



# Sulphuric acid

## General Information

### Key Points

- sulphuric acid is a clear, colourless or brown oily liquid that is highly corrosive
- it has many uses, including making fertilisers
- at home, sulphuric acid is found in lead-acid car batteries and some solutions for unblocking drains
- strong solutions of sulphuric acid are highly corrosive and can cause burns on contact
- drinking a solution of sulphuric acid will burn the mouth, throat and stomach
- sulphuric acid is irritating and corrosive to the eyes
- breathing air with high levels of sulphuric acid can cause lung damage, shortness of breath, chest pain and cough

## Public Health Questions

### What is sulphuric acid?

Sulphuric acid is a clear, colourless or brown oily liquid that is highly corrosive. It is a very important chemical worldwide.

### What is sulphuric acid used for?

The largest use of sulphuric acid is in the production of phosphate fertilisers. It has other uses, in the petrochemical processes, to control the acidity of foods, oil refining, metal extraction and processing, to make hydrochloric and hydrofluoric acids and to produce other industrial chemicals. It is also used to harvest potatoes; the acid damages the leaves killing the plant and making it easier to lift the potatoes from the ground.

Sulphuric acid may also be used to make plasticisers, dyestuffs, rubber, explosives, silicate for toothpaste, adhesives, detergents, pharmaceuticals, edible oils, lubricants and food acids such as citric or lactic acid.

Sulphuric acid is also used in lead-acid car batteries and some commercially available solutions for unblocking drains.

### How does sulphuric acid get into the environment?

Industrial processes and agriculture may release sulphuric acid into the environment. Burning fossil fuels releases sulphur dioxide which can react with oxygen and water in air to form sulphuric acid. This contributes to “acid-rain” which can cause environmental damage.

Sulphuric acid is not persistent in the environment, being quickly neutralised on release.

### How might I be exposed to sulphuric acid?

At home, people may be exposed to sulphuric acid as it is present in some household cleaning products and car batteries.

Exposure to sulphuric acid may also occur if it is used where you work; however safe levels are enforced to protect employees who may be exposed to sulphuric acid at work. Such levels are below those that are thought to cause harmful effects.

### If I am exposed to sulphuric acid how might it affect my health?

The presence of sulphuric acid 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 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.

Strong solutions of sulphuric acid are highly corrosive and can cause skin burns on contact; they may also damage the eyes. Dilute solutions may cause irritation to the eyes and skin. Drinking a solution of sulphuric acid will burn the mouth, throat and stomach.

Breathing air with high levels of sulphuric acid can cause irritation of the eyes nose and throat, cough, shortness of breath and chest pain; in severe cases there may be lung damage. Breathing air contaminated with sulphuric acid over a long period of time can cause damage to teeth, throat and lungs.

### Can sulphuric acid cause cancer?

Sulphuric acid or its solutions are not classified as cancer causing chemicals. However, studies of workers exposed for a long time (over years) to strong inorganic acid mists which may contain sulphuric acid, have shown an increased risk of cancer of the larynx (voice box) and possibly of the lung.

Environmental concentrations of sulphuric acid are generally much lower than those found in occupational settings and are unlikely to result in cancer

### Does sulphuric acid affect pregnancy or the unborn child?

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

### How might sulphuric acid affect children?

If children breathe, ingest or touch sulphuric acid they will have similar effects to those seen in adults. Sulphuric acid containing products in the home should be stored in an appropriate container and kept out of the reach of children.

### Are certain groups more vulnerable to the harmful effects of sulphuric acid?

When exposed to the same amount of sulphuric acid, asthmatics have had more breathing difficulties than healthy people. This suggests that asthmatics may be more susceptible to the effects of sulphuric acid.

### What should I do if I am exposed to sulphuric acid?

You should remove yourself from the source of exposure.

If you have got sulphuric acid 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 sulphuric acid 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 sulphuric acid seek medical advice.

### Sulphuric acid is used in car batteries, how should they be safely disposed of?

It is illegal to dispose of vehicle batteries along with normal household waste. As they contain lead and sulphuric acid they are hazardous to people and the environment. Advice on how to deal with old batteries can be provided by your local authority. The supplier of a new battery may also be able to recycle the old one.

### Additional sources of information

NHS Choices – Acid and chemical burns <http://www.nhs.uk/conditions/acid-and-chemical-burns/pages/overview.aspx>

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

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

This information contained in this document from the PHE Centre for Radiation, Chemical and Environmental Hazards is correct at the time of its publication.

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