



United States Steel Corporation

Crude Coal Tar Safety Data Sheet (SDS)

USS IHS Number: 75311

Locations: Clairton

Original: 12/16/2010

Revision: 10/30/2024

Section 1 – Identification

1(a) Product Identifier Used on Label: Crude Coal Tar

1(b) Other Means of Identification: Tar, Coal Tar, High Temperature Coal Tar

1(c) Recommended Use of the Chemical and Restrictions on Use: None

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

United States Steel Corporation
600 Grant Street, Room 1662
Pittsburgh, PA 15219-2800




Phone number: (412) 433-6840 (8:00 am to 5:00 pm)
Email: SDShelp@USS.com

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

Section 2 – Hazard(s) Identification

2(a) Classification of the Chemical: Crude Coal Tar is considered a hazardous material according to the criteria specified in REACH [REGULATION (EC) No 1907/2006] and CLP [REGULATION (EC) No 1272/2008] and OSHA 29 CFR 1910.1200 Hazard Communication Standard. The categories of Health Hazards as defined in “GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS (GHS), Third revised edition ST/SG/AC.10/30/Rev. 3” United Nations, New York and Geneva, 2009 have been evaluated. Refer to Section 3, 8 and 11 for additional information.

2(b) Signal Word, Hazard Statement(s), Symbols and Precautionary Statement(s):

| Hazard Symbol | Hazard Classification | Signal Word | Hazard Statement(s) |
|---|--|---------------|--|
|  | Acute Toxicity, Inhalation - 3 | DANGER | Toxic if inhaled. Causes severe skin burns and serious eye damage. May be fatal if swallowed and enters airways. Suspected of causing genetic defects. May cause cancer. May damage fertility or the unborn child. May cause central nervous system depression, respiratory irritation drowsiness or dizziness and damage to lungs, liver and blood cells. |
|  | Skin Irritation - 1B Eye Irritation - 1 | | |
|  | Aspiration Hazard - 1 Germ Cell Mutagenicity - 2 Carcinogenicity - 1A Reproductive Toxicity - 1B Single Target Organ Toxicity (STOT) Single Exposure - 2 | | |

Precautionary Statement(s):

| Prevention | Response | Storage/Disposal |
|--|--|--|
| Wash thoroughly after handling. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not eat, drink or smoke when using this product. Do not breathe / gas / mist / vapor / spray. Wear protective gloves / protective clothing / eye protection / face protection. Use only outdoors or in well ventilated areas. | If inhaled: Remove person to fresh air and keep comfortable for breathing. Immediately call a poison center or doctor/physician. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor/physician. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. If swallowed: Immediately call a poison center or doctor/physician. Rinse mouth. DO NOT induce vomiting. If exposed, concerned or feel unwell: Get medical advice/attention, call a poison center or doctor/physician. | Store locked up. Store in well ventilated place. Keep container tightly closed. Dispose of contents in accordance with federal, state and local regulations. |

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Section 2 – Hazard(s) Identification (continued)

2(c) Hazards Not Otherwise Classified: None Known

2(d) Unknown Acute Toxicity Statement (mixture): None Known

Section 3 – Composition/Information on Ingredients

3(a-c) Chemical Name, Common Name (synonyms), CAS Number and Other Identifiers, and Concentration: (Crude Coal Tar Cas Number 65996-89-6)

| Chemical Name | CAS Number | EC Number | % weight |
|--|------------|-----------|------------|
| Tar, Coal, high temp. | 65996-89-6 | 266-024-0 | 100 |
| This product is a complex mixture of organic hydrocarbons. Listed below is a partial listing of the components that comprise this product: | | | |
| Naphthalene | 91-20-3 | 202-049-5 | 3.0 - 12.0 |
| PNA (Polycyclic Aromatic Hydrocarbon, also known as Polynuclear Aromatics) Compounds | Various | Various | 7 - 31 |
| Benzene | 71-43-2 | 200-753-7 | <0.1 - 1.0 |
| Phenol | 108-95-2 | 203-95-7 | <0.1 - 1.0 |
| Toluene | 108-88-3 | 203-625-9 | <0.1 - 1.0 |

EC - European Community

CAS - Chemical Abstract Service

Section 4 – First-aid Measures

4(a) Description of Necessary Measures: If exposed, concerned or feel unwell: Get medical advice/attention, call a poison center or doctor/physician.

