

Material Safety Data Sheet (MSDS)

Product	Aviation Gasoline 100LL(Blue Dye)		
CAS No.	RTECS No.	UN No.	EC No.
8006-61-9	LX3373000	1203	232-349-1
List No.	Date of preparation	Date of preparation	Department of Team
PD1137	2013-11-12	2016-08-18	Safety / Health Planning Team

1. IDENTIFICATION

A. Product name

- AviationGasoline100LL [PD1137]

B. Recommended use and restriction on use

- General use : Air Craft Fuel
- Restriction on use : Avoid heat, sparks and open flame

C. Manufacturer / Supplier / Distributor information

- Company name : GS Caltex Corporation
- Address : 508 Nonhyun-ro, Gangnam-gu, Seoul, Korea
- Telephone number : 82-1544-5151
- Emergency telephone number : 82-1544-5151

2. HAZARD IDENTIFICATION

A. GHS Classification

- Flammable liquids : Category2
- Acute toxicity (inhalation: vapor) : Category5
- Skin corrosion/irritation : Category2
- Serious eye damage/irritation : Category2A
- Germ cell mutagenicity : Category1B
- Carcinogenicity : Category1A
- Reproductive toxicity : Category2
- Specific target organ toxicity(Single exposure) : Category2
- Specific target organ toxicity(Repeated exposure) : Category2
- Aspiration hazard : Category1

B. GHS label elements

○ Hazard symbols



○ Signal words

- Danger

○ Hazard statements

- H225 Highly flammable liquid and vapour
- H304 May be fatal if swallowed and enters airways
- H315 Causes skin irritation
- H319 Causes serious eye irritation
- H333 May be harmful if inhaled.
- H340 May cause genetic defects
- H350 May cause cancer
- H361 Suspected of damaging fertility or the unborn child

- H371 May cause damage to organs (Refer Section SDS 11)
- H373 May cause damage to organs through prolonged or repeated exposure (Refer Section SDS 11)

○ Precautionary statements

1) Prevention

- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
- P233 Keep container tightly closed.
- P240 Ground/bond container and receiving equipment.
- P241 Use explosion-proof electrical/ventilating/lighting/equipment.
- P242 Use only non-sparking tools. Flammable liquids (chapter 2.6) 1, 2, 3
- P243 Take precautionary measures against static discharge.
- P260 Do not breathe gas/mist/vapours/spray.
- P264 Wash hands thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P281 Use personal protective equipment as required.

2) Response

- P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
- P302+P352 IF ON SKIN: Wash with plenty of soap and water.
- P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with
- P304+P312 IF INHALED: Call a POISON CENTER or doctor/physician if you feel unwell.
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P308+P313 If exposed or concerned: Get medical advice/attention.
- P309+P311 If exposed or if you feel unwell: Call a POISON CENTER or doctor/physician.
- P314 Get medical advice/attention if you feel unwell.
- P321 Specific treatment
- P331 Do NOT induce vomiting.
- P332+P313 If skin irritation occurs: Get medical advice/attention.
- P337+P313 If eye irritation persists: Get medical advice/attention.
- P362 Take off contaminated clothing and wash before reuse.
- P370+P378 In case of fire: Use Suitable extinguishing media for extinction(Refer Section MSDS 5).

3) Storage

- P403+P235 Store in a well-ventilated place. Keep cool.
- P405 Store locked up.

