Safety Data Sheet

1.0 IDENTIFICATION OF THE SUBSTANCE / MIXTURE

1.1 Product Identification

Substance	**Gasoline**
Commercial Product Name	**Avgas 100LL**
Synonyms	**Low Lead aviation gasoline 100**
EC no.	**289-220-8**
UK Registration No.	**UK-01-4615601157-2-0016**

1.2 Relevant identified uses of the substance or mixture and uses advised against

Specific Use(s)	Gasoline intended for use in aircraft spark ignition reciprocating engines
Uses Advised Against	**This product must not be used in applications other than those listed under Specific Uses without first seeking the advice of the supplier**

1.3 Details of the supplier of the SDS

Company	**Greenergy Fuels Limited** **Ilona Rose House** **Manette St** **London W1D 4AL** **UNITED KINGDOM**
Telephone No.	**02074047700**
Email	msds-info@greenergy.com

1.4 Emergency telephone number

Emergency telephone number	**+44 (0)1235 836 100**
Opening Hours	**24 / 7**

2.0 HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to GB CLP Regulation (EC 2008/1272/GBRET)

CLP-Classification: The product is classified as hazardous in accordance with GHS

Flam. Liq. 1	H224
Skin Irrit. 2	H315
Carc. 1B	H350
Mutagenic 1B	H340
Asp.Tox. 1	H304
STOT SE 3	H336
STOT RE 2	H373
Aquatic Chronic 2	H411
Reproductive 2	H361fd

For the full text of classification codes and/or H-phrases in this section, see 2.2 below

2.2 Label elements

Labelling according to UK CLP Regulation

CLP pictograms:

GHS02 GHS08 GHS07 GHS09

Signal word: Danger

CLP Hazard statements:
H224 - Extremely flammable liquid and vapour
H315 - Causes skin irritation
H350 - May cause cancer
H340 - May cause genetic defects
H304 - May be fatal if swallowed and enters airways
H336 - May cause drowsiness or dizziness
H372 - May cause damage to organs through prolonged or repeated exposure
H411 - Toxic to aquatic life with long lasting effects
H361 - Suspected of damaging fertility or the unborn child

CLP Precautionary statements:
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
P273 - Avoid release to the environment
P281 - Use personal protective equipment as required
P308 + P313 - If exposed or concerned; get medical advice/attention
P362 – Take off contaminated clothing and wash before reuse

Labelling according to GB CLP (EC 2008/1272/GBRET)

Not relevant

Other Hazards

This product contains tetraethyl lead which is known to accumulate in the human body. There are indications from human epidemiological studies that exposure to tetraethyl lead may cause developmental and neurobehavioral effects in the unborn child

3.0 COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances

Substance name	Product Identifier	%	Classification according to (EC 2008/1272/GBRET) [CLP / GHS]
Gasoline	EC no: 289-220-8 CAS no: 86290-81-5	100	H224 Flam. Liq. 1 H315 Skin Irrit. 2 H350 Carc. 1B H340 Muta. 1B H304 Asp.Tox. 1 H336 STOT SE 3 H411 Aquatic Chronic 2 H361df Repr. 2
Tetraethyl Lead	EC no: 201-075-4 CAS no: 78-00-2	> 0.022 < 0.045	H360df Repr. 1A H330 Acute Tox. 2 H310 Acute Tox. 1 H300 Acute Tox. 2 H373 STOT RE 2 (Liver, Kidney, Brain) H400 Aquatic Acute 1 M-Factor 1 H410 Aquatic Chronic 1

For the full text of classification codes and/or H-phrases in this section, see section 2.2

3.2 Mixtures

As a REACH registered UVCB substance under EC no. 289-220-8, gasoline is not categorised as a mixture by REACH (despite typically being blended from a range of other pure and UVCB substances)

4.0 FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation:
Keep at rest.
Move to fresh air
Oxygen or artificial respiration if needed
Consult a physician immediately

Skin contact:
After contact with skin, wash immediately with plenty of soap and water.
Take off contaminated clothing and shoes immediately
Wash contaminated clothing before reuse
If skin irritation persists, call a physician

Eye contact:
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If eye irritation persists, consult a specialist

Ingestion:
Do NOT induce vomiting
Rinse mouth
Drink plenty of water
Never give anything by mouth to an unconscious person
Obtain medical attention