- **Inhalation:** If inhaled: Remove person to fresh air and keep comfortable for breathing. Immediately call a poison center or doctor/physician.
- **Eye Contact:** If in eyes: 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.
- **Skin Contact:** If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse.
- **Ingestion:** If swallowed: Rinse mouth. Immediately call a poison center or doctor/physician. Do NOT induce vomiting.

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

Acute Effects:

- **Inhalation:** Acute respiratory effects caused by overexposure to coal tar may include coughing, sneezing, and swollen or irritated nasal mucosa and sinuses. Short-term exposures may also cause transient photosensitization.
- **Eye:** Vapors or mist may cause irritation to the eyes and mucous membranes.
- **Skin:** Exposure to Coal Tar can cause skin irritation characterized by skin itching, burning, swelling and redness.
- **Ingestion:** Ingestion of this product is unlikely, however, gastrointestinal disturbances (i.e., nausea and vomiting) and systemic toxicity may occur if absorbed. Ingestion of this material may cause irritation to the mouth, throat and gastrointestinal tract. May cause central nervous system effects, nausea, vomiting, and diarrhea. Pulmonary aspiration hazard if swallowed and/or vomiting occurs. Can enter lungs and cause damage. Ingestion of this material may damage liver.

Delayed (chronic) Effects:

May cause genetic defects and damage fertility or the unborn child. Harmful if inhaled or absorbed through the skin. May cause eye and skin irritation. Repeated excessive exposures may cause blood disorders such as anemia and leukemia. Repeated excessive exposures may cause liver and/or kidney effects or damage. Material has been related to cancer in humans.

4(c) Immediate Medical Attention and Special Treatment: If quantity ingested is 1.0 ml/kg or greater, careful gastric lavage may be indicated, being careful to avoid aspiration.

Section 5 – Fire-fighting Measures

5(a) Suitable (and unsuitable) Extinguishing Media: Steam, water fog, CO₂, foam, dry chemicals or sand. Small fires – Foam, CO₂, Dry Chemical, Water Spray. Large Fires – Water Spray, fog or foam. Frothing may occur if material is molten

5(b) Specific Hazards Arising from the Chemical: Incompatibility (materials to avoid): Oxidizers, heat, and flames. When burned, toxic smoke and vapor may be emitted including, oxides of carbon and sulfur, PNA's, aromatic hydrocarbons and other toxic vapors.

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. Heat and flames cause emittance of acrid smoke and fumes. Do not release runoff from fire control methods to sewers or waterways. 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.

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Section 6 - Accidental Release Measures

6(a) Personal Precautions, Protective Equipment and Emergency Procedures: For spills, clean-up personnel should be protected against contact with eyes and skin. If material is in a dry state, avoid inhalation of dust. Large spills should be diked and foam applied. Do not release into sewers or waterways. Use absorbent material such as vermiculite or sand to soak up spill. Contain material and follow normal clean-up procedures. Collect material in appropriate, labeled containers for recovery or disposal in accordance with federal, state, and local regulations. Keep unnecessary people away. Isolate hazard area and deny entry. Stay upwind.

6(b) Methods and Materials for Containment and Clean Up: 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. Contain spill within diked area, allow to cool and mix with solid absorbent (i.e., sand, crushed coal, dirt).

Section 7 - Handling and Storage

7(a) Precautions for Safe Handling: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use only outdoors or in well ventilated areas. Do not breathe gas / mist / vapor / spray. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Avoid direct contact on skin, eyes or on clothing. Handle and use in accordance with OSHA29CFR1910.106 or local codes. Observe proper industrial hygiene practices. Comply all applicable regulatory standards. Emergency safety showers and eye wash stations should be present.

7(b) Conditions for Safe Storage, including any Incompatibilities: Store locked up. Use only outdoors or in a well-ventilated area. Store in well ventilated place. Keep containers tightly closed. Store away from acids and incompatible materials. Avoid oxidizers, heat, and flames.

