Lion Oil Company

Product: UNLEADED GASOLINE **Revision No. 7**

MSDS No. LO0002 **Date of Preparation: 04/13/11**

Section 1 - Chemical Product and Company Identification

Product/Chemical Name: UNLEADED GASOLINE
CAS Number: 8006-61-9
Synonyms: 84 Octane Sub Grade, 87 Octane Regular, 89 Octane Mid Grade, 91 Octane Premium, 92 Octane Premium, 93 Octane Premium,
Description: Clear or light yellow colored liquid with characteristic hydrocarbon odor.
Manufacturer or Distributor: Lion Oil Co., 1000 McHenry St. ,El Dorado, AR 71730; (870) 862-8111
24-hr Emergency Phone Number: "FOR CHEMICAL EMERGENCY" Spill, Leak, Fire, Exposure or Accident
CALL CHEMTREC – Day or Night 800-424-9300
MSDS CONTACT: Beverly McFarland, 870-864-1306

Section 2 - Hazards Identification

☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆ **Emergency Overview** ☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆

DANGER!

HMIS	
H	1*
F	3
PH	0
PPE†	
†Sec. 8	

Health
Flammability
Physical Haz.

Flammable Liquid and Vapor
Keep away from ignition sources.
Gasoline vapors are heavier than air.
Vapors may travel some distance to an ignition source and flash back.
May be fatal if swallowed and enters airways
May cause cancer contains Benzene
May cause eye and skin irritation.
Long-Term, repeated exposure may cause, blood, kidney, liver and nervous system damage
Use as a motor fuel only. Never use as a solvent.

☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆ **Potential Health Effects** ☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆

Primary Entry Routes: Inhalation, Skin Absorption, Ingestion, Skin and/or Eye contact.
Target Organs: Eyes, Skin, Respiratory System, Central Nervous System, Liver, and Kidneys
Carcinogenicity: The International Agency for Research on Cancer (IARC) has determined that gasoline is possibly carcinogenic to Humans (Group 2B). Contains Benzene which has been designated a carcinogen by IARC, NTP, and OSHA.
Medical Conditions Aggravated By Long-Term Exposure:
Benzene – Individuals with liver disease may be more susceptible to toxic effects.
Hexane – Individuals with neurological disease should avoid exposure.
Petroleum Hydrocarbons – Skin contact may aggravate an existing dermatitis.
Acute Effects
Inhalation: Inhalation causes intense burning of mouth, throat, and respiratory tract. Can cause headaches, dizziness, drowsiness, convulsions, coma, cyanosis and generalized depression. Large amounts in lungs could cause pulmonary edema, which can be fatal.
Eye: Eye contact causes tearing, redness and severe irritation.
Skin: Skin contact from prolonged or frequent exposure to liquids or vapors can cause irritation and dermatitis.
Ingestion: Do Not Induce Vomiting. If swallowed, immediately call a poison center or doctor. Ingestion can caused blurred vision, vertigo, vomiting and cyanosis. **Seek medical attention.**
Chronic Effects
Benzene has been classified as a leukemogen and may produce anemia, leukemia from repeated or prolonged exposure to high concentrations.

Section Ref. (1, 2, 10)

Section 3 - Composition / Information on Ingredients

Ingredient Name	CAS Number	% vol
Gasoline	8006-61-9	100
including:		
Benzene	71-43-2	<4.4
Toluene	108-88-3	4.5-13.5
Xylenes (mixed isomers)	1330-20-7	4.5-12.6
Cyclohexane	110-82-7	0-0.9
Ethylbenzene	100-41-4	0-2.7
n-Hexane	110-54-3	0-4.5
1,2,4-Trimethylbenzene	95-63-6	0-2.7
Naphthalene	91-20-3	0-0.9
Cumene	98-82-8	0-0.9

Section 4 - First Aid Measures

Inhalation: Move to fresh air. If overcome by vapor, remove from exposure and call a physician immediately. If breathing is irregular or has stopped, start resuscitation, administer oxygen, if available. **Seek medical attention.**
Eye Contact: Flush with water for 15 minutes. Contact doctor for additional advice.
Skin Contact: If on skin or hair remove any contaminated clothing and wash with soap and water, launder or dry-clean clothing before reuse.
Ingestion: Do not induce vomiting. If spontaneous vomiting is about to occur, place victim's head below knees. Seek medical attention.
After first aid, get appropriate in-plant, paramedic, or community medical support.

