

# Corichar

## Almond Shell Biochar

### Materials Safety Data Sheet (MSDS)

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## 1. Product Identification and Description

**Synonyms:** Charcoal, wood charcoal, wood char, almond char

**Description:** Pyrolysis product of vegetable origin mainly composed of carbon (C) with varying proportions of hydrogen (H) and oxygen (O) depending on initial biomass from which it is produced. Other chemical elements include nitrogen (N) and sulfur (S). Ash is also present (generally less than 10% by wt.) with varying proportions of SiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, TiO<sub>2</sub>, Mn<sub>3</sub>O<sub>4</sub>, Fe<sub>2</sub>O<sub>3</sub>, CaO, MgO, Na<sub>2</sub>O, K<sub>2</sub>O, and P<sub>2</sub>O<sub>5</sub>.

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## 2. Composition/Information on Hazardous Ingredients

Ingredient:	Carbon
CAS No:	7440-44-0
Percent:	> 50%
Hazardous:	Yes

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## 3. Hazards Identification

### Emergency Overview

Inflammable solid. Powderous charcoal can be easily ignited and burns vigorously. Containers may explode if exposed to fire. Autoignition temperature of freshly produced

powderous charcoal is low at almost ambient temperature. Autoignition of densified biochar (pellets or briquettes) is higher at about 350°C.

**Conditions to avoid:** Heat, ignition sources (flames, sparks), air, incompatible materials

**Incompatibility materials:** Reactive with oxidizing agents such as fluorine, chlorine trifluoride and potassium peroxide, metals, acids.

**NFPA (National Fire Protection Association) Rating:**

Health: 1; Flammability 2; Instability: 1

**Potential Health Effects:**

May cause eye irritation.

May cause conjunctivitis.

Dust is irritating to the respiratory tract.

May cause lung damage.

May cause skin irritation.

Ingestion of large amounts may cause gastrointestinal irritation

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## 4. First Aid Measures

**EYES:** flush eyes with plenty of lukewarm water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

**SKIN:** flush skin with plenty of soap water while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists. Wash clothing before reuse.

**INGESTION:** If victim is conscious and alert, give 2-4 cupfuls of water or milk. Do not induce vomiting. Get medical aid.

**INHALATION:** Remove from exposure and move to fresh air immediately. Give artificial respiration if needed. If breathing is difficult, give oxygen. Get medical aid.

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## 5. Fire and Explosion Hazard

**WHMIS Classification:** Class B, Division 4, Flammable solids

**Fire:**

Inflammable solid. Powderous charcoal can be easily ignited. It burns vigorously. Containers may explode if exposed to fire. Autoignition temperature of freshly produced powderous charcoal is low at almost ambient temperature. Autoignition of densified biochar (pellets or briquettes) is higher at about 350°C.

For large fires, use water spray, fog or alcohol-resistant foam. For small fires, use dry chemical, carbon dioxide, sand, earth, water spray or regular foam.

Cool containers with flooding quantities of water until well after fire is out. As with most organic solids, fire is possible at elevated temperatures or by contact with an ignition source.

**Explosion:**

Fine dust dispersed in air in sufficient concentrations in the presence of an ignition source (static electricity for instance) is a potential dust explosion hazard.

**Fire Extinguishing Media:**

Water spray, dry chemical, alcohol foam, or carbon dioxide.

*Note: Do not use large solid sprays of water or foam as this can stir up dust clouds and cause flash fires.*

**Hazardous Combustion Product:** Carbon Monoxide

**Special Information:**

In the event of a fire, wear full protective clothing and self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.

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## 6. Accidental Release Measures

Steps to be taken in case material is released or spilled:

Use proper personal protective equipment including NIOSH/MSHA respirator.

**Small Spill:**

Remove all sources of ignition. Sweep up material and put spilled powder in a waste

disposal container. Avoid generating dusty conditions.

**Large Spill:**

Stop leak if without risk. Absorb with an inert material and put the spilled material in an appropriate waste disposal container.