Section 8 - Exposure Controls / Personal Protection

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

| Ingredients | OSHA PEL ¹ | ACGIH TLV ² | NIOSH REL ³ | IDLH ⁴ |
|-------------|--|--|--|----------------------------|
| Coal Tar | 0.2 mg/m (as benzene soluble aerosol for coal tar pitch volatiles) | 0.2 mg/m (as benzene soluble aerosol for coal tar pitch volatiles) * | 0.1 mg/m ³ (cyclohexane-extractable fraction) | Ca (80 mg/m ³) |
| Naphthalene | 10 ppm | 10 ppm, skin | 10 ppm "STEL" 15 ppm | 250 ppm |
| Benzene | 1.0 ppm ** "STEL" 5.0 ppm ** | 0.5 ppm, skin "STEL" 2.5 ppm | 0.1 ppm "STEL" 1.0 ppm | 500 ppm, Ca |
| Phenol | 5.0 ppm, skin | 5.0 ppm, skin | 5.0 ppm, skin "C" 15.6 ppm (15-min) | 250 ppm |
| Toluene | 200 ppm "C" 300 ppm "Peak" 500 ppm (10 min) | 50 ppm | 100 ppm "STEL" 150 ppm | 500 ppm |

NE - None Established

* Coal tar pitch volatiles (CTPV), as benzene soluble aerosol

** 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. DSEN - May cause dermal sensitization. This notation is used to indicate the potential for dermal sensitization resulting from the interaction of an absorbed agent and ultraviolet light (i.e. photosensitization). RSEN - May cause respiratory sensitization.
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. Ca is designated as carcinogen.

8(b) Appropriate Engineering Controls: Use controls as appropriate to minimize fire risk and inhalation of vapors or mists as well as any byproducts of combustion. Provide general or local exhaust ventilation systems to minimize airborne concentrations. Local exhaust is necessary for use in enclosed or confined spaces. Provide sufficient general/local exhaust ventilation in pattern/volume to control inhalation exposures below current exposure limits and areas below flammable vapor concentrations.

8(c) Individual Protection Measures:

- **Respiratory Protection:** Do not breathe dusts/fume/gas/mist/vapor/spray. 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. Half-mask negative-pressure, air-purifying respirator equipped with organic vapor cartridge is acceptable for concentrations up to 10 times the exposure limit. Full-face negative-pressure air purifying respirator equipped with organic vapor cartridges is acceptable for concentrations up to 50 times the exposure limit. Protection by air purifying both negative-pressure and powered air respirators is limited. Use a positive-pressure-demand, ... (continued)

Section 8 - Exposure Controls / Personal Protection (continued)

8(c) Individual Protection Measures (continued):

- **Respiratory Protection (continued):** ... (continued) full-face, supplied air respirator or self-contained breathing apparatus (SCBA) for concentrations above 50 times the exposure limit. If exposure is above the IDLH (Immediately dangerous to life or health) 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. Use safety glasses with side shields or chemical goggles.
- **Skin:** Persons handling this product should wear appropriate clothing to prevent skin contact. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Wear protective gloves. Chemical goggles, face shields or glasses should be worn to prevent eye contact. Contact lenses should not be worn where industrial exposure to this material is likely. Wash skin that has been exposed with soap and water.
- **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) Appearance (physical state, color, etc.): Black viscous liquid

9(b) Odor: aromatic odor

9(c) Odor Threshold: NA

9(d) pH: NA

9(e) Melting Point/Freezing Point: 95–118°C (203–244°F)

9(f) Initial Boiling Point and Boiling Range: >150°C (>302°F)

9(g) Flash Point: ND

9(h) Evaporation Rate: ND

9(i) Flammability (solid, gas): Combustible Liquid

NA - Not Applicable

ND - Not Determined for product as a whole

9(j) Upper/lower Flammability or Explosive Limits: ND

9(k) Vapor Pressure: <5 mm Hg

9(l) Vapor Density (Air = 1): >1

9(m) Relative Density: >1.1 [Specific Gravity (H₂O=1 at 20°C/60°F)]

9(n) Solubility(ies): Insoluble

9(o) Partition Coefficient n-octanol/water: ND

9(p) Auto-ignition Temperature: ND

9(q) Decomposition Temperature: ND

9(r) Viscosity: ND

Section 10 - Stability and Reactivity

10(a) Reactivity: Not Determined (ND)

10(b) Chemical Stability: Crude Coal Tar is stable under normal storage and handling conditions.

