



SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: SDA 2B 200PF Heptane
CAS Number: 64-17-5
Chemical Characterization: Ethyl Alcohol
Chemical Name: Ethyl Alcohol
Synonyms: SDA 2B 200 PF
Recommended use and restriction on use: For use as an ingredient, general purpose, organic solvent, Not for Human Consumption.

Company: Golden Triangle Energy
15053 Highway 111
Craig, MO 64437

Telephone: Customer Service: 660-683-5646

Emergency Telephone: HAZ-MAT Response, Inc.
800-229-5252

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

| | |
|--|-------------|
| Flammable Liquids | Category 2 |
| Eye irritation | Category 2A |
| Specific target organ systemic toxicity - single exposure, Respiratory system, central nervous system. | Category 3 |

GHS Classification Scale (1 = severe hazard, 4 = slight hazard)

Label elements

Hazard symbols:



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**Signal Word:**

Danger

Hazard Statements:

H225 Highly flammable liquid and vapor.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H336 May cause drowsiness or dizziness.

Precautionary Statements:**Prevention**

P210 Keep away from open flames/hot surfaces. - No smoking.
P233 Keep container tightly closed.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P243 Take precautionary measures against static discharge.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
P264 Wash hands thoroughly after handling.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
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.

Storage

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

Other hazards

Hazards Not Otherwise Classified (HNOC)
Prolonged or repeated contact may cause skin to become dry or cracked.

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS****Ingredients**

| Component | CAS-No. | Weight % |
|---------------|----------|----------|
| Ethyl alcohol | 64-17-5 | 99.6 |
| Heptane | 142-82-5 | 0.4 |

SECTION 4. FIRST AID MEASURES**First aid procedures****General Advice:**

Take proper precautions to ensure your own health and safety before attempting rescue and providing first aid. For specific information refer to the Emergency Overview in Section 2 of this SDS.

Present this safety data sheet to the doctor in attendance.

If inhaled:

Remove person to fresh air. If signs/symptoms continue, seek medical attention. Give oxygen or artificial respiration as needed.

In case of skin contact:

Immediately flush affected area with plenty of water while removing contaminated clothing. Wash contaminated clothing before reuse. If irritation persists, seek medical attention.

In case of eye contact:

Thoroughly flush the eyes with large amounts of clean low-pressure water for at least 15 minutes, occasionally lifting the upper and lower eyelids. If irritation persists, seek medical attention.

Remove contact lenses.

Do not use eye ointment unless directed by a physician.

If swallowed:

Do not induce vomiting. Risk of damage to lungs exceeds poisoning risk.

Drink plenty of water.



If vomiting does occur, lean victim forward to reduce risk of aspiration.

If victim is drowsy or unconscious, place on left side with head down.

Never give anything by mouth to an unconscious person. Seek emergency room treatment immediately.

Notes to physician

Symptoms:

Ingestion of the liquid or exposure to high airborne concentrations can cause central nervous system (CNS) effects ranging from excitation, dizziness, drowsiness and headache to deep anesthesia, respiratory arrest, and death in cases of severe over-exposure.

Repeated or prolonged contact with the skin may cause defatting and drying of the skin which may result in dermatitis.

Treatment:

Treat symptomatically.

Treatment of overexposure should be directed toward control of symptoms and the clinical condition of the patient. There is no specific antidote.

Gastric lavage can be performed shortly after ingestion. GI decontamination with charcoal is not effective unless other toxic co-ingestants are involved.

SECTION 5. FIRE-FIGHTING MEASURES

Flammable properties

Flash point: 55 - 61 °F (13 - 16 °C)
Method: ASTM D 56

Auto ignition temperature: 685 °F (363 °C)
at 1,013 hPa (760 mm Hg)

Lower explosion limit: 3.3 vol%

Upper explosion limit: 19 vol%

Fire fighting

Suitable extinguishing media: SMALL FIRE: Use dry chemicals, CO₂, water spray or alcohol-resistant foam.
LARGE FIRE: Use water spray, water fog or alcohol-resistant foam.



