Common Name: GASOLINE

Synonyms: Benzin; Motor Fuel; Petrol

Chemical Name: Gasoline, Natural

Date: December 2008   Revision: February 2016

Description and Use

Gasoline is a clear, colorless to amber-colored liquid with a petroleum odor. It is a blend of hydrocarbons used as an automotive fuel and as a solvent.

- ODOR THRESHOLD = 0.25 ppm
- Odor thresholds vary greatly. Do not rely on odor alone to determine potentially hazardous exposures.

Reasons for Citation

- Gasoline is on the Right to Know Hazardous Substance List because it is cited by ACGIH, DOT, NIOSH, DEP, IARC and NFPA.
- This chemical is on the Special Health Hazard Substance List.

FIRST AID

Eye Contact
- Immediately flush with large amounts of water for at least 15 minutes, lifting upper and lower lids. Remove contact lenses, if worn, while flushing. Seek medical attention.

Skin Contact
- Quickly remove contaminated clothing. Immediately wash contaminated skin with large amounts of soap and water.

Inhalation
- Remove the person from exposure.
- Begin rescue breathing (using universal precautions) if breathing has stopped and CPR if heart action has stopped.
- Transfer promptly to a medical facility.

EMERGENCY NUMBERS

Poison Control: 1-800-222-1222
CHEMTREC: 1-800-424-9300
NJDEP Hotline: 1-877-927-6337
National Response Center: 1-800-424-8802

Hazard Summary

<table>
<thead>
<tr>
<th>Hazard Rating</th>
<th>NJDHSS</th>
<th>NFPA</th>
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<tbody>
<tr>
<td>HEALTH</td>
<td>2</td>
<td>1</td>
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<tr>
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<tr>
<td>REACTIVITY</td>
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</tr>
</tbody>
</table>

Carcinogen

Flammable

Poisonous gases are produced in fire. Containers may explode in fire.

Hazard Rating Key: 0=Minimal; 1=slight; 2=moderate; 3=serious; 4=severe

- Gasoline can affect you when inhaled and by passing through the skin.
- Gasoline should be handled as a CARCINOGEN--WITH EXTREME CAUTION.
- Contact can irritate and burn the skin and eyes with possible eye damage.
- Inhaling Gasoline can irritate the nose, throat and lungs.
- High exposure can cause headache, dizziness, lightheadedness, and passing out.
- Prolonged or repeated exposure can cause drying and cracking of the skin with redness.
- Repeated high exposure may affect the lungs and brain.
- Gasoline may damage the liver.
- Gasoline may contain Lead and Benzene. For more information, consult the Right to Know Hazardous Substance Fact Sheets on BENZENE and TETRAETHYL LEAD.
- Gasoline is a FLAMMABLE LIQUID and a DANGEROUS FIRE HAZARD.

Workplace Exposure Limits

NIOSH: Recommends that exposure to occupational carcinogens be limited to the lowest feasible concentration.

ACGIH: The threshold limit value (TLV) is 300 ppm averaged over an 8-hour workshift and 500 ppm as a STEL (short-term exposure limit).

- Gasoline may be a CARCINOGEN in humans. There may be no safe level of exposure to a carcinogen, so all contact should be reduced to the lowest possible level.
- The above exposure limits are for air levels only. When skin contact also occurs, you may be overexposed, even though air levels are less than the limits listed above.
Determining Your Exposure

- Read the product manufacturer’s Material Safety Data Sheet (MSDS) and the label to determine product ingredients and important safety and health information about the product mixture.
- For each individual hazardous ingredient, read the New Jersey Department of Health Hazardous Substance Fact Sheet, available on the RTK website (http://nj.gov/health/workplacehealthandsafety/right-to-know) or in your facility’s RTK Central File or Hazard Communication Standard file.
- You have a right to this information under the New Jersey Worker and Community Right to Know Act, the Public Employees Occupational Safety and Health (PEOSH) Act if you are a public worker in New Jersey, and under the federal Occupational Safety and Health Act (OSHA) if you are a private worker.
- The New Jersey Right to Know Act requires most employers to label chemicals in the workplace and requires public employers to provide their employees with information concerning chemical hazards and controls. The federal OSHA Hazard Communication Standard (29 CFR 1910.1200) and the PEOSH Hazard Communication Standard (N.J.A.C. 12:100-7) require employers to provide similar information and training to their employees.

This Fact Sheet is a summary of available information regarding the health hazards that may result from exposure. Duration of exposure, concentration of the substance and other factors will affect your susceptibility to any of the potential effects described below.

