METALLURGICAL COAL
MATERIAL SAFETY DATA SHEET

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product Identity: Bituminous Coal

Manufacturer: Teck Coal Limited
Sparwood, British Columbia
V0B 2G0
Emergency Telephone: 250-425-3337

Supplier: Teck Coal Limited
#1000, 205 Ninth Avenue, S.E.
Calgary, Alberta
T2G 0R4

MSDS Preparer: Teck Metals Ltd.
Suite 3300 – 550 Burrard Street
Vancouver, British Columbia
V6C 0B3

Date of Last MSDS Review: August 14, 2012.

Date of Last Edit: August 14, 2012.

Product Use: Metallurgical quality coal, used principally by the steel industry.

SECTION 2. COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Hazardous Ingredients</th>
<th>Approximate Percent by Weight</th>
<th>CAS Number</th>
<th>Occupational Exposure Limits (OELs)</th>
<th>LD_{50}/LC_{50} Species and Route</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal</td>
<td>90.30 – 90.75%</td>
<td>None assigned</td>
<td>OSHA PEL 0.93 mg/m³ Respirable coal dust*</td>
<td>No Data</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ACGIH TLV 0.9 mg/m³ Respirable coal dust</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NIOSH REL 1 mg/m³ Respirable coal dust</td>
<td></td>
</tr>
<tr>
<td>Ash</td>
<td>9.25 – 9.70%</td>
<td>14808-60-7</td>
<td>OSHA PEL 0.93 mg/m³ Respirable coal dust</td>
<td>No Data</td>
</tr>
<tr>
<td>(average 89.5% silica</td>
<td></td>
<td></td>
<td>ACGIH TLV 0.025 mg/m³ Respirable SiO₂</td>
<td></td>
</tr>
<tr>
<td>plus alumina)</td>
<td></td>
<td></td>
<td>NIOSH REL 0.05 mg/m³ Respirable SiO₂</td>
<td></td>
</tr>
</tbody>
</table>

NOTE: OELs for individual jurisdictions may differ from OSHA PELs. Check with local authorities for the applicable OELs in your jurisdiction. OSHA - Occupational Safety and Health Administration; ACGIH - American Conference of Governmental Industrial Hygienists; NIOSH - National Institute for Occupational Safety and Health. OEL – Occupational Exposure Limit, PEL – Permissible Exposure Limit, TLV – Threshold Limit Value, REL – Recommended Exposure Limit.

*The OSHA PEL for coal dust with ≥5% silica is based on the quartz (crystalline silica) content. It dictates the total airborne dust concentration and has been calculated based on the maximum percent SiO₂ in the sample using the formula: Respirable Dust PEL = 10 mg/m³/(%SiO₂ + 2). See Table Z-3 of 29 CFR 1910.1000.

Trade Names and Synonyms: None.

SECTION 3. HAZARDS IDENTIFICATION

Emergency Overview: A black-brown solid carbonaceous material with some metallic lustre. Airborne coal dust can be a significant explosion hazard under certain conditions. Solid coal would not be readily ignited in an emergency situation but could act as additional fuel to a fire of other flammable materials. Coal is relatively non-toxic and poses little immediate hazard to the health of emergency response personnel or to the environment in an emergency situation.

Potential Health Effects: Acute exposure to very dusty conditions may result in mild respiratory irritation and possible eye irritation due to abrasion of the granules on tissues. Chronic exposure to coal dust can cause chronic bronchitis, emphysema, coal workers’ pneumoconiosis and massive pulmonary fibrosis. This coal contains approximately 8.5% silica. Respirable crystalline silica has been identified by various agencies as a carcinogen. (See Toxicological Information, Section 11)

Potential Environmental Effects: While the solid form of bituminous coal is unlikely to be ecologically hazardous, upon thermal decomposition it is known to liberate hydrocarbon compounds including polycyclic aromatic hydrocarbons (PAHs), some of which are considered to be moderately toxic, e.g., pyrene, benzo(a)pyrene, chrysene, phenantrene. Most PAHs are relatively insoluble in water; they adhere to solid particles such as river and lake sediments. Microorganisms break down the PAHs.
PAHs in soil or water after a period of weeks to months. These PAHs are bioaccumulative, in that their concentrations in plants and animals can be much higher than their concentrations in the soil or water they inhabit. Elevated PAH concentrations can be assumed to be significant toxicants to aquatic and terrestrial organisms. (See Ecological Information, Section 12).