Protective equipment and precautions for firefighters

Specific hazards during firefighting: Extremely flammable well below ambient temperatures. Vapor forms explosive mixture with air and may cause a flash fire.
Eliminate all sources of ignition.
Prevent entry into waterways, sewers, basements or confined areas.
Ethanol vapors are heavier than air and may travel a considerable distance to a source of ignition and flash back. Alcohols burn with a pale blue flame which may be extremely hard to see under normal lighting conditions. Personnel may only be able to feel the heat of the fire without seeing flames. Extreme caution must be exercised in fighting alcohol fires. When exposed to ignition source in air, vapors can burn in open or explode if confined.
Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
Heat may build enough pressure to rupture closed containers/spreading fire/increasing risk of burns/injuries. Cool containers with flooding quantities of water until well after fire is out.
Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
Always stay away from tanks engulfed in fire.
Move containers from fire area if it can be done without risk. Sustained fire attack on vessels may result in a Boiling Liquid Expanding Vapour Explosion (BLEVE).
Prevent fire extinguishing water from contaminating surface water or the ground water system.
When fighting a fire, notify environmental authorities if liquid enters sewers or public waters.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

Special equipment for firefighters: Wear positive pressure self-contained breathing apparatus (SCBA).
Structural firefighter's protective clothing will only provide limited protection.



SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Clean-up to be performed only by trained and properly equipped personnel.

Wear recommended personal protective equipment. Eliminate all sources of ignition.

Ensure adequate ventilation.

Evacuate personnel to safe areas.

Environmental precautions: If necessary, all contaminated waste water must be treated in a municipal or industrial wastewater treatment plant before release to surface water.

Chemical removal by air and water pollution control devices must meet the minimum efficiency requirements needed to reduce exposures to an acceptable level.

The discharge of treatment plant effluent to rivers and oceans must achieve the dilution ratio needed to reduce exposures to an acceptable level.

The size and capacity of wastewater treatment plants must meet the minimum requirements needed to reduce exposures to an acceptable level.

Waste management practices such as incineration, recycling, reuse must be enforced as needed to reduce exposures to an acceptable level.

External treatment and disposal of waste should comply with applicable local and/or national regulations.

The maximum allowable site tonnage and the days of use should be below the number needed to maintain exposures at an acceptable level.

Methods for containment clean up: Highly flammable liquid and vapor.

Eliminate all sources of ignition.

All equipment used when handling this product must be grounded.

Do not touch or walk through spilled material. Stop leak if you can do it without risk.

Prevent entry into waterways, sewers, basements or confined areas.



A vapor suppressing foam may be used to reduce vapors.
Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
Use clean non-sparking tools to collect absorbed material. For large spills:
Contain spill with dike to prevent entry into sewers or waterways.
Water spray may reduce vapor; but may not prevent ignition in closed spaces.

Additional advice: See Section 15: Regulatory Information.

SECTION 7. HANDLING AND STORAGE

Handling

Advice on safe handling: Wear recommended personal protective equipment.
Eliminate all sources of ignition.
Use only in area provided with appropriate exhaust ventilation.
Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors).
Use only non-sparking tools.
Avoid contact with incompatible agents. Open and handle container with care. Keep in properly labeled containers.
Metal containers involved in the transfer of this material should be grounded and bonded. Keep containers tightly closed and in a well-ventilated place. Store away from oxidizers and other combustible material by a distance of at least 20 feet. Metal containers used to store this material should be grounded.
Ensure all equipment is electrically grounded before beginning transfer operations.
Handle empty containers with care; vapor/residue may be extremely flammable.
Do not pressurize or expose empty containers to open flame, sparks, or heat.
Isolate, vent, drain, wash and purge systems or equipment before maintenance or repair.
Observe precautions pertaining to confined space entry.

Advice on protection against fire and explosion: Take precautionary measures against static discharges.
Keep away from heat and sources of ignition.



Storage

Requirements for storage areas and containers:

Flammable materials should be stored in a separate safety storage cabinet or room.
 Store only in tightly closed, properly vented containers away from heat, sparks, open flame and strong oxidizing agents. Store this product in a dry location where it can be protected from the elements.
 Keep in a well-ventilated place.
 Metal containers involved in the transfer of this material should be grounded and bonded. Keep containers tightly closed and in a well-ventilated place. Store away from oxidizers and other combustible material by a distance of at least 20 feet. Metal containers used to store this material should be grounded. Ensure that all relevant regulations regarding explosive atmospheres, and handling and storage facilities of flammable products are followed.
 Store closed drums with bung in up position.
 Aluminum Alkyl may be stored in a vessel under nitrogen atmosphere. Catalyst may be stored in approved shipping containers. Shipping containers must be stored separate from incompatible material and upright (valves on top) in a cool, dry, well ventilated area away from heat or flames.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

| Ingredients | CAS-No. | Value | Control parameters | Update | Basis |
|---------------|----------|-------|--------------------------------------|----------------|------------|
| Ethyl alcohol | 64-17-5 | STEL | 1,000 ppm | 2012 | US (ACGIH) |
| Ethyl alcohol | 64-17-5 | IDLH | 3,300 ppm | September 2007 | NIOSH |
| Ethyl alcohol | 64-17-5 | TWA | 1,000 ppm 1,900 mg/m ³ | June 23, 2006 | US (OSHA) |
| Heptane | 142-82-5 | TWA | 400 ppm | June 23, 2006 | US (OSHA) |
| Heptane | 142-82-5 | IDLH | 500 ppm | September 2007 | NIOSH |

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Engineering measures

Engineering measures: General room or local exhaust ventilation is usually required to meet exposure limit(s).
Electrical equipment should be grounded and conform to applicable electrical code.

