

MATERIAL SAFETY DATA SHEET

1. SUBSTANCE AND SOURCE IDENTIFICATION

National Institute of Standards and Technology
Standard Reference Materials Program
100 Bureau Drive, Stop 2300
Gaithersburg, Maryland 20899-2300

SRM Number: 1635
MSDS Number: 1635
SRM Name: Trace Elements in Coal
(Subbituminous)

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Description: This Standard Reference Material (SRM) is intended for use in the calibration of apparatus and the evaluation of techniques employed in the analysis of trace elements in coal and similar materials. A unit of SRM 1635 consists of 75 g of finely powdered coal ground to pass a 230 µm sieve and homogenized.

Substance: Coal Powder

Other Designations: Subbituminous coal; ground subbituminous coal, coal dust.

2. HAZARDS IDENTIFICATION

NFPA Ratings (Scale 0–4): Health = 1 Fire = 1 Reactivity = 0

Major Health Hazards: Cancer (in humans)^(a)

Physical Hazards: Dust/air mixtures may ignite or explode.

Potential Health Effects (Acute and Chronic):

Inhalation:

Acute: irritation.

Chronic: chest pain, difficulty breathing, lung damage.

Skin Contact: No information available.

Eye Contact: No information available.

Ingestion: No information available.

Listed as a Carcinogen/Potential Carcinogen

	Yes	No
In the National Toxicology Program (NTP) Report on Carcinogens	X ^(a)	
In the International Agency for Research on Cancer (IARC) Monographs	X ^(a)	
By the Occupational Safety and Health Administration (OSHA)	X ^(a)	

^(a) Silica may be included as a small percentage in coal dust. NTP lists silica, crystalline, as a known carcinogen; IARC lists silica (quartz) as a Group 1 (carcinogenic to humans); silica (respirable) size is listed by OSHA.

3. COMPOSITION AND INFORMATION ON HAZARDOUS INGREDIENTS

Component	CAS Number	EC Number (EINECS)	Nominal Concentration (%)
Coal powder	125612-26-2	not assigned	100

NOTE: The material's average particle size, as manufactured, is above the inhalation or respirable size limits (100 µm or 100 microns, inhalation; 10 µm or 10 microns, respirable) established by the ACGIH, Appendix D. This material contains various other elements (see Certificate of Analysis), which have been reported to have toxic, mutagenic, and/or carcinogenic properties, and should be handled with care. The concentrations of the ones not listed above are below the reportable limit: hazardous components (1 %); carcinogens (0.1 %), required by OSHA, 29 CFR 1910.1200 (g)(2)(i)(C)(1), for MSDS information.

EC Classification: Not classified.

EC Risk (R No.): Not assigned.

EC Safety (S No.): Not assigned.

EC Risk/Safety Phrases: See Section 15, "Regulatory Information".

4. FIRST AID MEASURES

Inhalation: If adverse effects occur, remove to uncontaminated area. If not breathing, give artificial respiration by qualified personnel. Seek immediate medical attention.

Skin Contact: Rinse affected area with soap and water for at least 15 minutes. Seek medical assistance if necessary.

Eye Contact: Immediately flush eyes, including under the eyelids, with copious amounts of water for at least 15 minutes. Seek immediate medical attention.

Ingestion: If a large amount is swallowed, seek medical attention.

5. FIRE FIGHTING MEASURES

Fire and Explosion Hazards: Slight fire hazard. Dust/air mixtures may ignite or explode.

Extinguishing Media: Regular dry chemical, carbon dioxide, water, regular foam.

Fire Fighting: Avoid inhalation of combustion by-products.

Flash Point (°C): Not applicable.

Method Used: Not applicable.

Autoignition Temp. (°C): Not applicable.

Flammability Limits in Air

UPPER (Volume %): Not applicable.

LOWER (Volume %): Not applicable.

6. ACCIDENTAL RELEASE MEASURES

Occupational Release: Collect spilled material in appropriate container for proper disposal.

Disposal: Refer to Section 13, "Disposal Considerations".

7. HANDLING AND STORAGE

Storage: Store and handle in accordance with all current regulations and standards.

Safe Handling Precautions: See Section 8 "Exposure Controls and Personal Protection".

