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SAFETY DATA SHEET

SECTION 1

PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: FLEXICOKE

Product Description: Petroleum Coke

Product Code: 708888-00 **Intended Use:** Refinery chemical

COMPANY IDENTIFICATION

Supplier: EXXONMOBIL OIL CORPORATION

22777 Springwoods Village Parkway

Spring, TX 77389 USA

24 Hour Health Emergency 609-737-4411

Transportation Emergency Phone 800-424-9300 or 703-527-3887 CHEMTREC

Product Technical Information 800-662-4525

MSDS Internet Address www.exxon.com, www.mobil.com

SECTION 2

HAZARDS IDENTIFICATION

This material is hazardous according to regulatory guidelines (see (M)SDS Section 15).

CLASSIFICATION:

Skin Sensitizer: Category 1. Carcinogen: Category 1A. Reproductive toxicant (developmental): Category 2. Combustible Dust

LABEL: Pictogram:



Signal Word: Danger

Hazard Statements:

H317: May cause allergic skin reaction. H350: May cause cancer. H361: Suspected of damaging the unborn child.

May form combustible dust concentrations in air.

Precautionary Statements:

P201: Obtain special instructions before use. P202: Do not handle until all safety precautions have been read and understood. P261: Avoid breathing dust. P272: Contaminated work clothing should not be allowed out of the workplace. P280: Wear protective gloves and clothing.P302 + P352: IF ON SKIN: Wash with plenty of soap and water. P308 + P313: IF exposed or concerned: Get medical advice/ attention. P333 + P313: If skin irritation or



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rash occurs: Get medical advice/attention. P362 + P364: Take off contaminated clothing and wash it before reuse.P405: Store locked up.P501: Dispose of contents and container in accordance with local regulations.

Contains: NICKEL OXIDE; VANADIUM PENTOXIDE

Other hazard information:

HAZARD NOT OTHERWISE CLASSIFIED (HNOC): None as defined under 29 CFR 1910.1200.

PHYSICAL / CHEMICAL HAZARDS

WARNING: May form combustible dust concentrations in air (during processing/handling). Material can accumulate static charges which may cause an ignition.

HEALTH HAZARDS

If dust is generated, it could scratch the eyes and cause minor irritation to the respiratory tract. Excessive exposure may result in eye, skin, or respiratory irritation.

ENVIRONMENTAL HAZARDS

No significant hazards.

NFPA Hazard ID: Health: 2 Flammability: 0 Reactivity: 0 HMIS Hazard ID: Health: 2* Flammability: 0 Reactivity: 0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a mixture.

Hazardous Substance(s) or Complex Substance(s) required for disclosure

Name	CAS#		GHS Hazard Codes	
		Concentration*		
NICKEL OXIDE	1313-99-1	0.1 - < 1%	H317, H350(1A), H372, H413	
THERMOCRACKED COKE	64741-79-3	> 95 %	None	
VANADIUM PENTOXIDE	1314-62-1	0.1 - < 1%	H302, H332, H335, H341, H361(D), H318, H372, H401, H411	

^{*} All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

As per paragraph (i) of 29 CFR 1910.1200, formulation is considered a trade secret and specific chemical identity and exact percentage (concentration) of composition may have been withheld. Specific chemical identity and exact percentage composition will be provided to health professionals, employees, or designated representatives in accordance with applicable provisions of paragraph (i).

SECTION 4	FIRST AID MEASURES



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INHALATION

Immediately remove from further exposure. Get immediate medical assistance. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. Give supplemental oxygen, if available. If breathing has stopped, assist ventilation with a mechanical device.

SKIN CONTACT

Wash contact areas with soap and water. Remove contaminated clothing. Launder contaminated clothing before reuse.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

Seek immediate medical attention.

