SAFETY DATA SHEET

1. Identification

Product identifier	**CALCINED PETROLEUM COKE**
Other means of identification	
SDS number	1201
SDS Number	1201
Recommended use	Anode manufacture
Recommended restrictions	None known.
Manufacturer/Importer/Supplier/Distributor information	
Company Name	Alcoa Corporation
Address	201 Isabella Street, Pittsburgh
Country	United States
Health and Safety Telephone	1-412-992-5499
Website	www.alcoa.com
E-mail	SDSinfo@alcoa.com
Emergency phone number	CHEMTREC: 1-800-262-8200 (only in United States, English language spoken); +1-703 - 741-5500 - Worldwide - (24 Hour Emergency Telephone, multiple languages spoken)

2. Hazard(s) identification

Physical hazards	Not classified.
Health hazards	Not classified.
Environmental hazards	Not classified.
OSHA defined hazards	Combustible dust
Label elements	
Hazard symbol	None.
Signal word	Warning
Hazard statement	May form combustible dust concentrations in air.
Precautionary statement	
Prevention	Prevent dust accumulation to minimize explosion hazard. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Observe good industrial hygiene practices.
Response	Take off contaminated clothing and wash it before reuse. In case of fire: Use appropriate media to extinguish. Not assigned.
Storage	Store in accordance with local/regional/national/international regulation.
Disposal	Not available.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	Direct contact: Can cause mechanical irritation of the eyes and skin. Dust: Can cause irritation of the upper respiratory tract. Chronic overexposures: Can cause scarring of the lungs (pulmonary fibrosis). Combustion can generate toxic and irritating gases. Can cause irritation of the respiratory tract. Acute overexposure: Can cause the accumulation of fluid in the lungs (pulmonary edema). While not considered "flammable" or "combustible" as defined by regulatory or governmental agencies, the material will burn if ignited. Although a similar material has been tested and found to be non-explosive, the possibility exists that high concentrations of airborne dust generated during processing could present an explosion hazard.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Coke, petroleum, calcined		64743-05-1	90 - 100

Additional compounds which may be formed (during combustion/decomposition) are listed in Section 8.

Composition comments Complete composition is provided below and may include some components classified as non-hazardous.

4. First-aid measures

Inhalation Check for clear airway, breathing, and presence of pulse. Provide cardiopulmonary resuscitation for persons without pulse or respirations. Consult a physician.

Skin contact Get medical attention if irritation develops and persists. Wash with soap and water for at least 15 minutes. Get medical attention if irritation develops or persists.

Eye contact Do not rub eyes. Rinse eyes with plenty of water or saline for at least 15 minutes. Rinse with water. Get medical attention if irritation develops and persists. Consult a physician.

Ingestion If swallowed, dilute by drinking water. Recommend quantities up to 30 mL (~1 oz.) in children and 250 mL (~9 oz.) in adults. Never give anything by mouth to a victim who is unconscious or is having convulsions. Do NOT induce vomiting. Consult a physician.

Most important symptoms/effects, acute and delayed Dusts may irritate the respiratory tract, skin and eyes. Direct contact: Can cause mechanical irritation of the eyes and skin. Dust: Can cause irritation of the upper respiratory tract. Can cause scarring of the lungs (pulmonary fibrosis).

See Section 11 of the SDS for additional information on health hazards. Chronic overexposures: Acute overexposure: Can cause the accumulation of fluid in the lungs (pulmonary edema). Combustion can generate toxic and irritating gases. Can cause irritation of the respiratory tract.

Indication of immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically.

General information Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media Avoid high pressure media which could cause the formation of a potentially explosible dust-air mixture. Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2). Apply extinguishing media carefully to avoid creating airborne dust. Dry chemical, foam, carbon dioxide, water fog.

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire. None known.

Specific hazards arising from the chemical Explosion hazard: 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. Dust accumulation on the floor, ledges and beams can present a risk of ignition, flame propagation and secondary explosions.
During fire, gases hazardous to health may be formed. Although a similar material has been tested and found to be non-explosive, the possibility exists that high concentrations of airborne dust generated during processing could present an explosion hazard.

Special protective equipment and precautions for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Firefighters should wear NIOSH approved, positive pressure, self-contained breathing apparatus and full protective clothing when appropriate.

Fire fighting equipment/instructions In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk. In case of a fire, the best procedure is to determine the location and extent of the heated zones then dig out and remove the coke from those zones. The hot coke should be drenched with water as it is exposed. Because of the possibility of a steam explosion, great care should be used when introducing water into a confined storage area like a silo. Whenever possible, bulk material should be removed from confined storage areas and drenched in an open area.

Avoid dust formation. Dust may form an explosive mixture in the atmosphere. Ventilate closed spaces before entering them.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards While not considered "flammable" or "combustible" as defined by regulatory or governmental agencies, the material will burn if ignited. May form combustible dust concentrations in air. No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Use personal protection recommended in Section 8 of the SDS. Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Use only non-sparking tools. 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. Wear appropriate protective equipment and clothing during clean-up. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. Avoid generating dust. Avoid contact with skin and eyes.