10(c) Possibility of Hazardous Reaction: None Known






10(d) Conditions to Avoid: Exposure to heat, sparks or flames.

10(e) Incompatible Materials: Will react with acids and oxidizers.

10(f) Hazardous Decomposition Products: Oxides of carbon and sulfur, PNA's, aromatic hydrocarbons, and other toxic vapors may be released at high temperatures.

Section 11 - Toxicological Information

11(a-e) Information on Toxicological Effects: The following toxicity data has been determined for **Crude Coal Tar** by using the information available for its components applied to the guidance on the preparation of an SDS under the GHS requirements of OSHA and the EU CPL:

| Hazard Classification | Hazard Category | | Hazard Symbols | Signal Word | Hazard Statement |
|--|-----------------|-----------------|---|----------------|---|
| | EU | OSHA | | | |
| Acute Toxicity Hazard (covers Categories 1-4) | 3 | 3 ^a |  | Danger | Toxic if inhaled. |
| Skin Irritation (covers Categories 1A, 1B, and 2) | 1B | 1B ^b |  | Warning | Causes severe skin burns and eye damage. |
| Eye Damage/Irritation (covers Categories 1, 2A and 2B) | 1 | 2A ^c |  | Warning | Causes serious eye irritation. |
| Aspiration Hazard (Category 1) | 1 | 1 ^e |  | Danger | May be fatal if swallowed and enters airways. |
| Germ Cell Mutagenicity (covers Categories 1A, 1B and 2) | 2 | 1B ^f |  | Danger | May cause genetic defects. |




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Section 11 - Toxicological Information (continued)

11(a-e) Information on Toxicological Effects (continued):

| Hazard Classification | Hazard Category | | Hazard Symbols | Signal Word | Hazard Statement |
|--|-----------------|-----------------|---|----------------|---|
| | EU | OSHA | | | |
| Carcinogenicity (covers Categories 1A, 1B and 2) | 1A | 1A ^g |  | Danger | May cause cancer. |
| Toxic Reproduction (covers Categories 1A, 1B and 2) | 1B | 1B ^h |  | Danger | May damage fertility or the unborn child. |
| Specific Target Organ Toxicity (STOT) Following Single Exposure (covers Categories 1-3) | 2 | 2 ⁱ |  | Warning | May cause central nervous system depression, respiratory irritation drowsiness or dizziness and damage to lungs, liver and blood cells. |

Toxicological data listed below are presented regardless to classification criteria. Individual hazard classification categories where the toxicological information has met or exceeded a classification criteria threshold are listed above.

a. The following LC₅₀ or LD₅₀ has been established for **Crude Coal Tar** and its components:

- **Coal Tar:** Rat LD₅₀ > 2000 mg/kg (REACH)
Mouse LD₅₀ > 1600 mg/kg (IUCILID)
- **Naphthalene:** Mouse LD₅₀ = 397 – 827 mg/kg (REACH)
Rat LD₅₀ > 2500 mg/kg (REACH and IUCILID)
Rat LC₅₀ > 77.7 ppm (> 0.4 mg/L) (REACH and Toxnet)
- **Benzene:** LD₅₀ (rat) 3.8 (2.9-4.8) and 5.6 (4.0-7.8) ml/kg young and old resp.
LD₅₀ (rabbits): > 9.4 ml/kg (abraded skin)
LC₅₀ (female rat) > 13700 ppm
- **Toluene:** LD₅₀ (rat) > 5000 mg/kg (REACH)
LD₅₀ (Rabbit) > 5000 mg/kg (REACH)

b. No Skin (Dermal) Irritation data available for **Crude Coal Tar** as a mixture. The following Skin Irritation information was found for the components:

- **Benzene:** Irritating to the skin.
- **Toluene:** Toluene is irritating to rabbit skin (REACH and IUCILID).

c. No Eye Irritation data available for **Crude Coal Tar** as a mixture. The following Eye Irritation information was found for the components:

- **Benzene:** Irritating to the eyes.
- **Toluene:** Slight irritation (REACH and IUCILID) Severe eye irritant in humans (NLM HSD).

