



United States Steel Corporation

CLEAN COKE OVEN GAS

Safety Data Sheet (SDS)

USS IHS Number: IHS 82493

(Replaces USS Code Number IHS: 33, 24838, 52321, COK-0020)

Locations: Gary Works, Granite City Works, Mon Valley Works, U. S. Steel Kosice

Original: 12/16/2010

Revision: 7/17/2026

Section 1 – Identification

1(a) Product Identifier used on Label: Clean Coke Oven Gas

1(b) Other Means of Identification: Coke Oven Gas (COG), Sweet Coke Oven Gas

1(c) Recommended use of the chemical and restrictions on use: Fuel gas delivered through piping; Not available in pressurized cylinders.

1(d) Name, Address, and Telephone Number:

United States Steel Corporation

Phone number: (412) 433-6840 (8:00 am to 5:00 pm)

600 Grant Street

E-Mail: SDSHelp@USS.com

Pittsburgh, PA 15219-2800

1(e) Emergency Phone Number: 1-800-262-8200 (CHEMTREC)

Section 2 – Hazard(s) Identification

2(a) Classification of the chemical in accordance with the 2024 updated OSHA Hazard Communication Standard (29 CFR 1910.1200):

- As supplied, **Clean Coke Oven Gas** is considered hazardous according to 29 CFR 1910.1200. For potential hazards associated with **Clean Coke Oven Gas as shipped/supplied, Refer to section 2(b)(i).**
- Under reasonably anticipated conditions of use and/or change in physical form, **Clean Coke Oven Gas** is considered hazardous according to 29 CFR 1910.1200. For potential hazards associated with **a change in the physical form of Clean Coke Oven Gas, Refer to section 2(b)(ii)**

2(b)(i) Hazard Classification, Signal Word, Hazard Statement(s), Symbols and Precautionary Statement(s) for Material as Supplied:

Hazard Symbol	Hazard Classification	Signal Word	Hazard Statement(s)
	Flammable Gases – 1	DANGER	Extremely flammable gas. Harmful if inhaled. May displace oxygen and cause rapid suffocation. May cause genetic defects. May cause cancer. May damage fertility or the unborn child. Causes damage to the heart through prolonged or repeated exposures. Causes damage to blood forming tissues and central nervous system through prolonged or repeated exposure. May cause drowsiness or dizziness.
	Specific Target Organ Toxicity (STOT) Single Exposure - Narcotic effects – 2		
	Germ Cell Mutagenicity - 1B Reproductive Toxicity - 1A Specific Target Organ Toxicity (STOT) Repeated Exposure – 1 Carcinogenicity - 1A		
None	Simple Asphyxiant - Single Category		

Precautionary Statement(s):

Prevention	Response	Storage/Disposal
Obtain, read and follow all safety instructions before use. Keep away from heat/sparks/open flames/hot surfaces. No smoking. Do not breathe gas. Wear protective gloves / protective clothing / eye protection / face protection. Use only outdoors or in a well-ventilated area.	Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so If inhaled or swallowed: Get emergency medical help immediately Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water several minutes. Remove contact lenses if present and easy to do. Continue rinsing.	Dispose of contents in accordance with federal, state and local regulations. Store locked up.

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Section 2 – Hazard(s) Identification (continued)

2(b)(i) Hazard Classification, Signal Word, Hazard Statement(s), Symbols and Precautionary Statement(s) for Material as Supplied (continued):
Precautionary Statement(s) (continued):

Prevention	Response	Storage/Disposal
Do not allow contact with air. Wash hands thoroughly after handling Do not eat, drink or smoke while handling this product.	If on skin wash with plenty of water. Take off all contaminated clothing; wash before reuse If exposed, concerned or feel unwell get medical advice.	

2(b)(ii) Hazard Classification, Signal Word, Hazard Statement(s), Symbols and Precautionary Statement(s) for hazards associated with a change in Clean Coke Oven Gas physical form due to reasonably anticipated downstream uses: Same hazard information as above in 2(b)(i).

2(c) Hazards Created by Chemical Reaction: Contact with atmospheric oxygen can create hazardous by-products and conditions resulting in fire, explosion or rapid oxygen displacement.