Methods and materials for containment and cleaning up

Avoid generating dust. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Take precautionary measures against static discharge. Use only non-sparking tools. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Use dry cleanup procedures. The product is immiscible with water and will spread on the water surface. Pick up mechanically. Stop the flow of material, if this is without risk.

Large Spills: Wet down with water and dike for later disposal. Shovel the material into waste container. Following product recovery, flush area with water.

Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal.

Never return spills to original containers for re-use. The product is insoluble in water.

Environmental precautions

No special environmental precautions required. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Use personal protection recommended in Section 8 of the SDS. Dust accumulation on the floor, ledges and beams can present a risk of ignition, flame propagation and secondary explosions. Do not use compressed air to remove settled material from floors, beams or equipment.
Minimize dust generation and accumulation. Avoid significant deposits of material, especially on horizontal surfaces, which may become airborne and form combustible dust clouds and may contribute to secondary explosions. 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. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Combustible dust clouds may be created where operations produce fine material (dust). Handling and processing operations should be conducted in accordance with 'best practices' (e.g. NFPA-654). Explosion-proof general and local exhaust ventilation. Avoid breathing dust/fume. Avoid prolonged exposure. Provide adequate ventilation. Avoid generating dust. Use with adequate ventilation.

Conditions for safe storage, including any incompatibilities

Store away from strong oxidizers. Keep material dry. Containerize in drums, tarped dump truck, or bulk container, so that dusting is minimal during storage and transportation.

8. Exposure controls/personal protection

Occupational exposure limits

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

U.S. - OSHA

Components	Type	Value	Form
Coke, petroleum, calcined (CAS 64743-05-1)	TWA	15 mg/m3	(total dust)

Compounds Formed During Processing	Type	Value
Sulfur dioxide (CAS 7446-09-5)	TWA	13 mg/m3
		5 ppm

ACGIH

Components	Type	Value	Form
Coke, petroleum, calcined (CAS 64743-05-1)	TWA	3 mg/m3	(respirable particles)
		10 mg/m3	(inhalable particles)

US. ACGIH Threshold Limit Values (TLV)

Compounds Formed During Processing	Type	Value
Sulfur dioxide (CAS 7446-09-5)	STEL	0.25 ppm

NIOSH. Immediately Dangerous to Life or Health (IDLH) Values, as amended

Compounds Formed During Processing	Type	Value
Sulfur dioxide (CAS 7446-09-5)	IDLH	100 ppm

US. NIOSH: Pocket Guide to Chemical Hazards Recommended Exposure Limits (REL)

Compounds Formed During Processing	Type	Value
Sulfur dioxide (CAS 7446-09-5)	STEL	13 mg/m3
		5 ppm
	TWA	5 mg/m3
		2 ppm

Biological limit values No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls Explosion-proof general and local exhaust ventilation. Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. 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.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields.

Skin protection

Hand protection For prolonged or repeated skin contact use suitable protective gloves. Suitable gloves to be recommended by Safety Professional.
The most suitable glove must be chosen in consultation with the gloves supplier, who can inform about the breakthrough time of the glove material.

Other Wear suitable protective clothing.

Respiratory protection Use NIOSH-approved respiratory protection as specified by an Industrial Hygienist or other qualified professional. If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.

Thermal hazards When material is heated, wear gloves to protect against thermal burns. Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state Solid.

Form Solid. Solid, granular.

Color Gray-black.

Odor Odorless

Odor threshold Not applicable

pH Not applicable

Melting point/freezing point >6332 °F (>3500 °C)

Initial boiling point and boiling range	Not applicable
Flash point	Not applicable
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Explosive limit - lower (%)	Not applicable
Explosive limit - upper (%)	Not applicable
Vapor pressure	Not applicable
Vapor density	Not applicable
Relative density	Not determined
Solubility(ies)	
Solubility (water)	Insoluble
Partition coefficient (n-octanol/water)	Not applicable. Not applicable
Auto-ignition temperature	Not applicable
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Density	> 1.60 - < 2.25 g/cm3
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Stable under normal conditions of use, storage, and transportation.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Keep away from heat, sparks and open flame. Heat, flames and sparks. Contact with incompatible materials. Minimize dust generation and accumulation.
Incompatible materials	Strong oxidizers (chlorine, perchlorates, permanganates, peroxides, nitric acid, chromates, etc.).
Hazardous decomposition products	Carbon monoxide, carbon dioxide, sulfur dioxide and oxides of nitrogen.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Prolonged inhalation may be harmful. Combustion can generate toxic and irritating gases. Dust: Can cause irritation of the upper respiratory tract. Chronic overexposures: Can cause scarring of the lungs (pulmonary fibrosis). Can cause irritation of the respiratory tract. Acute overexposure: Can cause the accumulation of fluid in the lungs (pulmonary edema).
Skin contact	Direct contact: Can cause mechanical irritation.
Eye contact	Direct contact: Can cause mechanical irritation.
Ingestion	Can cause mild irritation.
Symptoms related to the physical, chemical and toxicological characteristics	Dusts may irritate the respiratory tract, skin and eyes. Can cause irritation of the respiratory tract. Can cause irritation of the eyes, skin and upper respiratory tract. Chronic overexposures: Can cause scarring of the lungs (pulmonary fibrosis). Combustion can generate toxic and irritating gases. Acute overexposure: Can cause the accumulation of fluid in the lungs (pulmonary edema).

