



# Military Vehicle and Aircraft Exhaust

*For Service members and their Families*

## Important facts

- When deployed, diesel fuel or JP- 8 (Jet Propellant 8) will normally be used as fuel for military vehicles, with JP- 5 or JP- 8 generally used in military aircraft.
- Typically, breathing in small amounts of vehicle or aircraft exhaust over a short period of time will not make you sick. But there is no safe level of exposure. Even at low levels, breathing in small amounts of exhaust fumes can result in feeling sick.
- Breathing in exhaust fumes over a long period of time can cause health problems, especially to individuals with pre-existing heart or lung conditions. You should avoid inhaling vehicle and aircraft exhaust for extended periods of time.

## When might I use or be exposed to diesel, JP- 5, or JP- 8 fuels when I deploy?

Diesel fuel is routinely used in military ground equipment and many tracked and wheeled vehicles. JP- 8 is used in fixed-wing and rotary-winged aircraft, although the Navy uses JP-5 for aircraft on carriers. JP-8 is sometimes used as an alternative fuel in those vehicles that routinely use diesel. Outside the U.S., in locations that use the "single fuel on the battlefield" concept, JP-8 is used for fixed and rotary wing aircraft and for most vehicles, except cars and small trucks. Since most military engines can use either fuel, JP-8 can be used for tracked and wheeled vehicles, generators, furnaces, and even to start fires in burn barrels or open burning of trash.

## What is in diesel, JP- 5, and JP- 8 exhausts?

Exhaust from combustion or burning of diesel, JP- 5 and JP- 8 fuels are similar. All contain chemicals such as nitrogen oxides, sulfur oxides, carbon dioxide and carbon monoxide, and fine particles called [particulate matter](#) sometimes referred to as "PM". These chemicals occur naturally in the environment but at high levels, can harm your health and the environment. All except carbon dioxide are considered commonly found or 'criteria pollutants' by the [U.S. Environmental Protection Agency](#). The burning of JP-8 fuel creates less particulate matter than diesel. Exhaust from military vehicles, aircraft, and cars also contain

small amounts of other substances such as benzene which is known to increase the risk of cancer.

## How can exhaust make me sick?

People's sensitivity to exhaust varies from individual to individual. The type of fuel being burned producing the exhaust also has an effect on the possible short and long-term health effects. It is hard to predict the exact health effect a person will have to a specific type of fuel exhaust. There is research going on to help better understand the effects different fuel exhausts have on human health.

In general, short-term exposure to exhaust can cause irritation to the eyes, nose and throat, headaches, light-headedness, dizziness, and chest tightness. Long-term exposure to exhaust can aggravate heart or lung function causing bronchitis or asthma. For those exposed over months or years, exposure may also increase risk of heart disease and cancer.

Inhaling very high levels of exhaust will occur if a vehicle runs in an enclosed unventilated space. This can cause asphyxiation (unable to breathe normally) from gases, including carbon monoxide or carbon dioxide at such high concentrations.

Health effects from exhaust exposure can vary with the type of engine and fuel used. Health effects also depend on intensity and length of exposure. Other factors that determine health impacts from exhaust exposure are how far you work from the engine producing the exhaust, how much exhaust the engine produces, and how well ventilated the work place is. You should consult with an industrial hygienist or environmental health professional if you are in doubt about the safety of your work conditions.

## How can I protect myself from too much exposure to diesel, JP-5, and JP-8 exhaust?

**Your Suggestions:** [http://deploymenthealthlibrary.fhp.osd.mil/product\\_feedback.jsp](http://deploymenthealthlibrary.fhp.osd.mil/product_feedback.jsp)

**Visit the Deployment Health and Family Readiness Library:** <http://deploymenthealthlibrary.fhp.osd.mil>

*A collaborative effort between the Air Force Institute for Operational Health, the Deployment Health Clinical Center, Force Health Protection and Readiness, the Navy Environmental Health Center, the U.S. Army Center for Health Promotion and Preventive Medicine, and the OUSD(P&R)/Military Family and Community Policy*



The best way to protect yourself is to minimize the time you spend in areas where diesel, JP-5, and JP-8 fuels are burned. Use motor vehicles or burn these fuels only in well-ventilated areas. Avoid using vehicles in enclosed areas, and while outdoors, limit the amount of time you spend in an area where vehicle exhaust (from diesel, aircraft fuels, or gasoline burning engines) is being emitted. It's also best not to exercise in locations where there are large amounts of vehicle exhaust especially for extended periods or if you have lung or heart disease. Talk with your industrial hygienist or other health specialist if you cannot avoid exhaust exposure. He or she can tell you whether your location is safe and about personal protective equipment you can use to reduce exposure.

### Where Do I Get More Information?

**DoD Deployment Health Clinical Center (DHCC)**  
(866) 559-1627  
<http://www.pdhealth.mil/>

**U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM)**  
(800) 222-9698  
<http://chppm-www.apgea.army.mil>

**California Office of Environmental Health Hazard Assessment- Health Effects of Diesel Exhaust Fact Sheet:**  
<http://www.oehha.ca.gov/air/pdf/dieselfact2.pdf>

**National Center for Environmental Assessment - Health Assessment Document for Diesel Engine Exhaust:**  
<http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=29060>

**Occupational Safety and Health Administration-Diesel Exhaust Standards:**  
<http://www.osha.gov/SLTC/dieselexhaust/standards.html>

**DoD Force Health Protection and Readiness (FHP & R)**  
(800) 497-6261  
<http://fhp.osd.mil>

**Navy Environmental Health Center (NEHC)**  
(757) 953-0700  
<http://www-nehc.med.navy.mil>

**Agency for Toxic Substances and Disease Registry (ATSDR)**  
888-422-8737  
[www.atsdr.cdc.gov](http://www.atsdr.cdc.gov)

**DieselNet.com - Diesel Exhaust: A Critical Analysis of Emissions, Exposure, and Health Effects:**  
[http://www.dieselnet.com/papers/9710n\\_auss.html](http://www.dieselnet.com/papers/9710n_auss.html)

**Environmental Protection Agency - Mobile Source Air Toxins:**  
<http://www.epa.gov/otaq/toxics.htm>

**Air Force Institute for Operational Health (AFIOH)**  
(888) 232-3764  
<http://www.brooks.af.mil/units/airforceinstituteforoperationalhealth/index.asp>

**Armed Forces Medical Intelligence Center (AFMIC)**  
(301) 619-7574  
<http://www.afmic.detrick.army.mil>

**ATSDR ToxFAQ: Jet Fuels JP-5 and JP-8:**  
<http://www.atsdr.cdc.gov/tfacts121.pdf>

**American Heart Association, Circulation- Air Pollution and Cardiovascular Disease:**  
<http://circ.ahajournals.org/cgi/content/full/109/21/2655>

**Clean Air Task Force - An Analysis of Diesel Air Pollution and Public Health in America:**  
[http://www.caf.us/publications/reports/Diesel\\_in\\_America\\_Technical\\_Paper.pdf](http://www.caf.us/publications/reports/Diesel_in_America_Technical_Paper.pdf)



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