2(d) Hazards not Otherwise Classified: None Known

2(e) Unknown Acute Toxicity Statement (Mixture): Not applicable.

Section 3 – Composition/Information on Ingredients

3(a-c) Chemical Name, Common Name (Synonyms), CAS Number and Other Identifiers, and Concentration:

Chemical Name	CAS Number	% Volume
Hydrogen	1333-74-0	42-65
Methane	74-82-8	17-34
Nitrogen	7727-37-9	1.2-18
Carbon Monoxide	630-08-0	4.6-7.5
Carbon Dioxide	124-38-9	0.2-3.5
Ethane	74-84-0	0.1 – 2.9
Oxygen	7782-44-7	0-2.6
Ethylene	74-85-1	0.1 – 2.5
Benzene	71-43-2	0 – 0.4

CAS- Chemical Abstract Service

3(d) Impurities and other constituents below the call out that may contribute to the classification of the substance: None Known

Section 4 – First-aid Measures

4(a) Description of Necessary Measures: If exposed concerned or feel unwell: Get medical advice/attention.

- **Inhalation:** If inhaled: Remove person to fresh air and keep comfortable for breathing. Get emergency medical help.
- **Eye Contact:** In case of contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing if eye irritation persists: Get medical advice/attention, if needed.
- **Skin Contact:** This material is a gas under normal atmospheric conditions. If exposed or concerned get medical advice/attention, if needed.
- **Ingestion:** This material is a gas under normal atmospheric conditions and ingestion is unlikely.

4(b) Most Important Symptoms/Effects, Acute and Delayed (Chronic):

Acute effects:

- **Inhalation:** Toxic by inhalation due to presence of carbon monoxide. When exposed at high concentrations of **Clean Coke Oven Gas** will act as a simple asphyxiant. Simple asphyxiants displace the oxygen in the air and can cause rapid suffocation.
- **Eye:** May cause irritation
- **Skin:** None Expected
- **Ingestion:** This material is a gas under normal atmospheric conditions and ingestion is unlikely.

Chronic Effects:

- **Inhalation:** Prolonged or repeated exposures may damage fertility or the unborn child. May cause damage to blood forming organs. Exposures may cause genetic defects. May cause cancer.
- **Eye:** May cause irritation
- **Skin:** Prolonged or repeated exposures may result in irritation.
- **Ingestion:** Repeated or prolonged ingestion of harmful amounts of this product as distributed is unlikely.

4(c) Immediate Medical Attention and Special Treatment: If inhaled get medical help immediately. Remove person to fresh air and keep comfortable for breathing.

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Section 5 – Fire-fighting Measures

5(a) Suitable (and unsuitable) Extinguishing Media: Leaking gas fire: Do not extinguish, unless leak can be stopped safely or fire is immediately impacting human life. Eliminate all ignition sources if safe to do so. Extinguish with foam, carbon dioxide, dry powder or water fog, once leak is stopped. Do not use a solid stream of water as it may scatter and spread the fire.

5(b) Specific Hazards Arising from the Chemical: Irritating vapors/gas may form in fire. Tactical considerations must be made regarding gas fed fires and if it is safe to fully extinguish visible flame before shut off of the gas is accomplished. Unburned gas may result and seek a source of ignition.

5(c) Special Protective Equipment and Precautions for Fire-fighters: Self-contained NIOSH approved respiratory protection and full protective clothing should be worn when fumes and/or smoke from fire are present. Firefighters should wear full face-piece self-contained breathing apparatus and chemical protective clothing with thermal protection. Direct water stream will scatter and spread flames and, therefore, should not be used. Evacuate area. Remove pressurized gas cylinders from the immediate vicinity. Cool containers exposed to flames with water until well after the fire is out. Close the valve if no risk is involved. Do not extinguish a leaking gas fire unless leak can be stopped. If leak cannot be stopped and no danger to surrounding area allow the fire to burn out. Fight fire from a protected location. Prevent buildup of vapors or gases to explosive concentrations.

Section 6 - Accidental Release Measures

6(a) Personal Precautions, Protective Equipment and Emergency Procedures: If leakage cannot be stopped, evacuate area. Contact Gas Services to perform testing before entering the area.