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits:

Coal Dust:

OSHA PEL (TWA): 2.4 mg/m³ (respirable, SiO₂, dust fraction <5 % total dust)

OSHA PEL (TWA): 10 mg/m³/(%SiO₂ + 2) (respirable, SiO₂, dust fraction >5 % total dust)

NIOSH REL (TWA): 1 mg/m³ [measured according to MSHA method (CPSU)]

NIOSH REL (TWA): 0.9 mg/m³ (measured according to ISO/CEN/ACGIH criteria)

ACGIH (TWA): 0.9 mg/m³ (respirable, SiO₂, dust fraction <5 % total dust)

Ventilation: Local exhaust ventilation system.

Respirator: If workplace conditions warrant a respirator, a respiratory protection program that meets OSHA 29 CFR 1910.134 must be followed. Refer to NIOSH 42 CFR 84 for applicable certified respirators.

Eye Protection: Wear safety goggles. An eye wash station and drench shower should be readily available near the handling and use areas.

Personal Protection: Chemically resistant gloves and clothing are recommended.

9. PHYSICAL AND CHEMICAL PROPERTIES

Component: Coal powder

Appearance and Odor: Black powder, odorless.

Molecular Formula: Not applicable.

Density (g/cm³): Not available

Water Solubility: Insoluble.

10. STABILITY AND REACTIVITY

Stability: ☒ Stable ☐ Unstable

Stable at normal temperature and pressure.

Conditions to Avoid: Avoid heat, flames, sparks, and other ignition sources. Avoid generating dust. Avoid contact with incompatible materials.

Incompatible Materials: Oxidizing materials.

Fire/Explosion Information: See Section 5, "Fire Fighting Measures".

Hazardous Decomposition: Oxides of carbon.

Hazardous Polymerization: ☐ Will Occur ☒ Will Not Occur

11. TOXICOLOGICAL INFORMATION

Route of Entry: ☒ Inhalation ☐ Skin ☐ Ingestion

Coal Dust Toxicity Data: May cause irritation and a cough.

Health Effects: See Section 2: "Hazards Identification" for potential health effects.

Target Organs: Respiratory tract.

Medical Conditions Generally Aggravated by Exposure: Respiratory disorders.

12. ECOLOGICAL INFORMATION

Ecotoxicity Data: Not applicable.

13. DISPOSAL CONSIDERATIONS

Waste Disposal: Dispose in accordance with federal, state, and local regulations.

14. TRANSPORTATION INFORMATION

U.S. DOT and IATA: Not regulated by DOT or IATA.

15. REGULATORY INFORMATION

U.S. REGULATIONS

CERCLA Sections 102a/103 (40 CFR 302.4): Not regulated.

SARA Title III Section 302 (40 CFR 355.30): Not regulated.

SARA Title III Section 304 (40 CFR 355.40): Not regulated.

SARA Title III Section 313 (40 CFR 372.65): Not regulated.

OSHA Process Safety (29 CFR 1910.119): Not regulated.

SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370.21):

ACUTE HEALTH:	No
CHRONIC HEALTH:	Yes
FIRE:	No
REACTIVE:	No
PRESSURE:	No

STATE REGULATIONS

California Proposition 65: Known as cancer causing for silica crystalline particles of respirable size.

CANADIAN REGULATIONS

WHMIS Information: Not provided for this information.

EUROPEAN REGULATIONS

EC Classification: Not classified.

EC Risk and Safety Phrases: Not assigned.

NATIONAL INVENTORY STATUS

U.S. Inventory (TSCA): Not listed.

TSCA 12(b), Export Notification: Not listed.

16. OTHER INFORMATION

Sources: ChemAdvisor, MSDS *Coal Dust*, 06 April 2011.

ChemAdvisor, MSDS *Ground Coal*, 06 April 2011.

CDC; NIOSH; *NIOSH Pocket Guide to Chemical Hazards*; Coal Dust, 18 November 2010; available at <http://www.cdc.gov/niosh/npg/npgd0144.html> (accessed Aug 2011).

NIOSH Registry of Toxic Effects of Chemical Substances (RTECS), *Coal Dust No. GF8281000*, May 2009; available at <http://www.cdc.gov/niosh-rtecs/GF7E5BA8.html> (accessed Aug 2011).

Disclaimer: Physical and chemical data contained in this MSDS are provided only for use in assessing the hazardous nature of the material. The MSDS was prepared carefully, using current references; however, NIST does not certify the data in the MSDS. The certified values for this material are given in the NIST Certificate of Analysis.