1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Synonyms: 100 Octane Aviation, 100 Low Lead Gasoline, Petrol, Motor Fuel, ASTM 100/130 Aviation Gasoline, Avgas, Avgas 100

Formula: Mixture

Chemical Family: Hydrocarbon

CAS Number: Mixture

SAP Code: 1014050

Product Code: 21223

MSDS Number: 001769

NFPA Ratings: Health 1, Flammability 3, Reactivity 0

HMIS Ratings: Health 1, Flammability 3, Reactivity 0

Intended Use(s): Fuel, Aviation Gasoline

The intended use of this product is indicated above, if any additional use is known please contact us at the Technical Information number listed below.

Manufactured By: Phillips 66 Company
A Division of Phillips Petroleum Company
Bartlesville, Oklahoma 74004

Phone Numbers
Emergency: (918) 661-8118
Technical Information: (918) 661-5355
For Additional MSDSs: (918) 661-3709

2. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Specification and CAS #</th>
<th>Weight % In Product*</th>
<th>ACGIH TLV (TWA)</th>
<th>ACGIH Short Term Exposure Limit</th>
<th>ACGIH Ceiling Limits</th>
<th>ACGIH Skin Designation</th>
<th>OSHA Final PEL (TWA)</th>
<th>OSHA - Final PELs - Ceiling Limits</th>
<th>OSHA - Final PELs - Skin Notation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paraffinic hydrocarbons</td>
<td>&gt; 55%</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
</tr>
<tr>
<td>Aromatic Hydrocarbons</td>
<td>&lt; 35%</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
</tr>
<tr>
<td>Olefinic hydrocarbons</td>
<td>&lt; 5%</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
</tr>
<tr>
<td>Tetraethyl lead 78-00-2</td>
<td>&lt; 0.13%</td>
<td>as Pb: 0.1 mg/m3</td>
<td>NE</td>
<td>Yes</td>
<td>as Pb: 0.075 mg/m3</td>
<td>NE</td>
<td>Yes</td>
<td>NE</td>
</tr>
<tr>
<td>Benzene 71-43-2</td>
<td>&lt; 0.5%</td>
<td>0.5 ppm</td>
<td>2.5 ppm; 8 mg/m3</td>
<td>NE</td>
<td>Yes</td>
<td>1 ppm (Areas exempted by the Benzene Standard, 29 CFR 1910.1028, will have a 10 ppm 8 hour TWA and 5 ppm STEL)</td>
<td>NE</td>
<td>NE</td>
</tr>
</tbody>
</table>
3. HAZARDS IDENTIFICATION

Emergency Overview


Potential Acute Health Effects

Eye Contact: May cause mild irritation.

Skin Contact: Minimize skin contact. This chemical is readily absorbed through the skin in liquid or vapor phase. Prolonged or repeated contact with the liquid may cause defatting of the skin resulting in drying, redness, and possibly blistering.

Inhalation: May cause headache, nausea, weakness, sedation, and unconsciousness.

Ingestion: May cause irritation to intestines. If swallowed, may be aspirated resulting in inflammation and possible fluid accumulation in the lungs.

Aggravated Medical Conditions: No Known Applicable Information

4. FIRST AID MEASURES

Eye Contact: Flush eyes with running water for at least 15 minutes. If irritation or adverse symptoms develop, seek medical attention.

Skin Contact: Wash skin with soap and water for at least 15 minutes. If irritation or adverse symptoms develop, seek medical attention.

Inhalation: Remove from exposure. If breathing is difficult, give oxygen. If breathing ceases, administer artificial respiration followed by oxygen. Seek immediate medical attention.

Ingestion: DO NOT induce vomiting. Seek immediate medical attention.

Notes To Physician: Gastric lavage using a cuffed endotracheal tube may be performed at your discretion.

5. FIRE FIGHTING MEASURES
### Flammable Limits (% by Volume in Air)

<table>
<thead>
<tr>
<th>Limit</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower Explosive Limit</td>
<td>1.5</td>
</tr>
<tr>
<td>Upper Explosive Limit</td>
<td>7.6</td>
</tr>
</tbody>
</table>

### Flash Point:

< -35F (-37C)

### Ignition Temperature:

824F (471C)

### Extinguishing Media:

Dry chemical Foam Carbon dioxide

### Fire Extinguishing Media:

Evacuate area and fight fire from a safe distance. Use NIOSH approved self-contained breathing apparatus and other protective equipment and/or garments described in Section 8 if conditions warrant. Shut off source, if possible. Use water spray to cool nearby containers and structures exposed to fire. Do not spray water directly on fire - product will float and could be reignited on surface of water.

### Fire and explosion hazards:

Carbon oxides and various hydrocarbons forms when burned. Gasolines containing Tetraethyl Lead will form lead fumes when burning. Highly flammable vapors which are heavier than air may accumulate in low areas and/or spread along ground away from handling site. Flash back along vapor trail is possible.

