



# MATERIAL SAFETY DATA SHEET

## 1. Product and Company Identification

**Material name** Petroleum Coke - Anode, Fluid and Fuel Grade  
**Version #** 03  
**Issue date** 03-28-2011  
**Revision date** 11-13-2012  
**Supersedes date** 09-28-2012  
**CAS #** 64741-79-3  
**Product code** 603  
**Product use** Refinery feedstock.  
**Synonym(s)** Thermocracked Petroleum Coke, Petroleum Coke Anode Grade, Petroleum Coke Fluid Grade, and Petroleum Coke Fuel Grade  
See section 16 for complete information.  
**Manufacturer/Supplier** Valero Marketing & Supply Company and Affiliates  
P.O. Box 696000  
San Antonio, TX 78269-6000  
**General Assistance** 210-345-4593  
**Emergency** 24 Hour Emergency 866-565-5220  
1-800-424-9300 (CHEMTREC USA)

## 2. Hazards Identification

**Physical state** Solid, Liquid.  
**Appearance** Granular.  
**Emergency overview** WARNING!  
Causes respiratory tract irritation. May form combustible dust concentrations in air (during processing).  
**OSHA regulatory status** This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).  
**Potential health effects**  
**Routes of exposure** Inhalation.  
**Eyes** Direct contact with eyes may cause temporary irritation.  
**Skin** Prolonged or repeated skin contact may cause drying, cracking, or irritation.  
**Inhalation** Causes respiratory tract irritation.  
**Ingestion** Expected to be a low ingestion hazard.  
**Signs and symptoms** Irritation of nose and throat. Respiratory tract irritation. Persons with pre-existing respiratory tract, skin and lung (such as asthma) disorders may be aggravated by exposure to this product.  
**Potential environmental effects** Not expected to be harmful to aquatic organisms.

## 3. Composition / Information on Ingredients

Components	CAS #	Percent
Coke	64741-79-3	100

## 4. First Aid Measures

**First aid procedures**  
**Eye contact** Any material that contacts the eye should be washed out immediately with water. If easy to do, remove contact lenses. Get medical attention if symptoms persist.  
**Skin contact** Wash with soap and water. Get medical attention if symptoms occur.  
**Inhalation** If symptomatic, move to fresh air. Get medical attention if symptoms persist.  
**Ingestion** Seek medical advice.  
**Notes to physician** In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation.

**General advice** If exposed or concerned: get medical attention/advice. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before re-use.

## 5. Fire Fighting Measures

**Flammable properties** Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

**Extinguishing media**

**Suitable extinguishing media** Water spray. Water fog. Dry chemical powder. Carbon dioxide (CO<sub>2</sub>).

**Unsuitable extinguishing media** Do not use a solid water stream as it may scatter and spread fire.

**Protection of firefighters**

**Specific hazards arising from the chemical** High concentrations of dust may form explosive mixture with air.

**Protective equipment and precautions for firefighters** Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

**Fire fighting equipment/instructions** Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Move containers from fire area if you can do it without risk. In the event of fire, cool tanks with water spray.

**Specific methods** In the event of fire and/or explosion do not breathe fumes.

**Hazardous combustion products** Carbon monoxide. Carbon Dioxide. Nitrogen oxides. Sulfur oxides.

## 6. Accidental Release Measures

**Personal precautions** Keep unnecessary personnel away. Local authorities should be advised if significant spills cannot be contained. Keep upwind. Keep out of low areas. Ventilate closed spaces before entering. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. See Section 8 of the MSDS for Personal Protective Equipment.

**Environmental precautions** If facility or operation has an "oil or hazardous substance contingency plan", activate its procedures. Stay upwind and away from spill. Wear appropriate protective equipment including respiratory protection as conditions warrant. Do not enter or stay in area unless monitoring indicates that it is safe to do so. Isolate hazard area and restrict entry to emergency crew. Combustible dust. Review Firefighting Measures, Section 5, before proceeding with clean up. Keep all sources of ignition (flames, smoking, flares, etc.) and hot surfaces away from release. Contain spill in smallest possible area. Recover as much product as possible (e.g. by vacuuming). Stop leak if it can be done without risk. Spilled material may be absorbed by an appropriate absorbent, and then handled in accordance with environmental regulations. Prevent spilled material from entering sewers, storm drains, other unauthorized treatment or drainage systems and natural waterways. Contact fire authorities and appropriate federal, state and local agencies. If spill of any amount is made into or upon navigable waters, the contiguous zone, or adjoining shorelines, contact the National Response Center at 1-800-424-8802. For highway or railways spills, contact Chemtrec at 1-800-424-9300.

**Methods for containment** Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Dike the spilled material, where this is possible. Prevent entry into waterways, sewers, basements or confined areas.

**Methods for cleaning up** Sweep or scoop up and remove. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Nonsparking tools should be used. Clean surface thoroughly to remove residual contamination. This material and its container must be disposed of as hazardous waste.

