



White Phosphorous

General Information

Key Points

- also known as yellow phosphorous
- white phosphorus is a white to yellow waxy solid with a garlic like odour
- white phosphorus may enter the environment from certain industrial processes or from accidents involving its transport
- people in the military who use phosphorus-containing ammunitions may be exposed to white phosphorus smoke during combat, training exercises and accidents
- white phosphorus is highly irritating and corrosive
- breathing white phosphorus will cause irritation to the nose and throat, cough and shortness of breath
- ingestion of white phosphorus will irritate the mouth, throat and stomach causing nausea vomiting and diarrhoea
- a substantial exposure may cause heart, liver and kidney damage, coma and in severe cases death
- skin exposure to white phosphorus will lead to redness, severe pain, burns and blisters; It will also cause severe eye irritation and burns

Public Health Questions

What is white phosphorous?

White phosphorus is a white to yellow waxy solid with a garlic like odour. It is also known as yellow phosphorus. White phosphorus readily catches fire at temperatures 10 – 15 degrees above room temperature.

What is white phosphorus used for?

White phosphorus is used to make phosphoric acid and other chemicals, which are used to manufacture fertilisers, cleaning compounds and other products. It has been used as a rat and rodent poison and in fireworks. White phosphorus has also been used in the military in ammunitions such as grenades and artillery shells.

How does white phosphorus get into the environment?

White phosphorus may enter the environment from certain industrial processes or from accidents involving its transport.

How might I be exposed to white phosphorus?

Individuals who work in industries that use or produce white phosphorus may be exposed to higher levels. People in the military who use phosphorus-containing ammunitions may be exposed to white phosphorus smoke during combat, training exercises and accidents.

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

The presence of white phosphorus 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 phosphorous by eating 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.

White phosphorus is highly irritating and corrosive. Breathing white phosphorus will cause irritation to the nose and throat, cough and shortness of breath. Ingestion of white phosphorus will irritate the mouth, throat and stomach causing nausea vomiting and diarrhoea. A substantial exposure may cause heart, liver and kidney damage, coma and in severe cases death. Skin exposure to white phosphorus will lead to redness, severe pain, burns and blisters. It will also cause severe eye irritation and burns.

Long-term exposure to white phosphorus fumes may cause bronchitis (infection of the main airways of the lungs) and a condition known as “phossy jaw”. Symptoms of the condition include swelling of the gums, tooth ache and eventual breakdown of the jaw bone.

Can white phosphorus cause cancer?

There is no evidence to suggest that exposure to white phosphorus would cause cancer in humans.

Does white phosphorous affect pregnancy or the unborn child?

There is no evidence to suggest that white phosphorus, at concentrations that do not affect the mother, can affect the health of the unborn child.

How might white phosphorus affect children?

There is little information on the effects of white phosphorous on children. It is likely that children exposed to phosphorous would experience similar symptoms to those seen in exposed adults.

What should I do if I am exposed to white phosphorous?

It is unlikely that the general population will be exposed to a level of phosphorous high enough to cause adverse health effects. However, if you have any health concerns regarding exposure to phosphorous 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>

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

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