SECTION 5

FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Inappropriate Extinguishing Media: Straight Streams of Water

FIRE FIGHTING

Fire Fighting Instructions: Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Unusual Fire Hazards: Explosion: Avoid generating dust; fine dust dispersed in air in sufficient concentration and in the presence of an ignition source is a potential dust explosion hazard.

Hazardous Combustion Products: Incomplete combustion products, Metal Oxides, Nitrogen oxides, Oxides of carbon, Smoke, Fume, Sulfur oxides

FLAMMABILITY PROPERTIES

Flash Point [Method]: N/A

Flammable Limits (Approximate volume % in air): LEL: N/A UEL: N/A

Autoignition Temperature: N/D

SECTION 6

ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

PROTECTIVE MEASURES

Avoid contact with spilled material. Dust Deposits should not be allowed to accumulate on surfaces, as these



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may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Avoid dispersal of dust in the air (for example, clearing dust surfaces with compressed air). Prevent dust exposure to ignition sources. For example, use non-sparking tools and prohibit smoking, flares, sparks or flames in immediate area. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: half-face or full-face respirator with particulate filter(s) or a filtered air supply powered respirator can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, Self Contained Breathing Apparatus (SCBA) is recommended. Work gloves that are resistant to hydrocarbons are recommended. Gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended. Chemical goggles are recommended if dust is present and contact with eyes is possible.

SPILL MANAGEMENT

Land Spill: Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do it without risk. Do not touch or walk through spilled material. Use clean non-sparking tools to collect material and place it into loosely covered plastic containers for later disposal. Prevent dust cloud. Ventilate the area. Vacuum material into a recovery container.

Water Spill: Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Skim from surface. Eliminate sources of ignition. Seek advice of a specialist

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Prevent entry into waterways, sewers, basements or confined areas. For Large Spills: Cover spill with plastic sheet or tarpaulin to minimize spreading.

SECTION 7

HANDLING AND STORAGE

HANDLING

Minimize dust generation and accumulation. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Dust from material can accumulate electrostatic charges due to friction from transfer and mixing operations and cause an electrical spark (ignition source). Provide adequate precautions to ignition sources, such as electrical grounding and bonding, inert atmosphere or non-sparking tools. However, bonding and grounds may not eliminate the hazard for static accumulation. Consult local applicable standards for guidance. Refer to NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids and EN 61241, Electrical Apparatus for Use in the Presence of Combustible Dust for safe handling. Avoid all personal contact. Prevent small spills and leakage to avoid slip hazard. Prevent exposure to ignition sources, for example use non-sparking tools and explosion-proof equipment.

Static Accumulator: This material is a static accumulator.



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STORAGE

The type of container used to store the material may affect static accumulation and dissipation. Store away from combustible or flammable materials. Store in a cool, dry place with adequate ventilation. Keep away from incompatible materials, open flames, and high temperatures.

SECTION 8

EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMIT VALUES

Exposure limits/standards (Note: Exposure limits are not additive)

Substance Name	Form	Limit / Sta	ndard	NOTE	Source
THERMOCRACKED COKE [as V2O5]		TWA	0.05	N/A	ExxonMobil
			mg/m3		
THERMOCRACKED COKE	Respirable	TWA	3 mg/m3	N/A	ExxonMobil
	fraction.				
VANADIUM PENTOXIDE [as V2O5]	Fume.	Ceiling	0.1 mg/m3	N/A	OSHA Z1
VANADIUM PENTOXIDE [as V2O5]	Respirable	Ceiling	0.5 mg/m3	N/A	OSHA Z1
	dust.				
VANADIUM PENTOXIDE [as V]	Inhalable	TWA	0.05	N/A	ACGIH
	fraction.		mg/m3		

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

No biological limits allocated.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

Ventilate as needed to control airborne dust. Use explosion proof ventilation equipment if airborne dust levels are high. It is recommended that all dust control equipment such as local exhaust ventilation and material transport systems involved in handling of this product are designed and maintained to minimize dust generation and accumulation. Ensure that dust-handling systems (such as exhaust ducts, dusts collectors, vessels, and processing equipment) are designed to minimize the potential for dust ignition and prevent explosion propagation. For example, use explosion relief vents, an explosion suppression system or inert equipment internals. Additional examples of proper equipment include using only appropriately classified electrical equipment and powered industrial trucks.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of



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respirators to be considered for this material include:

Particulate air-purifying respirator approved for dust / oil mist is recommended.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

Chemical resistant gloves are recommended.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

Chemical/oil resistant clothing is recommended.