6(b) Methods and Materials for Containment and Clean Up: Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Collect material in appropriate, labeled containers for recovery or disposal in accordance with federal, state, and local regulations. Follow applicable OSHA regulations (29 CFR 1910.120) and all other pertinent state and federal requirements.

Section 7 - Handling and Storage

7(a) Precautions for Safe Handling: Keep away from heat/sparks/open flames/hot surfaces. No smoking. Eliminate all ignition sources if safe to do so. Practice good housekeeping.

7(b) Conditions for Safe Storage, Including Any Incompatibilities: Store in well-ventilated place. If feasible, store locked up.

Section 8 - Exposure Controls / Personal Protection

8(a) Occupational Exposure Limits (OELs): The following exposure limits are offered as reference, for an experienced industrial hygienist to review.

Ingredients	OSHA PEL ¹	ACGIH TLV ²	NIOSH REL ³	IDLH ⁴
Hydrogen	NE	NE (Simple Asphyxiant)	NE	NE
Methane	NE	NE (Asphyxiant)	NE	NE
Nitrogen	NE	Simple Asphyxiant	NE	NE
Carbon Monoxide	50 ppm	25 ppm	35 ppm "C" 200 ppm	1,200 ppm
Carbon Dioxide	5000 ppm	5000 ppm "STEL" 30,000 ppm	5000 ppm "STEL" 30,000 ppm	40,000 ppm
Ethane	NE	NE (Asphyxiant)	NE	NE
Oxygen	NE	NE	NE	NE
Ethylene	NE	200 ppm	NE	NE
Benzene	1.0 ppm * "STEL" 5.0 ppm *	0.02 ppm, skin	0.1 ppm "STEL" 1.0 ppm	500 ppm, Ca

NE - None Established

* Exposure limits based on 29 CFR 1910.1028, however refer to 29 CFR 1910.1000, Table Z-2 for exclusions.

1. OSHA PELs (Permissible Exposure Limits) are 8-hour TWA (time-weighted average) concentrations unless otherwise noted. A ("C") designation denotes a ceiling limit, which should not be exceeded during any part of the working exposure unless otherwise noted. A Short Term Exposure Limit (STEL) is defined as a 15-minute exposure, which should not be exceeded at any time during a workday. An Action level (AL) is used by OSHA and NIOSH to express a health or physical hazard. They indicate the level of a harmful or toxic substance/activity, which requires medical surveillance, increased industrial hygiene monitoring, or biological monitoring. Action Levels are generally set at one half of the PEL but the actual level may vary from standard to standard. The intent is to identify a level at which the vast majority of randomly sampled exposures will be below the PEL.
2. Threshold Limit Values (TLV) established by the American Conference of Governmental Industrial Hygienists (ACGIH) are 8-hour TWA concentrations unless otherwise noted. ACGIH TLVs are for guideline purposes only and as such are not legal, regulatory limits for compliance purposes. Simple Asphyxiant may not be assigned a TLV because the limiting factor is the available oxygen without other significant physiologic effects
3. The National Institute for Occupational Safety and Health Recommended Exposure Limits (NIOSH-REL)- Compendium of Policy and Statements. NIOSH, Cincinnati, OH (1992). NIOSH is the federal agency designated to conduct research relative to occupational safety and health. As is the case with ACGIH TLVs, NIOSH RELs are for guideline purposes only and as such are not legal, regulatory limits for compliance purposes.
4. The "immediately dangerous to life or health air concentration values (IDLHs)" are used by NIOSH as part of the respirator selection criteria and were first developed in the mid-1970's by NIOSH. The Documentation for Immediately Dangerous to Life or Health Concentrations (IDLHs) is a compilation of the rationale and sources of information used by NIOSH during the original determination of 387 IDLHs and their subsequent review and revision in 1994. In 2013 NIOSH published a guidance document for calculating IDLH values [Current Intelligence Bulletin 66: Derivation of Immediately Dangerous to Life or Health \(IDLH\) Values](#)

8(b) Appropriate Engineering Controls: Local exhaust ventilation should be used to control the emission of air contaminants. General dilution ventilation may assist with the reduction of air contaminant concentrations. Emergency eye wash stations and deluge safety showers should be available in the work area.

