Safety Data Sheet

Verdant (fuel registration no. 695330001)
Date of issue: 9/5/17 Revision Date: 1/6/20
QMS-17310 rev. 3
According to 29 CFR 1910.1200 Hazard Communication

SECTION 1 - Identification of Substance or Mixture and of the Supplier

1.1 Product Identifier

Product Name: Verdant
Common Synonyms: Synthetic diesel

1.2 Other Means of Identification

Synthetic diesel product, ultra-low sulfur (<15 ppm)

1.3 Recommended use of the chemical and restrictions on use

Fuel for use in compression ignition engines, in other combustion applications

1.4 Supplier's Details (including name, address, phone number)

Proton Power, Inc.
487 Sam Rayburn Parkway
Lenoir City, TN 37771
865-376-9002

1.5 Emergency Phone Number

865-312-3859 or 865-603-0578 or 865-376-9002

SECTION 2 - Hazard Identification

2.1 Hazard Classification

May cause respiratory irritation if inhaled
May cause eye or skin irritation
May be harmful or fatal if swallowed
May cause lung damage
Overexposure may cause CNS depression
May cause cancer based on animal data
See toxicological information section for more information
Combustible liquid and vapor
Vapor may cause flash fire
Material may accumulate static charge

2.2 Label Elements

WARNING

Combustible liquid and vapor
Causes skin irritation
Suspected of causing genetic defects
Suspected of causing cancer
May cause respiratory irritation
May cause drowsiness or dizziness
May be fatal if swallowed and enters airway
Harmful to aquatic life

2.3 Other Hazards

Inhalation: Breathing high concentrations may be harmful. May cause central nervous system depression or effects. Symptoms may include headache, excitation, euphoria, dizziness, incoordination, drowsiness, light-headedness, blurred vision, fatigue, tremors, convulsions, loss of consciousness, coma, respiratory arrest and death, depending on the concentration and duration or exposure. Overexposure to this material may cause systemic damage including target organ effects listed under "Toxicological Information."

Ingestion: Swallowing this material may be harmful. May cause irritation of the mouth, throat and gastrointestinal tract. Symptoms may include salivation, pain, nausea, vomiting, and diarrhea. Aspiration into lungs may cause chemical pneumonia and lung damage. Exposure may also cause central nervous system symptoms similar to those listed under "inhalation."

Skin contact: Contact may cause reddening, itching and inflammation. Effects may become more serious with repeated or prolonged contact. Skin contact may cause harmful effects in other parts of the body.

Eye contact: Contact may cause pain and severe reddening and inflammation of the conjunctiva. Effects may become more serious with repeated or prolonged contact.

Carcinogenic evaluation: Carcinogenicity of synthetic diesel is suspected to be similar to that of petroleum diesel. The International Agency for Research on Cancer (IARC) has determined that there is inadequate evidence for the carcinogenicity of petroleum diesel fuel in humans. IARC has determined that there is sufficient evidence for the carcinogenicity in experimental animals of petroleum diesel engine exhaust and extracts of petroleum diesel engine exhaust particles. There is limited

evidence for the carcinogenicity of petroleum diesel exhaust in humans, however IARC has designated petroleum diesel exhaust as a probable carcinogen to humans. EPA has determined that naphthalene is a possible human carcinogen.

SECTION 3 - Composition/Information on Ingredients

3.1 Substance/Mixture

Name	Product Identifier	Percent by wt.
Saturated Hydrocarbons	Mixture	70 – 80
Aromatic Hydrocarbons	Mixture	6 – 25
Unsaturated Hydrocarbons	Mixture	3 - 6
Naphthalene*	91-20-3	0.01 - 8

*naphthalene present in the highest concentration

SECTION 4 – First Aid Measures

4.1 Description of First Aid Measures

Skin Contact: Wash area thoroughly with soap and water. If irritation develops seek medical attention. Place contaminated clothing in closed container until cleaned or discarded. If clothing is to be laundered, inform the person performing the laundering of contaminant's hazardous properties.

Eye Contact: Immediately flush with clean, low-pressure water for at least 15 minutes; seek medical attention

Ingestion: DO NOT induce vomiting. DO NOT give liquids. Seek medical attention. If vomiting occurs lean victim forward to reduce the risk of aspiration. Obtain medical attention if necessary. Never give anything by mouth to an unconscious person.

Inhalation: Move to fresh air, loosen clothing, make comfortable. Monitor for breathing difficulties. Obtain medical attention if necessary. If not breathing call for emergency services immediately, begin CPR.

SECTION 5 – Firefighting Measures

5.1 Extinguishing Media

Small fires: Any extinguisher suitable for Class B fires, dry chemical, CO_2, water spray, fire-fighting foam.

Large fires: Should be attempted only by those who are adequately trained and equipped with proper PPE. Fire fighters should wear self-contained breathing apparatus.

5.2 Special Hazards

Product is considered an OSHA combustible liquid. Avoid using straight water streams. Keep surrounding area cool with water spray from a distance and prevent further ignition of combustible material. Keep run-off water out of sewers and storm water drains.

SECTION 6 – Accidental Release Measures

6.1 Personal Precautions, Protective Equipment and Emergency Procedures

In the event of a release or spill, stop at the source if you can do so safely. Isolate and evacuate the area. Keep the public away. Eliminate all ignition sources. Initiate emergency response notification if necessary.

Recommended minimum personal protective equipment includes gloves, safety glasses, and coveralls. Keep unprotected persons away.

6.2 Environmental Precautions

Avoid release into the environment. Protect bodies of water including streams and stormwater runoff ditches. Do not flush down sewer or drainage systems.

