

SAFETY DATA SHEET

VGRID BIOCHAR

1. PRODUCT AND COMPANY INFORMATION

Product Name: Persist™ Biochar

Other Product Names: VGrid Biochar, VGrid Soil Enhancer, Earth-positive soil enhancer, 100% Pistachio biochar

Recommended use of the Material: For improving soil quality, for improving nutrient and water holding capacity of soils, for preventing nutrient leaching from soils, for increasing plant yields, for retaining water in soils, for promoting microbial growth in soils. Adsorbent. Absorbent.

Supplier's details:

Company: V-Grid Energy Systems Inc.

Contact Person: Rich Chatfield

Address: 513 Calle San Pablo

Camarillo, California 93012

Telephone Number: (805) 482-9040

Internet Web Site: www.persistncp.com.com

Emergency phone number: 911 in case of accidental ingestion

2. COMPOSITION AND INFORMATION ON INGREDIENTS

This product contains the following ingredients:

Name	CAS#	Wt% Percent maximum
Carbon (from carbonizing biomass)	7440-44-0	> 80%
Ash	Not available	< 10%
Water	7732-18-5	< 10%

Persist Biochar is a VGrid Energy Systems carbonaceous material comprised almost exclusively of pure carbon. It is made by gasification of biomass feedstock such as wood and pistachio shells and grinded to the required particle size. Persist Biochar is black in color with particles of a defined distribution.




3. HAZARDS IDENTIFICATION

Inhalation: Product may cause respiratory irritations if allowed to dry and dust is inhaled from the dry product. Because the product may contain some fine powdered material, precautions against inhalation of dust are necessary.

Ingestion: None known.

Eye Contact: Product may cause eye irritations if allowed to dry and dust is airborne from the dry product. Because the product may contain some fine powdered material, precautions to prevent the airborne dust entering the eyes are necessary.

Skin Contact: Allergic reactions may occur in people who are sensitive to organic and mineral dusts or who have sensitive skins. A black powder can be deposited on skin if light contact is made with product.

	Irritant Eye Irritation – Category 2A Specific target organ toxicity following single exposure, category 3
	Flammable Flammable solids, category 1 Combustible dust
	Respiratory sensitization May cause respiratory irritation

Signal word: Danger

Hazard Statements:

Flammable solid, causes serious eye irritation, may cause respiratory irritation.

Precautionary Statements:

If medical advice is needed, have product container or label on hand.

Keep out of reach for children.

Read label before use.

Avoid breathing dust, fumes, spray, vapors, mist. Wash skin thoroughly after handling.

Use in ventilated areas.

Wear proper protective equipment when using the product.




If in eyes, rinse cautiously with water for several minutes.

Remove contact lenses if present and easy to do so.

Classification system:

The classification is according to the latest editions and extended by company literature data.

The classification is in accordance with the latest editions of international substances lists and is supplemented by information from technical literature.

<p>NFPA Hazard Rating (Scale 0 to 4)</p> 	<p>HMIS rating (Scale 0 to 4)</p> <table border="1" data-bbox="592 409 836 609"> <tr> <td>Health</td> <td>1</td> </tr> <tr> <td>Flammability</td> <td>2</td> </tr> <tr> <td>Physical Hazard</td> <td>0</td> </tr> <tr> <td>Personal Protection</td> <td>X</td> </tr> </table>	Health	1	Flammability	2	Physical Hazard	0	Personal Protection	X	<p>WHMIS</p> <p>D2B</p> 	<p>WHMIS</p> <p>B6</p> 
Health	1										
Flammability	2										
Physical Hazard	0										
Personal Protection	X										

4. FIRST AID MEASURES

If poisoning occurs, contact the Poisons Information Centre near you. Obtain first aid and medical attention if irritation of any type occurs. Eye irritation must be treated by flushing eyes with running water for at least 15 minutes. Skin irritation must be treated by washing contaminated area with soap and water. Seek medical advice if inhaled or swallowed.