Section Ref. (1, 4)

Section 5 - Fire-Fighting Measures

NFPA Rating	
H	1
F	3
R	0

Flash Point: -45 F
Flash Point Method: TCC
Autoignition Temperature: > 536 F
LEL: 1.4 %
UEL: 7.6 %
Emergency Response Guide: Guide No. 128
Flammability Classification: Flammable Liquid Class 1B
Extinguishing Media: Dry chemical, CO2, foam, water. Water may not be effective. Water fog can be used to cool containers. Water may splash and spread flaming liquid. Avoid spreading burning liquid with water used for cooling purposes. Do not flush down public sewers. The use of self- contained breathing apparatus and protective clothing is recommended for fire fighters. Avoid inhalation of vapors.
Unusual Fire or Explosion Hazards: Highly volatile material. Keep away from heat, sources of ignition and strong oxidizers. This material can react violently with oxidizing agents.
Hazardous Combustion Products: Fumes, smoke, carbon monoxide, sulfur oxides, aldehydes and other decomposition products, in the case of incomplete combustion
Special Fire-Fighting Procedures: Vapors can readily form explosive mixtures with air. Heavier than air vapors can flow along surfaces to ignition sources and flash back. Use self-contained breathing apparatus in enclosed areas. For massive fires, use unmanned hose holders or monitor nozzles. If this is impossible, withdraw from area and let fire burn. Always stay away from tanks engulfed in fire.

Section Ref. (1, 4, 9)

Section 6 - Accidental Release Measures

"FOR CHEMICAL EMERGENCY" Spill, Leak, Fire, Exposure or Accident
CALL CHEMTREC – Day or Night 800-424-9300

Spill /Leak Procedures: Danger, Flammable, eliminate all ignition sources. Equipment used in spill cleanup must be grounded to prevent sparking. Prevent entry into waterways, sewers, and confined areas.
Small Spills: Take up with an absorbent material and place in containers, seal tightly for proper disposal.
Large Spills: Isolate the hazard area at least 150 feet in all directions and restrict entry to unnecessary personnel. Shut off source of leak only if it can be done so safely or dike and contain the spill. Wear appropriate respirator and protective clothing. Water fog may be useful in suppressing vapor cloud contain run-off. Remove with vacuum trucks. Soak up residue with sand or other suitable material, place in containers for proper disposal. Flush with water and disposal of flushing solutions as above. Local, state and federal disposal regulations must be followed.
Regulatory Requirements: Recovered non-usable material is regulated by the US EPA as a hazardous waste due to its ignitibility characteristics (D001) and its benzene content (D018).

Section Ref. (4)

Section 7 - Handling and Storage

Handling Precautions: Do not get in eyes, on skin or on clothing. Do not breathe vapors, mists or fumes. Wear protective equipment described in section 8 if exposure conditions warrant. Use only with adequate ventilation.
Storage Requirements: Keep away from open flame, high temperatures, sparks, pilot lights, static electricity, and other sources of ignition. Store locked up in well ventilated area. Store in tightly closed containers. Bond and ground containers during transfer of gasoline.
Advice on protection against fire and explosion: Hydrocarbon liquids including this product can act as a non-conductive flammable liquid (or static accumulators), and may form ignitable vapor-air mixtures in storage tanks or other containers. Precautions to prevent static-initiated fire or explosion during transfer, storage or handling, include but are not limited to these examples:
(1) Ground and bond containers during product transfers. Grounding and bonding may not be adequate protection to prevent ignition or explosion of hydrocarbon liquids and vapors that are static accumulators.
(2) Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when higher flash point material (such as fuel oil or diesel) is loaded into tanks previously containing low flash point products (such gasoline or naphtha).
(3) Storage tank level floats must be effectively bonded. For more information on precautions to prevent static-initiated fire or explosion, see NFPA 77, Recommended Practice on Static Electricity (2007), and API recommended Practice 2003, Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents (2008).