4) Disposal

- P501 Dispose of contents/container in accordance with local/regional/national/international regulation

C. Other hazards which do not result in classification : (NFPA Classification)

○ NFPA grade (0 ~ 4 level)

- Health : 2, Flammability : 3, Reactivity : 0

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Trade names and Synonyms	CAS No.	Content(%)
Light gasoline	Gasoline, natural ; Gasoline ; Light gasoline ;	8006-61-9	>97
Toluene	Methylbenzene ; Methylbenzol ; Phenyl methane ; Methacide ; Toluol ; 1-Methylbenzene	108-88-3	<4

Benzene	Benzol ; Benzole ; Bicarburet of hydrogen ; Coal naphtha ; Clohexatriene ; Phene ; Phenyl hydride ; Polystream ; Pyrobenzol ; Pyrobenzole ; Cyclohexatriene ; Benzine ; 1,3,5-Cyclohexatriene ;	71-43-2	0.5
Tetraethyl lead	Tetraethyllead ; Lead tetraethyl ; Tetraethyl plumbane ; Plumbane, tetraethyl- ; Tetraethyl lead ; Tetra Ethylene Lead ; Lead, tetraethyl- ; Tetraethylplumbane	78-00-2	0.06

4. FIRST AID MEASURES

A. Eye contact

- Do not rub your eyes.
- Immediately flush eyes with plenty of water for at least 15minutes and call a doctor/physician.
- Get medical attention immediately.
- Go to the hospital immediately if symptoms(flare, irritate) occur.
- Remove contact lenses if worn.

B. Skin contact

- Flush skin with plenty of wter for at least 15 minutes while removing contaminated clothing and shoes.
- Laundering enough contaminated clothing before reuse.
- Get medical attention immediately.
- Go to the hospital immediately if symptoms(flare, irritate) occur.
- Remove contaminated clothing, shoes and isolate.
- Wash thoroughly after handling.
- Wear gloves when washing the patient, and please avoid contact with contaminated clothing.

C. Inhalation contact

- When exposed to large amounts of steam and mist, move to fresh air.
- Take specific treatment if needed.
- Get medical attention immediately.
- If breathing is stopped or irregular, give artificial respiration and supply oxygen.

D. Ingestion contact

- About whether I should induce vomiting Take the advice of a doctor.
- Rinse your mouth with water immediately.
- Get medical attention immediately.
- If swallowed, large amounts of water to drink and do not induce vomiting.

E. Delayed and immediate effects and also chronic effects from short and long term exposure

- Not available

F. Notes to physician

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.
- If exposed or concerned, get medical attention/advice.

5. FIREFIGHTING MEASURES

A. Suitable (Unsuitable) extinguishing media

- Dry chemical, carbon dioxide, regular foam extinguishing agent, spray
- Avoid use of water jet for extinguishing

B. Specific hazards arising from the chemical

- Not available

C. Special protective actions for firefighters

- Notify your local firestation and inform the location of the fire and characteristics hazard.
- Using a unattended and water devices in case of large fire and leave alone to burn if you do not imperative.
- Do not access if the tank on fire.
- Use appropriate extinguishing measure suitable for surrounding fire.
- Wear appropriate protective equipment.
- Keep containers cool with water spray.
- Vapor or gas is burned at distant ignition sources can be spread quickly.
- Due to the extremely low flash point, irrigating fire extinguishing may be less effective when put out a fire.

6. ACCIDENTAL RELEASE MEASURES**A. Personal precautions, protective equipment and emergency procedures**

- Wear proper personal protective apparatus as indicated in Section 8 and avoid skin contact and inhalation.
- Ventilate closed spaces before entering.
- Do not touch spilled material. Stop leak if you can do it without risk.
- Move container to safe area from the leak area.
- Do not direct water at spill or source of leak.
- Avoid skin contact and inhalation.
- Cleanup and disposal under expert supervision is advised.
- Keep unauthorized people away, isolate hazard area and deny entry.

B. Environmental precautions

- Prevent runoff and contact with waterways, drains or sewers.
- If large amounts have been spilled, inform the relevant authorities.

C. Methods and materials for containment and cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard amount
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Small leak: sand or other non-combustible material, please let use absorption.
- Wipe off the solvent.
- Dike for later disposal.
- Do not use plastic containers.
- Spilled material should be treated as a potential risk of waste collected.

