusions. Low level exposure from the environment and the correct use of products that contain xylene would not be expected to affect pregnancy or the unborn child. Effects on the unborn child are more likely to occur if the exposure to xylene causes the mother to become unwell.

How might xylene affect children?

Children exposed to xylene would be expected to display similar symptoms to those seen in exposed adults.

Xylene containing products in the home should be stored in an appropriate container and kept out of the reach of children.

What should I do if I am exposed to xylene?

Low level exposure from the environment and the correct use of products that contain xylene would not be expected to cause any adverse health effects.

Please see below for advice for all other exposures to xylene:

If you have got xylene on your skin, remove soiled clothing (not over the head), wash the affected area with lukewarm water and soap for at least 10 – 15 minutes and seek medical advice.

If you have got xylene in your eyes, remove contact lenses, irrigate the affected eye with lukewarm water for at least 10 – 15 minutes and seek medical advice.

If you have inhaled xylene, seek medical advice.

If you have ingested xylene seek medical advice. Do **not** make yourself sick.

Additional sources of information

UKTIS. Best Use of Medicines in Pregnancy http://www.medicinesinpregnancy.org/

HSE- Solvents http://www.hse.gov.uk/construction/healthrisks/hazardous-substances/solvents.htm

This document from the PHE Centre for Radiation, Chemical and Environmental Hazards reflects understanding and evaluation of the current scientific evidence as presented and referenced here.

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