General: No special measures required.

After inhalation: Supply fresh air; consult doctor in case of complaints.

After skin contact: Clean with water and soap. If skin irritation is experienced, consult a doctor.

After eye contact: Remove contact lenses if worn. Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

After swallowing: Rinse out mouth and then drink plenty of water. Do not induce vomiting. Treat symptomatically

5. FIRE FIGHTING MEASURES

This product may be flammable if allowed to dry. Some organic matter particles may smoulder and emit smoke. Suitable Extinguishing Media: Fire extinguishers: -- Carbon dioxide, dry chemical, foam, water fog, powder. Water may be used to extinguish all components of this media. Specific Hazards: Stand clear of smoke or dusts that are released from smoldering media. This may emit Carbon Monoxide and/or Carbon dioxide gas. Fire-fighting advice: Contact Fire Department. Operate fire extinguishers in accordance with manufacturers' instructions.

For safety reasons unsuitable extinguishing agents identified: none

Special hazards arising from substance or mixture: combustion products may include carbon oxides or other vapors. Thermal decomposition may lead to release of irritating vapors and gases.

Advice to fire fighters:

Use NIOSH approved protective equipment when in fire.

Move product away from fire or keep cool with water, spray as protective measure when feasible. Avoid generating dust and use spark proof equipment. In case of fire with product, avoid inhaling gases, avoid contact with skin and eyes.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Avoid dust – use NIOSH approved respirator where dust occurs.

Environmental precautions: No special measures required.

Protection equipment: Safety glasses or chemical goggles.

Spills cleanup: Pick up mechanically and place in a suitable container - avoid generating dust.

Spilled material may be handled just picking up from the spilled area. Contaminated material may be disposed at an authorized waste management facility. Uncontaminated - low volume spillages may be applied at the recommended application rate to a suitably vegetated land area away from drainage zones or watercourses.

7. HANDLING AND STORAGE

Precautions for Safe Handling: Handle a safe distance from dwellings, pedestrians, traffic, produce, food and livestock. Avoid application during periods of extreme weather such as flooding rain and windy events. Operators must wear Personal Protective Equipment as noted in section 8 of this Material Safety Data Sheet.

Precautions for Safe Storage: For small loads store in cool dry place. Cover bulk loads with a tarpaulin or suitable waterproof cover. Store FIBC bulk bags in a dry area. Avoid exposing bags to prolonged periods in direct sunlight. Do not store bulk loads or FIBC bulk bags adjacent or in drainage zones or watercourses. Store material away from foodstuff. Do not allow livestock access to this material.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Limit values: Does not contain any relevant quantities of materials with critical values that have to be monitored in the workplace.

DNEL: No further information available.

DNEC: No further information available.

General protection: Use in a well ventilated workplace. Avoid generating and contacting dust.

Eye protection: Wear safety glasses.

Respiratory protection: Not necessary in well ventilated area.

Skin protection: Wear protective gloves against mechanical hazards according to NIOSH or EN 388.

Body protection: Not required under normal conditions of use.

National Exposure Standards: May contain Silica. Avoid exposure to non-target areas.

Biological Limit Values: No biological exposure standards set Engineering Controls: Avoid confined and non-ventilated spaces. Adequate ventilation required

Personal Protective Equipment: Always wear approved eye protection and a dust mask when handling this material. Overalls, gloves, and covered footwear are recommended when loading, mixing or applying this product.

9. PHYSICAL AND CHEMICAL PROPERTIES Appearance:

Appearance: black solid and porous particles (powders and granules).

Particle size: +8 to -325 US meshsize

Odor: Odorless.