Specific Hygiene Measures: 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. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9

PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications.

GENERAL INFORMATION

Physical State: Solid

Color: Black
Odor: Odorless
Odor Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 °C): 0.85 - 0.95

Flammability (Solid, Gas): N/A Flash Point [Method]: N/A

Flammable Limits (Approximate volume % in air): LEL: N/A UEL: N/A

Autoignition Temperature: N/D **Boiling Point / Range:** N/D **Decomposition Temperature:** N/D **Vapor Density (Air = 1):** N/D

Vapor Pressure: N/D



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Evaporation Rate (n-butyl acetate = 1): N/D

pH: N/A

Log Pow (n-Octanol/Water Partition Coefficient): N/D

Solubility in Water: Negligible

Viscosity: N/A

Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D Melting Point: N/D

SECTION 10 STABILITY AND REACTIVITY

REACTIVITY: See sub-sections below.

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Ignition source. High dust concentrations.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

Hazard Class	Conclusion / Remarks	
Inhalation		
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.	
Irritation: No end point data for material.	Negligible hazard at ambient/normal handling temperatures.	
Ingestion		
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.	
Skin		
Acute Toxicity: No end point data for	Minimally Toxic. Based on assessment of the components.	
material.		
Skin Corrosion/Irritation: No end point data	Negligible irritation to skin at ambient temperatures. Based on	
for material.	assessment of the components.	
Eye		
Serious Eye Damage/Irritation: No end point	May cause mild, short-lasting discomfort to eyes. Based on	
data for material.	assessment of the components.	
Sensitization		
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.	
Skin Sensitization: No end point data for	Contains a substance that may cause skin sensitization. Based on	
material.	assessment of the components.	
Aspiration: No end point data for material.	Not expected to be an aspiration hazard. Based on physico-	
	chemical properties of the material.	



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Germ Cell Mutagenicity: No end point data Not expected to be a germ cell mutagen. Based on assessment of for material. the components. Carcinogenicity: No end point data for Caused cancer from prolonged, high exposure. Based on human material. epidemiology studies. Based on assessment of the components. Reproductive Toxicity: No end point data Contains a substance that may be a reproductive toxicant. Based on assessment of the components. for material. Lactation: No end point data for material. Not expected to cause harm to breast-fed children. Specific Target Organ Toxicity (STOT) Single Exposure: No end point data for Not expected to cause organ damage from a single exposure. material. Repeated Exposure: No end point data for Not expected to cause organ damage from prolonged or repeated material. exposure. Based on assessment of the components.

TOXICITY FOR SUBSTANCES

NAME	ACUTE TOXICITY
VANADIUM PENTOXIDE	Inhalation Lethality: LC50 4.73 ppm (Rat); Oral Lethality: LD50
	0.01 g/kg (Rat)

OTHER INFORMATION

For the product itself:

Dust may be irritating to eyes and respiratory tract.

Contains:

Flexicoke dust: Petroleum coke did not cause cancer in inhalation and dermal animal tests. However, this material may cause lung effects and damage, and possibly lung/nasal cancers due to high levels of nickel and vanadium. May cause allergic reactions due to nickel and/or other components.

NICKEL COMPOUNDS: Nickel causes sensitization by skin contact. Studies indicate that some forms of nickel are carcinogenic to humans.