### 6. ACCIDENTAL RELEASE MEASURES

Evacuate area of all unnecessary personnel. Wear protective equipment and/or garments described in Section 8 if exposure conditions warrant. Protect from ignition. Keep out of water sources and sewers. Absorb in a dry, inert material (sand, clay, etc.). Transfer to disposal drums using non-sparking equipment.

### 7. HANDLING AND STORAGE

DO NOT get in eyes, on skin, or on clothing. DO NOT breathe vapor, mist, fume or dust. DO NOT swallow. May be aspirated into lungs. Wear protective equipment and/or garments described in Section 8 if exposure conditions warrant. Wash thoroughly after handling. Use only with adequate ventilation. Immediately remove and launder contaminated clothing before reuse.

Keep away from heat, sparks, and flame. Store in well-ventilated area. Store in tightly closed container. Bond and ground during transfer.

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Eye Protection:

If splash hazards are present use chemical goggles and a face shield.

#### Respiratory Protection:

For concentrations exceeding an applicable exposure limit, use NIOSH approved air purifying respirator equipped with organic vapor cartridges.

Air purifying respirators should NOT be used in:
- Situations that exceed the maximum use concentrations of the respirator or air-purifying element established by regulatory standards.
- Atmospheres containing less than 19.5 percent oxygen.
- Atmospheres immediately dangerous to life or health (IDLH)

When entering or exiting from areas where the exposure concentration is unknown or if conditions immediately dangerous to life or health (IDLH) exist, use a NIOSH approved self-contained breathing apparatus (SCBA) or equivalent operated in a pressure demand or other positive pressure mode.
The selection and use of respiratory protection for benzene should comply with OSHA regulation 29 CFR 1910.1028 paragraph (g).

Skin Protection: Use gloves resistant to the material being used (Viton, nitrile).

Ventilation: Use adequate ventilation to control concentrations below applicable exposure limits.

Other Personal Protection: Personal protection information shown in Section 8 is based upon general information as to normal uses and conditions. Where special or unusual uses or conditions exist, it is suggested that the expert assistance of an industrial hygienist or other qualified professional be sought.

Exposure Limits: See Section 2 (Composition/Information on Ingredients).

9. PHYSICAL AND CHEMICAL PROPERTIES

| Physical State: | Liquid |
| Appearance:     | Blue   |
| Odor:           | Mild   |
| Odor Threshold (ppm): | Unknown |
| Boiling Point:  | 75-338°F (24-170°C) |
| Melting/Freeze Point: | -72°F (-58°C) Maximum |
| Vapor Pressure: | 5.5 to 7.0 psia @100°F (38°C) |
| Vapor Density (Air=1): | 3-4 |
| Specific Gravity @ 20°C (Water=1): | 0.68 to 0.74 @ 60/60°F (16/16°C) |
| Percent Volatile by Volume: | 100 |
| Evaporation Rate (Butyl Acetate=1): | >1 |
| Water Solubility: | Negligible |
| Viscosity:       | Not Established |

10. STABILITY AND REACTIVITY

| Stability: | Stable |
| Hazardous Polymerization: | Will Not Occur |
| Incompatibility (Materials to Avoid): | Oxygen and strong oxidizing agents. |
| Hazardous Decomposition Products: | Carbon oxides, lead fumes and various hydrocarbons when burned. |

11. TOXICOLOGICAL INFORMATION

Subchronic and Chronic Effects:

Unleaded gasoline has produced kidney cancer in male rats only. No comparable kidney disease is known to occur in humans.

Isopentane did not produce kidney damage in rats after 28 days of daily oral administration of 500 mg/kg or repeat inhalation exposure to 4500 ppm or 1000 ppm of both isobutane and isopentane mixed in equal parts.

Isopentane has a low order of toxicity upon repeated inhalation at concentrations below its lower flammability limit (14,000 ppm). Very high concentrations can cause drowsiness and loss of sensation. These effects are reversible when exposure is eliminated.

Exposure of pregnant rats during gestation to toluene at levels 250 ppm and higher produced some maternal toxicity and embryo/fetotoxicity. A lifetime inhalation study in rats did not show any toxic effects even at the high dose of 300 ppm.

Behavioral signs of hearing loss were observed in rodents exposed well above the PEL for toluene subchronically
at levels of 1000 ppm or more. Comparable effects have not been reported in humans.

Benzene has been designated as a carcinogen by the National Toxicology Program (NTP), the International Agency for Research on Cancer (IARC), and the Occupational Safety and Health Administration (OSHA). Benzene may produce blood changes which include reduced platelets, reduced red blood cells, reduced white blood cells, aplastic anemia, and acute nonlymphocytic leukemia. Benzene has produced fetal death in laboratory animals and cause chromosome changes in humans and mutation changes in cells of other organisms.