EU Risk Phrase(s): Not listed as dangerous in the EU.

SECTION 4. FIRST AID MEASURES

Eye Contact: Quickly and gently blot or brush off face. Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 5 minutes, while holding the eyelid(s) open. Obtain medical advice.

Skin Contact: No health effects expected. If irritation does occur, flush with lukewarm, gently flowing water for 5 minutes. If irritation persists, obtain medical advice.

Inhalation: If symptoms are experienced remove source of contamination or move victim to fresh air. Obtain medical advice.

Ingestion: If swallowed, no specific intervention is indicated as this material is not likely to be hazardous by ingestion. However, if irritation or discomfort occurs, obtain medical advice.

SECTION 5. FIRE FIGHTING MEASURES

Fire and Explosion Hazards: Solid coal is not readily combustible but can be ignited through sustained contact with an open flame. Finely-divided coal dust is a moderate fire and explosion hazard, particularly when dispersed in the air at high concentrations in an enclosed space and exposed to flame or other ignition sources. Settled dust on horizontal surfaces may also be dispersed into the air by an initial explosion, resulting in a much more serious secondary explosion.

Extinguishing Media: Remove ignition source and “fuel supply” from fire if possible to do so safely. For small fires use dry chemical, sand, earth, water spray, or regular foam. For a massive fire use unmanned hose holders or monitor nozzles. If this is impossible, withdraw from the area and let the fire burn, concentrating on protecting the surrounding assets from the fire.

Fire Fighting: Toxic fumes will result from combustion. Fire fighters must be fully trained and wear full protective clothing including an approved, self-contained breathing apparatus which supplies a positive air pressure within a full face piece mask. Caution must be taken when using water to put out a large coal fire as the coal may erupt violently.

Flashpoint and Method: Not Applicable.

Upper and Lower Flammable Limit: Lower flammable limit of finely dispersed bituminous coal dust is approximately 130 grams/cubic metre (g/M³) in air containing no coexisting methane gas (≈0.13 oz/ft³). Upper flammable limit not established.

Autoignition Temperature: 538°C (1,000°F).

SECTION 6. ACCIDENTAL RELEASE MEASURES

Procedures for Cleanup: Control source of release if possible to do so safely. Clean up spilled material immediately observing precautions in Section 8, Personal Protection. Material should be cleaned up using methods that will minimize dust generation (water spray may be used cautiously to wet down the coal before removal). Return uncontaminated spilled material to the process if possible. Place contaminated material in suitable containers for later recovery or disposal. Treat or dispose of waste material in accordance with all local, state/provincial, and national requirements.

Personal Precautions: Protective clothing, gloves, and a respirator are recommended for persons responding to an accidental release (see also Section 8). Close-fitting safety goggles may be necessary in some circumstances to prevent eye contact.

Environmental Precautions: Avoid any accumulation of dust, and/or the release of thermally-decomposed material. If the material is released to the environment, it should be thoroughly cleaned up using excavation, collection using vacuum and/or wash down.

SECTION 7. HANDLING AND STORAGE

Store in a dry, cool, well-ventilated area, away from all ignition sources. Avoid generating dust and the release of dust into the workplace as this creates a potential explosion hazard. Good housekeeping is important to prevent accumulations of dust, which would be a source of fuel for a secondary explosion. See NFPA Standard 654 – Standard for the Prevention of Fire
and Dust Explosions … Combustible Particulate Solids for specific guidance on dust explosion prevention. Also see NFPA Standards 120 and/or 8503.