Remove all sources of ignition. Ventilate area of leak or spill. Wear appropriate personal protective equipment. Clean up spills in a manner that does not disperse dust into the air. Use non-sparking tools and equipment. Reduce airborne dust and prevent scattering by moistening with water. Pick up spill for recovery or disposal and place in a closed container. **WARNING** : Spent product may have absorbed hazardous materials.

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## 7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Keep away from moisture and oxidizers and avoid direct air contact. Reseal containers immediately after use. Avoid dust dispersal.

Containers of this material may be hazardous if residues (dust, solids) are left behind. Containers should be cleaned after usage.

Minimize dust generation and accumulation. Use adequate ventilation. Keep away from heat, sparks, and flame. Keep away from sources of ignition. Store in cool dry place. Store in tightly closed container. Keep from contact with oxidizing materials.

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

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## 8. Exposure Controls/Personal Protection

**Ventilation System:**

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because contaminant emissions can be controlled at the source, preventing dispersion into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

**Personal Respirators (NIOSH/MSHA Approved):**

For conditions of use where exposure to the dust or mist is apparent, a half-face dust/mist respirator may be worn. For emergencies or instances where the exposure levels are not known, use a full-face positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

**Skin Protection:**

Wear protective gloves. Wear appropriate protective clothing to minimize contact with skin.

**Eye Protection:**

Use chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

**Work/hygienic practices:**

No smoking, eating or drinking in worksite / storage area.  
Fire resistant or natural fibre long sleeved shirt and long pants.  
Control weeds and loose trash.

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## 9. Physical and Chemical Properties

**Chemical Formula:** biochar is mainly composed of C with varying proportions of H, O, N and S depending on the biomass species from which it is produced by pyrolysis. Ash is also present (generally less than 10% by wt.) with varying proportions of SiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, TiO<sub>2</sub>, Mn<sub>3</sub>O<sub>4</sub>, Fe<sub>2</sub>O<sub>3</sub>, CaO, MgO, Na<sub>2</sub>O, K<sub>2</sub>O, and P<sub>2</sub>O<sub>5</sub>.

**Appearance:** Black powder/granules or pellets/briquettes

**Odor:** Odorless

**Smoke:** Smokeless

**Solubility:** Insoluble in water

**Moisture:** 1-5%

**Volatile matter:** < 40%

**Fixed carbon:** > 50%

## 10. Stability and Reactivity

### **Stability:**

Freshly produced powderous charcoal is unstable at ambient temperature and exhibits a low autoignition temperature, unless product is adequately stabilized. Powderous charcoal should be stored in fire-resistant closed bags or metallic containers isolated from ambient air and hygroscopic moisture.

### **Hazardous Polymerization:**

Will not occur.

### **Incompatibilities:**

Reactive with oxidizing agents such as fluorine, chlorine trifluoride and potassium peroxide, metals, acids.

### **Conditions to Avoid:**

Moisture and incompatibles.

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## 11. Toxicological Information

Way(s) of Exposure:	Eye; Skin; Inhalation; Ingestion
Effects of Acute Exposure:	Coughing or mild breathing difficulties may result.
Inhalation:	May irritate mucous membranes and the respiratory tract.
Skin Contact:	May cause irritation.
Eye Contact:	May cause irritation.
Ingestion:	Not established.
Effects of Chronic Exposure:	Not established.
Exposure limits:	Not Established
Irritancy:	No information available
Sensitizing capability:	No information available
Carcinogenicity:	No information available

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## 12. Ecological Information

LC50:	Not available
LD50:	Not available
Reproductive toxicity:	No information available
Teratogenicity:	No information available
Mutagenicity:	No information available

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## 13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal or country disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

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## 14. Transport Information

UN number: UN1361 (Spontaneously combustible material)

Shipping Name: Carbon, vegetable origin

TDG Classification: Class 4.2, Packing group II

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