Section 8 - Exposure Controls / Personal Protection

Ingredient	OSHA PEL TWA	OSHA PEL STEL	ACGIH TLV TWA	ACGIH TLV STEL	NIOSH REL TWA	NIOSH REL STEL	NIOSH IDLH
Gasoline			300 ppm	500 ppm			
Benzene	1 ppm	5 ppm	0.5 ppm	2.5 ppm	0.1 ppm	1.0 ppm	500 ppm
Toluene	200 ppm	300 ppm	50 ppm		100 ppm	150 ppm	500 ppm
Xylenes (mixed isomers)	100 ppm		100 ppm	150 ppm	100 ppm	150 ppm	900 ppm
Cyclohexane	300 ppm		300 ppm		300 ppm		1300 ppm
Ethyl benzene	100 ppm		100 ppm	125 ppm	100 ppm	125 ppm	800 ppm
n-Hexane	500 ppm		50 ppm		50 ppm		1100 ppm
Trimethylbenzene	N. D.		25 ppm		25 ppm		N. D.
Naphthalene	10 ppm		10 ppm	15 ppm	10 ppm	15 ppm	250 ppm
Cumene	50 ppm		50 ppm		50 ppm		900 ppm

(TWA)-Time Weighted Average is the employee's average airborne exposure in any 8-hour work shift of a 40-hour work week which shall not be exceeded.
(STEL)-Short Term Exposure Limit is the employee's 15-minute time weighted average exposure which shall not be exceeded at any time during a work day unless time limit is specified.

Engineering Controls
Ventilation: Local exhaust ventilation should be used. Provide explosion proof ventilation to meet TLV requirements in enclosed work areas.
Protective Clothing/Equipment
Contaminated Equipment: Launder or dry-clean contaminated clothing before reuse.
Gloves: Use chemical resistant gloves to prevent skin contact.
Goggles: Wear chemical goggles if eye contact is likely.
Respiratory: Use organic vapor cartridge respirators for exposures over TLV up to 1000 ppm. Use fresh air or self-contained breathing equipment for unknown or high concentrations.
Employees engaged in handling operations involving benzene must be provided with, and required to wear and use, a *half-mask* filter-type respirator for dusts, mists, and fumes. A respirator affording higher levels of protection than this respirator may be substituted.

Airborne Concentration or Condition of Use	**Required Respirator**
< or = 10 ppm (parts per million)	Half-mask air-purifying respirator with organic vapor cartridge.
< or = 50 ppm	**(1)** Full-facepiece respirator with organic vapor cartridges; or **(2)** Full-facepiece gas mask with chin-style canisters*.
< or = 100 ppm	Full-facepiece powered air-purifying respirator with organic vapor canister*.
< or = 1,000 ppm	Supplied-air respirator with full facepiece in positive-pressure mode.
> 1,000 ppm or unknown concentration	**(1)** Self-contained breathing apparatus with full facepiece in positive-pressure mode; or **(2)** Full-facepiece positive-pressure supplied-air respirator with auxiliary self-contained air supply.
Escape	**(1)** Any organic vapor gas mask; or **(2)** Any self-contained breathing apparatus with full facepiece.
Firefighting	Full-facepiece self-contained breathing apparatus in positive-pressure mode.
* Canisters must have a minimum service life of four (4) hours when tested at 150 ppm benzene, at a flow rate of 64 liters per minute (LPM), 25°C, and 85% relative humidity for non-powered air-purifying respirators. The flow rate shall be 115 LPM and 170 LPM, respectively, for tight-fitting and loose-fitting powered air-purifying respirators.	

Section Ref. (1, 2, 3)

Section 9 - Physical and Chemical Properties

Physical State: Liquid
Appearance and Odor: Clear and light yellow with characteristic light hydrocarbon odor.
Odor Threshold: No Data
Vapor Pressure: 8.5 – 15.0 psi @ 100 F
Vapor Density (Air=1): 3 - 4
Formula Weight: No Data
Specific Gravity (H_2O=1, at 4 °C): 0.70 – 0.77
pH: No Data

Water Solubility: Negligible
Other Solubilities: No Data
Boiling Point: 80 – 430° F
Freezing/Melting Point: NA
Viscosity: No Data
Refractive Index: No Data
Surface Tension: No Data
% Volatile: 100%
Evaporation Rate: >1 (Butyl Acetate = 1)