Always practice good personal hygiene. Refrain from eating and drinking, in work areas. Thoroughly wash hands after handling and before eating or drinking in appropriate, designated areas.

EU Safety Phrase(s): Not listed as dangerous in the EU.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Protective Clothing: The hazard potential of this material is low. Where there is large scale use of this material and significant potential for worker contact, gloves and long sleeved work clothes or disposable coveralls may be necessary. Eye protection should be worn where dust is generated and there is a potential that eye contact may occur.

Ventilation: Use adequate local or general ventilation to maintain the concentration of coal dust in the working environment well below recommended occupational exposure limits. Refer to appropriate NFPA Standards 654, 120 and/or 8503 for specific guidance.

Respirators: Where coal dust is generated and cannot be controlled to within acceptable levels by engineering means, use an appropriate NIOSH and/or MSHA-approved air purifying half face piece or full face piece respirator with 42 CFR 84 Class N, R or P-95 particulate filter cartridges as a minimum.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Black-brown carbonaceous solid</td>
</tr>
<tr>
<td>Odour</td>
<td>Odourless</td>
</tr>
<tr>
<td>Physical State</td>
<td>Solid</td>
</tr>
<tr>
<td>pH</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Vapour Pressure</td>
<td>Negligible at 25°C</td>
</tr>
<tr>
<td>Vapour Density</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>No Data</td>
</tr>
<tr>
<td>Melting Point/Range</td>
<td>No Data</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.3 to 1.6</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Coefficient of Water/Oil</td>
<td>No Data</td>
</tr>
<tr>
<td>Distribution</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Solubility</td>
<td>Insoluble in water</td>
</tr>
<tr>
<td>Percent Volatile by Weight</td>
<td>20 to 28% by weight</td>
</tr>
<tr>
<td>Other Information</td>
<td>9.25 – 9.70% Ash Content</td>
</tr>
</tbody>
</table>

SECTION 10. STABILITY AND REACTIVITY

Stability & Reactivity: This material is stable and not considered reactive under normal temperatures and pressures. Hazardous polymerization or runaway reactions will not occur.

Incompatibilities: None have been identified.

Hazardous Decomposition Products: Thermal decomposition starts above approximately 400°C (750°F) with the release of flammable and toxic gases. Coal combustion will produce lots of carbon dioxide and water vapour as well as small amounts of sulphur dioxide, nitrogen oxides and fly ash. Carbon monoxide may also be formed under poor combustion conditions.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute:
Skin/ Eye: Contact with the eyes may cause local irritation due to direct abrasive action of the particles but would not cause tissue damage. Direct contact with the skin will cause heavy soiling but is not generally irritating to the skin.

Inhalation: Acute inhalation of dusts may result in irritation of the nose, throat and upper respiratory passages. Symptoms may include discomfort, coughing, tingling sensation, sneezing and/or shortness of breath and wheezing.

Ingestion: Ingestion is not a typical route of occupational exposure and this material is not likely to be hazardous by ingestion, except under the most extreme circumstances. However, if irritation or discomfort occurs, obtain medical advice.

Chronic: Chronic exposure to coal dust may result in respiratory impairments including chronic bronchitis and emphysema, coal workers’ pneumoconiosis (CWP) and progressive massive fibrosis (PMF). Simple CWP is a benign condition that is not
associated with shortened life span. PMF is a progressive condition associated with reduced breathing capacity and function as well as premature death. The International Agency for Research on Cancer (IARC) lists coal dust as unclassifiable as to carcinogenicity in humans (Group 3). The American Conference of Governmental Industrial Hygienists (ACGIH) classification is A4 (not classifiable as a human carcinogen). The National Toxicology Program (NTP), OSHA and the EU do not currently list coal dust as a carcinogen. IARC has classified crystalline silica of respirable particle size as a Group 1 carcinogen (carcinogenic to humans) while ACGIH classifies it as a suspected human carcinogen (A2). The NTP recently reclassified silica as a known human carcinogen. OSHA and the EU do not list silica as a carcinogen.