Personal protective equipment

Eye protection: Use splash goggles when eye contact due to splashing or spraying liquid is possible.

Hand protection: Wear chemical resistant gloves such as:
Glove material: butyl rubber; material thickness .5mm; break through time \geq 480 min. Gloves must be replaced after 8 hours of wear.
Glove material: fluoroelastomer; material thickness 0.4 mm; break through time \geq 480 min. Gloves must be replaced after 8 hours of wear.
Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Skin and body protection: When skin contact is possible, protective clothing including gloves, apron, sleeves, boots, head and face protection should be worn.

Respiratory protection: When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Hygiene measures: Selection of appropriate personal protective equipment should be based on an evaluation of the performance characteristics of the protective equipment relative to the task(s) to be performed, conditions present, duration of use, and the hazards and/or potential hazards that may be encountered during use. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Use good personal hygiene practices.
Wash hands before eating, drinking, smoking, or using toilet facilities.
Take off contaminated clothing and wash before reuse.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

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Physical state: Liquid
Color: Colorless liquid/invisible vapor
Odor: Sweet/Alcohol-like

Physical and Chemical Properties

Flash point: 55 - 61 °F (13 - 16 °C) Method: ASTM D 56
Lower explosion limit: 3.3 vol%
Upper explosion limit: 19 vol%
Flammability (solid gas) Not applicable
Oxidizing properties: The substance or mixture is not classified as oxidizing.
Autotignition temperature: 685 °F (363 °C) at 1,013 hPa (760 mm Hg)
Decomposition temperature: Not determined
Melting point/freezing point: -173.4 °F (-114.1 °C)
Boiling point/boiling range: 173.3 °F (78.5 °C)
Vapor pressure: 59.45 hPa (44.59 mm Hg) at 68 °F (20 °C)
Density: 0.7936 g/cm³ at 60 °F (15.56 °C)
Water solubility: Completely soluble
Partition coefficient:
n-octonal/water: Log Pow: -0.35 at 68 °F (20 °C)
Viscosity, dynamic: No data available
Relative vapor density: 1.6 (Air = 1.0)
Explosive properties: Not explosive
Remarks – Other information: No additional information available.



SECTION 10. STABILITY AND REACTIVITY

Reactivity: No known reactivity hazards.

Chemical stability: Stable under recommended storage conditions.

Conditions to avoid: Avoid contact with strong oxidizers, excessive heat, sparks or open flame.

Materials to avoid: Contact with acetyl chloride or other oxidizing agents may result in a violent reaction.

Hazardous decomposition: Not expected to decompose under normal conditions.

Thermal decomposition: Carbon monoxide is expected to be the primary hazardous combustion product of this product.

Hazardous reactions: Not expected to occur.

SECTION 11. TOXICOLOGICAL INFORMATION

Product summary: The following given information is based on the assessment of the product including impurities.

Acute toxicity and acute oral toxicity: Based on acute toxicity values, not classified.
Short term overexposure May cause drunkenness, depression of the central nervous system and/or death.

LD50: 7,731mg/kg
Species: rat
Method: Acute toxicity estimate

Acute inhalation toxicity: Based on acute toxicity values, not classified.
Short term overexposure may cause irritation of eyes, nose and throat and central nervous system (CNS) effects such as headache, dizziness, drowsiness and an inability to concentrate.

LC50: 125.3 mg/l
Species: Rat

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Method: Acute toxicity estimate

Acute dermal toxicity:

Based on acute toxicity values, not classified.

LD50: > 15,800 mg/kg Species: rabbit

Method: Acute toxicity estimate

Skin corrosion/irritation:

Based on skin irritation values, not classified.

Serious eye damage/eye irritation:

Classified causes serious eye irritation.

Respiratory or skin sensitization:

Respiratory sensitization

Not classified

No study available.

Skin sensitization

Not classified

No adverse effect observed.

Chronic toxicity

| Component Name | NTP | IARC | OSHA |
|----------------|-----|------|---------|
| Ethyl alcohol | | 1 | Present |

Carcinogenicity:

Not classified

Ethanol possesses properties that indicate a carcinogenicity hazard for human health but these are manifest only at doses associated with consumption of alcoholic beverages.

