Calcined Coke

Material Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Calcined Coke

MSDS Code: 724120

Synonyms:
BP - Base Premium
Calcined Anode
Calcined Coke - Fines, Lump
CCC Hi-D Calcined Coke, ROK
CCC MD Calcined Coke, ROK
FINES - Coke Fines
HSR - High Sulfur Recarburizer
HISR - Intermediate Sulfur Recarburizer
LIP - Intermediate Premium
LNP - Normal Premium
LSR - Low Sulfur Recarburizer
LXP - X-Coke
MSR - Medium Sulfur Recarburizer
Needle Coke
NSR - Normal sulfur Recarburizer
Refinery Calcined Coke
Rodeo Calcined Petroleum Coke
Rodeo Petroleum Coke - TiO2, Anode, Recarburizer, Graphite
Santa Maria - Calcined Petroleum Coke
Santa Maria - Lump, Fines
SMRC Calcined Coke, Lump, or Fines

Responsible Party:
ConocoPhillips
600 N. Dairy Ashford
Houston, Texas 77079-1175

MSDS Information:
Phone: 800-762-0942
Email: MSDS@conocophillips.com
Internet: http://w3.conocophillips.com/NetMSDS/

Emergency Telephone Numbers:
Chemtrec: 800-424-9300 (24 Hours)
California Poison Control System: 800-356-3219

2. HAZARDS IDENTIFICATION

Emergency Overview

This material is not considered hazardous according to OSHA criteria.

NFPA

Appearance: Steel Gray to black particles and/or lumps , Shot (Spherical appearance)
Physical Form: Solid
Odor: None

Potential Health Effects
Eye: Dusts may be abrasive and irritating to the eyes and cause stinging, watering, and redness.

Skin: Prolonged or repeated contact with dusts may be abrasive and mildly irritating to the skin. No harmful effects from skin absorption are expected.

Inhalation (Breathing): Low degree of toxicity by inhalation.

Ingestion (Swallowing): No harmful effects expected from ingestion.

Signs and Symptoms: Repeated overexposures to dusts may result in irritation of the respiratory tract, pneumoconiosis (dust congested lungs), pneumonitis (lung inflammation), coughing, and shortness of breath.

Pre-Existing Medical Conditions: Conditions aggravated by exposure may include skin disorders, respiratory (asthma-like) disorders.

See Section 11 for additional Toxicity Information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS	Concentration (wt %)
Coke, Calcined	64743-05-1	100

4. FIRST AID MEASURES

Eye: If irritation or redness develops from exposure, flush eyes with clean water. If symptoms persist, seek medical attention.

Skin: First aid is not normally required. However, it is good practice to wash any chemical from the skin.

Inhalation (Breathing): First aid is not normally required. If breathing difficulties develop, move victim away from source of exposure and into fresh air. Seek immediate medical attention.

Ingestion (Swallowing): First aid is not normally required; however, if swallowed and symptoms develop, seek medical attention.

5. FIRE-FIGHTING MEASURES

NFPA 704 Hazard Class

Health: 0 **Flammability:** 1 **Instability:** 0 (0-Minimal, 1-Slight, 2-Moderate, 3-Serious, 4-Severe)

Unusual Fire & Explosion Hazards: This material may burn, but will not ignite readily.

Extinguishing Media: Dry chemical, carbon dioxide, foam, water, sand, or earth is recommended. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces.

Fire Fighting Instructions: For fires beyond the incipient stage, emergency responders in the immediate hazard area should wear bunker gear. When the potential chemical hazard is unknown, in enclosed or confined spaces, or when explicitly required by DOT, a self contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8).

Isolate immediate hazard area, keep unauthorized personnel out. Contain spill if it can be done with minimal risk. Move undamaged containers from immediate hazard area if it can be done with minimal risk. Cool equipment exposed to fire with water, if it can be done with minimal risk.

See Section 9 for Flammable Properties including Flash Point and Flammable (Explosive) Limits

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: This material may burn, but will not ignite readily. Keep all sources of ignition away from spill/release.

Spill precautions: Stay upwind and away from spill. Notify persons down wind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Contain spill if it can be done with minimal risk. Wear appropriate protective equipment, including respiratory protection, as conditions warrant (see Section 8).

Environmental precautions: Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems, and natural waterways.

Methods for cleaning up: Cleanup under expert supervision is advised. Minimize dust generation. Sweep up and package appropriately for disposal.

7. HANDLING AND STORAGE

Handling: The use of appropriate respiratory protection is advised when concentrations exceed any established exposure limits (see Section 8).

