United States Steel Corporation

Waste Pickle Liquor

Safety Data Sheet (SDS)

USS IHS Number: 8661

Locations: East Chicago Tin, Fairfield, Gary, Granite City, Great Lakes, Midwest, and Mon Valley

Original: 11/25/1986 **Revision: 6/18/2026**

Section 1 – Identification

1(a) Product Identifier Used on Label: Waste Pickle Liquor

1(b) Other Means of Identification: Spent Pickle Liquor, Ferrous Chloride Solution., Waste Pickle Liquor, Waste Acid

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
Pittsburgh, PA 15219-2800

Phone number: (412) 433-6840 (8:00 am to 5:00 pm)
E-Mail: SDSHelp@USS.com

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): considered a hazardous material according to OSHA 29 CFR 1910.1200 Hazard Communication Standard. Refer to section **2(b)(i)** for hazards associated with **Waste Pickle Liquor** as supplied. Refer to Section 3, 8, 10, 11 and 12 for additional information.

- As supplied, **Waste Pickle Liquor is** considered hazardous according to 29 CFR 1910.1200. For potential hazards associated with **Waste Pickle Liquor as shipped/supplied, Refer to section 2(b)(i).**
- Under reasonably anticipated conditions of use and/or change in physical form, **Waste Pickle Liquor is** considered hazardous according to 29 CFR 1910.1200. For potential hazards associated with **a change in the physical form of Waste Pickle Liquor**, **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)
	Eye Irritation - 1 Skin Irritation – 1B Corrosive to Metals - 1	**DANGER**	Causes severe skin burns and serious eye damage. Harmful if swallowed or inhaled. May be corrosive to metals. May cause respiratory irritation.
	Acute Toxicity-Oral – 4 STOT SE Category - 3		

Precautionary Statement(s):

Prevention	Response	Storage/Disposal
Do not breathe mists, vapors or sprays. Wear protective gloves/protective clothing/eye protection/face protection. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Keep in tightly closed containers Keep only in original packaging. Use only outdoors or in a well-ventilated area.	If in eyes: Immediately rinse 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. Immediately rinse with water for several minutes. Wash contaminated clothing before reuse. If swallowed: Get medical help. Call a poison center or doctor/physician if you feel unwell. Rinse mouth. Do NOT induce vomiting. If inhaled: Remove person to fresh air and keep comfortable for breathing. Get medical help if you feel unwell. Absorb spillage to prevent material-damage.	Store locked up. Store in a well-ventilated place. Keep container tightly closed. Protect from sunlight. Dispose of contents in accordance with federal, state and local regulations. Store in a corrosion resistant container with a resistant inner liner.

Section 2 – Hazard(s) Identification (continued)

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

2(c) Hazards Created by Chemical Reaction: None known

2(d) Hazards Not Otherwise Classified: None known

2(e) 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	% Volume
Ferrous Chloride	7758-94-3	12.4 - 27.8
Hydrochloric Acid	7647-01-0	1.7 - 7.0
Water	7732-18-5	65.2 - 85.9

CAS- Chemical Abstract Service

3(d) Impurities and other constituents below the call out that may contribute to the classification of the substance: Waste Pickle Liquor contains small amounts of various constituents in addition to those listed. These small quantities are frequently referred to as "trace" or "residual" constituents that generally originate in the raw materials used. **Waste Pickle Liquor** may contain the following trace or residual constituents: chromium (III) oxide, calcium oxide, and aluminum oxide.

Section 4 – First-aid Measures

4(a) Description of Necessary Measures:

- **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. Immediately call a poison center or doctor.
- **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: Call a poison center or doctor/physician if you feel unwell. Rinse mouth. Do NOT induce vomiting.

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

Acute Effects:

- **Inhalation: Corrosive!** Inhalation of vapors can cause coughing**,** choking, inflammation of the nose, throat, and upper respiratory tract, and in severe cases pulmonary edema, circulatory failure, and death.
- **Eye: Corrosive!** Vapors are irritation and may cause damage to the eyes. Contact may cause severe burns and permanent eye damage.
- **Skin: Corrosive!** Can cause redness, pain and severe skin burns. Concentrated solutions cause deep ulcers and discolor skin.
- **Ingestion: Corrosive!** Causes damage to respiratory and gastrointestinal tracts with oral exposures. Causes damage to cardiovascular system following oral exposure.

Chronic (Delayed) Effects: Individuals with chronic respiratory disorders (i.e., asthma, chronic bronchitis, emphysema, etc.) may be adversely affected by low level exposures. Persons with pre-existing skin disorders may be more susceptible to dermatitis.

4(c) Immediate Medical Attention and Special Treatment: Treat symptomatically.

Section 5 – Fire-fighting Measures

5(a) Suitable (and Unsuitable) Extinguishing Media: Use extinguishers appropriate for surrounding materials.

5(b) Specific Hazards Arising from the Chemical: Irritating gasses and vapors may form in fire.