Health Hazard Information

Acute Health Effects
The following acute (short-term) health effects may occur immediately or shortly after exposure to Gasoline:

- Contact can irritate and burn the skin and eyes with possible eye damage.
- Inhaling Gasoline can irritate the nose, throat and lungs causing coughing, wheezing and/or shortness of breath.
- High exposure can cause headache, nausea, weakness, dizziness, blurred vision, irregular heartbeat, poor coordination, lightheadedness, and passing out.

Chronic Health Effects
The following chronic (long-term) health effects can occur at some time after exposure to Gasoline and can last for months or years:

Cancer Hazard
- Gasoline may be a CARCINOGEN in humans since it has been shown to cause liver cancer in animals.
- Many scientists believe there is no safe level of exposure to a carcinogen.

Reproductive Hazard
- There is limited evidence that Gasoline may damage the developing fetus and may affect female fertility.

Other Effects
- Prolonged or repeated exposure can cause drying and cracking of the skin with redness.
- Repeated high exposure may affect the lungs and brain.
- Gasoline may damage the liver.

Medical

Medical Testing
If symptoms develop or overexposure is suspected, the following are recommended:

- Chest x-ray and lung function tests
- Liver function tests
- Exam of the nervous system
- EEG

Any evaluation should include a careful history of past and present symptoms with an exam. Medical tests that look for damage already done are not a substitute for controlling exposure.

Request copies of your medical testing. You have a legal right to this information under the OSHA Access to Employee Exposure and Medical Records Standard (29 CFR 1910.1020).

Mixed Exposures
- Smoking can cause heart disease, lung cancer, emphysema, and other respiratory problems. It may worsen respiratory conditions caused by chemical exposure. Even if you have smoked for a long time, stopping now will reduce your risk of developing health problems.
- More than light alcohol consumption can cause liver damage. Drinking alcohol can increase the liver damage caused by Gasoline.
Workplace Controls and Practices

Very toxic chemicals, or those that are reproductive hazards or sensitizers, require expert advice on control measures if a less toxic chemical cannot be substituted. Control measures include: (1) enclosing chemical processes for severely irritating and corrosive chemicals, (2) using local exhaust ventilation for chemicals that may be harmful with a single exposure, and (3) using general ventilation to control exposures to skin and eye irritants. For further information on workplace controls, consult the NIOSH document on Control Banding at www.cdc.gov/niosh/topics/ctrbanding/.

The following work practices are also recommended:

- Label process containers.
- Provide employees with hazard information and training.
- Monitor airborne chemical concentrations.
- Use engineering controls if concentrations exceed recommended exposure levels.
- Provide eye wash fountains and emergency showers.
- Wash or shower if skin comes in contact with a hazardous material.
- Always wash at the end of the workshift.
- Change into clean clothing if clothing becomes contaminated.
- Do not take contaminated clothing home.
- Get special training to wash contaminated clothing.
- Do not eat, smoke, or drink in areas where chemicals are being handled, processed or stored.
- Wash hands carefully before eating, smoking, drinking, applying cosmetics or using the toilet.

In addition, the following may be useful or required:

- Before entering a confined space where Gasoline may be present, check to make sure that an explosive concentration does not exist.

Personal Protective Equipment

The OSHA Personal Protective Equipment Standard (29 CFR 1910.132) requires employers to determine the appropriate personal protective equipment for each hazard and to train employees on how and when to use protective equipment.

The following recommendations are only guidelines and may not apply to every situation.

Gloves and Clothing

- Avoid skin contact with Gasoline. Wear personal protective equipment made from material which can not be permeated or degraded by this substance. Safety equipment suppliers and manufacturers can provide recommendations on the most protective glove and clothing material for your operation.
- Safety equipment manufacturers recommend Nitrile and Viton for gloves, and Tychem® BR, LV, Responder® and TK, or the equivalent, as protective materials for clothing.
- All protective clothing (suits, gloves, footwear, headgear) should be clean, available each day, and put on before work.

Eye Protection

- Wear indirect-vent, impact and splash resistant goggles when working with liquids.
- If additional protection is needed for the entire face, use in combination with a face shield. A face shield should not be used without another type of eye protection.

Respiratory Protection

**Improper use of respirators is dangerous.** Respirators should only be used if the employer has implemented a written program that takes into account workplace conditions, requirements for worker training, respirator fit testing, and medical exams, as described in the OSHA Respiratory Protection Standard (29 CFR 1910.134).

- Where the potential exists for exposure over 300 ppm, use a NIOSH approved supplied-air respirator with a full facepiece operated in a pressure-demand or other positive-pressure mode. For increased protection use in combination with an auxiliary self-contained breathing apparatus operated in a pressure-demand or other positive-pressure mode.

Fire Hazards

If employees are expected to fight fires, they must be trained and equipped as stated in the OSHA Fire Brigades Standard (29 CFR 1910.156).