Wash thoroughly after handling. Do not wear contaminated clothing or shoes. Use good personal hygiene practices.

Storage: Keep container(s) tightly closed. Use and store this material in cool, dry, well-ventilated areas away from heat and all sources of ignition. Store only in approved containers. Keep away from incompatible material (see section 10). Protect container(s) against physical damage.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Component	ACGIH	OSHA	Other:
Coke, Calcined	TWA: 10 mg/m^3 -Tot. as Nuisance Dust, if Generated	TWA: 15 mg/m^3 -Tot. as Nuisance Dust, if Generated	TWA: 5 mg/m^3 -Resp. Coke Fibers: See Section 8 (Respiratory)

Note: State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

Engineering controls: If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits additional engineering controls may be required.

Personal Protective Equipment (PPE):

Eye/Face: Approved eye protection to safeguard against potential eye contact, irritation, or injury is recommended. Depending on conditions of use, a face shield may be necessary.

Skin: The use of gloves impervious to the specific material handled, such as nitrile, is advised to prevent skin contact and possible irritation (see manufacturers literature for information on permeability).

Respiratory: Small concentrations of airborne respiratory coke fibers may be present in calcined coke. Manufacturers of carbon fibers have recommended exposure limits between 1 and 5 fibers per cc, 8 hour time-weighted average. A NIOSH certified air purifying respirator with a Type 100 particulate filter may be worn when performing maintenance or other activities (e.g. sweeping, loading, grinding) likely to generate dust, unless such exposures have been determined to have low potential for the presence of airborne fibers. When the potential for fibers exposure is known to be low, a NIOSH certified Type 95 particulate filter may be used where airborne concentrations are expected to exceed exposure limits for nuisance dust.

Protection provided by air purifying respirators is limited (see manufacturer's respirator selection guide). Use a NIOSH approved self-contained breathing apparatus (SCBA) or equivalent operated in a pressure demand or other positive pressure mode if there is potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.

Other Protective Equipment: A source of clean water should be available in the work area for flushing eyes and skin. Impervious clothing should be worn as needed.

Suggestions for the use of specific protective materials are based on readily available published data. Users should check with specific manufacturers to confirm the performance of their products.

9. PHYSICAL AND CHEMICAL PROPERTIES

Note: Unless otherwise stated, values are determined at 20°C (68°F) and 760 mm Hg (1 atm).
Data represent typical values and are not intended to be specifications.

Appearance:	Steel Gray to black particles and/or lumps , Shot (Spherical appearance)
Physical Form:	Solid
Odor:	None
Odor Threshold:	No data
pH:	Not applicable
Vapor Density (air=1):	Not applicable
Boiling Point/Range:	No data
Melting/Freezing Point:	No data
Solubility in Water:	0%
Partition Coefficient (n-octanol/water) (Kow):	No data
Specific Gravity:	2 Typical
Bulk Density:	45-55 lb/ft3
Percent Volatile:	Negligible
Evaporation Rate (nBuAc=1):	Not applicable
Particle Size:	2x0 inches
Flash Point:	Not applicable
LEL (vol % in air):	Not applicable
UEL (vol % in air):	Not applicable
Autoignition Temperature:	No data

10. STABILITY AND REACTIVITY

Stability: Stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Conditions to Avoid: None known.

Materials to Avoid (Incompatible Materials): Avoid contact with strong oxidizing agents.

Hazardous Decomposition Products: Combustion can yield carbon dioxide, and possibly carbon monoxide, vanadium and nickel oxides and sulfur dioxide.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Chronic Data:

Coke, Calcined

Carcinogenicity: Lifetime skin painting studies in mice in which petroleum coke was applied as a 25% mineral oil solution were negative.

Target Organs: Repeated exposure of rats to 10 and 30 mg/m^3 petroleum coke dust for two years resulted in signs of lung injury including fibrosis (scarring of lung tissue). Similar exposures in monkeys caused no significant lung effects. Small concentrations of airborne respiratory coke fibers may be present in calcined coke. The fibers are amorphous and generally irregularly shaped, rather than having the crystalline appearance of carbon fibers. Coke fibers have not been studied, but recent laboratory animal studies have shown that carbon fibers are biopersistent in the lung. However, the studies also demonstrated a lower inflammatory response in the lung and less proliferation of the alveolar cells than fibers that are known to cause fibrosis and lung cancer.