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, personnel should be protected against contact with eyes and skin and avoid inhalation of vapor/mist. Use water spray to contain acid vapors. Ventilate area of leak or spill. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Neutralize with alkaline material (soda ash, lime), then absorb with an inert material (e.g., vermiculite, dry sand, earth), and place in an appropriately marked chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer.

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: Do not breathe mists, vapors or sprays. Wear protective gloves/protective clothing/eye protection/face protection. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Emergency safety showers and eye wash stations should be present.

7(b) Conditions for Safe Storage, including any Incompatibilities: Whenever feasible, store locked up. Do not store in metal containers.

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]
Ferrous Chloride	10 mg/m³ (as iron oxide fume)	1.0 mg/m³ (as iron salts (soluble, as Fe)	1.0 mg/m³ (as iron salts (soluble, as Fe)	NE
Hydrochloric Acid	"C" 5.0 ppm	"C" 2.0 ppm	"C" 5.0 ppm	50 ppm

NE – Not Established

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. 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.

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 an Ammonia/Methylamine filter is acceptable for concentrations up to 10 times the exposure limit. Full-face, negative-pressure, air-purifying respirator equipped with an Ammonia/Methylamine 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 eye protection/face protection. A face shield should be used when appropriate to prevent contact with splashed materials. 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.
- **Skin**: Persons handling this product should wear appropriate clothing to prevent skin contact. Take off contaminated clothing and wash before reuse. Contaminated work clothing should not be allowed out of the workplace. 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

9(a) Physical State: Liquid

9(b) Color: Greenish-yellow

9(c) Odor and Odor Threshold: Slightly pungent, irritating and NA

9(d) Melting Point/Freezing Point: NA

9(e) Initial Boiling Point and Boiling Range: ≈220°F (104.4°C)

9(f) Flammability: NA

9(g) Upper/ lower Flammability or Explosive Limits: NA

9(h) Flash Point: NA

9(i) Autoignition Temperature: ND

9(j) Decomposition Temperature: ND

9(k) pH: <1

9(l) Kinematic Viscosity: ND

9(m) Solubility: Water Soluble

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

9(o) Vapor Pressure (including evaporation rate: NA

9(p) Density/ Relative Density: ≈1.1 - 1.25SG

9(q) Relative Vapor Density: NA

9(r) Particle Characteristics: NA

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: Waste Pickle Liquor is stable under normal storage and handling conditions. Containers may burst when heated.

10(c) Possibility of Hazardous Reaction: None Known

10(d) Conditions to Avoid: Heat, flames, sparks and other sources of ignition. Dangerous gases may accumulate in confined spaces. May ignite or explode on contact with combustible materials.

10(e) Incompatible Materials: Metals, bases (alkaline materials), ethylene oxide, halocarbons, acids, and combustible materials. Forms shock sensitive explosive mixtures with some metals (e.g. potassium; sodium).

10(f) Hazardous Decomposition Products: Thermal decomposition: hydrochloric acid. Contact with metals may evolve flammable hydrogen gas. Containers may explode when heated.

Section 11 - Toxicological Information

Information on Toxicological Effects: The following toxicity data have been determined for the **Waste Pickle Liquor and its Components:**

Potential Health Effects:

11(a) Likely Routes of Exposure: Inhalation, Skin or Eye.

11(b) Symptoms Related to Physical, Chemical and Toxicological Characteristics: Causes severe skin burns and serious eye damage. Harmful if swallowed or inhaled.

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

- **Ferrous Chloride:** Repeated ingestion may cause liver damage. Signs and symptoms of severe poisoning with large amounts of ferrous salts consist of abdominal pain, diarrhea, or vomiting brown or bloody stomach contents, pallor or cyanosis, lassitude, drowsiness, hyperventilation due to acidosis, and cardiovascular collapse. If death does not occur within 6 hours, there may be a transient period of apparent recovery, followed by death in 12 to 24 hours. The corrosive injury to the stomach may result in subsequent pyloric stenosis or gastric scarring. Hemorrhagic gastroenteritis and hepatic damage are prominent findings at autopsy.
- **Hydrochloric Acid:** Respiratory tract irritation observed at 10 ppm and above in repeat-dose inhalation studies. The toxicity of HCl is related to exposure to high concentrations of acid. The acid causes irritation to skin, eyes, respiratory tract and other exposed areas. Skin and eye Irritation of HCl aqueous solutions are dependent on concentration of HCl. Aqueous solutions of HCl up to10% were not irritating to skin in rabbits. However, a 15% solution and higher was corrosive to rabbit skin. Aqueous solutions of HCl of 10% and over were corrosive to the eye. In humans, a 4% solution was slightly irritating.

