



Hydrazine

General Information

Key Points

- also known as diamide, diamine and nitrogen hydride
- colourless, flammable liquid with a penetrating, pungent odour
- may be released into the environment from its use as an aerospace fuel and from industrial sites that manufacture, process or use it
- exposure for the general public may occur via cigarette smoking or from the use of other tobacco products
- inhalation causes irritation the nose throat and lungs; in severe cases fluid can accumulate in the lungs, causing severe lung damage
- ingestion may cause can cause a burning sensation in the mouth and throat and abdominal pain, exposure to high concentrations can cause burns to the gastrointestinal tract
- skin contact can cause irritation and burns
- eye exposure can lead to irritation, inflammation and burns; exposure to very high concentrations can cause temporary blindness
- other effects which may occur due to inhalation or skin contact include headache, dizziness, low blood pressure, tiredness, confusion, fitting and coma; hydrazine exposure can also cause damage to the liver and kidneys
- hydrazine may cause cancer in humans

Public Health Questions

What is hydrazine?

Hydrazine is a flammable, colourless liquid with a penetrating, pungent odour.

What is hydrazine used for?

Hydrazine is mainly used as a chemical intermediate in the production of agricultural chemicals. It is also used as a corrosion inhibitor, as a rocket propellant and in the manufacture of chemical blowing agents used to produce plastics. Hydrazine has also been used as a treatment for cancer and sickle cell disease.

How does hydrazine get into the environment?

Hydrazine is naturally produced by some algae and is present in tobacco and tobacco smoke. The majority of hydrazine released into the environment is from its use as an aerospace fuel and from industrial sites that manufacture, process or use it.

How might I be exposed to hydrazine?

The general population may be exposed to hydrazine via cigarette smoking or from the use of other tobacco products. Exposure is more likely to occur in an occupational setting where it is used or produced. However, 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 hydrazine how might it affect my health?

The presence of hydrazine 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 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.

Breathing in hydrazine vapours may cause irritation of the nose, throat and lungs, dizziness, cough, shortness of breath and stomach upset. In severe cases an accumulation of fluid in the lungs may occur.

Ingestion of hydrazine can cause a burning sensation in the mouth and throat and abdominal pain. In severe cases exposure to high concentrations can cause burns to the gastrointestinal tract.

Skin contact with hydrazine can cause irritation and burns.

Other effects that can occur following exposure to hydrazine via ingestion, inhalation or skin contact include headache, dizziness, stomach upset, low blood pressure, tiredness, and liver and kidney damage. In severe cases fitting and coma can occur and can be prolonged for several days. Hydrazine exposure can also cause damage to the liver and kidneys.

Eye contact may cause itching, burning, swelling and blurred vision. Exposure to very high concentrations of hydrazine vapour can cause temporary blindness

Can hydrazine cause cancer?

There is sufficient evidence in animals, but not humans to show that hydrazine causes cancer. Therefore, the International Agency for Research on Cancer (IARC) has classified hydrazine as possibly being able to cause cancer in humans.

Does hydrazine affect pregnancy or the unborn child?

There is no evidence to suggest that exposure to hydrazine during pregnancy would cause harm to the unborn child at doses that do not harm the mother.

How might hydrazine affect children?

Children exposed to hydrazine would be expected to display similar effects to those seen in exposed adults.

What should I do if I am exposed to hydrazine?

It is very unlikely that the general population will be exposed to a level of hydrazine high enough to cause adverse health effects. However, if you have any health concerns regarding exposure to hydrazine seek guidance from your GP or contact NHS 111

Additional sources of information

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

NHS Choices – How do I deal with minor burns? <http://www.nhs.uk/chq/Pages/1047.aspx>

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

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