Section 1 - PRODUCT AND COMPANY IDENTIFICATION

Material Name
NAPHTHALENE

Synonyms
NAPHTHALENE CRUDE 78 DEGREE; NAPHTHALENE INTERMEDIATE 79 DEGREE; NAPHTHALENE Refined 80 DEGREE

Chemical Family
polynuclear aromatic hydrocarbons

Product Use
process chemical.

Restrictions on Use
None known.

Details of the supplier of the safety data sheet
KOPPERS INC.
436 Seventh Avenue
Pittsburgh, PA 15219-1800
Mfg Contact: 412-227-2001 (SDS Requests: 866-852-5239)

CHEMTREC: 800-424-9300 (Outside USA: +1 703-527-3887)
Emergencies: (Medical in USA): 877-737-9047
Emergencies: (Medical Outside of USA): 651-632-9269
E-mail: naorgmsds@koppers.com

Section 2 - HAZARDS IDENTIFICATION

Classification in accordance with paragraph (d) of 29 CFR 1910.1200.

Flammable Liquids - Category 4
Acute Toxicity - Oral - Category 4
Carcinogenicity - Category 2
Specific target organ toxicity - Repeated exposure - Category 1 (blood)
Hazardous to the Aquatic Environment - Acute - Category 1
Hazardous to the Aquatic Environment - Chronic - Category 1

GHS Label Elements

Symbol(s)

Signal Word
Danger

Hazard Statement(s)
Combustible liquid.
Harmful if swallowed.
Suspected of causing cancer.
Causes damage to organs through prolonged or repeated exposure. Very toxic to aquatic life with long lasting effects.

Precautionary Statement(s)

Prevention
Keep away from heat/sparks/open flame/hot surfaces - No smoking. Do not breathe vapor or mist. Wear protective gloves/protective clothing/eye protection/face protection. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid release to the environment.

Response
In case of fire, use media appropriate for extinction. IF exposed or concerned: Get medical advice/attention. IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth. Collect spillage.

Storage
Store in a well-ventilated place. Keep cool. Store locked up.

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

Statement(s) of Unknown Acute Toxicity
Oral 2% of the mixture consists of ingredient(s) of unknown acute toxicity.

Other Hazards
Heated material may cause thermal burns.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>CAS</th>
<th>Component Name</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>91-20-3</td>
<td>Naphthalene</td>
<td>95-100</td>
</tr>
<tr>
<td>95-15-8</td>
<td>Benzo[b]thiophene</td>
<td>1-2</td>
</tr>
<tr>
<td>91-57-6</td>
<td>2-Methylnaphthalene</td>
<td>&lt;1</td>
</tr>
<tr>
<td>1319-77-3</td>
<td>Cresol</td>
<td>&lt;1</td>
</tr>
<tr>
<td>92-52-4</td>
<td>Biphenyl</td>
<td>&lt;1</td>
</tr>
<tr>
<td>90-12-0</td>
<td>1-Methylnaphthalene</td>
<td>&lt;1</td>
</tr>
</tbody>
</table>

Section 4 - FIRST AID MEASURES

Inhalation
If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.
Skin
Wash skin with soap and water or use a waterless handcleaner while removing contaminated clothing and shoes. For thermal burns, cool affected areas as quickly as possible by drenching or immersing in water until material solidifies. Get immediate medical attention.

Eyes
Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Then get immediate medical attention.

Ingestion
Not a likely route of exposure. If burns occur, treat as thermal burns. Do NOT induce vomiting. If a large amount is swallowed, get medical attention. Do not give anything by mouth to unconscious or convulsive person. If vomiting occurs, keep head lower than hips to help prevent aspiration. Rinse mouth.

Most Important Symptoms/Effects

Acute
Harmful if swallowed

Delayed
blood damage, nasal cancer, lung tumors

Indication of any immediate medical attention and special treatment needed
Treat symptomatically and supportively.