Section 8 - Exposure Controls / Personal Protection (continued)

8(c) Individual Protection Measures:

- **Respiratory Protection:** Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, use only a NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. Concentration in air of the various contaminants determines the extent of respiratory protection needed. Use a positive-pressure-demand, full-face, supplied air respirator or SCBA for concentrations above 50 times the exposure limit. If exposure is above the IDLH for any of the constituents, or there is a possibility of an uncontrolled release or exposure levels are unknown, then use a positive-demand, full-face, supplied air respirator with escape bottle or SCBA.

Warning! Air-purifying respirators, both negative-pressure and powered-air, do not protect workers in oxygen-deficient atmospheres.

- **Eyes:** Wear appropriate eye protection to prevent eye contact.
- **Skin:** Wear appropriate personal protective clothing to prevent skin contact. This may include fire retardant clothing.
- **Other Protective Equipment:** An eyewash fountain and deluge shower should be readily available in the work area.

Section 9 - Physical and Chemical Properties

9(a) Physical State: Gas

9(b) Color: Colorless

9(c) Odor / Odor Threshold: Odorless

9(d) Melting Point/Freezing Point: NA

9(e) Initial Boiling Point and Boiling Range: NA

9(f) Flammability (solid, gas): Flammable gas

9(g) Upper/Lower Flammability or Explosive Limits: 34% - 4.4%

9(h) Flash Point: NA

9(i) Autoignition Temperature: ND

NA - Not Applicable

ND - Not Determined for product as a whole

9(j) Decomposition Temperature: ND

9(k) pH: NA

9(l) Kinematic Viscosity: ND

9(m) Solubility: Partial

9(n) Partition Coefficient n-octanol/water: NA

9(o) Vapor Pressure / Evaporation Rate: ND

9(p) Relative Density: NA

9(q) Vapor Density (Air = 1): 0.36

9(r) Particle Characteristics: NA

Section 10 - Stability and Reactivity

10(a) Reactivity: May react suddenly with air, oxygen, halogens and with fine dispersed metal dust.

10(b) Chemical Stability: Stable under normal storage and handling conditions.

10(c) Possibility of Hazardous Reaction: No Data Found

10(d) Conditions to Avoid: Contact with air, static discharge, sparks, open flames and other ignition sources.

10(e) Incompatible Materials: Oxidizing agents, halogens.

10(f) Hazardous Decomposition Products: Can produce carbon dioxide and carbon monoxide.

Section 11 - Toxicological Information

Information on Toxicological Effects: The following toxicity data have been determined for **Clean Coke Oven Gas**:

Potential Health Effects

11(a) Likely Routes of Exposure: Inhalation.

11(b) Symptoms Related to Physical, Chemical and Toxicological Characteristics: Possible dizziness, drowsiness, or loss of consciousness due to oxygen displacement.

11(c) Delayed, Chronic and Immediate Effects from Short-term and Long-term Exposure: No toxicological data have been established for **Clean Coke Oven Gas**. The following data have been determined for the components:

- **Benzene:** Excessive exposures may cause irritation to eyes, skin, nose, throat, lungs, and respiratory tract. Central nervous system effects may occur due to excessive exposures. Excessive exposures may result in headaches, nausea, sleep disturbances, excitability, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death. Early signs and symptoms of chronic overexposure include effects on CNS and the GI tract (headache, loss of appetite, drowsiness, nervousness, and pallor) but the major manifestation of toxicity is aplastic anemia. Bone marrow depression may occur resulting in leucopenia, anemia, or thrombocytopenia (leukemogenic action). With continued over exposure the disease states may progress to pancytopenia resulting from bone marrow aplasia. Evidence has linked benzene in the etiology of leukemia.
- **Hydrogen, Methane, Ethylene, Ethane, and Nitrogen:** Simple asphyxiants
- **Carbon Monoxide:** Human Fetal Death has resulted from exposure of CO to mothers bearing children. Causes damage to blood and central nervous system through prolonged or repeated exposure if inhaled. Carbon monoxide reacts with hemoglobin to form carboxyhemoglobin. This form of hemoglobin has a reduced affinity to bind oxygen.

