

This fact sheet answers the most frequently asked health questions (FAQs) about jet fuels JP-5 and JP-8. For more information, call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It's important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Exposure to jet fuels JP-5 and JP-8 occurs mainly in the workplace or from accidents or spills. Breathing in large amounts of JP-5 and JP-8 may result in headaches, difficulty in concentrating, coordination problems, and fatigue. These chemicals have been found in at least 22 of the 1,445 National Priorities List sites identified by the Environmental Protection Agency.

What are jet fuels JP-5 and JP-8?

(Pronounced jět fyōō'əlz JP-5 and JP-8)

Jet fuels JP-5 and JP-8 are substances used as aircraft fuels by the military. JP-5 and JP-8 is shorthand for jet propellants 5 and 8. JP-5 is the U.S. Navy's primary jet fuel, and JP-8 is one of the jet fuels used by the U.S. Air Force.

Both of the substances are composed of a large number of chemicals, and both are colorless liquids that may change into gas vapor. They smell like kerosene, since kerosene is the primary component of both JP-5 and JP-8. They are made by refining either crude petroleum oil deposits found underground or shale oil found in rock.

What happens to jet fuels JP-5 and JP-8 when they enter the environment?

- Some chemicals in JP-5 and JP-8 will evaporate into air from open containers or when they are spilled into water or soil.
- JP-5 and JP-8 in air may break down by reacting with sunlight or chemicals in air.
- Chemicals in JP-5 and JP-8 may slowly move from the soil into groundwater.

- Other chemicals in JP-5 and JP-8 will attach to particles in water and may sink to the bottom sediments.
- Chemicals in JP-5 and JP-8 may be broken down by bacteria and other organisms in soil and water.
- JP-5 and JP-8 may stay in the soil for more than 10 years.

How might I be exposed to jet fuels JP-5 and JP-8?

- Most people would not be exposed to jet fuels JP-5 and JP-8 unless they work with these substances or live very close to where they are used or spilled.
- Breathing air in an area where an accident or leak of jet fuels JP-5 and JP-8 has occurred.
- Drinking water contaminated with JP-5 or JP-8.
- Touching soil contaminated with jet fuels JP-5 and JP-8.
- Working refueling military aircraft or transporting jet fuels.
- Living near a hazardous waste site where jet fuels JP-5 and JP-8 are disposed of.

How can jet fuels JP-5 and JP-8 affect my health?

Little is known about the effects of jet fuels JP-5 and JP-8 on people's health. Breathing large amounts of JP-5 and JP-8

ToxFAQs Internet address via WWW is <http://www.atsdr.cdc.gov/toxfaq.html>

for a short period may result in headaches, difficulty in concentrating, coordination problems, and fatigue. Breathing lower levels of JP-5 and JP-8 for a longer period could result in lack of initiative, sleep disturbances, and dizziness.

Much information is available on accidental poisonings in children from drinking kerosene. Effects seen include vomiting, diarrhea, stomach cramps, coughing, drowsiness, and loss of consciousness. Drinking very large amounts can result in death. Skin exposure to kerosene results in skin irritation, consisting of itchy, red, peeling, and sore skin.

It is not known whether jet fuels JP-5 and JP-8 can affect reproduction or cause birth defects in people or animals.

How likely are jet fuels JP-5 and JP-8 to cause cancer?

The International Agency for Research on Cancer has concluded that jet fuels are not classifiable as to their carcinogenicity to humans.

No carcinogenicity studies on jet fuels JP-5 and JP-8 are available in people. A study on the use of kerosene stoves found no association between their use and bronchial cancer, while another study found an increase in oral cancer in men who used kerosene stoves. Other studies in people are inconclusive. An animal study showed no increase in kidney tumors when rats breathed air containing high levels of JP-5 or JP-8 for 90 days. Skin tumors were seen in mice when their skin was exposed to jet fuel JP-5 for 60 weeks.

Is there a medical test to show whether I've been exposed to jet fuels JP-5 and JP-8?

No test shows if you have been exposed to JP-5 or JP-8.

However, tests can determine if your blood contains some of the chemicals found in JP-5 and JP-8. However, the concentrations of these chemicals in JP-5 and JP-8 are very low, and if they were detected in your blood, it would not necessarily mean that you were exposed to JP-5 or JP-8.

Has the federal government made recommendations to protect human health?

Very few regulations or advisories are specific to jet fuels JP-5 and JP-8. The following is a recommendation for petroleum products, which are similar to jet fuels JP-5 and JP-8.

The Occupational Safety and Health Administration and the Air Force Office of Safety and Health have set an exposure limit of 400 milligrams of petroleum products per cubic meter of air (400 mg/m³) for an 8-hour workday, 40-hour workweek.

Glossary

Carcinogenicity: Ability to cause cancer.

CAS: Chemical Abstracts Service.

Milligram (mg): One thousandth of a gram.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 1998. Toxicological profile for jet fuels (JP-5 and JP-8). Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology, 1600 Clifton Road NE, Mailstop F-32, Atlanta, GA 30333. Phone: 1-888-422-8737, FAX: 770-488-4178. ToxFAQs Internet address via WWW is <http://www.atsdr.cdc.gov/toxfaq.html> ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