Section 5 - FIRE FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media
regular dry chemical, carbon dioxide, dry sand, earth, water spray, regular foam, Large fires: Use water spray, fog or regular foam.

Unsuitable Extinguishing Media
Do not use water jets.

Special Hazards Arising from the Chemical
Moderate fire hazard. Vapor/air mixtures are explosive above flash point. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back.

Hazardous Combustion Products
oxides of carbon

Fire Fighting Measures
Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Directly spraying water or foam onto hot burning product may cause frothing. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. Keep unnecessary people away, isolate hazard area and deny entry. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire.

Special Protective Equipment and Precautions for Firefighters
Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

Section 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures
Avoid inhalation or contact. Provide adequate ventilation. Wear personal protective clothing and equipment, see Section 8. Avoid release to the environment. Collect spillage.
Methods and Materials for Containment and Cleaning Up
Eliminate all ignition sources if safe to do so. Do not touch or walk through spilled material. Stop leak if possible without personal risk. Small spills: Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. Large spills: Dike for later disposal. Prevent entry into waterways, sewers, basements, or confined areas. In Canada, report releases to provincial authorities, municipal authorities, or both, as required. If this product is spilled or leaked into the environment, the CERCLA (40 CFR 302.4) reportable quantity is 100 pounds, and requires National Response Center notification.

Section 7 - HANDLING AND STORAGE

Precautions for Safe Handling
Keep away from flames and hot surfaces. No smoking. Do not breathe vapor or mist. Avoid breathing vapors of heated materials. Avoid contact with eyes, skin and clothing. Use only in well ventilated area. Wash exposed areas thoroughly with soap and water, or a waterless handcleaner, after skin contact and before eating, drinking, using tobacco products, or restrooms. Contaminated clothing should be removed and laundered before reuse. Wear protective gloves/clothing and eye/face protection. Do not eat, drink, or smoke when using this product. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.

Conditions for Safe Storage, Including any Incompatibilities
Store in a well-ventilated place.
Keep cool.
Store locked up.
Store and handle in accordance with all current regulations and standards. Label all containers. Keep away from heat, sparks and naked flames. Store in a cool, dry place. Protect from physical damage. Keep separated from incompatible substances.

Incompatible Materials
oxidizing materials

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

<table>
<thead>
<tr>
<th>Naphthalene</th>
<th>91-20-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH:</td>
<td>10 ppm TWA</td>
</tr>
<tr>
<td>Skin - potential significant contribution to overall exposure by the cutaneous route</td>
<td></td>
</tr>
<tr>
<td>OSHA (US):</td>
<td>10 ppm TWA ; 50 mg/m3 TWA</td>
</tr>
</tbody>
</table>

ACGIH - Threshold Limit Values - Biological Exposure Indices (BEI)
Naphthalene (91-20-3)
Time: end of shift Parameter: 1-Naphthol with hydrolysis plus 2-Naphthol with hydrolysis (nonquantitative, nonspecific)

Engineering Controls
Ensure adequate ventilation. Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Ensure compliance with applicable exposure limits.

Individual Protection Measures, such as Personal Protective Equipment
Eye/face protection
ANSI Z87.1-1989 approved safety glasses with side shields. Provide an emergency eye wash fountain and quick drench shower in the immediate work area. For the molten form: A face shield is recommended.
Safety Data Sheet

Material Name: NAPHTHALENE  
SDS ID: 00228306

Skin Protection
Wear protective clothing to prevent contact. Contaminated clothing should be removed and laundered before reuse. In the molten form: Wear appropriate heat resistant clothing.

Respiratory Protection
If the applicable TLVs and/or PELs are exceeded, use canister or cartridge respirators, which are MSHA/NIOSH-approved, with organic vapor cartridges and high-efficiency particulate filters.

Glove Recommendations
Wear appropriate gloves. In the molten form: Wear appropriate heat resistant gloves.