Section 10 - Stability and Reactivity

Stability: This Material is Stable.
Polymerization: Hazardous Polymerization will not occur.
Chemical Incompatibilities: Keep away from Oxidizing agents.
Conditions to Avoid: Keep away from open flame, high temperatures, and other sources of ignition.
Hazardous Decomposition Products: Fumes, smoke, carbon monoxide, sulfur oxides, aldehydes and other decomposition products, in the case of incomplete combustion

Section 11- Toxicological Information

Gasoline
Acute Oral Effects: LD_{50} (rat) = 0.5 to 5 g/kgs
As little as 10-15 g may be lethal in children.
Eye effects-Man 500 ppm/1H Moderate irritation effects
Archives of Environmental Health. (Heldreff Publications, 4000 Albemarle St., N.W., Washington, DC 20016) V.1- 1960-AEHLAU 1, 548, 60
Eye effects-Human 140 ppm/8H Mild irritation effects
Inhalation-Man TCLo: 900 ppm/1H: Eye effects, Central nervous system effects, Pulmonary system effects
Journal of Industrial Hygiene and Toxicology. (Baltimore, MD/New York, NY) V.18-31, 1936-49. For publisher information, see AEHLAUJIHTAB 25, 225, 43
Parenteral-Man TDLo: 53 mg/kg
Journal of Toxicology, Clinical Toxicology. (Marcel Dekker, POB 11305, Church St. Station, New York, NY 10249) V.19- 1982-JTCTDW 21, 409, 83/84
Inhalation-Rat LC50: 300 g/m^3/5M
Inhalation-Mouse LC50: 300 g/m^3/5M
Inhalation-Guinea Pig, adult LC50: 300 g/m^3/5M
National Technical Information Service. (Springfield, VA 22161) (Formerly U.S. Clearinghouse for Scientific and Technical Information)NTIS** PB158-508
Inhalation-Mammal LCLo: 30,000 ppm/5M
Naunyn-Schmiedeberg's Archiv fuer Experimentelle Pathologie und Pharmakologie. (Berlin, Germany) V.110-253, 1925-66. For publisher information, see NSAPCCAEPPAE 138, 65, 28

Section Ref. (5, 10)

Section 12 - Ecological Information

Aquatic Toxicity: 90 ppm/24hr/juvenile American shad/TL_m/fresh water; 91 mg/l/24hr/juvenile American shad/TL_m/salt water.
HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS.
Fouling to shoreline.
May be dangerous if it enters water intakes.
Notify local health and wildlife officials.
Notify operators of nearby water intakes.

Section Ref. (10)

Section 13 - Disposal Considerations

Disposal: Local, state and federal disposal regulations must be followed.
Disposal Regulatory Requirements: Recovered non-usable material is regulated by the US EPA as a hazardous waste due to its ignitibility characteristics (D001) and its benzene content (D018).
"Empty" Container Warning: "Empty" containers retain product residue (liquid and/or vapor) and can be dangerous.
Container Cleaning and Disposal: DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

Section 14 - Transport Information

DOT Transportation Data (49 CFR 172.101):

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description information.

DOT Shipping Name: Gasoline
DOT Hazard Class: 3
DOT ID No.: UN1203
DOT Packing Group: II
Hazard Label: Flammable Liquid

Section 15 - Regulatory Information

EPA Regulations

RCRA Hazardous Waste Number: D001
RCRA Hazardous Waste Classification (40 CFR 261): D018

CERCLA Reportable Quantity (RQ) (40 CFR 302.4):

Compound	CAS Number	RQ
Benzene	71-43-2	10
Toluene	108-88-3	1000
Xylenes (mixed isomers)	1330-20-7	100
Cyclohexane	110-82-7	1000
Ethyl benzene	100-41-4	1000
Hexane	110-54-3	5000
1,2,4-Trimethylbenzene	95-63-6	NE
Naphthalene	91-20-3	100
Cumene	98-82-8	5000

NE- Not Established

SARA 311/312 Codes (40 CFR 370 / 29 CFR 1910.1200):

Fire	YES
Pressure	NO
Reactivity	NO
Immediate (acute)	YES
Delayed (chronic)	YES

SARA Toxic Chemical (40 CFR 372) Section 313:

Compound	CAS Number	Concentration %
Benzene	71-43-2	<4.4
Toluene	108-88-3	4.5-13.5
Xylenes (mixed isomers)	1330-20-7	4.5-12.6
Cyclohexane	110-82-7	0-0.9
Ethyl benzene	100-41-4	0-2.7
Hexane	110-54-3	0-4.5
1,2,4-Trimethylbenzene	95-63-6	0-2.7
Naphthalene	91-20-3	0-0.9
Cumene	98-82-8	0-0.9

SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not listed

TSCA (40 CFR 710): This product or its components are listed on the Toxic Substance Control Act (TSCA) Chemical Substance Inventory.