d. No Skin (Dermal)/Respiratory Sensitization data available for **Crude Coal Tar** as a mixture or its components.

e. No Aspiration Hazard data available for **Crude Coal Tar** as a mixture. The following Aspiration Hazard information was found for the components:

- **Benzene:** Respiratory aspiration hazard.
- **Toluene:** May be fatal if enters respiratory tract.

f. The following Germ Cell Mutagenicity data was available for **Crude Coal Tar** as a mixture and its components:

- **Coal Tar** - Positive Ames test, bacterial mutation.
- **Benzene:** Positive In vitro and In vivo clastogenicity results.

g. Carcinogenicity: IARC, NTP, and OSHA list **Crude Coal Tar** as a carcinogen. The following Carcinogenicity information was found:

- **Coal Tar:** IARC-1, carcinogen to humans; ACGIH TLV-A1, confirmed human carcinogen; NIOSH-Ca, potential occupational carcinogen; NTP-K, known to be a carcinogen.
- **Naphthalene:** IARC-2B, possibly carcinogenic to humans; ACGIH TLV-A3, confirmed animal carcinogen with unknown relevance to humans; NTP-R, reasonably anticipated to be a human carcinogen (RAHC); EPA-CBD, cannot be determined & EPA-C, possible 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.
- **Phenol:** IARC-3, unclassifiable as to carcinogenicity in humans; ACGIH TLV-A4, not classifiable as a human carcinogen; EPA-I;D, data are inadequate for assessment of human carcinogenic potential; not classifiable as to human carcinogenicity
- **Toluene:** IARC-3, unclassifiable as to carcinogenicity in humans; ACGIH TLV-A4, not classifiable as a human carcinogen; EPA-II, inadequate information to assess carcinogenic potential.

h. The following Toxic Reproduction data was available for **Crude Coal Tar** as a mixture and its components:

- **Coal Tar:** Reproductive toxin based on REACH classification.
- **Benzene:** Both reproductive and teratogenicity positive results found.
- **Toluene:** Low incidence of malformations at doses causing maternal toxicity.

i. No Specific Target Organ Toxicity (STOT) following a Single Exposure data available for **Crude Coal Tar** as a mixture. The following STOT following a Single Exposure data was found for the components:

- **Naphthalene:** Eye and skin irritation (OSHA).
- **Benzene:** Central and peripheral nervous system Depression, lung liver (vacuolated hepatocytes) and red blood cells. Mild to moderate respiratory tract irritation expected with breathing vapors.
- **Toluene:** Headache, dizziness and impaired performance.

Section 11 - Toxicological Information (continued)

11(a-e) Information on Toxicological Effects (continued):

j. No Specific Target Organ Toxicity (STOT) following Repeated Exposure data was available for **Crude Coal Tar** as a whole. The following STOT following Repeated Exposure data was found for the components:

- **Naphthalene:** Olfactory lesions and effects on nasal turbinates, cataracts, jaundice, kidney and liver damage (OSHA).
- **Benzene:** Hematopoietic system, spleen, and liver damage. 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.
- **Toluene:** Ataxia, hypothermia, leucocyte decrease in female rats and increase liver and kidney weights.

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 2024, 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 (IUCSID), 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).

The following health hazard information is provided regardless to classification criteria and is based on the individual component(s):

Acute Effects by Component:

- **Coal Tar:** Acute respiratory effects may include coughing, sneezing, and swollen or irritated nasal mucosa and sinuses. Vapors or mist may cause irritation to the eyes and mucous membranes. Can cause skin irritation characterized by skin itching, burning, swelling and redness. Gastrointestinal disturbances (i.e., nausea and vomiting) and systemic toxicity may occur if absorbed. Ingestion of this material may cause irritation to the mouth, throat and gastrointestinal tract.
- **Naphthalene** - Excessive exposures may cause irritation to eyes, nose, throat and lungs, and respiratory tract. Central nervous system effects may occur. Excessive exposures may also result in dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure and death.
- **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.
- **Toluene** - Excessive exposures may cause irritation to eyes, nose, throat, lungs, and respiratory tract. Central nervous system effects may occur. Excessive exposures may result in headaches, nausea dizziness, loss of balance and coordination, unconsciousness, and coma as well as respiratory failure and/or death.