Large Spills: Prevent product from entering drains. Do not allow material to contaminate ground water system. Should not be released into the environment.

**Other information** Clean up in accordance with all applicable regulations.

## 7. Handling and Storage

### Handling

Wear personal protective equipment. Do not breathe dust. Avoid contact with eyes, skin, and clothing. Do not taste or swallow. Avoid prolonged exposure. Use only with adequate ventilation. Wash thoroughly after handling. DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. When using, do not eat, drink or smoke. Avoid release to the environment. In the United States of America, refer to NFPA® Pamphlet No. 654, Prevention of Fire and Dust Explosions in the Chemical, Dye, Pharmaceutical, and Plastics Industries."

### Storage

Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres. Refer to NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids, for safe handling. Do not handle or store near an open flame, heat or other sources of ignition. Keep container tightly closed in a cool, well-ventilated place. Keep away from food, drink and animal feedingstuffs. Keep out of the reach of children.

## 8. Exposure Controls / Personal Protection

### Occupational exposure limits

#### ACGIH

Material	Type	Value	Form
Petroleum Coke - Anode, Fluid and Fuel Grade (CAS 64741-79-3)	TWA	3 mg/m3	Respirable particles.
		10 mg/m3	Inhalable particles.

#### U.S. - OSHA

Material	Type	Value	Form
Petroleum Coke - Anode, Fluid and Fuel Grade (CAS 64741-79-3)	TWA	5 mg/m3	Respirable fraction.
		15 mg/m3	Total dust.

#### Canada - Alberta

Material	Type	Value	Form
Petroleum Coke - Anode, Fluid and Fuel Grade (CAS 64741-79-3)	TWA	3 mg/m3	Respirable
		10 mg/m3	Total

#### Canada - British Columbia

Material	Type	Value	Form
Petroleum Coke - Anode, Fluid and Fuel Grade (CAS 64741-79-3)	TWA	3 mg/m3	Respirable fraction.
		10 mg/m3	Total dust.

#### Canada - Ontario

Material	Type	Value	Form
Petroleum Coke - Anode, Fluid and Fuel Grade (CAS 64741-79-3)	TWA	3 mg/m3	Respirable.
		10 mg/m3	Inhalable particulate.

#### Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)

Components	Type	Value	Form
Coke (CAS 64741-79-3)	TWA	3.5 mg/m3	Total dust.
		141 mg/m3	
		25 ppm	

## Canada - Quebec

Material	Type	Value	Form
Petroleum Coke - Anode, Fluid and Fuel Grade (CAS 64741-79-3)	STEL	10 mg/m3	Total dust.

## Canada - Saskatchewan

Material	Type	Value	Form
Petroleum Coke - Anode, Fluid and Fuel Grade (CAS 64741-79-3)	TWA	3 mg/m3	Respirable fraction.
		10 mg/m3	Inhalable fraction.

<b>Engineering controls</b>	Provide adequate general and local exhaust ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. It is recommended that all dust control equipment such as local exhaust ventilation and material transport systems involved in handling of this product contain explosion relief vents or an explosion suppression system or an oxygen deficient environment. Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment). Use only appropriately classified electrical equipment and powered industrial trucks.
<b>Personal protective equipment</b>	
<b>Eye / face protection</b>	Safety glasses.
<b>Skin protection</b>	Wear chemical-resistant, impervious gloves. Full body suit and boots are recommended when handling large volumes or in emergency situations. Flame retardant protective clothing is recommended.
<b>Respiratory protection</b>	Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. If workplace exposure limits for product or components are exceeded, NIOSH approved equipment should be worn. Proper respirator selection should be determined by adequately trained personnel, based on the contaminants, the degree of potential exposure and published respiratory protection factors. This equipment should be available for nonroutine and emergency use.
<b>General hygiene considerations</b>	Consult supervisor for special handling instructions. Do not breathe dust. Keep away from food and drink. Wash hands before breaks and immediately after handling the product. Provide eyewash station and safety shower. Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical & Chemical Properties

<b>Appearance</b>	Granular.
<b>Physical state</b>	Solid, Liquid.
<b>Form</b>	Powder.
<b>Color</b>	Black.
<b>Odor</b>	Faint.
<b>Odor threshold</b>	Not available.
<b>pH</b>	Not available.
<b>Vapor pressure</b>	Not applicable.
<b>Vapor density</b>	Not applicable.
<b>Boiling point</b>	Not applicable.
<b>Melting point/Freezing point</b>	Not available.
<b>Solubility (water)</b>	Insoluble.
<b>Specific gravity</b>	2.1
<b>Flash point</b>	Not available.
<b>Flammability limits in air, upper, % by volume</b>	Not available.
<b>Flammability limits in air, lower, % by volume</b>	Not available.

<b>Auto-ignition temperature</b>	Not available.
<b>Evaporation rate</b>	Not applicable.
<b>Viscosity</b>	Not applicable.
<b>Partition coefficient (n-octanol/water)</b>	No data available.
<b>Other data</b>	
<b>Flammability (solid, gas)</b>	Combustible dust.

