Ammonia
Frequently Asked Questions

HIGHLIGHTS

Ammonia is a natural gas in the environment. It is also man made. Liquid ammonia is found in many household cleaners. Ammonia is irritating to the:

- Skin.
- Eyes.
- Nose.
- Throat.
- Lungs.

Exposure to high concentrations can cause serious burns.

WHAT IS AMMONIA?

Ammonia is a colorless gas. It has a very sharp odor. It is made both by humans and by nature. It dissolves easily in water and evaporates quickly. It is commonly sold in liquid forms.

The amount of ammonia produced by humans every year is almost equal to that produced by nature every year. Ammonia is produced naturally in soil by:

- Bacteria.
- Decaying plants.
- Animals and their waste.

Ammonia is essential for many of life's processes.

Most of the ammonia produced in chemical factories is used to make fertilizers. The remaining is used in other products, such as:

- Textiles.
- Plastics.
- Explosives.
- Pulp and paper production.
- Food and beverages.
- Household cleaning products.
- Refrigerants.
- Smelling salts.

WHAT HAPPENS TO AMMONIA WHEN IT ENTERS THE ENVIRONMENT?

- Ammonia occurs naturally. So it is found throughout the environment in soil, air, and water.
- Most of the ammonia in water changes to ammonium. This is an odorless liquid. Ammonia and ammonium can change back and forth in water.
- Ammonia is recycled naturally in the environment as part of the nitrogen cycle. It does not last very long in the environment.
- Plants and bacteria rapidly take up ammonia from soil and water.
- Some ammonia in water and soil is changed to nitrate by bacteria.
- Ammonia released into the air is rapidly removed by:
  - Rain.
  - Snow.
  - Reactions with other chemicals.
- Ammonia does not build up in the food chain. But it serves as a nutrient source for plants and bacteria.

HOW MIGHT I BE EXPOSED TO AMMONIA?

- Everybody is regularly exposed to low levels of ammonia in:
  - Air.
  - Food.
  - Soil.
  - Water.
- Ammonia has a strong irritating odor. People can easily smell it before it could cause harm.
- If you use ammonia cleaning products at home, you will be exposed to ammonia:
  - Released to the air.
  - Through contact with your skin.
- If you apply ammonia fertilizers or live near farms where these fertilizers have been applied, you can

breathe ammonia released to the air.

- You may be exposed to ammonia from leaks and spills from:
  - Production plants.
  - Storage facilities.
  - Pipelines.
  - Tank trucks or rail cars.

HOW CAN AMMONIA AFFECT MY HEALTH?

- Exposure to high concentrations of ammonia in the air may cause severe burns in your:
  - Skin.
  - Eyes.
  - Throat.
  - Lungs.
- In extreme cases, the following could occur:
  - Blindness.
  - Lung damage.
  - Death.
- Breathing lower concentrations will cause coughing and nose and throat irritation.
- If you swallow ammonia, you could suffer burns in your:
  - Mouth.
  - Throat.
  - Stomach.
- Concentrated ammonia spilled on the skin will cause burns.

HOW LIKELY IS AMMONIA TO CAUSE CANCER?

We do not know if ammonia can cause cancer in humans or in lab animals. The Department of Health and Human Services (DHHS), the International Agency for Research on Cancer (IARC), and the EPA have not classified ammonia for causing cancer.

HOW CAN AMMONIA AFFECT CHILDREN?

Children are less likely to be exposed to concentrated ammonia. Most concentrated exposures occur on the job. Children can still be exposed the same way as adults to ammonia gas from spills or leaks. This is true on farms where it is used as a fertilizer. Children can also be exposed to diluted ammonia solutions from household cleaners containing ammonia.

The effects of ammonia on children are likely to be the same as for adults. We do not know if exposure to ammonia causes birth defects, or if it can pass to the fetus across the placenta or to infants via breast milk.

HOW CAN FAMILIES REDUCE THE RISK OF EXPOSURE TO AMMONIA?

- Keep products containing ammonia out of the reach of children.
- Maintain adequate room ventilation when using cleaners containing ammonia. Wear proper clothing and eye protection.
- Prevent children from entering a room where ammonia is being used.
- Never store cleaning solutions in containers that may be attractive to children, such as soda bottles.
- Avoid entering fields when ammonia fertilizers are being applied.

IS THERE A MEDICAL TEST TO SHOW WHETHER I'VE BEEN EXPOSED TO AMMONIA?

There are tests that can detect ammonia in blood and urine. But these tests cannot definitely determine if you have been exposed because ammonia is normally found in the body.

If you were exposed to harmful amounts of ammonia, you would notice it immediately. It has a strong, unpleasant smell and strong taste. Your skin, eyes, nose, and throat would also be irritated.

HAS THE FEDERAL GOVERNMENT MADE RECOMMENDATIONS TO PROTECT HUMAN HEALTH?

The Occupational Safety and Health Administration (OSHA) has set a limit of 25 parts of ammonia per million

parts of air (25 ppm) in the workplace during an 8-hour shift and a short-term limit (15 minutes) of 35 ppm.

This document answers the most frequently asked health questions about ammonia. For more information in the U.S., you may call the CDC Information Center at 1-888-422-8737. The effects of exposure to any hazardous substance depend on:

- The dose.
- The duration.
- How you are exposed.
- Personal traits and habits.
- Whether other chemicals are present.

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