SECTION 12. ECOLOGICAL INFORMATION

While the solid form of bituminous coal is unlikely to be ecologically hazardous, upon thermal decomposition it is known to liberate hydrocarbon compounds, including polycyclic aromatic hydrocarbons (PAHs), some of which are considered to be moderately toxic, e.g., pyrene, benzo(a)pyrene, chrysene, phenanthrene. Most PAHs are relatively insoluble in water; they adhere to solid particles such as river and lake sediments. Microorganisms break down PAHs in soil or water after a period of weeks to months. These PAHs are bioaccumulative, in that their concentrations in plants and animals can be much higher than their concentrations in the soil or water they inhabit. Elevated PAH concentrations can be assumed to be significant toxicants to aquatic and terrestrial organisms.

SECTION 13. DISPOSAL CONSIDERATIONS

If material cannot be returned to process or salvage, dispose of in accordance with applicable regulations.

SECTION 14. TRANSPORT INFORMATION

Not regulated.

SECTION 15. REGULATORY INFORMATION

U.S.
Ingredients Listed on TSCA Inventory..................................................Coal – Naturally occurring substance
Ash (Crystalline Silica) – Yes

Hazardous Under Hazard Communication Standard ..........................Yes

CERCLA Section 103 Hazardous Substances .....................................No ingredients on list.

EPCRA Section 302 Extremely Hazardous Substance .......................No ingredients on list.

EPCRA Section 311/312 Hazard Categories ......................................Delayed (chronic) Health Hazard – Carcinogen
                              Delayed (chronic) Health Hazard – Target Organ: Lungs

EPCRA Section 313 Toxic Release Inventory (Supplier Notification): No ingredients on list.

CANADIAN:
Ingredients Listed on DSL: ..................................................Coal – Naturally occurring substance.
Ash (Crystalline Silica) – Yes

WHMIS Classification: ..........................................................D2B (Materials Causing other Toxic Effects – Toxic Material)

EUROPEAN UNION:
Ingredients Listed on the European Inventory of Existing Commercial Chemical Substances (EINECS): .................Coal - Naturally occurring substance.
Ash (Crystalline Silica) – Yes.

EU Classification: .................................................................Not considered dangerous.
SECTION 16. OTHER INFORMATION

The information in this Material Safety Data Sheet is based on the following references:

- American Conference of Governmental Industrial Hygienists, 2004, Documentation of the Threshold Limit Values and Biological Exposure Indices, Seventh Edition plus updates.
- American Conference of Governmental Industrial Hygienists, 2012, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices.
- Commission de la santé et la sécurité du travail, Service du Répertoire toxicologique, Coal.
- European Economic Community, Commission Directives 91/155/EEC and 67/548/EEC.
- Industry Canada, SOR/88-66, Controlled Products Regulations, as amended.
- U.S. Dept. of Health and Human Services, National Institute of Environmental Health Sciences, National Toxicology Program (NTP), 12th Report on Carcinogens, June 2011.
- U.S. Occupational Safety and Health Administration, Occupational Safety and Health Guideline for Coal Dust (greater than or equal to 5% SiO₂).

Notice to Reader

Although reasonable precautions have been taken in the preparation of the data contained herein, it is offered solely for your information, consideration and investigation. Teck Coal Limited extends no warranty and assumes no responsibility for the accuracy of the content and expressly disclaims all liability for reliance thereon. This material safety data sheet provides guidelines for the safe handling and processing of this product; it does not and cannot advise on all possible situations. Therefore, your specific use of this product should be evaluated to determine if additional precautions are required. Individuals exposed to this product should read and understand this information and be provided pertinent training prior to working with this product.