State Regulations: The following chemicals are specifically listed by individual states, for details on each states regulatory requirements you should contact the appropriate agency in that state.

Compound	CAS Number	States
Ethanol	64-71-5	CA, FL, TX, PA
Benzene	71-43-2	CA, CA65, FL, MA, NY, NJ, TX, IL, IL_1, PA
Toluene	108-88-3	CA, CA65, FL, MA, NY, NJ, TX, IL, IL_1, PA
Xylenes (mixed isomers)	1330-20-7	CA, FL, MA, NY, NJ, TX, IL_1, PA
Cyclohexane	110-82-7	CA, FL, MA, NY, NJ, TX, IL_1, PA
Ethyl benzene	100-41-4	CA, FL, MA, NY, NJ, TX, IL, PA
Hexane	110-54-3	CA, FL, MA, NY, NJ, TX, PA
Trimethylbenzene	95-63-6	MA, NJ, TX, PA
Naphthalene	91-20-3	CA, CA65, FL, MA, NY, NJ, TX, IL, IL_1, PA
Cumene	98-82-8	CA, FL, MA, NY, NJ, TX, , IL_1, PA

CA	-	CALIFORNIA DIRECTOR'S LIST OF HAZARDOUS SUBSTANCE
CA65	-	CALIFORNIA PROPOSITION 65 CARCINOGENS OR REPRODUCTIVE TOXINS
FL	-	FL TOXIC SUBSTANCES IN THE WORKPLACE
MA	-	MASSACHUSETTS "TOXIC CHEMICALS"LIST
NY	-	NEW YORK HAZARDOUS SUBSTANCE BULK STORAGE LIST
NJ	-	NEW JERSEY RIGHT TO KNOW HAZARDOUS SUBSTANCE
TX	-	TEXAS AIR CONTAMINANTS WITH HEALTH EFFECTS SCREENING LEVEL
IL	-	ILLINOIS (WATER) PRIORITY POLLUTANTS
IL_1	-	ILLINOIS HAZARDOUS WASTE
PA	-	PENNSYLVANIA HAZARDOUS SUBSTANCE LIST

Section Ref. (6)

SECTION 16 - Other Information

Prepared By: Tommy Rowland, 04/13/11
Revision Notes: Edited Section 1 Synonyms.

Reference and research:

(1) The International Chemical Safety Card - http://www.cdc.gov/niosh/ipcs/icstart.html

(2) NIOSH Pocket Guide to Chemical Hazards - http://www.cdc.gov/niosh/npg/

(3) 2007 Guide to Occupational Exposure Values – Compiled by ACGIH

(4) 2004 Emergency Response Guidebook - http://hazmat.dot.gov/pubs/erg/unidnum.htm

(5) Sax's Dangerous Properties of Industrial Materials, 9th Edition; Edited by Richard J. Lewis, Sr.; Version 1.6; Copyright © 1997 by John Wiley & Sons, Inc.

(6) Touchstone Environmental, Inc.; Chemcheck Handbook (educational resource)

(7) Hawley's Condensed Chemical Dictionary, 13th Edition; Edited by Richard J. Lewis, Sr.; Version 1.1 Copyright© 1997 by John Wiley & Sons, Inc.

(8) Environmental Contaminant Reference Databook; VOLUMES I, II and III; by Jan. C. Prager; Version 2.0; Copyright © 1997 by John Wiley & Sons, Inc.

(9) Fire Protection Guide to Hazardous Materials, Twelfth Edition; National Fire Protection Association (NFPA 325) Guide to Hazardous Chemical Properties of Flammable Liquids, Gases, and Volatile Solids. 1994 edition.

(10) Hazardous Materials Handbook; Richard P. Pohanish and Stanley A. Greene, Version 1.3 Copyright© 1997 by Richard P. Pohanish and Stanley A. Greene