Additional advice:	First aider needs to protect themself See also section 8 Show this safety data sheet to the physician in attendance

4.2 Most important symptoms and effects, both acute and delayed

Inhalation:	High vapour concentrations may cause drowsiness, dizziness, headache and/or nausea
Skin contact:	Skin irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blisters
Eye contact:	Eye irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blurred vision
Ingestion:	May enter lungs if swallowed. If material enters lungs, signs and symptoms may include coughing, choking, wheezing, difficulty in breathing, chest congestion, shortness of breath, and/or fever The onset of respiratory symptoms may be delayed for several hours after exposure

4.3 Indication of immediate medical attention and special treatment needed

Treatment:	Treat symptomatically

Persons on disulfiram (Antabuse®) therapy should be aware that the ethyl alcohol in this product is hazardous to them just as is alcohol from any source. Disulfiram reactions (vomiting, headache and even collapse) may follow ingestion of small amounts of alcohol and have also been described from skin contact

5.0 FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media:	Use dry powder chemical, CO2, water spray/fog or alcohol resistant foam. Dry sand may be used for small fires only
Extinguishing media which shall not be used for safety reasons:	Do not use direct water jets on the burning product as they could cause a steam explosion and spread of the fire. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam

5.2 Special hazards arising from the substance or mixture

Fire Hazard:	Extremely flammable
Specific hazards:	Evacuate personnel to safe areas. Vapours may form explosive mixture with air. Vapours are heavier than air and may spread along floors. Flash back is possible over considerable distance. Possible decomposition products include carbon monoxide, carbon dioxide, sulphur oxides and unidentified organic compounds. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations

5.3 Advice for firefighters

Special protective equipment for fire-fighters:	Wear personal protective equipment. Wear self-contained breathing apparatus for firefighting if necessary. Chemical resistant suit is indicated if significant contact with spilled product is likely

6.0 ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions:	Wear personal protective equipment. See also section 8. Evacuate personnel to safe areas. Avoid contact with skin, eyes and clothing. Keep away from open flames, hot surfaces and sources of ignition. Ensure all equipment is electrically grounded before beginning transfer operations. Do not breathe vapours or spray mist. Do not smoke
Advice for emergency Responders:	Only qualified personnel equipped with suitable protective equipment should intervene. Monitor area with combustible gas meter. Vapour can travel for considerable distances both above and below the ground surface. Underground services (drains, pipelines, cable ducts) can provide preferential flow paths

6.2 Environmental precautions

Environmental precautions:	Do not flush into surface water or sanitary sewer system. Gasoline contains oxygenated blend components (Ethanol, etc.) that are soluble in water and therefore precautions should be taken to protect surface and groundwater sources from contamination

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up:	Remove all sources of ignition. Do not use tools which may produce sparks. Prevent further leakage or spillage if safe to do so. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). For large spills, use mechanical means such as vacuum tanker for recovery. Dam up. Sweep up and shovel into suitable containers for disposal. After cleaning, flush away traces with water Dispose of in accordance with local regulations

7.0 HANDLING AND STORAGE

7.1 Precautions for safe handling

Handling:	Wear personal protective equipment. See also section 8. Avoid contact with skin, eyes and clothing. Do not breathe vapours or spray mist. Use only in well-ventilated areas. Ensure all equipment is electrically grounded before beginning transfer operations. Keep away from open flames, hot surfaces and sources of ignition. Do not smoke. Always replace cap after use. Take care to avoid waste and spillage when weighing, loading and mixing the product. Do not empty into drains

7.2 Conditions for safe storage, including any incompatibilities

Storage:	Do not store near or with any of the incompatible materials listed in section 10. Store in original container. Keep tightly closed in a dry, cool and well- ventilated place. Keep away from open flames, hot surfaces and sources of ignition. Keep tightly closed in a dry, cool and well-ventilated place Bulk storage tanks must be constructed and operated in accordance with The Control of Pollution (Oil Storage) (England) Regulations 2001