Protective Materials
chemical resistant material, heat resistant material

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>forms crystals during cooling</td>
</tr>
<tr>
<td>Physical State</td>
<td>liquid</td>
</tr>
<tr>
<td>Odor</td>
<td>mothball odor</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>0.003 ppm</td>
</tr>
<tr>
<td>Melting Point</td>
<td>77 - 80 °C</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>218 °C</td>
</tr>
<tr>
<td>Boiling Point Range</td>
<td>Not available</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>&lt;1 (Ether = 1)</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>526 °C</td>
</tr>
<tr>
<td>Flash Point</td>
<td>&gt;80 °C</td>
</tr>
<tr>
<td>Lower Explosive Limit</td>
<td>0.9 % (by volume )</td>
</tr>
<tr>
<td>Upper Explosive Limit</td>
<td>5.9 % (by volume )</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>4.42</td>
</tr>
<tr>
<td>Specific Gravity (water=1)</td>
<td>1.028 at 4 °C</td>
</tr>
<tr>
<td>Water Solubility</td>
<td>0.003 wt%</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>Not available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not available</td>
</tr>
<tr>
<td>Density</td>
<td>1.162 g/cc at 4 °C</td>
</tr>
<tr>
<td>Log KOW</td>
<td>3.7 at 25 °C</td>
</tr>
<tr>
<td>Physical Form</td>
<td>liquid when loaded, solid at room temperature, changes from solid to liquid as temperature increases</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>Not available</td>
</tr>
</tbody>
</table>
Safety Data Sheet

Material Name: NAPHTHALENE

Other Information
No additional information is available.

Section 10 - STABILITY AND REACTIVITY

Reactivity
No reactivity hazard is expected.

Chemical Stability
Stable at normal temperatures and pressure.

Possibility of Hazardous Reactions
Will not polymerize.

Conditions to Avoid
Avoid heat, flames, sparks and other sources of ignition.

Incompatible Materials
oxidizing materials

Hazardous decomposition products
oxides of carbon

Section 11 - TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Inhalation
blood damage, nasal cancer, lung tumors

Skin Contact
thermal burns from heated material

Eye Contact
temporary irritation, thermal burns from heated material

Ingestion
Harmful if swallowed, blood damage

Acute and Chronic Toxicity

Component Analysis - LD50/LC50
The components of this material have been reviewed in various sources and the following selected endpoints are published:

Naphthalene (91-20-3)
Oral LD50 Rat 1110 mg/kg
Dermal LD50 Rabbit 1120 mg/kg
Inhalation LC50 Rat >340 mg/m3 1 h

Biphenyl (92-52-4)
Dermal LD50 Rabbit >5010 mg/kg (40% solution-suspension in corn oil)

Product Toxicity Data

Acute Toxicity Estimate

<table>
<thead>
<tr>
<th>Route</th>
<th>Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>498.4 mg/kg</td>
</tr>
</tbody>
</table>

Immediate Effects
Harmful if swallowed.

Delayed Effects
blood damage, nasal cancer, lung tumors

Irritation/Corrosivity Data
The material was found to be non-irritating.

Respiratory Sensitization
No data available.

Dermal Sensitization
Not sensitive.

Component Carcinogenicity

<table>
<thead>
<tr>
<th>Component</th>
<th>Carcinogenicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naphthalene</td>
<td>91-20-3</td>
</tr>
<tr>
<td>ACGIH:</td>
<td>A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans</td>
</tr>
<tr>
<td>IARC:</td>
<td>Monograph 82 [2002] (Group 2B (possibly carcinogenic to humans))</td>
</tr>
<tr>
<td>NTP:</td>
<td>Reasonably Anticipated To Be A Human Carcinogen</td>
</tr>
</tbody>
</table>

Germ Cell Mutagenicity
Negative.

Tumorigenic Data
No data available

Reproductive Toxicity
No data available for the mixture.

Specific Target Organ Toxicity - Single Exposure
No data available.

Specific Target Organ Toxicity - Repeated Exposure
blood

Aspiration hazard
No data available.

