

MATERIAL SAFETY DATA SHEET

1 PRODUCT AND COMPANY IDENTIFICATION

Product Name: Carbonized Preforms and Densified Disks

Synonyms: Preforms and Densified Disks

Pyrolytic Carbon

Carbon-Carbon Composite

Super Carb®

Duracarb™ Carbon Disks

EDL®, EDL® 1, EDL® 2 Disks

Molecular Formula: C

Molecular Weight: 12.01 g/mol

Company:

Goodrich Corporation

Aircraft Wheels and Brakes

101 Waco Street

Troy, Ohio 45373

Emergency Telephone:

CHEMTREC –

Domestic: (800) 424-9300

International: +1 703-527-3887

Business Telephone:

(937) 339-3810

Intended Use: Brake material

2 HAZARDS IDENTIFICATION

General Information: Under normal handling, the product is expected to pose low health hazards as the ingredients are firmly embedded in a solid matrix. Dusts generated from sawing, sanding or machining of preforms or disks may pose the health hazards described in this MSDS.

Emergency Overview

Physical State: Non-metallic solid with bristly surface (preforms) or smooth surface (densified disk)

Color: Black to dark gray

Odor: Odorless

CAUTION!

High dust concentrations may cause irritation to the eyes and respiratory tract.

Potential Health Effects

Inhalation: High dust concentrations may cause irritation to the respiratory tract. Prolonged and repeated overexposure to carbon dust may lead to graphite pneumoconiosis. Exposure may include coughing and other systemic effects.

Eye Contact: High dust concentrations may cause irritation to the eyes. Exposure may include irritation, redness and discomfort.

Skin Contact: Dust may cause mechanical irritation. Exposure may include irritation, dermatitis, rash and redness.

Ingestion: Not expected to be a route of entry. If large amount is ingested, may cause irritation to the digestive system.

Chronic Health Effects: Prolonged and repeated exposure to carbon dusts may affect the lungs, resulting in graphite pneumoconiosis.

Target Organ(s): Eye, skin, respiratory system, lung

OSHA Regulatory Status: Hazardous

3 COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS-No.	Weight %
carbon	7440-44-0	> 99%

Components not listed are not hazardous or are below reportable limits.

4 FIRST AID MEASURES

Inhalation: Move to fresh air. Treat symptomatically. Get medical attention if symptoms persist.

Eye Contact: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. If easy to do, remove contact lenses, if worn. Get medical attention if symptoms occur.

Skin Contact: In case of contact, wash with soap and plenty of water for 15 minutes. Get medical attention if symptoms occur.

Ingestion: If swallowed, get medical attention if symptoms occur.

5 FIRE-FIGHTING MEASURES

Extinguishing Media: Extinguish with water spray, carbon dioxide, dry chemical or material appropriate for the surrounding fire.

Unsuitable Extinguishing Media: Not applicable

Special Fire-Fighting Procedures: Wear self-contained breathing apparatus and protective clothing.

Unusual Fire & Explosion Hazards: Carbon dust particles are electrically conductive and can cause shorting of electrical equipment. Explosive shorting of high voltage systems is possible. Particulate dust clouds of this material from machining or sanding can pose a combustible dust explosion hazard.

Hazardous Combustion Products: In the presence of fire or excessive heat, the following combustion products may be released: oxides of carbon.

6 ACCIDENTAL RELEASE MEASURES

Personal Precautions: Wear appropriate personal protective equipment (See Section 8).

Spill Cleanup Methods: Sweep up and remove to an appropriate container for disposal.

7 HANDLING AND STORAGE

Handling: Personal Precautionary Measures: Avoid breathing dust. Avoid contact with dust to the eyes and skin. Use only with adequate ventilation. Wash thoroughly after handling.

Prevention of Fire and Explosion: Keep away from strong oxidizing agents.

Storage: Store in closed container.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limits:

Chemical Name	Source	Type	Exposure Limits	Notes
Graphite (all forms except graphite fibers), respirable fraction	ACGIH	TWA	2 mg/m ³	Pneumoconiosis
Graphite, synthetic, respirable fraction	OSHA	PEL	5 mg/m ³	--
Graphite, synthetic, total dust	OSHA	PEL	15 mg/m ³	--
Graphite, synthetic, respirable fraction	Cal OELs	TWA	5 mg/m ³	--
Graphite, synthetic, total dust	Cal OELs	TWA	10 mg/m ³	--

Engineering Controls: Depending on use, process enclosures, local exhaust ventilation, or other engineering controls may be required to keep airborne contaminants below established exposure limits.