Product Transfer:	Wait 2 minutes after tank filling (for tanks such as those on road tanker vehicles) before opening hatches or manholes. Wait 30 minutes after tank filling (for large storage tanks) before opening hatches or manholes. Even with proper grounding and bonding, this material can still accumulate an electrostatic charge. If sufficient charge is allowed to accumulate, electrostatic discharge and ignition of flammable air-vapour mixtures can occur. Be aware of handling operations that may give rise to additional hazards that result from the accumulation of static charges. These include but are not limited to pumping (especially turbulent flow), mixing, filtering, splash filling, cleaning and filling of tanks and containers, sampling, switch loading, gauging, vacuum truck operations, and mechanical movements. These activities may lead to static discharge e.g. spark formation. Restrict line velocity during pumping to avoid generation of electrostatic discharge (≤ 1 m/s until fill pipe submerged to twice its diameter, then ≤ 7 m/s). Avoid splash filling. Do NOT use compressed air for filling, discharging, or handling operations
Hygiene measures:	Handle in accordance with good industrial hygiene and safety practice. Wash hands and face before breaks and immediately after handling the product. Do not eat, drink or smoke. Keep away from food, drink and animal feeding stuffs. Use only in area provided with appropriate exhaust ventilation
Packaging material:	Do not burn, or use a cutting torch on, the empty drum. Do not puncture or incinerate

7.3 Specific end use(s)

Specific use(s): see Exposure scenarios

8.0 EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Component:	Gasoline (86290-81-5)
TLV-TWA (mg/m³):	mist: 5 (BE, GB, FR, NL, ES, FI, DK, NO)
TLV-STEL (mg/m³):	mist: 10 (BE, GB)
DNEL:	840 mg/m³/8h – Workers – Inhalation 180 mg/m³/8h – Consumers – Inhalation
PNEC:	Substance is a hydrocarbon with a complex, unknown or variable composition Conventional methods of deriving PNECs are not appropriate and it is not possible to identify a single representative PNEC for such substances

8.2 Exposure controls

Respiratory protection:	In case of insufficient ventilation wear suitable respiratory equipment. Recommended Filter type: A (EN 141), Respirator with a half face mask (EN 140), Respirator with full face mask (EN 140)
Hand protection:	Wear chemically resistant gloves tested for breakthrough time for gasoline in accordance with EN374. The selection of gloves for a specific application and time of use in a working area, should also take into account other factors on the working space, such as (but not limited to): other chemicals that are possibly used, physical requirements (protection against cutting/drilling, skill, thermal protection), and the instructions/specification of the supplier of gloves
Body protection:	Wear antistatic and flame-retardant clothing and oil resistant antistatic boots
Eye protection:	Safety glasses (EN 166)

9.0 PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance:	liquid
Colour:	pale yellow
Odour:	characteristic petroleum hydrocarbon odour
pH:	no data available
Boiling point/boiling range:	25 - 200°C
Melting point/range:	< -60°C
Flash point:	< -40°C
Explosive properties:	LEL 1% (v/v), UEL 8% (v/v)
Auto-ignition temperature	>250°C
Evaporation rate:	no data available
Vapour pressure:	~ 350 - 900 hPa @ 37.8°C
Vapour density:	no data available
Solubility in water:	slightly soluble (30 - 100mg/l, 20°C)
Viscosity:	0.25 - 0.75 mm2/s (40.0 °C)
Density:	720 – 775 kg/m³ @ 15°C
Partition coefficient:	2.1 - 6 (n-octanol/water)

9.2 Other information

Conductivity:	Low conductivity: < 100 pS/m, The conductivity of this material makes it a static accumulator., A liquid is typically considered nonconductive if its conductivity is below 100 pS/m and is considered semi-conductive if its conductivity is below 10,000 pS/m., Whether a liquid is nonconductive or semiconductive, the precautions are the same., A number of factors, for example liquid temperature, presence of contaminants, and anti-static additives can greatly influence the conductivity of a liquid

10.0 STABILITY AND REACTIVITY

10.1 Reactivity

Reactivity: Flammable liquid

See also section 10.5

10.2 Chemical stability

Stability: Stable under normal conditions

10.3 Possibility of hazardous reactions

No hazardous reaction is expected when handled and stored according to provisions

10.4 Conditions to avoid

Conditions to avoid: Heat, flames and sparks. See also sections 7 and 9.2

10.5 Incompatible materials

Incompatible materials: Incompatible with strong acids, bases and oxidizing agents.