7. HANDLING AND STORAGE**A. Precautions for safe handling**

- Since emptied containers retain product residue(vapor, liquid, solid) follow all MSDS and label warnings even after container is emptied.
- Avoid contact with incompatible materials.
- Get the manual before use.
- Refer to Engineering controls and personal protective equipment.
- Do not inhale the steam prolonged or repeated.
- Avoid contact with heat, sparks, flame or other ignition sources.
- Contaminated work clothing should not be allowed out of the workplace.

B. Conditions for safe storage, including any incompatibilities

- Do not apply direct heat.
- Save applicable laws and regulations.
- Do not apply any physical shock to container.

- Keep in the original container.
- No open fire.
- By specifying a storage area for carcinogenic substances.
- Collected them in sealed containers.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

A. Exposure limits

- **ACGIH TLV**
 - [Toluene] : TWA 20 ppm (75 mg/m³)
 - [Benzene] : TWA, 0.5 ppm (1.6 mg/m³) STEL, 2.5 ppm (8 mg/m³)
 - [Tetraethyl lead] : TWA 0.1 mg/m³, as Pb, Vapor and Aerosol
- **OSHA PEL**
 - [Tetraethyl lead]: 0.075mg/m³
 - [Toluene]: 200 ppm, C 300 ppm

B. Engineering controls

- A system of local and/or general exhaust is recommended to keep employee exposures above the Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. The use of local exhaust ventilation is recommended to control emissions near the source.

C. Individual protection measures, such as personal protective equipment

- **Respiratory protection**
 - Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
 - Respiratory protection is ranked in order from minimum to maximum.
 - Consider warning properties before use.
 - Any chemical cartridge respirator with organic vapor cartridge(s).
 - Any chemical cartridge respirator with a full facepiece and organic vapor cartridge(s).
 - Any air-purifying respirator with a full facepiece and an organic vapor canister.
 - For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full facepiece.
- **Eye protection**
 - Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.
 - Provide an emergency eye wash station and quick drench shower in the immediate work area.
- **Hand protection**
 - Wear appropriate chemical resistant glove.
- **Skin protection**
 - Wear appropriate chemical resistant protective clothing.
- **Others**
 - Not available

9. PHYSICAL AND CHEMICAL PROPERTIES

A. Appearance	
- Appearance	Liquid
- Color	Blue
B. Odor	Not available
C. Odor threshold	Not available
D. pH	Not available
E. Melting point/Freezing point	-58°C
F. Initial Boiling Point/Boiling Ranges	25 °C ~ 170 °C
G. Flash point	-43 °C
H. Evaporation rate	Not available
I. Flammability(solid, gas)	Not available
J. Upper/Lower Flammability or explosive limits	Not available

K. Vapour pressure	Not available
L. Solubility	Not available
M. Vapour density	Not available
N. Specific gravity(Relative density)	0.665-0.735 g/cm ³ at 15 °C
O. Partition coefficient of n-octanol/water	2~7
P. Autoignition temperature	280~456°C
Q. Decomposition temperature	Not available
R. Viscosity	0.5 - 0.75 mm ² /s at 40 °C
S. Molecular weight	Not available

10. STABILITY AND REACTIVITY

A. Chemical Stability

- This material is stable under recommended storage and handling conditions.

B. Possibility of hazardous reactions

- Cylinders exposed to fire may vent and release flammable gas.

C. Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces
- Avoid contact with heat, sparks, flame or other ignition sources.

D. Incompatible materials

- Not available

E. Hazardous decomposition products

- May emit flammable vapour if involved in fire.

