

# SAFETY DATA SHEET

## 1. SUBSTANCE AND SOURCE IDENTIFICATION

### Product Identifier

**SRM Number:** 1650b  
**SRM Name:** Diesel Particulate Matter  
**Other Means of Identification:** Not applicable.

### Recommended Use of This Material and Restrictions of Use

This Standard Reference Material (SRM) is diesel particulate matter and is intended for use in evaluating analytical methods for the determination of selected polycyclic aromatic hydrocarbons (PAHs) and nitro-substituted polycyclic aromatic hydrocarbons (nitro-PAHs) in diesel particulate matter and similar matrices. A unit of SRM 1650b consists of a bottle containing approximately 200 mg of diesel particulate material.

### Company Information

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

Telephone: 301-975-2200  
E-mail: SRMMSDS@nist.gov  
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1-800-424-9300 (North America)  
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## 2. HAZARDS IDENTIFICATION

This material is a complex mixture that has not been tested as a whole. The health and physical hazard information provided in this SDS is for carbon black, the main component of this diesel exhaust particulate mixture. The concentrations of the PAHs and nitro-PAHs are below the cut-off value/concentration limit for SDS information as required by OSHA 29 CFR 1910.1200. For the actual concentrations, see the Certificate of Analysis.

### Classification

**Physical Hazard:** Not classified.  
**Health Hazard:** Carcinogenicity: Category 1A

### Label Elements

#### Symbol



#### Signal Word

DANGER

#### Hazard Statement(s)

H350 May cause cancer through inhalation.

#### Precautionary Statement(s)

P201 Obtain special instructions before use.  
P202 Do not handle until all safety precautions have been read and understood.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P308 + P313 If exposed or concerned: Get medical advice/attention.  
P405 Store locked up.  
P501 Dispose of contents/container in accordance with federal, state, and local regulations.

**Hazards Not Otherwise Classified:** Not applicable.

**Ingredients(s) with Unknown Acute Toxicity:** Not applicable.

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### 3. COMPOSITION AND INFORMATION ON HAZARDOUS INGREDIENTS

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**Substance:** Diesel Particulate Matter

**Other Designations:** Diesel soot; carbon black; elemental carbon; diesel emissions; diesel exhaust particles

Components are listed in compliance with OSHA's 29 CFR 1910.1200; for the actual values see the Certificate of Analysis.

Hazardous Components	CAS Number	EC Number (EINECS)	Nominal Mass Concentration (%)
Carbon Black	1333-86-4	215-609-09	100

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### 4. FIRST AID MEASURES

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**Description of First Aid Measures:**

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

**Skin Contact:** Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed.

**Eye Contact:** Irrigate eyes, including under the eyelids, with copious amounts of water for at least 15 minutes. If necessary, seek immediate medical attention.

**Ingestion:** If a large amount is swallowed, seek medical assistance if necessary.

**Most Important Symptoms/Effects, Acute and Delayed:** Harmful if inhaled; difficulty breathing, chest pain.

**Indication of any immediate medical attention and special treatment needed, if necessary:** If any of the above symptoms are present, seek immediate medical attention.

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### 5. FIRE FIGHTING MEASURES

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**Fire and Explosion Hazards:** Slight fire hazard when exposed to heat; dust/air mixtures might ignite or explode. See Section 9, "Physical and Chemical Properties" for flammability properties.

**Extinguishing Media:**

Suitable: Regular dry chemical, carbon dioxide, water, and regular foam.

Unsuitable: None listed.

**Specific Hazards Arising from the Chemical:** May produce oxides of carbon and sulfur compounds.

**Special Protective Equipment and Precautions for Fire-Fighters:** Move cylinder from fire area if it can be done without personal risk. Avoid inhalation of material or combustion byproducts. Wear full protective clothing and NIOSH approved self-contained breathing apparatus (SCBA).

**NFPA Ratings** (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

Health = 1

Fire = 1

Reactivity = 0

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### 6. ACCIDENTAL RELEASE MEASURES

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**Personal Precautions, Protective Equipment and Emergency Procedures:** Notify safety personnel. Use suitable protective equipment; see Section 8, "Exposure Controls and Personal Protection".

**Methods and Materials for Containment and Clean up:** Collect spilled material in appropriate container for disposal. A vacuum equipped with HEPA (high efficiency particulate air) filtration is recommended. Use methods to minimize dust. Keep out of water supplies and sewers. Keep unnecessary people away, isolate hazard area and deny entry.