Information on toxicological effects

Acute toxicity	Based on available data, the classification criteria are not met.

Product	Species	Test Results
CALCINED PETROLEUM COKE		
Acute		
Dermal		
LD50	Rabbit	40000 mg/kg

Skin corrosion/irritation Based on available data, the classification criteria are not met.

Serious eye damage/eye irritation Based on available data, the classification criteria are not met.

Respiratory or skin sensitization

Respiratory sensitization Based on available data, the classification criteria are not met.

Skin sensitization Based on available data, the classification criteria are not met.

Germ cell mutagenicity Based on available data, the classification criteria are not met.

Carcinogenicity Based on available data, the classification criteria are not met.

IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

Reproductive toxicity Based on available data, the classification criteria are not met.

Specific target organ toxicity - single exposure Based on available data, the classification criteria are not met.

Specific target organ toxicity - repeated exposure Based on available data, the classification criteria are not met.

Aspiration hazard Based on available data, the classification criteria are not met.

Chronic effects Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity Not expected to be harmful to aquatic organisms.

Persistence and degradability The product is not expected to be biodegradable.

Bioaccumulative potential The product is not bioaccumulating.

Mobility in soil Not considered mobile.

Mobility in general Not considered mobile.

Other adverse effects None known.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations. Reuse or recycle material whenever possible. If reuse or recycling is not possible, disposal must be made according to local or governmental regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code RCRA Status: Not federally regulated in the U.S. if disposed of "as is."
RCRA waste codes other than described here may apply depending on use of the product. Status must be determined at the point of waste generation. Refer to 40 CFR 261 or state equivalent in the U.S.

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions). If reuse or recycling is not possible, disposal must be made according to local or governmental regulations.

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal. Not applicable.

14. Transport information

General Shipping Information

Basic Shipping Information

ID number -

Proper shipping name	Not regulated
Hazard class	-
Packing group	-

General Shipping Notes

• US HTS (Harmonized Tariff Schedule) code: 2713.12.0000
• Standard Transportation Commodity Code: 29-913-15.

DOT Specific Notes

• "Coke, hot" is forbidden for shipment. However, when cooled, the material is stabilized and this prohibition does not apply per 49 CFR 172.101(d)(1).

#1

Basic Shipping Information

ID number	-
Proper shipping name	Petroleum coke, calcined
Hazard class	-
Packing group	-

Notes for Alternate DOT Description

• In the U.S. per CFR 46 Part 148.10, "Petroleum coke, calcined" at a temperature of 131°F or more, but not more than 225°F, which has a hazard class of PDM is permitted as bulk cargo on board vessels when in compliance with Part 148.
• In the U.S. per CFR 46 Part 148.295(a) this product is not regulated for bulk transport by vessel or barge due to heat when at a temperature less than 131°F. Per part 148.295(b) shipment is forbidden by vessel or barge when material temperature exceeds 225°F.

IMDG

Basic Shipping Information

UN number	-
Proper shipping name	Petroleum coke, calcined
Hazard class	-
Packing group	-
Environmental hazards:	
Special precautions	Read safety instructions, SDS and emergency procedures before handling. Read safety instructions, SDS and emergency procedures before handling.

IMDG Notes

• “Petroleum coke, calcined” is a "Group B" MHB (Materials Hazardous only in Bulk) when at a temperature of 131°F or more, but not more than 225°F, and loaded loose into the cargo space of a vessel or barge without intermediate packaging per the International Maritime Solid Bulk Cargoes (IMSBC) Code.
• Per the IMBSC code this product is not regulated for bulk transport by vessel or barge due to heat when at a temperature less than 131°F. Also shipment is forbidden by vessel or barge when material temperature exceeds 225°F.

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. Additional information is given in the Safety Data Sheet. In reference to Title VI of the Clean Air Act of 1990, this material does not contain nor was it manufactured using ozone-depleting chemicals.

Toxic Substances Control Act (TSCA) One or more components of the mixture are not on the TSCA 8(b) inventory or are designated “inactive”.

TSCA Section 8(b) (40 CFR 711)

Chemical name	CAS number	Status
Coke (petroleum), calcined	64743-05-1	Active

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

Classified hazard categories Combustible dust

SARA 313 (TRI reporting)
Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

California Proposition 65
California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. For more information go to www.P65Warnings.ca.gov.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Industrial Chemicals (AICIS)	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	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 11-16-2015

Revision date 11-20-2024

Version # 10

Further information Refer to:
OSHA 3371-08 2009, Hazard Communication Guidance for Combustible Dusts
NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids

List of abbreviations AICIS: Australian Inventory of Industrial Chemicals.

Disclaimer Alcoa Corporation cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.

Revision information This document has undergone significant changes and should be reviewed in its entirety.