11. TOXICOLOGICAL INFORMATION

A. Information on the likely routes of exposure

- (Respiratory tracts)
 - May be fatal if swallowed and enters airways
- (Oral)
 - Not available
- (Eye-Skin)
 - Causes serious eye irritation
 - Causes skin irritation

B. Delayed and immediate effects and also chronic effects from short and long term exposure

- Acute toxicity
 - * Oral - >5000mg/kg
 - [Light gasoline] : LD50 10463 mg/kg Rat
 - [Toluene] : rat LD50=2600 mg/kg
 - [Benzene] : LD50 930 mg/kg Rat
 - [Tetraethyl lead] : LD50 12.3 mg/kg Rat
 - * Dermal - ATE MIX : >5000mg/kg
 - [Light gasoline] : LD50 > 2000 mg/kg Rabbit
 - [Toluene] : rabbit LD50=12,000 mg/kg
 - [Benzene] : LD50 > 8200 mg/kg Rabbit
 - [Tetraethyl lead] : LD50 990 mg/kg rabbit
 - * Inhalation - ATE MIX : 20.0mg/L < ATEmix <= 50.0mg/L
 - [Light gasoline] : Steam LC50 > 5.2 mg/L Rat
 - [Toluene] : rat LC50=28.1 mg/L/4hr
 - [Benzene] : Steam LC50 44.66 mg/ℓ 4 hr Rat
 - [Tetraethyl lead] : LC50 0.475 mg/ℓ 4 hr Rat
- Skin corrosion/irritation

- Causes skin irritation
- Serious eye damage/irritation**
 - Causes serious eye irritation
- Respiratory sensitization**
 - Not available
- Skin sensitization**
 - Not available
- Carcinogenicity**
 - * **IARC**
 - [Tetraethyl lead] : Group 3 (Lead compounds, organic) (Tetraethyl lead, as Pb)
 - [Light gasoline] : Group 2B
 - [Benzene] : Group 1
 - [Toluene] : Group 3
 - * **OSHA**
 - [Benzene] : Applicable
 - * **ACGIH**
 - [Tetraethyl lead] : A4 (Tetraethyl lead, as Pb)
 - [Benzene] : A1
 - [Toluene] : A4
 - * **NTP**
 - [Tetraethyl lead] : R(Lead compounds) (Tetraethyl lead, as Pb)
 - [Benzene] : K
 - * **EU CLP**
 - [Light gasoline] : Carc.1B
 - [Benzene] : Carc.1A
- Germ cell mutagenicity**
 - May cause genetic defects
- Reproductive toxicity**
 - Suspected of damaging fertility or the unborn child
- STOT-single exposure**
 - May cause damage to organs (Refer Section SDS 11)
- STOT-repeated exposure**
 - May cause damage to organs through prolonged or repeated exposure (Refer Section SDS 11)
- Aspiration hazard**
 - May be fatal if swallowed and enters airways

12. ECOLOGICAL INFORMATION

A. Ecotoxicity

- Fish**
 - [Light gasoline] : LC50 11 mg/l 96 hr Oncorhynchus mykiss
 - [Toluene] : LC50 24 mg/l 96 hr Oncorhynchus mykiss
 - [Benzene] : LC50 5.3 mg/l 96 hr
 - [Tetraethyl lead] : LC50 0.02 mg/l 96 hr
- Crustaceans**
 - [Light gasoline] : EC50 7.6 mg/l 48 hr Daphnia magna
 - [Toluene] : EC50 11.5 mg/l 48 hr Daphnia magna
 - [Benzene] : EC50 10 mg/l 48 hr
- Algae**
 - [Light gasoline] : EC50 6.5 mg/l 72 hr Selenastrum capricornutum
 - [Benzene] : EC50 41 mg/l 8 hr

B. Persistence and degradability

- Persistence**
 - [Light gasoline] : log Kow 2.1 ~ 6
 - [Toluene] : log Kow 2.73
 - [Benzene] : log Kow 2.13
- Degradability**

- Not available

C. Bioaccumulative potential

- Bioaccumulative potential**
 - [Tetraethyl lead] : BCF 3 14 ((Elliptio complanata, 1mg/l))
- Biodegradation**
 - [Toluene] : 86 (%) 20 day
 - [Benzene] : 50 (%) 28 day