Solubility data: insoluble in water; insoluble in alcohol
Density: between 0.1 g/cc to 0.5 g/cc
Moisture content < 10%
Order threshold: Not determined.
pH values: >9. (alkaline).
Change in condition:
Melting point/melting range: Not determined.
Boiling point/boiling range: Not determined.
Flash point: Not applicable.
Evaporation rate: Not applicable; does not evaporate.
Flammability (solid, gas): Not determined.
Upper/lower limits: Not applicable.
Danger of explosion: Not explosive by itself.
Upper/lower limits: Not applicable.
Vapor density: Does not apply. Does not evaporate.
Relative density: Not determined
Partition coefficient: Not applicable (insoluble in n-octanol and water).
Auto ignition temperature: Will not auto ignite by itself.
Decomposition temperature: Not determined.
Viscosity: Not applicable - solid.

10. STABILITY AND REACTIVITY

Chemical stability: Stable if used as intended.
Thermal stability: Stable if used as intended.
Hazardous reaction: Possibility of hazardous reaction with strong acids and strong alkali.
Materials to avoid: Strong acids and strong bases.
Hazardous decomposition: No further information available.
Conditions to avoid: None Known. No further information available.
Incompatible materials: Chlorine; Acids; Ozone; Liquid oxygen; highly reactive oxygen
Hazardous decomposition products: None
Hazardous reactions: Avoid exposure to hot oxygen.

TOXICOLOGICAL INFORMATION

Toxicological Data: No toxicological data is available. There are no substances of toxicological significance contained in this product.

ECOLOGICAL INFORMATION

Eco-toxicity: This product is not toxic.
Toxicity: No known toxicity to plants or animals. Environmental fate Inorganic material does not decompose and is not eliminated from environment by means of biological cleaning processes.
Bioaccumulation: Does not bioaccumulate in animal or plants. Mobility in soil: Unknown.

11. DISPOSAL CONSIDERATIONS

Classification: Not a RCRA Hazardous Waste.
Disposal method: Dispose in accordance with federal, state (provincial), local regulations.
Dispose in accordance with international regulations where applicable.

12. TRANSPORT INFORMATION

UN Number: DOT, ADR, ADN, IMDG, IATA: Not Regulated.
UN Proper Shipping Name: DOT, ADR, ADN, IMDG, IATA: Not Regulated.
Transport Hazard Class: DOT, ADR, ADN, IMDG, IATA: Not Regulated.
Packing Group: DOT, ADR, IMDG, IATA: Not Regulated.
Marine pollutant: No.
Proper shipping name: Non-Hazardous for Transport.
Hazard Symbol: None required. Hazard Id Number (HIM): None.

13. REGULATORY INFORMATION

US Federal regulations: As the product contains > 85% carbon, the closest would be to see Carbon (7440-44-0) Listed as United States TASC Inventory. No additional information is available on US state regulations.

14. OTHER INFORMATION

Full text of H-phrases:

Eye irritant: 2B	Serious eye damage / eye irritation Category 2B
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H335	May cause respiratory irritation.

This SDS is an overview at the date of issue about the chemical, physical and biological properties of this product, safety hazards of the material and general guidance on how to safely handle the material in the occupational and natural environment. The product contains > 85% carbon. V-Grid Energy Systems expects the product to be used for intended purposes only. For any other use of the product, other than the intended application, V-Grid Energy Systems cannot be held responsible. However, if the user needs additional information regarding this SDS, he/she may contact V-Grid Energy System for further technical information and how to best prevent, manage and control any potential risks arising from the use of this product.

15. DISCLAIMER

This information contained herein is accurate to the best of our knowledge. We do not suggest or guarantee that any hazards listed herein are the only ones which exist. V-Grid Energy Systems makes no warranty of any kind, expressed or implied, concerning the safe use of this material in your process or combination with any other substances. Effects can be aggravated by other materials and/or this material may aggravate or add to the effects of other materials. This material may be released from gas, liquid or solid materials made directly or indirectly from it. User has the sole responsibility to determine the suitability of the materials for any use and the manner of use contemplated. User must meet all applicable safety and health standards.

16. REFERENCES [S25246.pdf \(fishersci.com\)](#); [GC-SDS-021617.pdf \(generalcarbon.com\)](#)

17. This Safety Data Sheet was generated in March 2021.