Medical Conditions Aggravated by Exposure
respiratory disorders, skin disorders, eye disorders, blood system disorders

Section 12 - ECOLOGICAL INFORMATION

Ecotoxicity
Very toxic to aquatic life with long lasting effects.

Component Analysis - Aquatic Toxicity

<table>
<thead>
<tr>
<th>Component</th>
<th>Aquatic Toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naphthalene</td>
<td>91-20-3</td>
</tr>
<tr>
<td>Fish:</td>
<td>LC50 96 h Pimephales promelas 5.74 - 6.44 mg/L [flow-through ]; LC50 96 h Oncorhynchus mykiss 1.6 mg/L [flow-through ]; LC50 96 h Oncorhynchus mykiss 0.91 - 2.82 mg/L [static ]; LC50 96 h Pimephales promelas 1.99 mg/L [static ]; LC50 96 h Lepomis macrochirus 31.0265 mg/L [static ]</td>
</tr>
<tr>
<td>Invertebrate:</td>
<td>LC50 48 h Daphnia magna 2.16 mg/L IUCLID ; EC50 48 h Daphnia magna 1.96 mg/L [Flow through ] EPA ; EC50 48 h Daphnia magna 1.09 - 3.4 mg/L [Static ] EPA</td>
</tr>
</tbody>
</table>
Algal Toxicity
Naphthalene: 0.4 mg/L 72 hours EC50 Skeletonema costatum.

Persistence and Degradability
Biodegradable.

Bioaccumulative Potential
This material is believed not to bioaccumulate due to low water solubility. BCF for fish is 168.

Mobility
The product has poor water-solubility.

Other Toxicity
No data available.

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Methods
Dispose in accordance with all applicable regulations.

Component Waste Numbers
The U.S. EPA has not published waste numbers for this product's components.

Section 14 - TRANSPORT INFORMATION

US DOT Information:
Shipping Name: NAPHTHALENE, MOLTEN
Hazard Class: 4.1
UN/NA #: UN2304
Packing Group: III
Required Label(s): 4.1
Marine pollutant
Further information: This material contains reportable quantity (RQ) Hazardous Substances. Applicable shipping classification

IATA Information:
Marine pollutant
Further information: Air shipment is prohibited.

TDG Information:
Shipping Name: NAPHTHALENE, MOLTEN
Hazard Class: 4.1
UN#: UN2304
Packing Group: III
Required Label(s): 4.1
Marine pollutant

International Bulk Chemical Code
This material does not contain any chemicals required by the IBC Code to be identified as dangerous chemicals in bulk.

Further information
US DOT Reportable Quantities NAPHTHALENE (91-20-3) 100 lbs RQ; 45.4 kg RQ

Section 15 - REGULATORY INFORMATION

U.S. Federal Regulations
Material Name: NAPHTHALENE

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

<table>
<thead>
<tr>
<th>Naphthalene</th>
<th>91-20-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>SARA 313:</td>
<td>0.1 % de minimis concentration</td>
</tr>
<tr>
<td>CERCLA:</td>
<td>100 lb final RQ ; 45.4 kg final RQ</td>
</tr>
</tbody>
</table>

**SARA Section 311/312 (40 CFR 370 Subparts B and C) reporting categories**
Flammable; Carcinogenicity; Acute toxicity; Specific Target Organ Toxicity

**U.S. State Regulations**
The following components appear on one or more of the following state hazardous substances lists:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS</th>
<th>CA</th>
<th>MA</th>
<th>MN</th>
<th>NJ</th>
<th>PA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naphthalene</td>
<td>91-20-3</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**California Safe Drinking Water and Toxic Enforcement Act (Proposition 65)**

WARNING

This product can expose you to chemicals including Naphthalene, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