In the context of an industrial chemical, these hazards do not warrant concern as these are not likely to result from the manufacture and use of ethanol and ethanol containing products.

Germ cell mutagenicity:

Not classified

No adverse effect observed.

Reproductive toxicity

Effects on fertility/

Effects on or via lactation:

Not classified.



Ethanol possesses properties that indicate a lactation hazard for human health but these are manifest only at doses associated with consumption of alcoholic beverages.

In the context of an industrial chemical, these hazards do not warrant concern as these are not likely to result from the manufacture and use of ethanol and ethanol containing products.

Effects on development:

Not classified

Ethanol possesses properties that indicate a developmental hazard for human health but these are manifest only at doses associated with consumption of alcoholic beverages.

In the context of an industrial chemical, these hazards do not warrant concern as these are not likely to result from the manufacture and use of ethanol and ethanol containing products.

Target Organ Systemic

Toxicant – Single exposure:

Routes of exposure: Inhalation Target Organs: Respiratory System Classified, May cause respiratory irritation.

Routes of exposure: Inhalation

Target Organs: Central nervous system

Classified, May cause drowsiness or dizziness.

Target Organ Systemic:

Based on repeated exposure toxicity values, not classified.

Toxicant – Repeated exposure:

Repeated exposure to high oral doses may damage the liver.

Aspiration hazard:

Based on physico-chemical values or lack of human evidence, not classified.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicology Assessment

Acute aquatic toxicity:

Based on acute aquatic toxicity values, not classified.

Chronic aquatic toxicity:

Not classified, based on readily biodegradability and low acute toxicity

Toxicity to fish:

Acute toxicity to fish is very low.

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| | |
|--|--|
| Toxicity to daphnia and other Aquatic invertebrates: | Acute toxicity to freshwater and marine invertebrates is very low. |
| Toxicity to algae: | Acute toxicity to aquatic plants very low. |
| Toxicity to bacteria: | Low toxicity to sewage microbes. |
| Toxicity to fish (Chronic toxicity) | No data available. |
| Toxicity to daphnia and other Aquatic invertebrates (Chronic toxicity) | Chronic toxicity expected to be low. |

Persistence and degradability

| | |
|-------------------|--|
| Biodegradability: | 74 % Test substance: Based on Ethanol Rapidly degradable. (After 5 days in a ready biodegradability test) |
|-------------------|--|

Bioaccumulation potential

| | |
|------------------|---|
| Bioaccumulation: | This material is not expected to bioaccumulate. |
|------------------|---|

Mobility in soil

| | |
|--|---|
| Distribution among environmental compartments: | Stability in water, no data available. Stability in soil, no data available. |
|--|---|

| | |
|--|--------------------------------------|
| Additional advice environmental fate and pathways: | No additional information available. |
|--|--------------------------------------|

| | |
|-------------------------------------|-----------------|
| Results of PBT and vPvB assessment: | Not applicable. |
|-------------------------------------|-----------------|

| | |
|---|--------------------------------------|
| Other adverse effects Additional ecological information: | No additional information available. |
|---|--------------------------------------|

SECTION 13. DISPOSAL CONSIDERATIONS

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Further information:

Contaminated products/soil/water may be Resource Conservation and Recovery Act (RCRA) hazardous waste/Occupational Safety and Health Administration (OSHA) hazardous material due to low flash point (see 40 Code of Federal Regulations (CFR) 261 and 29 CFR 1910). Empty containers should be taken to an approved waste handling site for recycling or disposal. Comply with applicable local, state or international regulations concerning solid or hazardous waste disposal and/or container disposal.

SECTION 14. TRANSPORT INFORMATION

DOT

| | |
|----------------------------|--------------------------|
| UN number: | 1170 |
| DOT shipping name: | Ethanol solutions |
| DOT Hazard Classification: | Class 3 Flammable Liquid |
| Packing group: | II |
| Labels: | 3 |

SECTION 15. REGULATORY INFORMATION

SARA 311/312

Based upon available information, this material is classified as the following health and/or physical hazards according to Section 311 & 312.

Fire Hazard.
Immediate (Acute) Health Hazard.

SARA 313

This product contains the following chemicals subject to the reporting requirements of SARA Title III, Section 313 and 40 CFR 372:

| <u>Component</u> | <u>Reporting Threshold</u> |
|------------------|----------------------------|
|------------------|----------------------------|

SECTION 16. OTHER INFORMATION

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Further information

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.