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### 7. HANDLING AND STORAGE

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**Safe Handling Precautions:** Use methods to minimize dust.

**Storage:** Store and handling in accordance with all current regulations and standards. Keep separated from incompatible substances (oxidizing materials and halogens).

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## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

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### Exposure Limits:

OSHA (PEL):	3.5 mg/m <sup>3</sup>	TWA
ACGIH (TLV):	3 mg/m <sup>3</sup>	TWA (inhalable fraction)
NIOSH (REL):	3.5 mg/m <sup>3</sup>	TWA
	0.1 mg/m <sup>3</sup>	TWA (Carbon black in presence of PAH)

**Engineering Controls:** Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

**Personal Protection:** In accordance with OSHA 29 CFR 1910.132, subpart I, wear appropriate Personal Protective Equipment (PPE) to minimize exposure to this material.

**Respiratory Protection:** 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/Face Protection:** Wear safety goggles. An eyewash station should be readily available near areas of use.

**Skin and Body Protection:** Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Chemical-resistant gloves should be worn at all times when handling chemicals.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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### Descriptive Properties: Carbon Black

<b>Appearance (physical state, color, etc.):</b>	black, amorphous powder
<b>Molecular Formula:</b>	not applicable
<b>Molar Mass (g/mol):</b>	not applicable
<b>Odor:</b>	odorless
<b>Odor threshold:</b>	not available
<b>pH:</b>	not applicable
<b>Evaporation rate:</b>	not applicable
<b>Melting point/freezing point (°C):</b>	3680 (6656 °F)
<b>Relative Density as Specific Gravity (water = 1):</b>	1.7 to 2.1
<b>Vapor Pressure (mmHg):</b>	negligible at 20 °F
<b>Vapor Density (air = 1):</b>	not applicable
<b>Viscosity (cP):</b>	not applicable
<b>Solubility(ies):</b>	insoluble in organic solvents and water
<b>Partition coefficient (n-octanol/water):</b>	not available
<b>Particle Size (if relevant)</b>	not available
<b>Thermal Stability Properties:</b>	
<b>Autoignition Temperature (°C):</b>	900 (1652 °F) layer
<b>Thermal Decomposition</b>	not available
<b>Initial boiling point and boiling range (°C):</b>	4200 (7592 °F)
<b>Explosive Limits, LEL:</b>	not applicable
<b>Explosive Limits, UEL:</b>	not applicable
<b>Flash Point</b>	>500 °C PMCC
<b>Flammability (solid, gas):</b>	not available

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## 10. STABILITY AND REACTIVITY

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**Reactivity:** Stable at normal temperatures and pressure.

**Stability:**   X   Stable        Unstable

**Possible Hazardous Reactions:** No data available.

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

**Incompatible Materials:** Oxidizing materials, halogens.

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

**Hazardous Decomposition:** Oxides of carbon, sulfur compounds.

**Hazardous Polymerization:**        Will Occur   X   Will Not Occur

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## 11. TOXICOLOGICAL INFORMATION

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**Route of Exposure:**  Inhalation  Skin  Ingestion

**Symptoms Related to the Physical, Chemical and Toxicological Characteristics:** Difficulty breathing, chest pain, respiratory disorders, lung damage, lung cancer, and skin irritation.

**Potential Health Effects (Acute, Chronic and Delayed):**

**Inhalation:** May cause irritation; long term exposure may cause cough, phlegm, tiredness, chest pain, mucosal, lung damage, and cancer.

**Skin Contact:** Skin exposure may cause in mechanical irritation and follicular coniosis.

**Eye Contact:** Dust may cause mechanical irritation, discoloration of the lids and conjunctiva. Repeated or prolong contact may cause conjunctivitis.

**Ingestion:** Ingestion of large amounts may result in adverse effects to the gastrointestinal system.

**Numerical Measures of Toxicity:**

**Acute Toxicity:** Not classified.

Rat, Inhalation LD50: >15 400 mg/kg

Rabbit, Dermal LD50: >3000 mg/kg

**Skin Corrosion/Irritation:** No data available.

**Serious Eye damage/ Eye irritation:** No data available.

**Respiratory Sensitization:** No data available.

**Skin Sensitization:** No data available.

**Germ Cell Mutagenicity:** No data available.

**Carcinogenicity:** Category 1A

**Listed as a Carcinogen/Potential Carcinogen**  Yes  No

NTP lists diesel exhaust particulates as reasonably anticipated to be a human carcinogen.