## 10. Chemical Stability & Reactivity Information

<b>Chemical stability</b>	Stable under normal temperature conditions and recommended use.
<b>Conditions to avoid</b>	Heat. Ignition sources. Minimize dust generation and accumulation.
<b>Incompatible materials</b>	Strong oxidizing agents.
<b>Hazardous decomposition products</b>	Carbon oxides. Nitrogen oxides. Sulfur oxides. Hydrocarbons.
<b>Possibility of hazardous reactions</b>	Hazardous polymerization does not occur.

## 11. Toxicological Information

<b>Sensitization</b>	This product is not expected to cause skin sensitization.
<b>Acute effects</b>	Causes respiratory tract irritation. Dust may irritate the eyes.
<b>Chronic effects</b>	24 months of exposure in monkeys and rats to either 10.2 or 30.7 mg/m <sup>3</sup> of coke dust resulted in lung accumulation of dust. There was no associated tissue abnormality in monkeys. A low level inflammatory response developed in the rat lung at 10.2 mg/m <sup>3</sup> and more significant inflammatory changes occurred in the rat lung at 30.7 mg/m <sup>3</sup> . There was no evidence of carcinogenicity in either species. Mouse skin painting bioassay negative.
<b>Carcinogenicity</b>	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
<b>Mutagenicity</b>	Ames test: Negative.

## 12. Ecological Information

<b>Ecotoxicity</b>	Not expected to be harmful to aquatic organisms.
<b>Persistence and degradability</b>	No data available.
<b>Bioaccumulation / Accumulation</b>	No data available.
<b>Partition coefficient</b>	No data available.
<b>Mobility in environmental media</b>	No data available.

## 13. Disposal Considerations

<b>Disposal instructions</b>	Dispose in accordance with all applicable regulations. Incinerate the material under controlled conditions in an approved incinerator. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container.
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## 14. Transport Information

<b>DOT</b>	Not regulated as a hazardous material by DOT.
<b>IATA</b>	Not regulated as dangerous goods.
<b>IMDG</b>	Not regulated as dangerous goods.
<b>TDG</b>	Not regulated as dangerous goods.

## 15. Regulatory Information

<b>US federal regulations</b>	This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard 29 CFR 1910.1200 (OSHA) and 8 CCR § 5194 (Cal/OSHA). All components are on the U.S. EPA TSCA Inventory List.
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**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**

Not regulated.

**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

Not regulated.

**CERCLA (Superfund) reportable quantity (lbs) (40 CFR 302.4)**

None

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

**Hazard categories**  
Immediate Hazard - Yes  
Delayed Hazard - No  
Fire Hazard - Yes  
Pressure Hazard - No  
Reactivity Hazard - No

**Section 302 extremely hazardous substance (40 CFR 355, Appendix A)**  
No

**Section 311/312 (40 CFR 370)**  
No

**Drug Enforcement Administration (DEA) (21 CFR 1308.11-15)**  
Not controlled

**WHMIS status**  
Controlled

**WHMIS classification**  
D2B - Other Toxic Effects-TOXIC

**WHMIS labeling**



**Inventory status**

<b>Country(s) or region</b>	<b>Inventory name</b>	<b>On inventory (yes/no)*</b>
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s)

**State regulations**  
This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

**US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance**

Not listed.

**US. Massachusetts RTK - Substance List**

Not regulated.

**US. New Jersey Worker and Community Right-to-Know Act**

Not regulated.

**US. Pennsylvania RTK - Hazardous Substances**

Not regulated.

## 16. Other Information

### Other information

Note: This Material Safety Data Sheet applies to the listed products and synonym descriptions for Hazard Communication purposes only. Technical Specifications vary greatly depending on the products and are not reflected in this document. Consult specification sheets for technical information.

### HMIS® ratings

Health: 2  
Flammability: 1  
Physical hazard: 0

### NFPA ratings

Health: 1  
Flammability: 1  
Instability: 0

### Disclaimer

This Material Safety Data Sheet (MSDS) was prepared in accordance with 29 CFR 1910.1200 by Valero Marketing & Supply Co., ("VALERO"). VALERO does not assume any liability arising out of product use by others. The information, recommendations, and suggestions presented in this MSDS are based upon test results and data believed to be reliable. The end user of the product has the responsibility for evaluating the adequacy of the data under the conditions of use, determining the safety, toxicity and suitability of the product under these conditions, and obtaining additional or clarifying information where uncertainty exists. No guarantee expressed or implied is made as to the effects of such use, the results to be obtained, or the safety and toxicity of the product in any specific application. Furthermore, the information herein is not represented as absolutely complete, since it is not practicable to provide all the scientific and study information in the format of this document, plus additional information may be necessary under exceptional conditions of use, or because of applicable laws or government regulations.