**Canada Regulations**

**Canadian WHMIS Ingredient Disclosure List (IDL)**
Components of this material have been checked against the Canadian WHMIS Ingredients Disclosure List. The List is composed of chemicals which must be identified on MSDSs if they are included in products which meet WHMIS criteria specified in the Controlled Products Regulations and are present above the threshold limits listed on the IDL.

| Naphthalene | 91-20-3 | 1 % |

**WHMIS Classification**
B3, D2A

**Component Analysis - Inventory**

<table>
<thead>
<tr>
<th>Naphthalene (91-20-3)</th>
</tr>
</thead>
</table>
## Material Name: NAPHTHALENE

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>DS</th>
<th>L</th>
<th>EIN</th>
<th>Yes</th>
<th>Yes</th>
<th>Yes</th>
<th>Yes</th>
<th>Yes</th>
<th>No</th>
<th>No</th>
<th>Yes</th>
<th>Yes</th>
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</table>

### Benzo[b]thiophene (95-15-8)

<table>
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<th>NSL</th>
<th>EIN</th>
<th>No</th>
<th>No</th>
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<th>Yes</th>
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</table>

### 2-Methylnaphthalene (91-57-6)

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<th>No</th>
<th>Yes</th>
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### Cresol (1319-77-3)

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<th>No</th>
<th>Yes</th>
<th>Yes</th>
<th>Yes</th>
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</table>

### Biphenyl (92-52-4)

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<th>EIN</th>
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<th>Yes</th>
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### 1-Methylnaphthalene (90-12-0)

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</table>
**Safety Data Sheet**

**Material Name:** NAPHTHALENE  
**SDS ID:** 00228306

<table>
<thead>
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<th>Yes</th>
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<th>Yes</th>
<th>Yes</th>
<th>No</th>
<th>No</th>
<th>No</th>
<th>Yes</th>
<th>Yes</th>
<th>No</th>
<th>Yes</th>
<th>Yes</th>
</tr>
</thead>
</table>

**U.S. Inventory (TSCA)**
Listed on inventory.

**Section 16 - OTHER INFORMATION**

**NFPA Ratings**
Health: 1 Fire: 2 Reactivity: 0  
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

**Summary of Changes**
Updated: 7/19/2018; MSDS SUMMARY OF CHANGES; SECTION 15 - CA Proposition 65

**Key / Legend**
ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CA/MA/MN/NJ/PA - California/Massachusetts/Minnesota/New Jersey/Pennsylvania*; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CFR - Code of Federal Regulations (US); CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; ENCS - Japan Existing and New Chemical Substance Inventory; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; F - Background (for Venezuela Biological Exposure Indices); IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; ISHL - Japan Industrial Safety and Health Law; IUCLID - International Uniform Chemical Information Database; JP - Japan; Kow - Octanol/water partition coefficient; KR KECl Annex 1 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL); KR KECl Annex 2 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL); LR - Korea; LR50/LC50 - Lethal Dose/ Lethal Concentration; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of Lists™ - ChemADVISOR’s Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; MX - Mexico; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; Nq - Non-quantitative; NSL - Non-Domestic Substance List (Canada); NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PEL - Permissible Exposure Limit; PH - Philippines; REACH - Registration, Evaluation, Authorisation, and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; Sc - Semi-quantitative; STEL - Short-term Exposure Limit; TCCA - Korea Toxic Chemicals Control Act; TDG - Transportation of Dangerous Goods; TLV - Threshold Limit Value; TSCA - Toxic Substances Control Act; TW - Time Weighted Average; UEL - Upper Explosive Limit; UN/NA - United Nations /North American; US - United States; VLE - Exposure Limit Value (Mexico); VN (Draft) - Vietnam (Draft); WHMIS - Workplace Hazardous Materials Information System (Canada).

**Other Information**

**Disclaimer:**
The information set forth in this Safety Data Sheet does not purport to be all-inclusive and should be used only as a guide. While the information and recommendations set forth herein are believed to be accurate, the company makes no warranty regarding such information and recommendations and disclaims all liability from reliance thereon.