Section 11 - Toxicological Information (continued)

Information on Toxicological Effects (continued):

Potential Health Effects (continued)

11(d) Numerical Measures of Toxicity for the Product and/ or Components or Acute Toxicity Estimates (ATE): ATE Mix (Inhalation) = 29690 ppm, Not Classified

The Toxicological data listed below are presented regardless to classification criteria.

Inhalation/ Oral: No LC₅₀ or LD₅₀ has been established for **Clean Coke Oven Gas** as a mixture. The following data has been determined for the components:

- **Carbon Monoxide:** Rat LC₅₀ = 1807 ppm /4hr
- **Ethylene:** LC₅₀ >66760 ppm/4hr
- **Carbon Dioxide:** Rat LC₅₀ = 105000 ppm/4hr
- **Benzene:** Rat LD₅₀ = 930 mg/kg
Rat LC₅₀ = 14670 ppm /4hr

Skin (Dermal) Irritation:

No Skin Irritation data available for **Clean Coke Oven Gas** as a mixture. The following Skin Irritation information was found for the components:

- **Benzene** - Mild to moderate in rabbits

Eye Irritation:

No Eye Irritation data available for **Clean Coke Oven Gas** as a mixture. The following Eye Irritation information was found for the components

- **Benzene** - Moderate to severe irritant; may cause corneal injury

Skin (Dermal)/Respiratory Sensitization:

No Skin (Dermal)/Respiratory Sensitization data available for **Clean Coke Oven Gas** as a mixture or its individual components.

Aspiration Hazard:

No Aspiration Hazard data available for **Clean Coke Oven Gas** as a mixture. The following aspiration information was found for the components:

- **Benzene** – Aspiration hazard (in liquid form).

Germ Cell Mutagenicity:

No Germ Cell Mutagenicity data available for **Clean Coke Oven Gas** as a mixture. The following Germ Cell Mutagenicity information was found for the components:

- **Benzene** - Chronic overexposure can cause chromosomal aberrations in animals and humans. Also, may induce sister-chromatid exchange (SCE), and micronuclei both *in vivo* and *in vitro*. Benzene overexposure has been shown to induce aneuploidy in dividing cells. Classified as a potential germ cell mutagen.

Reproductive Toxicity:

No Reproductive Toxicity data available for **Clean Coke Oven Gas** as a mixture. The following Reproductive Toxicity information was found for the components:

- **Carbon Monoxide** is an animal teratogen.
- **Benzene** animal studies indicate benzene is a potent testicular toxicant.

Specific Target Organ Toxicity (STOT) following a Single Exposure:

No Specific Target Organ Toxicity (STOT) following a Single Exposure data available for **Clean Coke Oven Gas** as a mixture. The following STOT following Single Exposure information was found for the components:

- **Hydrogen, Methane, Ethane, Nitrogen gas** - May cause dizziness, headache, nausea and unconsciousness, and suffocation.
- **Carbon Monoxide** - Central Nervous System effects: Headaches; tachypnea; nausea; weakness, dizziness, confusion, hallucinations; cyanosis; depressed ST segment of the ECG; angina; syncope; unconsciousness; death. Blood effects: carboxyhemoglobin formation.
- **Ethylene** - Central Nervous System effects: Excessive exposures may cause headache, drowsiness, dizziness, loss of coordination, and extreme exposure may cause unconsciousness and death.
- **Carbon Dioxide** - Lung effects: reduced inhalation and damage (rats). Cardiovascular effects: Decreased blood pressure (dogs) Central Nervous System effects: Headache, drowsiness, dizziness, stinging of the nose and throat, excitation rapid breathing and heart rate, excess salivation, vomiting, and unconsciousness (human).
- **Oxygen** - At high exposure levels: Lung: Transient decrease in pulmonary function Central Nervous System effects: Nausea, vomiting, dizziness or vertigo, muscle twitching, vision changes, and loss of consciousness and generalized seizures
- **Benzene** - Mild to moderate respiratory tract irritation expected with breathing vapors

Specific Target Organ Toxicity (STOT) following Repeated Exposure:

No Specific Target Organ Toxicity (STOT) following Repeated Exposure data was available for **Clean Coke Oven Gas** as a mixture. The following STOT following Repeated Exposure data was found for the components

- **Carbon Monoxide** - Damage to Heart by inhalation (REACH), Rat 72 wk Inhalation LOAEL = 200 ppm cardiac hypertrophy (REACH), Rat 13 wk inhalation NAOEL = 135 ppm
- **Benzene** - Induced blood dyscrasias in humans were characterized by erythrocytic anisocytosis and poikilocytosis, anemia, decreased hemoglobin, and reduced hematocrit. In addition, benzene is a human carcinogen.