- Gasoline is a FLAMMABLE LIQUID.
- Use dry chemical, CO₂, alcohol-resistant foam or other foam extinguishing agents, as water may not be effective in fighting fires.
- POISONOUS GASES ARE PRODUCED IN FIRE.
- CONTAINERS MAY EXPLODE IN FIRE.
- Use water spray to keep fire-exposed containers cool.
- Vapors may travel to a source of ignition and flash back.
- Vapor is heavier than air and may travel a distance to cause a fire or explosion far from the source.
### Spills and Emergencies
If employees are required to clean-up spills, they must be properly trained and equipped. The OSHA Hazardous Waste Operations and Emergency Response Standard (29 CFR 1910.120) may apply.

If Gasoline is spilled or leaked, take the following steps:

- Evacuate personnel and secure and control entrance to the area.
- Eliminate all ignition sources.
- Absorb liquids in vermiculite, dry sand, earth, or a similar material and place into sealed containers for disposal.
- Keep Gasoline out of confined spaces, such as sewers, because of the possibility of an explosion.
- Use water spray to keep containers cool.
- Ventilate and wash area after clean-up is complete.
- DO NOT wash into sewer.
- It may be necessary to contain and dispose of Gasoline as a HAZARDOUS WASTE. Contact your state Department of Environmental Protection (DEP) or your regional office of the federal Environmental Protection Agency (EPA) for specific recommendations.

### Handling and Storage
Prior to working with Gasoline you should be trained on its proper handling and storage.

- Gasoline may react violently with OXIDIZING AGENTS (such as PERCHLORATES, PEROXIDES, PERMANGANATES, CHLORATES, NITRATES, CHLORINE, BROMINE and FLUORINE) and NITRIC ACID.
- Store in tightly closed containers in a cool, well-ventilated area.
- Sources of ignition, such as smoking and open flames, are prohibited where Gasoline is used, handled, or stored.
- Metal containers involving the transfer of Gasoline should be grounded and bonded.
- Use explosion-proof electrical equipment and fittings wherever Gasoline is used, handled, manufactured, or stored.
- Use only non-sparking tools and equipment, especially when opening and closing containers of Gasoline.
- Flow or agitation may generate electrostatic charges.

### Occupational Health Information Resources
The New Jersey Department of Health and Occupational Health Service, offers multiple services in occupational health. These services include providing informational resources, educational materials, public presentations, and industrial hygiene and medical investigations and evaluations.

For more information, please contact:

New Jersey Department of Health
Right to Know
PO Box 368
Trenton, NJ 08625-0368
Phone: 609-984-2202
Fax: 609-984-7407
E-mail: rtk@doh.nj.gov
Web address: http://nj.gov/health/workplacehealthandsafety/right-to-know

The Right to Know Hazardous Substance Fact Sheets are not intended to be copied and sold for commercial purposes.
GLOSSARY

**ACGIH** is the American Conference of Governmental Industrial Hygienists. They publish guidelines called Threshold Limit Values (TLVs) for exposure to workplace chemicals.

**Acute Exposure Guideline Levels (AEGLs)** are established by the EPA. They describe the risk to humans resulting from once-in-a-lifetime, or rare, exposure to airborne chemicals.

**Boiling point** is the temperature at which a substance can change its physical state from a liquid to a gas.

A **cancerogen** is a substance that causes cancer.

The **CAS number** is unique, identifying number, assigned by the Chemical Abstracts Service, to a specific chemical.

**CFR** is the Code of Federal Regulations, which are the regulations of the United States government.

A **combustible** substance is a solid, liquid or gas that will burn.

A **corrosive** substance is a gas, liquid or solid that causes destruction of human skin or severe corrosion of containers.

**DEP** is the New Jersey Department of Environmental Protection.

**DOT** is the Department of Transportation, the federal agency that regulates the transportation of chemicals.

**EPA** is the Environmental Protection Agency, the federal agency responsible for regulating environmental hazards.

**ERG** is the Emergency Response Guidebook. It is a guide for emergency responders for transportation emergencies involving hazardous substances.

**Emergency Response Planning Guideline (ERPG)** values provide estimates of concentration ranges where one reasonably might anticipate observing adverse effects.

A **fetus** is an unborn human or animal.

A **flammable** substance is a solid, liquid, vapor or gas that will ignite easily and burn rapidly.

The **flash point** is the temperature at which a liquid or solid gives off vapor that can form a flammable mixture with air.

**IARC** is the International Agency for Research on Cancer, a scientific group.

**Ionization Potential** is the amount of energy needed to remove an electron from an atom or molecule. It is measured in electron volts.