12. ECOLOGICAL INFORMATION

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Petroleum coke is a solid material which is composed of carbon and other high molecular weight and water insoluble materials. Some metals are present but usually at very low concentrations. The concentrations of these metals can be quite variable depending upon the source of the coke. Because both green and calcined cokes are relatively inert, they would not be expected to interact with the environment in an adverse manner.

A series of aquatic toxicity tests were conducted for a milled petroleum coke sample using a single WAF loading rate of 1000 mg/L. Toxicity was found to be low in fathead minnows. Daphnia magna, and algae with the NOEL for all three tests exceeding 1000 mg/L, Studies in earthworms also demonstrated low toxicity with the 14-day LC50 estimation from exposure to petroleum coke in an artificial soil substrate reported as greater than 1000 mg/kg dry soil.

In studies on seedling emergence and growth of terrestrial plants, incorporation of petroleum coke in soil resulted in no adverse effects on the three species tested. The nominal test concentration of 1000 mg/kg was determined to be a NOEC for corn, radish, and soybean.

13. DISPOSAL CONSIDERATIONS

The generator of a waste is always responsible for making proper hazardous waste determinations and needs to consider state and local requirements in addition to federal regulations.

This material, if discarded as produced, would not be a federally regulated RCRA "listed" hazardous waste and is not believed to exhibit characteristics of hazardous waste. See Sections 7 and 8 for information on handling, storage and personal protection and Section 9 for physical/chemical properties. It is possible that the material as produced contains constituents which are not required to be listed in the MSDS but could affect the hazardous waste determination. Additionally, use which results in chemical or physical change of this material could subject it to regulation as a hazardous waste.

Container contents should be completely used and containers should be emptied prior to discard.

14. TRANSPORTATION INFORMATION

U.S. Department of Transportation (DOT)
Shipping Description: Not regulated

International Maritime Dangerous Goods (IMDG)
Shipping Description: Not regulated

International Civil Aviation Org. / International Air Transport Assoc. (ICAO/IATA)
Proper Shipping Name: Not regulated

	LTD. QTY	Passenger Aircraft	Cargo Aircraft Only
Packaging Instruction #:	---	---	---
Max. Net Qty. Per Package:	---	---	---

15. REGULATORY INFORMATION

CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs (in pounds):
This material does not contain any chemicals subject to the reporting requirements of SARA 302 and 40 CFR 372.

CERCLA/SARA - Section 311/312 (Title III Hazard Categories)
Acute Health: No
Chronic Health: No
Fire Hazard: No
Pressure Hazard: No

Reactive Hazard: No

CERCLA/SARA - Section 313 and 40 CFR 372:
This material does not contain any chemicals subject to the reporting requirements of SARA 313 and 40 CFR 372.

EPA (CERCLA) Reportable Quantity (in pounds):
EPA's Petroleum Exclusion applies to this material - (CERCLA 101(14)).

California Proposition 65:
Warning: This material may contain detectable quantities of the following chemicals, known to the State of California to cause cancer, birth defects or other reproductive harm, and which may be subject to the requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5):

Component	Type of Toxicity
Nickel / Nickel Compounds	Cancer

Canadian Regulations:
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class
None

National Chemical Inventories:
All components are either listed on the US TSCA Inventory, or are not regulated under TSCA.
All components are listed on the Canadian DSL.

U.S. Export Control Classification Number: EAR99

16. OTHER INFORMATION

Issue Date:	30-May-2007
Status:	Final
Previous Issue Date:	11-Nov-2004
Product Code:	8910, 8911, 8912, 8913, 8921, 8922, 8930, 8932, 8951
Revised Sections or Basis for Revision:	Format change Product Name / Synonyms (Section 1) Periodic review and update
MSDS Code:	724120

MSDS Legend:
ACGIH = American Conference of Governmental Industrial Hygienists; CAS = Chemical Abstracts Service Registry; CEILING = Ceiling Limit (15 minutes); CERCLA = The Comprehensive Environmental Response, Compensation, and Liability Act; EPA = Environmental Protection Agency; IARC = International Agency for Research on Cancer; LEL = Lower Explosive Limit; NE = Not Established; NFPA = National Fire Protection Association; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; PEL = Permissible Exposure Limit (OSHA); SARA = Superfund Amendments and Reauthorization Act; STEL = Short Term Exposure Limit (15 minutes); TLV = Threshold Limit Value (ACGIH); TWA = Time Weighted Average (8 hours); UEL = Upper Explosive Limit; WHMIS = Worker Hazardous Materials Information System (Canada)

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