The following ingredients are cited on the lists below:

Chemical Name	CAS Number	List Citations
NICKEL OXIDE	1313-99-1	1, 3
VANADIUM PENTOXIDE	1314-62-1	5

-- REGULATORY LISTS SEARCHED--

1 = NTP CARC 3 = IARC 1 5 = IARC 2B 2 = NTP SUS 4 = IARC 2A 6 = OSHA CARC

SECTION 12	ECOLOGICAL INFORMATION

The information given is based on data for the material, components of the material, or for similar materials, through the application of bridging principals.

ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

Material -- Not expected to demonstrate chronic toxicity to aquatic organisms.



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MOBILITY

Material -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Material -- Expected to be persistent.

BIOACCUMULATION POTENTIAL

Material -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

SECTION 13

DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

If Regulated, dispose of waste in a secure hazardous waste landfill. If not regulated, dispose of as normal refuse.

REGULATORY DISPOSAL INFORMATION

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrositivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14

TRANSPORT INFORMATION

LAND (DOT): Not Regulated for Land Transport

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

Marine Pollutant: No

AIR (IATA): Not Regulated for Air Transport

SECTION 15

REGULATORY INFORMATION



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OSHA HAZARD COMMUNICATION STANDARD: This material is considered hazardous in accordance with OSHA

HazCom 2012, 29 CFR 1910.1200.

Listed or exempt from listing/notification on the following chemical inventories: AllC, DSL, IECSC, KECI,

PICCS, TSCA

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302

CERCLA: This material is not subject to any special reporting under the requirements of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). Contact local authorities to determine if other reporting requirements apply.

SARA (311/312) REPORTABLE GHS HAZARD CLASSES: Carcinogenicity, Reproductive toxicity, Respiratory or Skin Sensitization, Combustible Dust

SARA (313) TOXIC RELEASE INVENTORY:

Chemical Name	CAS Number	Typical Value
NICKEL OXIDE	1313-99-1	0.1 - < 1%

The following ingredients are cited on the lists below:

Chemical Name	CAS Number	List Citations
NICKEL OXIDE	1313-99-1	2, 10, 15, 16, 17, 18, 19
SULFUR	7704-34-9	18
VANADIUM PENTOXIDE	1314-62-1	1, 4, 10, 17, 19

-- REGULATORY LISTS SEARCHED--

1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 REPRO	16 = MN RTK
2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK
3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA Z	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

Code key: CARC=Carcinogen; REPRO=Reproductive

SECTION 16 OTHER INFORMATION



WARNING: Cancer - www.P65Warnings.ca.gov.

This warning is given to comply with California Health and Safety Code 25249.6 and does not constitute an admission or a waiver of rights.

N/D = Not determined, N/A = Not applicable

KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):

H302: Harmful if swallowed; Acute Tox Oral, Cat 4



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H317: May cause allergic skin reaction; Skin Sensitization, Cat 1

H332: Harmful if inhaled; Acute Tox Inh, Cat 4

H335: May cause respiratory irritation; Target Organ Single, Resp Irr

H341: Suspected of causing genetic defects; Germ Cell Mutagenicity, Cat 2

H350(1A): May cause cancer; Carcinogenicity, Cat 1A

H361(D): Suspected of damaging the unborn child; Repro Tox, Cat 2 (Develop)

H372: Causes damage to organs through prolonged or repeated exposure; Target Organ, Repeated, Cat 1

H401: Toxic to aquatic life; Acute Env Tox, Cat 2

H411: Toxic to aquatic life with long lasting effects; Chronic Env Tox, Cat 2

H413: May cause long lasting harmful effects to aquatic life; Chronic Env Tox, Cat 4

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:

Composition: Component Table information was modified.

GHS Health Symbol information was modified.

Section 08: Exposure Limits Table information was modified.

Section 10: Conditions to Avoid information was modified.

Section 11 Substance Toxicology table information was modified.

Section 15: National Chemical Inventory Listing information was modified.

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