



United States Steel Corporation

Tar Decanter Sludge Safety Data Sheet (SDS)

USS IHS Number: 82457

(Replaces USS Code Number: 50774, 52317, 15404, 14820)

Locations: Clairton Works, Granite City Works, Gary Works, Hamilton Works, Lake Erie Works, USSK

Original: 12/16/2010

Revision: 12/31/2020

Section 1 – Identification

1(a) Product Identifier used on Label: Tar Decanter Sludge

1(b) Other Means of Identification: None

1(c) Recommended use of the chemical and restrictions on use: Beneficial reuse; none known

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, Room 1662 FAX: (412) 433-5019
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: Tar Decanter Sludge 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 “GLOBALY 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)
	Germ Cell Mutagenicity - 1B Carcinogenicity - 1A Toxic Reproduction - 1B	WARNING	May cause allergic skin reaction. May cause genetic defects, cancer and damage fertility or the unborn child.
	Skin Sensitization - 1		

Precautionary Statement(s):

Prevention	Response	Storage/Disposal
Wear protective gloves/protective clothing/eye protection/face protection. Avoid breathing/gas/mist/vapors/spray. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Contaminated work clothing must not be allowed out of the workplace	If exposed or concerned: Get medical advice/attention. If on skin: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse.	Store locked up.

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:

Chemical Name	CAS Number	EC Number	% weight
Coal Tar	65996-93-2	266-028-2	40-81
Carbon	7440-44-0	231-153-3	<25

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Section 3 – Composition/Information on Ingredients (continued)

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

Chemical Name	CAS Number	EC Number	% weight
Ash	Mixture	Mixture	<3
Water	7732-18-5	231-791-2	<36
Sulfur	7704-34-9	231-722-6	1

EC- European Community

CAS- Chemical Abstract Service

Section 4 – First-aid Measures

4(a) Description of necessary measures: If exposed or concerned: Get medical advice/attention.

- **Inhalation:** If inhaled: Remove person to fresh air and keep comfortable for breathing.
- **Eye Contact:** If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- **Skin Contact: If on skin: Wash with plenty of water** If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse.
- **Ingestion: If swallowed: Seek medical attention.** 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 crude coal tar can cause skin irritation characterized by skin itching, burning, swelling and redness. Phototoxic reactions may occur following exposure to sunlight or ultraviolet light.
- **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.

Delayed (chronic) Effects:

May cause genetic defects and damage fertility or the unborn child. Harmful if inhaled or absorbed through the skin. Phototoxic. May cause allergic skin reactions and 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 exposed or concerned: Get medical advice/attention.

Section 5 – Fire-fighting Measures

5(a) Suitable (and unsuitable) Extinguishing Media: In case of fire: Use steam, water fog, foam, dry powder of carbon dioxide for extinction. Do not use a solid stream of water as it may scatter and spread the fire.

5(b) Specific Hazards arising from the chemical: 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.

Section 6 - Accidental Release Measures

6(a) Personal Precautions, Protective Equipment and Emergency Procedures: For spills, clean-up personnel should be protected against contact. 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. 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.

Section 7 - Handling and Storage

7(a) Precautions for Safe Handling: Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves / protective clothing / eye protection / face protection. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid direct contact on skin, eyes or on clothing. Emergency safety showers and eye wash stations should be present.

7(b) Conditions for Safe Storage, including any Incompatibilities: Store locked up.

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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
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)
Carbon	NE	NE	NE	NE
Sulfur	NE	NE	NE	NE

NE - None Established

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

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-1970s 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: 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.

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. Half-face, negative-pressure, air-purifying respirator equipped with P100 filter is acceptable for concentrations up to 10 times the exposure limit. Full-face, negative-pressure, air-purifying respirator equipped with P100 filter is acceptable for concentrations up to 50 times the exposure limit. Protection by air-purifying negative-pressure and powered air respirators is limited. Use a positive-pressure-demand, 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. Wear protective gloves.
- **Other protective equipment:** An eyewash fountain and deluge shower should be readily available in the work area.

