



Methanol

General Information

Key Points

- methanol is a clear, colourless, flammable liquid with a slightly alcoholic odour
- methanol is produced naturally in small amounts in the human body
- it is not persistent and it is quickly broken down in the environment
- it is used widely in paints, varnishes, paint thinners, antifreeze and vehicle wind-screen wash
- drinking or inhaling methanol can lead to coma, convulsions, blindness, nervous system damage and death
- it is irritating to the skin and splashes in the eyes could cause irritation
- exposure to small amounts in the diet or environment is unlikely to lead to health effects

Public Health Questions

What is methanol?

Methanol is a clear, colourless, flammable liquid with slightly alcoholic odour. Historically, it was made from distilling wood, and has therefore also been called wood alcohol.

Small amounts of methanol are produced naturally in the human body, in animals and in plants and bacteria. Methanol also occurs in small amounts in fresh fruit and vegetables.

What is methanol used for?

Methanol has good solvent properties and has been widely used in paints, varnishes and paint thinners. Because it is flammable, methanol has been used as a fuel in some racing cars and small model engines. A number of chemicals are made using methanol including formaldehyde and acetic acid.

In the home, methanol has been used in antifreeze, windscreen wash and for powering small model engines.

In the past, methanol has been added to alcohol based products which were not meant for human consumption (e.g. methylated spirits, surgical spirits). The European Commission has recommended a new formulation for alcohol which is not to be consumed and this does not include methanol.

How does methanol get into the environment?

Methanol may enter the environment from industrial sources, such as factory effluent, however it is not a persistent chemical and is broken down in the environment.

How might I be exposed to methanol?

Methanol is produced naturally in small amounts in the human body. Low level exposure also occurs from the diet, notably from fruit and vegetables and their juices. Exposure to methanol at levels found in the diet would not be expected to result in harm. Low concentrations of methanol may also be found in alcoholic beverages, although concentrations in illegal distillation products may be much higher. Exposure may also occur if you use methanol containing products at home. However, adverse health effects would not be expected if the products are used correctly.

Methanol has been identified in exhaust fumes from petrol and diesel engines and in tobacco smoke. Exposure may occur in the workplace although safe limits are enforced to protect the employees. Such levels are below those that are thought to cause harmful effects

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

The presence of methanol 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 to methanol by breathing or drinking it, or by skin contact with it. 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.

Methanol is more harmful than ethanol (as found in alcoholic beverages), drinking even small amounts of it is dangerous to health. Serious health effects including coma, convulsions, blindness, nervous system damage and death may occur following ingestion of methanol or inhalation of methanol vapours. Methanol is an irritant and splashing it in the eyes could cause stinging, though this should not lead to permanent damage.

Can methanol cause cancer?

The evidence is limited, however methanol is not considered to be carcinogenic to humans.

Does methanol affect pregnancy or the unborn child?

It is unlikely that exposure to low concentrations of methanol which do not affect the mother would result in harm to the unborn child.

How might methanol affect children?

Children exposed to methanol would be expected to display similar symptoms to those seen in exposed adults. Methanol containing products stored at home should be stored in an appropriate container and kept out the reach of children.

What should I do if I am exposed to methanol?

You should remove yourself from the source of exposure.

If you have got methanol 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 methanol 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 or ingested methanol seek medical advice.

Additional sources of information

NHS Choices – Poisoning: <http://www.nhs.uk/Conditions/Poisoning/Pages/Introduction.aspx>

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

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