**IRIS** is the Integrated Risk Information System database on human health effects that may result from exposure to various chemicals, maintained by federal EPA.

**LEL or Lower Explosive Limit**, is the lowest concentration of a combustible substance (gas or vapor) in the air capable of continuing an explosion.

**mg/m^3** means milligrams of a chemical in a cubic meter of air. It is a measure of concentration (weight/volume).

A **mutagen** is a substance that causes mutations. A **mutation** is a change in the genetic material in a body cell. Mutations can lead to birth defects, miscarriages, or cancer.

**NFPA** is the National Fire Protection Association. It classifies substances according to their fire and explosion hazard.

**NIOSH** is the National Institute for Occupational Safety and Health. It tests equipment, evaluates and approves respirators, conducts studies of workplace hazards, and proposes standards to OSHA.

**NTP** is the National Toxicology Program which tests chemicals and reviews evidence for cancer.

**OSHA** is the federal Occupational Safety and Health Administration, which adopts and enforces health and safety standards.

**PEOSHA** is the New Jersey Public Employees Occupational Safety and Health Act, which adopts and enforces health and safety standards in public workplaces.

**Permeated** is the movement of chemicals through protective materials.

**ppm** means parts of a substance per million parts of air. It is a measure of concentration by volume in air.

**Protective Action Criteria (PAC)** are values established by the Department of Energy and are based on AEGLs and ERPGs. They are used for emergency planning of chemical release events.

A **reactive** substance is a solid, liquid or gas that releases energy under certain conditions.

**STEL** is a Short Term Exposure Limit which is usually a 15-minute exposure that should not be exceeded at any time during a work day.

A **teratogen** is a substance that causes birth defects by damaging the fetus.

**UEL or Upper Explosive Limit** is the highest concentration in air above which there is too much fuel (gas or vapor) to begin a reaction or explosion.

**Vapor Density** is the ratio of the weight of a given volume of one gas to the weight of another (usually Hydrogen), at the same temperature and pressure.

The **vapor pressure** is a force exerted by the vapor in equilibrium with the solid or liquid phase of the same substance. The higher the vapor pressure the higher concentration of the substance in air.
Common Name: GASOLINE

Synonyms: Benzin; Motor Fuel; Petrol
CAS No: 86290-81-5
Molecular Formula: C5H12 to C9H20 (Mixture of hydrocarbons which vary by grade)
RTK Substance No: 0957
Description: Clear, colorless to amber-colored liquid with a petroleum odor

HAZARD DATA

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<th>Hazard Rating</th>
<th>Firefighting</th>
<th>Reactivity</th>
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<td>2 - Health</td>
<td>FLAMMABLE LIQUID</td>
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<td>Hazard Class: 3</td>
<td>(Flammable)</td>
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PHYSICAL PROPERTIES

| Odor Threshold: | 0.25 ppm |
| Flash Point:    | -36°F (-38°C) |
| LEL:            | 1.2% |
| UEL:            | 7.6% |
| Auto Ignition Temp: | 536°F to 853°F (280°C to 456°C) |
| Vapor Density:  | 3 to 4 (air = 1) |
| Vapor Pressure: | 38 to 300 mm Hg at 68°F (20°C) |
| Specific Gravity: | 0.73 (water = 1) |
| Water Solubility: | Insoluble |
| Boiling Point:  | 140°F to 390°F (60°C to 199°C) |
| Molecular Weight: | 72 to 100 |

EXPOSURE LIMITS

ACGIH: 300 ppm, 8-hr TWA; 500 ppm, STEL
The Protective Action Criteria values are:
- PAC-1 = 200 ppm
- PAC-2 = 1,000 ppm
- PAC-3 = 4,000 ppm

PROTECTIVE EQUIPMENT

Gloves: Nitrile and Viton (>8-hr breakthrough)
Coveralls: Tychem® BR, LV, Responder® and TK (>8-hr breakthrough)
Respirator: >300 ppm - Supplied air or SCBA

HEALTH EFFECTS

| Eyes: | Irritation and burns |
| Skin: | Irritation and burns |
| Inhalation: | Nose, throat and lung irritation with coughing, wheezing and shortness of breath. Headache, nausea, weakness, dizziness, blurred vision, irregular heartbeat, and passing out |
| Chronic: | Cancer (liver) in animals |

FIRST AID AND DECONTAMINATION

Remove the person from exposure.
Flush eyes with large amounts of water for at least 15 minutes. Remove contact lenses if worn. Seek medical attention.
Quickly remove contaminated clothing and wash contaminated skin with large amounts of soap and water.
Begin artificial respiration if breathing has stopped and CPR if necessary.
Transfer promptly to a medical facility

February 2016