11(d) Numerical Measures of Toxicity for the Product and/ or Components or Acute Toxicity Estimates (ATE):

Inhalation/ Oral: No LC_{50} or LD_{50} has been established for **Waste Pickle Liquor**. The following data have been determined for the components:

- **Ferrous Chloride:** Rat Oral LD_{50} 29.74 mg/kg (REACH)
- **Hydrochloric Acid:** Rat LC_{50} 1.68 mg/L – 1hr.; Rat Oral LD_{50} 238-277 mg/kg

Skin (Dermal) Irritation:

No Skin (Dermal) Irritation data available for **Waste Pickle Liquor** as a mixture. The following Skin (Dermal) Irritation data has been determined for the components:

- **Hydrochloric Acid:** Corrosive
- **Ferrous Chloride:** Prolonged skin contact may cause irritation.

Eye Irritation:

No Eye Irritation data available for **Waste Pickle Liquor** as a mixture. The following Eye Irritation information was found for the components:

- **Hydrochloric Acid:** Corrosive
- **Ferrous Chloride:** Rabbit: Irreversible effect on eye (Corrosive) (REACH).

Skin (Dermal)/Respiratory Sensitization:

No Skin (Dermal)/Respiratory Sensitization data available for **Waste Pickle Liquor** as a mixture or its individual components.

Aspiration Hazard:

No Aspiration Hazard data available for **Waste Pickle Liquor** as a mixture or its individual components.

Germ Cell Mutagenicity:

No Germ Cell Mutagenicity data available for **Waste Pickle Liquor** as a mixture. The following Germ Cell Mutagenicity information was found for the components:

- **Hydrochloric Acid:** Not active. Any positive responses seen as pH artifacts.

Reproductive Toxicity:

No Toxic Reproduction data available for **Waste Pickle Liquor** as a mixture or its individual components.

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

No Specific Target Organ Toxicity (STOT) following a Single Exposure data available for **Waste Pickle Liquor** as a mixture. The following STOT information was found for the components:

- **Hydrochloric Acid:** HSDB reports respiratory tract and gastrointestinal tract irritation or corrosion.
- **Ferrous Chloride:** HSDB reports damage occurs in blood vessels in poisoning.

Section 11 - Toxicological Information (continued)

Information on Toxicological Effects (continued):

11(d) Numerical Measures of Toxicity for the Product and/ or Components or Acute Toxicity Estimates (ATE) (continued):

Specific Target Organ Toxicity (STOT) following Repeated Exposure:

No Specific Target Organ Toxicity (STOT) following Repeated Exposure data was available for **Waste Pickle Liquor** as a mixture. The following STOT following Repeated Exposure data was found for the components:

- **Hydrochloric Acid:** Respiratory tract irritation observed at 10 ppm and above**.**

11(e) Interactive Effects: The toxicological effects of **Waste Pickle Liquor** as a mixture have not been fully evaluated.

11(f) Carcinogenicity*:

Carcinogenicity: IARC, NTP, and OSHA do not list **Waste Pickle Liquor** as carcinogens. The following Carcinogenicity information was found for the components:

- **Hydrochloric Acid:** Not carcinogenic in 2 year inhalation study in rats at concentrations up to 10 ppm. IARC Cat 3, ACGIH A4.

* 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), 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 (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).

Section 12 - Ecological Information

12(a) Ecotoxicity (aquatic & terrestrial): No Data Available for the product as a mixture.

12(b) Persistence & Degradability: No Data Available

12(c) Bioaccumulative Potential: No Data Available

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

12(a) Ecotoxicity (aquatic & terrestrial): No Data Available for the product, as a mixture.

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 Symbol

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 Waste Pickle Liquor 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 **Waste Pickle Liquor** 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: Waste Pickle Liquor as a mixture**,** and/ or its constituents, may be regulated by OSHA and/ or EPA**.**

State Regulations: Waste Pickle Liquor as a mixture, and/ or its constituents, may be listed in various state regulations.

California Prop. 65: Waste Pickle Liquor does not contain elements known to the State of California to cause cancer or reproductive toxicity.

Section 16 - Other Information

Prepared By: United States Steel Corporation

Revision History:

6/18/26 – Update to OSHA HAZ COM 2024 GHS

9/15/2017 – Update to OSHA HAZ COM 2012 & WHMIS 2015

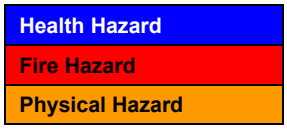
6/28/2011 - Update of content and format to comply with GHS

11/25/1986 - Original

Section 16 - Other Information (continued)

Additional Information:

Hazardous Material Identification System (HMIS) Classification



HEALTH= 3, * Major injury likely unless prompt action is taken and medical treatment is given.
FIRE = 0 (Material will not burn).
Physical Hazards = 0 (Materials that are normally stable)

National Fire Protection Association (NFPA)

HEALTH = 3, Short exposure could cause serious temporary or residual injury even though prompt medical attention was given.
FIRE = 0 (Material will not burn).
REACTIVITY = 0 (Normally stable)
SPECIAL HAZARDS = NA

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
LC_{50}	Median Lethal Concentration	**RTECS**	Registry of Toxic Effects of Chemical Substances
LD_{50}	Median Lethal Dose	**SARA**	Superfund Amendment and Reauthorization Act
LD_{Lo}	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.