10.6 Hazardous decomposition products

Hazardous decomposition products: Burning produces noxious and toxic fumes. Possible decomposition products include carbon monoxide, carbon dioxide, sulphur oxides and unidentified organic compounds

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

General Information

Acute toxicity

Component:	Gasoline (86290-81-5)
LD50/oral/rat:	> 5000 mg/kg
LD50/dermal/rat:	> 2000 mg/kg
LD50/inhalation/4hr/rat:	> 5.2 mg/l/4hr
Acute toxicity (other routes of administration):	Exposure may occur via inhalation, ingestion, skin absorption, skin or eye contact, and accidental ingestion
Skin contact:	Repeated exposure may cause irritation, skin dryness or cracking
Eye contact:	Not irritating to eyes. Based on available data, the classification criteria are not met
Ingestion:	Harmful: may cause lung damage if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea
Chronic toxicity:	May cause cancer May cause genetic defects

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Ecotoxicity effects:	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
Component:	Gasoline (86290-81-5)
LC50/96h/fish:	82 mg/l
EC50/48hr/daphnia:	7.6 mg/l

12.2 Persistence and degradability

Persistence and degradability: Inherently biodegradable

12.3 Bio accumulative potential

Bioaccumulation:	Does not bioaccumulate
Partition coefficient:	2.1 - 6 (n-octanol/water)

12.4 Mobility in soil

Mobility: no data available

12.5 Results of PBT and vPvB assessment

This mixture does not contain any REACH registered sub-stances that are assessed to be a PBT or a vPvB

12.6 Other adverse effects

Films formed on water may affect oxygen transfer and damage organisms

13.0 DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste from residues / unused products:	Dispose of in accordance with local and national regulations. Where possible, recycling is preferred to disposal or incineration
Contaminated packaging:	Do not burn, or use a cutting torch on, the empty drum. Do not puncture or incinerate.
Codes of waste (SI 2005/894):	The following Waste Codes are only suggestions: 130702 - petrol 150110 - packaging containing residues of or contaminated by dangerous substances Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities

14. TRANSPORT INFORMATION

14.1 UN Number

UN number : 1203

14.2 UN proper shipping name

Proper shipping name : MOTOR SPIRIT / GASOLINE / PETROL

14.3 Transport hazard class(es)

14.3.1 Overland transport

Class:	3 - Flammable liquids
Hazard Identification number:	33
Emergency Action Code:	3YE
ADR classification code:	F1
ADR danger labels:	3 - Flammable liquid P – Marine pollutant
Orange plates:	3YE 1203
ADR tunnel restriction code:	D/E ADR
limited quantities:	LQ07
ADR excepted quantities:	E1

14.3.2 Inland waterway transport (ADN/ADNR)

ADNR class: 3

14.3.3 Transport by sea

Class: 3 - Flammable liquid

14.3.4 Air transport

Class: 3 - Flammable liquid

14.4 Packing group

Packing group: II

14.5 Environmental hazards

Marine pollutant: P

Other information (transport) : No supplementary information available

14.6 Special precautions for users

No data available

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable
However, this product is a liquid and if transported in bulk, is covered under MARPOL 73/78, Annex I

15.0 REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

No data available

15.2 Chemical Safety Assessment

Chemical Safety assessment: A Chemical Safety Assessment has been carried out for this substance

16.0 OTHER INFORMATION

(1) New SDS (adapted from SDS for road vehicle gasoline)

(2) The contents and format of this SDS are in accordance with the ECHA Guidance on the compilation of safety data sheets, version 4.0 December 2020 ECHA-20-H-25-EN

(3) Data used in this SDS has been sourced from the ECHA disseminated REACH dossier information for Gasoline EC 289-220-8

(4) List of Abbreviations:

SDS	Safety Data Sheet
ECHA	European Chemicals Agency
CLP	Classification, Labelling and Packaging Regs.
GHS	Globally Harmonised System [of classification]
DNEL	Derived No Effect Level
PNEC	Predicted No Effect Concentration
REACH	Registration, Evaluation and Authorisation of Chemicals
ADR	Agreement for the transportation of dangerous goods by road
ADN	Agreement for the transportation of dangerous goods by Inland Waterways
RID	International Carriage of Dangerous Goods by Rail
PBT	Persistent, Bio-accumulative and Toxic
vPvB	Very Persistent and very Bio-accumulative
STOT	Single Target Organ Toxicity
IBC	International Bulk Chemical code
LEL	Lower Explosive Limit
UEL	Upper Explosive Limit
UVCB	Unknown or Variable Composition or Biological origin