Delayed (chronic) Effects by component:

- **Coal Tar:** May cause genetic defects and damage fertility or the unborn child. Harmful if inhaled or absorbed through the skin. May cause eye and skin irritation. Repeated excessive exposures may cause blood disorders such as anemia and leukemia. Repeated excessive exposures may cause liver and/or kidney effects or damage. Material has been related to cancer in humans.
- **Naphthalene:** Chronic exposure of workers to naphthalene has been reported to cause cataracts and retinal hemorrhage. Exposure may also result in headache, loss of appetite, and nausea. Kidney damage has also been reported in connection with chronic naphthalene exposure.
- **Benzene** - Human Cancer Hazard. 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.
- **Toluene** - Chronic overexposure has been associated with headache, lassitude, and nausea, loss of coordination, memory loss, and loss of appetite along with enlargement of the liver, a moderate decrease in red blood cells, and reduction in white blood cells, as well as palpitations, weakness, and impaired reaction time may occur. The neurological effects of chronic overexposure to high levels of toluene gradually progress to an irreversible state. Besides effects on behavior and intelligence, degeneration of the optic nerve and nerve deafness have also been reported. Dermatitis from repeated contact with the skin may also occur. Overexposure to toluene may cause risk of harm to the unborn child.

Section 12 - Ecological Information

12(a) Ecotoxicity (aquatic & terrestrial): No Data Available for **Crude Coal Tar** as sold/shipped. However, individual components of the product when processed have been found to be toxic to the environment.

- **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).
- **Toluene:** LC50 *Pimephales promelas* (fathead minnow) 34.27 mg/l 96 hr (95% Confidence Limits= 22.83-45.86 mg/l) /Conditions of bioassay not specified/ LC50 *Daphnia magna*, (water flea) 313 mg/l 48 hr /Conditions of bioassay not specified.
- **Naphthalene:** LC50 *Pimephales promelas* (fathead minnow) 6.08 (5.74-6.44) mg/l 72 & 96 hr, /flow-through bioassay; LC50 *Oncorhynchus gorbuscha* (pink salmon) 1.4 mg/L/96 hr Conditions of bioassay not specified.

12(b) Persistence & Degradability: Vapor-phase benzene and toluene are 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 and 3 days for benzene and toluene respectively.

12(c) Bioaccumulative Potential: No Data Available for **Crude Coal Tar** or individual components.

12(d) Mobility (in soil): No Data Available for **Crude Coal Tar** as a whole. However, benzene and toluene have been estimated to be moderately to highly mobile in soil. Evaporation is expected to be the primary loss mechanism from water. Benzene and toluene are 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, respectively for benzene and 1 hour and 4 days, respectively for toluene.

12(e) Other Adverse Effects: None Known

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Section 12 - Ecological Information (continued)

Additional Information:

Hazard Category: Not Reported / No Category

Hazard Category: No Signal Word

Hazard Symbol: No Hazard Symbol

Hazard Statement: Toxic to aquatic life with long lasting effects.

Section 13 - Disposal Considerations

Disposal: This material is considered a hazardous waste. Dispose in approved landfill or incinerate. Follow applicable federal, state and local regulations for disposal of hazardous waste accumulated during handling operations of the product.

Container Cleaning and Disposal: Follow applicable federal, state and local regulations. Observe safe handling precautions. European Waste Catalogue 05-06-01 (acid tars), or 05-06-03 (other tars).

Please note this information is for Crude Coal Tar 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 **Crude Coal Tar** as a (as **Environmentally Hazardous Substance, liquid, n.o.s.**). All federal, state, and local laws and regulations that apply to the transport of this type of material must be adhered to.

| | | |
|--|---|---|
| Shipping Name: Environmentally Hazardous Substance, liquid, n.o.s. (contains benzo(a)pyrene, benzo(b)fluoranthene, naphthalene), marine pollutant (naphthalene) Shipping Symbols: G Hazard Class: 9 UN No: UN3082 Packing Group: PG III DOT/IMO Label: 9 Special Provisions (172.102): 8, 146, IB3, T4, TP1, TP29 | Packaging Authorizations: a) Exceptions: 155 b) Non-bulk: 203 c) Bulk: 241 | Quantity Limitations: a) Passenger, Aircraft, or Railcar: No Limit b) Cargo Aircraft Only: No Limit Vessel Stowage Requirements: a) Vessel Stowage: A b) Other: Not Applicable (NA) DOT Reportable Quantities: Refer to Section 15 |
|--|---|---|

International Maritime Dangerous Goods (IMDG) and the Regulations Concerning the International Carriage of Dangerous Goods by Rail (RID) classification, packaging and shipping requirements follow the US DOT Hazardous Materials Regulation.