11(e) Interactive Effects: The toxicological effects of **Clean Coke Oven Gas** as a mixture have not been fully evaluated.

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Section 11 - Toxicological Information (continued)

Information on Toxicological Effects (continued):

Potential Health Effects (continued)

11(f) Carcinogenicity *:

Carcinogenicity: IARC, NTP, NIOSH, OSHA, EPA and ACGIH do not list **Clean Coke Oven Gas** as a carcinogen. The following carcinogenicity information was found for the components:

- **Ethylene:** IARC-3, unclassifiable as to carcinogenicity in humans; ACGIH TLV-A4, not classifiable as a human carcinogen
- **Benzene:** IARC-1, carcinogen to humans; ACGIH TLV-A1, confirmed human carcinogen; NIOSH-Ca, potential occupational carcinogen; NTP-K, known to be a carcinogen; EPA-A, human carcinogen (by inhalation route of entry), EPA-K, cannot be determined, not classifiable as to human carcinogenicity; OSHA-Ca, carcinogen;

* Carcinogenicity determinations are based on the National Toxicology Program (NTP) Report on Carcinogens (latest edition), or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest edition), NIOSH, EPA, ACGIH, or by OSHA

The above toxicity information was determined from available scientific sources to illustrate the prevailing posture of the scientific community. The scientific resources includes: The American Conference of Governmental Industrial Hygienist (ACGIH) Documentation of the Threshold Limit Values (TLVs) and Biological Exposure indices (BEIs) with Other Worldwide Occupational Exposure Values 2026, The International Agency for Research on Cancer (IARC), The National Toxicology Program (NTP) updated documentation, the World Health Organization (WHO) and other available resources, the International Uniform Chemical Information Database (IUCID), European Union Risk Assessment Report (EU-RAR), Concise International Chemical Assessment Documents (CICAD), European Union Scientific Committee for Occupational Exposure Limits (EU-SCOEL), Agency for Toxic Substances and Disease Registry (ATSDR), Hazardous Substance Data Bank (HSDB), and International Programme on Chemical Safety (IPCS).

Section 12 - Ecological Information

12(a) Ecotoxicity (aquatic & terrestrial): No data available for the product, **Clean Coke Oven Gas** as a mixture. However, individual components have been found to be toxic to the environment:

- **Ethylene:** EC₅₀ (Daphnia magna) = 53.402 mg/L
- **Benzene:** LC₅₀ Lepomis macrochirus (bluegill sunfish) 20 mg/l/24 to 48 hr /Conditions of bioassay not specified/; LC50 Salmo trutta (brown trout yearlings) 12 mg/l/1 hr (static bioassay)

12(b) Persistence & Degradability: Vapor-phase benzene is degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 13 days for benzene.

12(c) Bioaccumulative Potential: No Data Available

12(d) Mobility (in soil): Benzene has been estimated to be moderately to highly mobile in soil. Evaporation is expected to be the primary loss mechanism from water. Benzene is not expected to adsorb to sediment and suspended solids in water. Volatilization half-lives for a model river and model lake have been estimated to be 1 hr and 3.5 days for benzene.

12(e) Other Adverse Effects: None Known

Additional Information:

Hazard Category: No Category

Signal Word: No Signal Word

Hazard Symbol: No Hazard Symbol

Hazard Statement: No Hazard Statement

Section 13 - Disposal Considerations

Disposal: Dispose of contents/container in accordance with local/regional/international regulations

Container Cleaning and Disposal: Follow applicable federal, state and local regulations

Please note this information is for Clean Coke Oven Gas in its original form. Any alterations can void this information.

Section 14 - Transport Information

14 (a-g) Transportation Information:

US Department of Transportation (DOT) under 49 CFR 172.101 regulates **Clean Coke Oven Gas** as a hazardous material. All federal, state, and local laws and regulations that apply to the transport of this type of material must be adhered to.