OSHA: Diesel exhaust meets OSHA's criteria for Select Carcinogen.

IARC lists diesel exhaust as Group 1 (carcinogenic to humans); there was sufficient evidence in humans for the carcinogenicity of diesel exhaust.

**Reproductive Toxicity:** No data available.

**Specific Target Organ Toxicity, Single Exposure:** No data available.

**Specific Target Organ Toxicity, Repeated Exposure:** No data available.

**Aspiration Hazard:** No data available.

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## 12. ECOLOGICAL INFORMATION

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**Ecotoxicity Data:** Invertebrate: Water flea (*Daphnia magna*) EC50: >5600 mg/L

**Persistence and Degradability:** No data available.

**Bioaccumulative Potential:** No data available.

**Mobility in Soil:** No data available.

**Other Adverse effects:** No data available.

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## 13. DISPOSAL CONSIDERATIONS

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**Waste Disposal:** Dispose of waste in accordance with all applicable federal, state, and local regulations.

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## 14. TRANSPORTATION INFORMATION

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

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## 15. REGULATORY INFORMATION

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### 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 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: WARNING! This product contains a chemical (carbon black from diesel engine exhaust, airborne, unbound particles of respirable size) known to the state of California to cause cancer.

**U.S. TSCA Inventory:** Carbon black is listed.

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

### Canadian Regulations:

WHMIS Information: Not provided for this material.

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## 16. OTHER INFORMATION

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**Issue Date:** 18 May 2021

**Sources:** ChemADVISOR, Inc., MSDS, *Carbon Black*, 09 December 2015.

CDC; NIOSH; *Diesel Particulate Matter (as Elemental Carbon)*, Method No. 5040, Manual of Analytical Methods NMAM), Fourth Edition, 15 March 2003; available at <https://www.cdc.gov/niosh/docs/2003-154/pdfs/5040.pdf> (accessed May 2021)

OSHA; *Diesel Exhaust*; available at <https://www.osha.gov/diesel-exhaust> (accessed May 2021).

NTP, Department of Health and Human Services; *Diesel Exhaust Particulates*, Report on Carcinogens, Twelfth Edition (2011); <https://ntp.niehs.nih.gov/ntp/roc/content/profiles/dieselexhaustparticulates.pdf> (accessed May 2021).

State of California, Proposition 65, 19 March 2021; available at <https://oehha.ca.gov/proposition-65/proposition-65-list> (accessed May 2021).

IARC; *IARC: Diesel Engine Exhaust Carcinogen*, Press Release N°213, 12 June 2012; available at [https://www.iarc.who.int/wp-content/uploads/2018/07/pr213\\_E.pdf](https://www.iarc.who.int/wp-content/uploads/2018/07/pr213_E.pdf) (accessed May 2021).

## Key of Acronyms:

ACGIH	American Conference of Governmental Industrial Hygienists	NRC	Nuclear Regulatory Commission
ALI	Annual Limit on Intake	NTP	National Toxicology Program
CAS	Chemical Abstracts Service	OSHA	Occupational Safety and Health Administration
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	PEL	Permissible Exposure Level
CFR	Code of Federal Regulations	RCRA	Resource Conservation and Recovery Act
DOT	Department of Transportation	REL	Recommended Exposure Limit
EINECS	European Inventory of Existing Commercial Chemical Substances	RQ	Reportable Quantity
EPCRA	Emergency Planning and Community Right-to-Know Act	RTECS	Registry of Toxic Effects of Chemical Substances
IARC	International Agency for Research on Cancer	SARA	Superfund Amendments and Reauthorization Act
IATA	International Air Transport Association	SCBA	Self-Contained Breathing Apparatus
IDLH	Immediately Dangerous to Life and Health	SRM	Standard Reference Material
LC50	Lethal Concentration	STEL	Short Term Exposure Level
LD50	Median Lethal Dose or Lethal Dose, 50 %	TLV	Threshold Limit Value
LEL	Lower Explosive Limit	TPQ	Threshold Planning Quantity
MSDS	Material Safety Data Sheet	TSCA	Toxic Substances Control Act
NFPA	National Fire Protection Association	TWA	Time Weighted Average
NIOSH	National Institute for Occupational Safety and Health	UEL	Upper Explosive Limit
NIST	National Institute of Standards and Technology	WHMIS	Workplace Hazardous Materials Information System

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