Regulations Concerning the International Carriage of Dangerous Goods by Road (ADR) regulates **Crude Coal Tar** as a (**Environmentally Hazardous Substance, liquid, n.o.s.**) as a hazardous material.

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|--|--|---|
| Shipping Name: Environmentally Hazardous Substance, liquid, n.o.s. (contains benzo(a)pyrene, benzo(b)fluoranthene, naphthalene), marine pollutant (naphthalene) Classification Code: 9 UN No.: UN3082 Packing Group: PG III ADR Label: 9 Special Provisions: 274, 335, 909 Limited Quantities: 5L | Packaging: a) Packing Instructions: P001, LP01 b) Special Packing Provisions: PP1 c) Mixed Packing Provisions: Not Applicable | Portable Tanks & Bulk Containers: a) Instructions: T4 b) Special Provisions: TP2, TP29 |
|--|--|---|

IATA – International Air Transport Association (IATA) does regulate **Crude Coal Tar** (as **Environmentally Hazardous Substance, liquid, n.o.s.**) as a hazardous material.

| | | | |
|--|---|---|---|
| Shipping Name: Environmentally Hazardous Substance, n.o.s. (contains benzo(a)pyrene, benzo(b)fluoranthene, naphthalene), marine pollutant (naphthalene) Class/Division: 9 Hazard Label (s): Miscellaneous UN No.: UN3082 Packing Group: PG III Excepted Quantities (EQ): E1 | Passenger & Cargo Aircraft Limited Quantity (EQ) Pkg Inst: Y914 Max Net Qty/Pkg: 30 kg G | Cargo Aircraft Only: Pkg Inst: 914 Max Net Qty/Pkg: 450L | Special Provisions: A97 A158 ERG Code: Not Applicable |
|--|---|---|---|

Pkg Inst – Packing Instructions

Max Net Qty/Pkg – Maximum Net Quantity per Package

ERG – Emergency Response Drill Code

Transport Dangerous Goods (TDG) Classification: Crude Coal Tar

| | |
|--|---|
| Shipping Name: Environmentally Hazardous Substance, liquid, n.o.s. (contains benzo(a)pyrene, benzo(b)fluoranthene, naphthalene), marine pollutant (naphthalene) Shipping Symbols: G Hazard Class: 9 | UN No: UN3082 Packing Group: PG III Label: 9 |
|--|---|

Crude Coal Tar

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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:

SARA Potential Hazard Categories: Immediate Acute Health Hazard; Delayed Chronic Health Hazard;

Section 313 Supplier Notification: The product, **Crude Coal Tar** contains the following toxic chemicals subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372:

| CAS # | Chemical Name | Percent (%) by Weight | CAS # | Chemical Name | Percent (%) by Weight |
|----------|---|-----------------------|----------|----------------------|-----------------------|
| 71-43-2 | Benzene | <0.1 - 1.0 | 205-99-2 | Benzo(b)Fluoranthene | 0.4 - 2.5 |
| 193-39-5 | Indeno [1,2,3-cd] pyrene | <0.1 - 1.0 | 132-64-9 | Dibenzofuran | 1.0 - 2.5 |
| 108-95-2 | Phenol | <0.1 - 1.0 | 82-32-9 | Acenaphthene | 0.1 - 3.0 |
| 108-88-3 | Toluene | <0.1 - 1.0 | 120-12-7 | Anthracene | 0.7 - 4.0 |
| 218-01-9 | Chrysene, (alternate name Benzo(a)phenanthrene) | <0.1 - 1.5 | 206-44-0 | Fluoranthene | 1.5 - 5.0 |
| 207-08-9 | Benzo(k)fluoranthene | 0.1 - 1.5 | 85-01-8 | Phenanthrene | 2.5 - 7.5 |
| 56-55-3 | 1,2-Benzanthracene | 0.5 - 1.6 | 91-20-3 | Naphthalene | 3.0 - 12.0 |
| 50-32-8 | Benzo(a)pyrene | <0.1 - 2.0 | | | |