Other Health Effects:

A Toxicity Study Summary for Isopentane, Commercial Grade, is available upon request.

Isopentane did not interact with genetic material in a cell culture assay (Ames mutagenicity assay).

Combustion, a normal use of gasoline, results in an exhaust that has been associated with skin cancer in laboratory animals. Skin cancer was observed in these animals when exhaust was concentrated and repeatedly applied to the skin. It is unknown if this route of exposure is relevant to human exposure.

Combustion (burning) of most carbon-containing material forms carbon monoxide. Carbon monoxide inhalation may cause carboxyhemoglobinemia. Chronic exposure to carbon monoxide causes fatigue, poor memory, loss of sensation in fingers, visual disturbances and insomnia. Carboxyhemoglobinemia is frequently misdiagnosed as flu.

Sensitive sub-populations to the inhalation of carbon monoxide exist. Carbon monoxide displaces oxygen in the bloodstream and therefore, can adversely effect people with pre-existing heart disease, pregnant women and smokers.

Fuels containing lead anti-knock compounds should be handled in such a way to minimize contact with the body. Lead can accumulate in the body with overexposure and cause illness due to effects on the blood, nerves, kidneys and the reproductive system.

A Toxicity Study Summary for Aviation Gasoline is available upon request.

Acute Data:

Isopentane: Dermal LD50 = No data available; LC50 > 4,094 ppm; Oral LD50 = No data available.

Aviation Gasoline: Dermal LD50 < 2 g/kg (Rabbits); LC50 < 89.67 mg/liter (4-hr., Rats); Oral LD50 < 5 g/kg.

12. ECOLOGICAL INFORMATION

No data at this time.

13. DISPOSAL CONSIDERATIONS

Disposal should be made in accordance with federal, state and local regulations.

14. TRANSPORT INFORMATION

DOT Shipping Description: Gasoline, 3, UN1203, II
Non-Bulk Package Marking: Gasoline, UN1203
Bulk Package Placard/Marking: Flammable / 1203
Hazardous Substance/RQ: None
Packaging References: 49 CFR 173.150, 173.202, 173.242
Additional Remarks: None
15. REGULATORY INFORMATION

**Paraffinic hydrocarbons** > 55%
Regulated Substance on TSCA Inventory: Listed
Canada - Domestic Substances List: Listed

**Aromatic Hydrocarbons** < 35%
Regulated Substance on TSCA Inventory: Listed
Canada - Domestic Substances List: Listed

**Olefinic hydrocarbons** < 5%
Regulated Substance on TSCA Inventory: Listed
Canada - Domestic Substances List: Listed

**Tetraethyl lead** < 0.13% 78-00-2
Regulated Substance on TSCA Inventory: Listed
Clean Water Act - Hazardous Substances: Listed
Pennsylvania Right to Know List: Listed
New Jersey Right-to-Know List: Listed
NJ Environmental Hazardous Substances List: Listed
Massachusetts Right To Know List: Listed
Florida Toxic Substances List: Listed
Canada - Domestic Substances List: Listed

**Benzene** < 0.5% 71-43-2
Section 313 of Title III of the SARA and 40 CFR Part 372: Listed
Clean Water Act - Toxic Pollutants: Listed
Clean Water Act - Hazardous Substances: Listed
Clean Water Act S307 Priority Pollutant: Listed
Pennsylvania Right to Know List: Listed
New Jersey Right-to-Know List: Listed
NJ Environmental Hazardous Substances List: Listed
Michigan Critical Materials List: Listed
Massachusetts Right To Know List: Listed
Florida Toxic Substances List: Listed
California Proposition 65: Listed
Canada - Domestic Substances List: Listed

**WHMIS Hazard Class:** Class B - Flammable and Combustible Material. Class D, Division 2 Poisonous and Infectious Material: Other toxic effects.

Additional Information:

This product is in U.S. commerce, and is listed in the Toxic Substances Control Act (TSCA) Inventory of Chemicals; hence, it may be subject to applicable TSCA provisions and restrictions.
All ingredients are listed in the Domestic Substances List (DSL). Impurities are exempt in accordance with Section 3 of the Canadian Environmental Protection Act (CEPA).

This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

**EPA SARA 311/312 (Title III Hazard Categories)**

- **Acute Health:** Yes
- **Chronic Health:** Yes
- **Fire Hazard:** Yes
- **Pressure Hazard:** No
- **Reactivity Hazard:** No

**16. OTHER INFORMATION**

**Revision Summary:**
This Material Safety Data Sheet (MSDS) has been revised to conform with the American National Standards Institute (ANSI) 16 Section Format.

Section 2. Composition/Information on Ingredients.

**Preparer:** Health, Environment and Safety Department
**Date Prepared:** 07/09/2001
**Supersedes:** 07/31/1996

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