Section 9 - Physical and Chemical Properties

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| <p>9(a) Appearance (physical state, color, etc.): Black, gritty, wet</p> <p>9(b) Odor: Aromatic, naphthalene, ammonia</p> <p>9(c) Odor Threshold: NA</p> <p>9(d) pH: 6-9</p> <p>9(e) Melting Point/Freezing Point: NA</p> <p>9(f) Initial Boiling Point and Boiling Range: >260 °C</p> <p>9(g) Flash Point: 200 °C</p> <p>9(h) Evaporation Rate: NA</p> <p>9(i) Flammability (solid, gas): NA</p> | <p>9(j) Upper/Lower Flammability or Explosive Limits: NA</p> <p>9(k) Vapor Pressure: NA</p> <p>9(l) Vapor Density (Air = 1): 2.2</p> <p>9(m) Relative Density: 1.2 SG</p> <p>9(n) Solubility(ies): NA</p> <p>9(o) Partition Coefficient n-octanol/water: NA</p> <p>9(p) Auto-ignition Temperature: ND</p> <p>9(q) Decomposition Temperature: ND</p> <p>9(r) Viscosity: ND</p> |
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NA - Not Applicable

ND - Not Determined for product as a whole

Section 10 - Stability and Reactivity

- 10(a) Reactivity:** Not Determined (ND)
- 10(b) Chemical Stability:** Tar Decanter Sludge is stable under normal storage and handling conditions.
- 10(c) Possibility of Hazardous Reaction:** None Known

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Section 10 - Stability and Reactivity (continued)





10(d) Conditions to Avoid: Storage with incompatible materials. Flames and ignition sources where dust can accumulate.

10(e) Incompatible Materials: Strong oxidants, sparks, open flames.

10(f) Hazardous Decomposition Products: Oxides of carbon, sulfur, carbon black, and other toxic vapors may be released at elevated temperatures.

Section 11 - Toxicological Information

11(a-e) Information on Toxicological Effects: The following toxicity data has been determined for **Tar Decanter Sludge** 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			
Skin/Respiratory Sensitization (covers Category 1)	1 ^a	1 ^a		Warning	May cause allergic skin reaction.
Germ Cell Mutagenicity (covers Categories 1A, 1B and 2)	1B ^b	1B ^b		Danger	May cause genetic defects.
Carcinogenicity (covers Categories 1A, 1B and 2)	1A ^c	1A ^c		Danger	May cause cancer.
Toxic Reproduction (covers Categories 1A, 1B and 2)	1B ^d	1B ^d		Danger	May damage fertility or the unborn child.

* NR Not Rated - Available data does not meet criteria for classification.

The 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. No LC₅₀ or LD₅₀ has been established for **Tar Decanter Sludge**. The following data has been determined for the components:

- **Coal Tar:** Rat LD₅₀ > 2000 mg/kg (REACH)
Mouse LD₅₀ > 1600 mg/kg (IUCLID)

b. No Skin/Dermal Sensitization data available for **Tar Decanter Sludge** as a mixture or its components.

c. No Eye Irritation data available for **Tar Decanter Sludge** as a mixture or its components.

d. No Skin (Dermal)/Respiratory Sensitization data available for **Tar Decanter Sludge** as a mixture. The following Skin (Dermal)/Respiratory Sensitization information was found for the components:

- Coal Tar: Photosensitizing

e. No Aspiration Hazard data available for **Tar Decanter Sludge** as a mixture or its components.

f. No Germ Cell Mutagenicity data available for **Tar Decanter Sludge** as a mixture. The following Germ Cell Mutagenicity information was found for the components:

- Coal Tar - Positive ames test, bacterial mutation

g. No Carcinogenicity data available for **Tar Decanter Sludge** as a mixture. The following Carcinogenicity information was found for the components:

- **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

h. No Reproductive Toxicity data available for **Tar Decanter Sludge** as a mixture. The following Reproductive Toxicity information was found for the components:

- Coal Tar: Reproductive toxin based on REACH classification.

i. No Specific Target Organ Toxicity (STOT) following a Single Exposure data available for **Tar Decanter Sludge** or its components.

j. No Specific Target Organ Toxicity (STOT) following Repeated Exposure data was available for **Tar Decanter Sludge** or its components.

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 2020, 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 (IUCLID), 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.

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Section 11 - Toxicological Information (continued)

Acute Effects by Component (continued):

- **Carbon:** Not Reported/ Not Classified
- **Sulfur:** Sulfur is harmful if swallowed, causes skin and eye irritation.

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.
- **Carbon:** Chronic inhalation may lead to decreased pulmonary function.
- **Sulfur:** Sulfur compounds, present in the fumes, may irritate the skin, eyes, lungs and gastrointestinal tract. May cause damage to the lung from prolonged or repeated exposure, Sulfur dioxide vapor is irritating to the respiratory tract and can cause lung damage with repeated or prolonged exposure.