State Regulations: The product, **Crude Coal Tar** as a whole is not listed in any state regulations. However, individual components of the product are listed in various state regulations:

California Prop.
65:



Crude Coal Tar as a whole is not listed, however components of this product can expose you to chemicals including benzene and naphthalene which is known to the State of California to cause cancer; and benzene and toluene which is known to the State of California to cause reproductive toxicity. For more information go to www.P65Warnings.ca.gov.

Other Regulations:

WHMIS Classification (Canadian): The product, **Crude Coal Tar** is listed as a whole.

| Ingredients | WHMIS Classification |
|-------------|--|
| Coal Tar | Germ cell mutagenicity - Category 2; Carcinogenicity - Category 1A |

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

Section 16 - Other Information

Prepared By: United States Steel Corporation

Revision History:

10/30/2024 – Update Sections 1 & 14

08/05/2020 – Update Locations and Sections 2, 8, 11 & 15

06/21/2017 – Update WHMIS 2015

Expiration Date: Not Applicable

4/16/2014 - Update to OSHA HAZ COM 2012

4/18/2011 – Update of content and format to comply with GHS

05/1992 – Original

Additional Information:

Hazardous Material Identification System (HMIS) Classification

| | |
|-----------------|---|
| Health Hazard | 2 |
| Fire Hazard | 1 |
| Physical Hazard | 1 |

HEALTH= 2, * Denotes Temporary or minor injury may occur.

FIRE= 1, Materials that must be preheated before ignition will occur. Includes liquids, solids and semi solids having a flash point above 200°F. (Class IIIB).

PHYSICAL HAZARDS= 1, Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.

National Fire Protection Association (NFPA)



HEALTH = 2- Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.

FIRE = 1 - Must be preheated before ignition can occur.

INSTABILITY = 1- Normally stable, but can become unstable at elevated temperatures and pressures or may react with water with some release of energy, but not violently

ABBREVIATIONS/ACRONYMS:

| | | | |
|---------|---|-------|---|
| ACGIH | American Conference of Governmental Industrial Hygienists | NIOSH | National Institute for Occupational Safety and Health |
| BEIs | Biological Exposure Indices | NTP | National Toxicology Program |
| CAS | Chemical Abstracts Service | ORC | Organization Resources Counselors |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act | OSHA | Occupational Safety and Health Administration |
| CFR | Code of Federal Regulations | PEL | Permissible Exposure Limit |
| CNS | Central Nervous System | PNOR | Particulate Not Otherwise Regulated |
| GI, GIT | Gastro-Intestinal, Gastro-Intestinal Tract | PNOC | Particulate Not Otherwise Classified |

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Section 16 - Other Information (continued)

ABBREVIATIONS/ACRONYMS (continued):

| | | | |
|-------------------------|--|--------------|--|
| HMIS | Hazardous Materials Identification System | PPE | Personal Protective Equipment |
| IARC | International Agency for Research on Cancer | ppm | parts per million |
| LC50 | Median Lethal Concentration | RCRA | Resource Conservation and Recovery Act |
| LD50 | Median Lethal Dose | RTECS | Registry of Toxic Effects of Chemical Substances |
| LD_{Lo} | Lowest Dose to have killed animals or humans | SARA | Superfund Amendment and Reauthorization Act |
| LEL | Lower Explosive Limit | SCBA | Self-contained Breathing Apparatus |
| µg/m³ | microgram per cubic meter of air | SDS | Safety Data Sheet |
| mg/m³ | milligram per cubic meter of air | STEL | Short-term Exposure Limit |
| mppcf | million particles per cubic foot | TLV | Threshold Limit Value |
| NFPA | National Fire Protection Association | TWA | Time-weighted Average |
| NIF | No Information Found | UEL | Upper Explosive Limit |

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.