6.3 Methods and Material for Containment and Cleanup

Dike and contain the spill with inert material. Recover and return free product to proper containers. Absorb residual liquid with sand, vermiculite or diatomite. Transfer material to a container for disposal in accordance with local, state and federal regulations.

SECTION 7 – Handling and Storage

7.1 Precautions for Safe Handling

Avoid breathing vapor; avoid contact with skin and eyes.

Use approved organic vapor chemical cartridge or supplied air respirators when vapors exceed permissible limits or excessive vapors are generated.

Wear neoprene, nitrile, polyvinyl alcohol, polyvinyl chloride and polyurethane gloves to prevent skin contact.

7.2 Conditions for Safe Storage

Store in a tightly closed container in a well ventilated area.

Keep away from sources of ignition.

SECTION 8 - Exposure Controls/Personal Protection

8.1 Control Parameters

Naphthalene	NIOSH REL: 10 ppm (50 mg/m^3); ST 15 ppm OSHA PEL: 10 ppm; STEL 15 ppm

8.2 Engineering Controls

Use product in a well ventilated area. Local or general exhaust required when using at elevated temperatures.

Install emergency eye wash station and shower.

8.3 Personal Protective Equipment

Use approved organic vapor chemical cartridge or supplied air respirators when vapors exceed permissible limits or excessive vapors are generated.

Safety glasses or chemical splash goggles

Neoprene, nitrile, polyvinyl alcohol, polyvinyl chloride and polyurethane gloves.

8.3 Other Controls

Maintain good housekeeping to prevent release of material.

SECTION 9 - Physical and Chemical Properties

Form:	Liquid
Color:	Clear to yellowish
Odor:	Burned wood - diesel
Flash point:	>70°C
Density:	0.84 g/ml
Vapor pressure :	0.0009 psia @ 21°C
Viscosity:	2 to 2.3 mm^2/s
Evaporation rate:	Varies with conditions
Vapor density:	>1.0
Boiling point initial:	Approx. 120°C
Boiling point final:	Approx. 355°C

SECTION 10 – Chemical Stability & Reactivity Information

Storage stability:	Stable under recommended storage conditions
Chemical Stability:	Stable under normal conditions May react with strong oxidizing agents
Conditions to Avoid:	High temperatures, open flames, sparks, welding, smoking, and other ignition sources
Incompatible Materials:	Oxidizing agents
Hazardous Decomposition Products:	Carbon monoxide, carbon dioxide, non-combusted hydrocarbons

SECTION 11 – Toxicological Information

11.1 Acute Toxicity

Oral:	Harmful if swallowed
Inhalation:	Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract, headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure and death.
Ingestion:	May cause gastrointestinal disturbances, vomiting, and central nervous system (brain) effects similar to alcohol intoxication. Severe cases may result in tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death.
Skin Corrosion Irritation:	Practically non-toxic if absorbed following acute (single) exposure. May cause skin irritation with prolonged or repeated contact.
Eye Critical Damage:	Contact with eyes may cause mild irritation.
Aspiration Respiratory Organ Hazard:	Major health threat of ingestion occurs from the danger of aspiration of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia, lung damage, respiratory failure, death.
Numerical Measures:	Naphthalene – inhalation LC50 Rat>340 mg/m^3 1 hr; oral LD50 Rat 490 mg/kg; dermal LD50 Rat >2500 mg/kg; dermal LD50 Rabbit >20 g/kg
Carcinogenicity:	Suspected of causing cancer. Studies have shown that similar products produce skin tumors in laboratory animals following repeated exposure. Washing the animal's skin with soap and water between applications reduced tumor formation.
Reproductive Toxicity:	Similar products are not reported to have any reproductive toxicity effects.

WARNING: Burning in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and in adequate oxygen levels, which may cause unconsciousness, suffocation and death.

11.2 Routes of Exposure

Acute Toxicity (irritant)
- Inhalation
- Skin Contact
- Eyes

SECTION 12 – Ecological Information

12.1 General Information

Keep out of sewers, drainage areas and waterways.

Report spills and releases, as applicable under Federal and State regulations.

SECTION 13 – DISPOSAL CONSIDERATIONS

13.1 Waste Disposal Instructions

See Section 7 for safe handling

See Section 6.2; liquid is combustible, material may be burned in a chemical incinerator equipped with an afterburner/thermal oxidizer.

Contact a waste disposal service for proper disposal.

SECTION 14 – Transport Information

14.1 DOT Regulations

UN-Number:	UN1202
NA-Number:	NA1993
UN Proper Shipping Name	Diesel fuel
NA Proper Shipping Name:	Combustible liquid, or Diesel fuel
Hazard Class:	3 or none (combustible liquid)
Packing Group:	PGIII
Maritime transport IMDG:	not a marine pollutant

SECTION 15 – Regulatory Information (non-mandatory)

SARA Section 302 EHS:	none
SARA Sec 311/312:	Acute health, chronic health, fire
SARA Section 313:	Contains one or more listed chemicals
TSCA:	Contains components listed on TSCA inventory
CERCLA:	Naphthalene 100 lb final RQ
RCRA:	Non-hazardous

SECTION 16 – Other Information

NFPA Hazard Rating:	Health	1
	Fire	2
	Reactivity	0
HMIS Hazard Rating:	Health	1 Slight
	Fire	2 Moderate
	Physical	0 Minimal

This SDS summarizes to the best of our knowledge at the date of issue, the health and safety hazards associated with this material and general guidance on how to safely handle the material in the workplace. As additional information becomes available this SDS will be updated.