D. Mobility in soil

- Not available

E. Other adverse effects

- Not available

13. DISPOSAL CONSIDERATIONS

A. Disposal methods

- Since more than two kinds of designaed waste is mixed, it is difficult to treat sepatrly, then can be reduction or stabilization by incineration or similar process.
- If water separation is possible, pre-process with Water separation process.
- Dispose by incineration.
- Incinerate the oil by separating the oil and water
- The remainder of the water after separation will be processed in a water pollution prevention facilities.
- Do incineration or stabilization of the residue after disposal as the method of evaporation and concentration.
- Do incineration of the residue after disposal as the method of agglomeration and precipitation.
- Take care of incinerate or stabilization after treatment, purified by means of Separation•distillation•extractio•filtration•pyrolysis

B. Special precautions for disposal

- The user of this product must disposal by oneself or entrust to waste disposer or person who other's waste recycle and dispose, person who establish and operate waste disposal facilities.
- Dispose of waste in accordance with all applicable laws and regulations.

14. TRANSPORT INFORMATION

A. UN No. (IMDG)

- 1203

B. Proper shipping name

- GASOLINE

C. Hazard Class

- 3

D. IMDG Packing group

- II

E. Marine pollutant

- Not applicable

F. Special precautions for user related to transport or transportation measures

- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency
- EmS FIRE SCHEDULE : F-E (Non-water-reactive flammable liquids)
- EmS SPILLAGE SCHEDULE : S-E (Flammable liquids, floating on water)

15. REGULATORY INFORMATION

A. National and/or international regulatory information

- POPs Management Law**
 - Not applicable
- Information of EU Classification**
 - * **Classification**
 - [Light gasoline] : Carc. Cat. 2; R45/ Muta. Cat. 2; R46, Xn; R65
 - [Toluene] : F; R11 Repr.Cat.3; R63 Xn; R48/20-65 Xi; R38 R67
 - [Benzene] : F; R11 Carc. Cat. 1; R45 Muta. Cat. 2; R46 T; R48/23/24/25 Xn; R65 Xi; R36/38
 - * **Risk Phrases**
 - [Light gasoline] : R45, R46, R65
 - [Toluene] : R11, R38, R48/20, R63, R65, R67
 - [Benzene] : R45, R46, R11, R36/38, R48/23/24/25, R65
 - * **Safety Phrase**
 - [Light gasoline] : S53, S45
 - [Toluene] : S2, S36/37, S46, S62
 - [Benzene] : S53, S45
- U.S. Federal regulations**
 - * **OSHA PROCESS SAFETY (29CFR1910.119)**
 - Not applicable
 - * **CERCLA Section 103 (40CFR302.4)**
 - [Toluene] : 453.599 kg 1000 lb
 - [Benzene] : 4.53599 kg 10 lb
 - [Tetraethyl lead] : 4.53599 kg 10 lb
 - * **EPCRA Section 302 (40CFR355.30)**
 - [Tetraethyl lead] : 45.3599 kg 100 lb
 - * **EPCRA Section 304 (40CFR355.40)**
 - [Tetraethyl lead] : 4.53599 kg 10 lb
 - * **EPCRA Section 313 (40CFR372.65)**
 - [Toluene] : Applicable
 - [Benzene] : Applicable
 - [Tetraethyl lead] : Applicable
- Rotterdam Convention listed ingredients**
 - Not applicable
- Stockholm Convention listed ingredients**
 - Not applicable
- Montreal Protocol listed ingredients**
 - Not applicable

16. OTHER INFORMATION

A. Reference

- The information contained herein is believed to be accurate. It is provided independently of any sale of the product for purpose of hazard communication. It is not intended to constitute performance information concerning the product. No express warranty, or implied warranty of merchantability or fitness for a particular purpose is made with respect to the product or the information contained herein.

- This Safety Data Sheet was compiled with data and information from the following sources: KOSHA, NITE, ESIS, NLM, SIDS, IPCS

B. Issue date

- 2013-11-12

C. Revision number and Last date revised

- 3rd, 2016-08-18

D. Other

- This SDS is prepared according to the Globally Harmonized System (GHS).