Section 12 - Ecological Information

12(a) Ecotoxicity (aquatic & terrestrial): No Data Found

12(b) Persistence & Degradability: Loss due to volatility

12(c) Bioaccumulative Potential: No Data Found

12(d) Mobility (in soil): No Data Found

12(e) Other adverse effects:

Additional Information:

Hazard Category: Not Reported

Signal Word: No Signal Word

Hazard Symbol: No Symbol

Hazard Statement: No Statement

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. Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste.

European Waste Catalogue (EWC): 05-06-03 (other tars); hazardous waste.

Container Cleaning and Disposal: Dispose of contents in accordance with federal, state and local regulations. Observe safe handling precautions.

Section 14 - Transport Information

14 (a-g) Transportation Information:

US Department of Transportation (DOT) under 49 CFR 172.101 regulates **Tar Decanter Sludge** as a hazardous material when shipped in a quantity greater than 10,000 lbs in one container. All federal, state, and local laws and regulations that apply to the transport of this type of material must be adhered to.

<p>Shipping Name: Environmentally Hazardous Substances, liquid n.o.s.</p> <p>Shipping Symbols: G</p> <p>Hazard Class: 9</p> <p>UN No.: UN3082</p> <p>Packing Group: III</p> <p>DOT/IMO Label: 9</p> <p>Special Provisions (172.102): 8, 146, 173, 335, IB3, T4, TP1, TP29</p>	<p>Packaging Authorizations</p> <p>a) Exceptions: 155</p> <p>b) Non-bulk: 203</p> <p>c) Bulk: 241</p>	<p>Quantity Limitations</p> <p>a) Passenger Aircraft or Rail: No Limit</p> <p>b) Cargo Aircraft Only: No Limit</p> <p>Vessel Stowage Location: A</p> <p>DOT reportable quantities: NA</p>
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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) does regulate **Tar Decanter Sludge** as a hazardous material.

<p>Shipping Name: Environmentally Hazardous Substances, liquid, n.o.s.</p> <p>Class / Classification Code: 9 / M6</p> <p>UN No.: UN3082</p> <p>Packing Group: III</p> <p>ADR Label: 9</p> <p>Special Provisions: 274,335, 375, 601</p> <p>Limited / Exempted Quantities: 5L / E1</p>	<p>Packaging</p> <p>a) Packing Instructions: P001, IBC03, LP01, R001</p> <p>b) Special Packing Provisions: PP1</p> <p>c) Mixed Packing Provisions: MP19</p>	<p>Portable Tanks & Bulk Containers</p> <p>a) Instructions: T4</p> <p>b) Special Provisions: TP1, TP29</p>
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Section 16 - Other Information (continued)

ABBREVIATIONS/ACRONYMS:

ACGIH	American Conference of Governmental Industrial Hygienists		NIF	No Information Found
BEIs	Biological Exposure Indices		NIOSH	National Institute for Occupational Safety and Health
CAS	Chemical Abstracts Service		NTP	National Toxicology Program
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act		ORC	Organization Resources Counselors
CFR	Code of Federal Regulations		OSHA	Occupational Safety and Health Administration
CNS	Central Nervous System		PEL	Permissible Exposure Limit
GI, GIT	Gastro-Intestinal, Gastro-Intestinal Tract		PNOR	Particulate Not Otherwise Regulated
HMIS	Hazardous Materials Identification System		PNOC	Particulate Not Otherwise Classified
IARC	International Agency for Research on Cancer		PPE	Personal Protective Equipment
LC50	Median Lethal Concentration		ppm	parts per million
LD50	Median Lethal Dose		RCRA	Resource Conservation and Recovery Act
LD_{Lo}	Lowest Dose to have killed animals or humans		RTECS	Registry of Toxic Effects of Chemical Substances
LEL	Lower Explosive Limit		SARA	Superfund Amendment and Reauthorization Act
µg/m³	microgram per cubic meter of air		SCBA	Self-contained Breathing Apparatus
mg/m³	milligram per cubic meter of air		STEL	Short-term Exposure Limit
mppcf	million particles per cubic foot		TLV	Threshold Limit Value
SDS	Safety Data Sheet		TWA	Time-weighted Average
MSHA	Mine Safety and Health Administration		UEL	Upper Explosive Limit
NFPA	National Fire Protection Association			

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