Respiratory Protection: If engineering controls do not keep airborne concentrations below established exposure limits, follow NIOSH guidelines in determining appropriate respirator protection.

Eye Protection: Wear safety glasses with side shields, a face shield or goggles when cutting, grinding or conducting other activities that could generate dust.

Skin Protection: It is good industrial hygiene practice to minimize skin contact.

Hygiene Measures: Always wash hands thoroughly with soap and water after handling material.

9 PHYSICAL AND CHEMICAL PROPERTIES

Color: Black to dark gray

Odor: Odorless

Physical State: Non-metallic solid with bristly surface (performs) or smooth surface (densified disk)

Odor Threshold: No data available

pH: Not applicable

Boiling Point: 4827°C (8720 °F)

Melting Point: 3550°C (6422°F) (material sublimes)

Softening Point: No data available

Flash Point: Not applicable
Evaporation Rate: Not applicable
Flammability Limit – Upper (%): No data available
Flammability Limit – Lower (%): No data available
Vapor Pressure: 1 mmHg at 3586°C (6486 °F)
Vapor Density (Air=1): Not applicable
Specific Gravity: 0.95
Solubility in Water: Insoluble
Partition Coefficient (n-Octanol/water): No data available
Autoignition Temperature: No data available
Decomposition Temperature: No data available
Viscosity: Not applicable

10 STABILITY AND REACTIVITY

Stability: Stable under normal recommended conditions.

Conditions to Avoid: None known

Incompatible Materials: None known

Hazardous Decomposition Products: In the presence of fire or excessive heat the following decomposition products may be released: oxides of carbon.

Hazardous Polymerizations: Will not occur.

11 TOXICOLOGICAL INFORMATION

Product

Acute Toxicity

Chemical Name	Test Results
Carbon	Oral Lethal Dose (rat): > 5000 mg/kg

Listed Carcinogens: None listed.

12 ECOLOGICAL INFORMATION

This product is not expected to cause adverse environmental effects. Avoid cutting, grinding or otherwise creating uncontrolled dust that could become airborne.

13 DISPOSAL CONSIDERATIONS

General Information: Dispose in accordance with applicable federal, state, and local regulations.

Disposal Methods: No specific disposal method recommended.

Container: Empty containers of this material may contain residual liquid, vapors or dust. Precautions previously cited should be observed with such containers. Follow label warnings even after container is emptied.

14 TRANSPORT INFORMATION

DOT: Not regulated

TDG: Not regulated

IATA: Not regulated

IMDG: Not regulated

15 REGULATORY INFORMATION

Canadian Controlled Products Regulations: This product has been classified according to the hazard criteria of the Canadian Controlled Products Regulations, Section 33, and the MSDS contains all required information.

WHMIS Classification: Non-controlled

Inventory Status

This product or all components are listed on the following inventory: TSCA, DSL

US Regulations

CERCLA Hazardous Substance List (40 CFR 302.4): None

Clean Air Act (CAA) Section 112, 1990 Amendments, Statutory Hazardous Air Pollutants: None

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40CFR 68.130): None

Clean Water Act Section 307 Toxic Pollutants (40 CFR 401.15): None

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3): None

SARA Title III

Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A): None

Section 311/312 (40 CFR 370):

Acute (Immediate) Chronic (Delayed) Fire Reactive Pressure Generating

Section 313 Toxic Release Inventory (40 CFR 372): None

State Regulations**California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):** None listed.**Pennsylvania Right-To-Know List:** Graphite**Minnesota Hazardous Substances List:** Graphite (all forms except graphite fibers) dust**New Jersey Right-To-Know List:** None listed.**16 OTHER INFORMATION****Hazard Ratings**

	Health Hazard	Fire Hazard	Reactivity Hazard	Special Hazard
NFPA	1	0	0	--

	Health Hazard	Fire Hazard	Reactivity Hazard
HMIS	1*	0	0

0 – Minimal; 1 – Slight; 2 – Moderate; 3 – Serious; 4 – Severe; * – Chronic

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Disclaimer: This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.