Section 15 - Regulatory Information

Regulatory Information: *The following listing of regulations relating to a U. S. Steel product may not be complete and should not be solely relied upon for all regulatory compliance responsibilities.*

This product and/or its constituents are subject to the following regulations:

U.S. Federal Regulations: **Clean Coke Oven Gas** may be regulated by OSHA and/ or EPA.

State Regulations: The product, **Clean Coke Oven Gas** as a mixture is not listed in any state regulations. However, individual components of the product are listed in various state regulations:

California Prop.
65:



This product, **Clean Coke Oven Gas** can expose you to chemicals including benzene and carbon monoxide. Benzene is known to the State of California to cause cancer. Carbon Monoxide is known to the State of California to cause reproductive toxicity. For more information go to www.P65Warnings.ca.gov.

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Section 16 - Other Information

Prepared By: United States Steel Corporation

Revision History:

07/17/2026 – Updated to OSHA HCS 2024 GHS v.7

09/10/2020 – Update to sections 2, 8, 11, 15

06/26/2017 – Update WHMIS 2015

02/05/2014 - Update to OSHA HAZ COM 2012

12/16/2010 - Original

Additional Information:

Hazardous Material Identification System (HMIS) Classification

Health Hazard
Fire Hazard
Physical Hazard

HEALTH = 1, Denotes possible chronic hazard if airborne dusts or fumes are generated. Irritation or minor reversible injury possible.

FIRE = 4, Flammable gases, or very volatile flammable liquids with flash points below 73 °F, and boiling points below 100 F. Materials may ignite spontaneously with air. (Class IA).

PHYSICAL HAZARD = 0, Materials that are normally stable, even under fire conditions, and will not react with water, polymerize, decompose, condense, or self-react. Non-explosives.

National Fire Protection Association (NFPA)



HEALTH = 1, Exposure could cause irritation but only minor residual injury even if no treatment is given.

FIRE = 4, Will rapidly or completely vaporize at normal pressure and temperature, or is readily dispersed in air and will burn readily.

REACTIVITY = 0, Normally stable, even under fire exposure conditions, and are not reactive with water.

SPECIAL HAZARDS = SA (Simple Asphyxiant)

ABBREVIATIONS/ACRONYMS:

ACGIH	American Conference of Governmental Industrial Hygienists	NIOSH	National Institute for Occupational Safety and Health
ATE	Acute Toxicity Estimate	NTP	National Toxicology Program
BEIs	Biological Exposure Indices	ORC	Organization Resources Counselors
CAS	Chemical Abstracts Service	OSHA	Occupational Safety and Health Administration
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	PEL	Permissible Exposure Limit
CFR	Code of Federal Regulations	PNOR	Particulate Not Otherwise Regulated
CNS	Central Nervous System	PNOC	Particulate Not Otherwise Classified
GI, GIT	Gastro-Intestinal, Gastro-Intestinal Tract	PPE	Personal Protective Equipment
HMIS	Hazardous Materials Identification System	ppm	parts per million
IARC	International Agency for Research on Cancer	RCRA	Resource Conservation and Recovery Act
LC₅₀	Median Lethal Concentration	RTECS	Registry of Toxic Effects of Chemical Substances
LD₅₀	Median Lethal Dose	SARA	Superfund Amendment and Reauthorization Act
LD_{L0}	Lowest Dose to have killed animals or humans	SCBA	Self-contained Breathing Apparatus
LEL	Lower Explosive Limit	SDS	Safety Data Sheet
µg/m³	microgram per cubic meter of air	STEL	Short-term Exposure Limit
mg/m³	milligram per cubic meter of air	TLV	Threshold Limit Value
mppcf	million particles per cubic foot	TWA	Time-weighted Average
MSHA	Mine Safety and Health Administration	UEL	Upper Explosive Limit
NFPA	National Fire Protection Association		

Disclaimer: This information is taken from sources or based upon data believed to be reliable. However, United States Steel Corporation makes no warranty as to the absolute correctness or sufficiency of any of the foregoing or that additional or other measures may not be required under particular conditions.