

Carbon Black

Material Safety Data Sheet

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name: Carbon Black
INCI Name: CI 77266 (black no. 2 D&C)
Chemical Name: Amorphous Carbon
CAS Number: 1333-86-4
Company Name: Kolorsource LLC, A Limited Liability Corporation
Company Mail Address: 741 N Kalaheo Ave., Kailua, HI 96734 USA

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Component name: Carbon Black, amorphous C CAS No 001333-86-4
%Composition Range: 100%

SECTION 3: HAZARDS IDENTIFICATION

Section 3: Hazards Identification

Eye Contact: High dust concentrations may cause mechanical irritation to eye.

Skin Contact: No evidence of adverse effects from available data. No cases of sensitization in humans have been reported.

Potential Health Effects Inhalation: Temporary discomfort to upper respiratory tract may occur due to mechanical irritation when exposures are above the occupational exposure limit.

Ingestion: No evidence of adverse effects from available data.

Subchronic/Chronic Hazards: IARC listed; Group 2B (possibly carcinogenic to humans). See Section 11.

General: There are no known human carcinogenic effects related to the Polycyclic Aromatic Hydrocarbons (PAH) content of carbon blacks. See Section 16.

Section 4: First Aid Measures

After Skin Contact	Wash from skin with mild soap and water. Seek medical attention, if irritation occurs.
After Eye Contact	Gently flush eyes with water until all foreign matter is completely removed keeping eyelids open. Seek medical attention, if irritation develops or persists.
After Inhalation	Remove affected person to fresh air and consult physician. If breathing is difficult, give oxygen. If unconscious, evaluate the need for artificial respiration. Get immediate medical attention.
After Ingestion	Do not induce vomiting. If conscious, rinse mouth with water.

Section 5: Fire Fighting Measures

Flash Point	Not determined
OSHA Flammability Classification	None
Auto-Ignition Temperature	Not determined
Fire/Explosion Hazards	Dusts at sufficient concentrations can form explosive mixtures with air.
Auto-Ignition Temperature (transport)	>284° F. (>140° C.)
Extinguishing Media	Use water spray or fog, foam, dry chemical or CO ₂ . Avoid high pressure water stream as this may spread burning powder (burning powder will float). A fog spray is recommended, if water is used. Note: It may not be obvious that carbon black is burning unless the material is stirred and sparks are apparent. Carbon black that has been on fire should be observed closely for at least 48 hours to ensure no smoldering material is present.
Fire Fighting Procedure	Wear full protective fire fighting gear including self-contained breathing apparatus (SCBA).
Hazardous Thermal Decomposition Byproducts	Products of combustion include carbon monoxide (CO), carbon dioxide (CO ₂), and oxides of sulfur.

Section 6: Accidental Release Measures

	Scoop up dry material and use vacuum for residue.
Spill Procedures	<p>Note: Wet carbon black produces dangerously slippery walking surfaces.</p> <p>Small spills should be vacuumed when possible. A vacuum equipped with HEPA (high efficiency particulate air) filtration is recommended. Alternatively, light water spray will reduce dust for dry sweeping.</p>
Containment Techniques	Large spills may be shoveled into containers. See Section 13. Wear appropriate personal protective equipment and respiratory protection. See Section 8.
	<p>Carbon black poses no significant environmental hazards. As a matter of good practice, minimize contamination of sewage water, soil, groundwater, drainage systems, or bodies of water.</p> <p>The following equipment is recommended for spill response:</p> <ul style="list-style-type: none">• vacuum equipped with HEPA filtration• dustpan, shovel or scoop• bags, drums, or sacks for collection
Spill Response Equipment	

Section 7: Handling and Storage

	<p>Avoid dust exposures above the occupational exposure limit. Wash exposed skin daily.</p>
Handling	<p>Use local exhaust ventilation to control exposures to below occupational exposure limit.</p> <p>Fine dust may cause electrical shorts and is capable of penetrating electrical equipment unless tightly sealed.</p> <p>If hot work (welding, torch cutting, etc.) is required the immediate work area must be cleared of carbon black product and dust.</p> <p>Store away from ignition sources and strong oxidizers.</p>
Storage	Before entering closed vessels and confined spaces containing carbon black test for adequate oxygen, flammable gases and potential toxic air contaminants (e.g., CO). Follow safe practices when entering confined spaces.

Section 8: Exposure Controls / Personal Protection

Engineering Controls	Use process enclosures and/or exhaust ventilation to keep airborne dust concentrations below the occupational exposure limit.
General Hygiene Practices	Wash hands and face thoroughly with mild soap before eating and drinking. Frequent skin washing may dry skin. Application of a skin lotion is recommended. An approved air-purifying respirator (APR) may be used where airborne concentrations are expected to exceed occupational exposure limits. Protection provided by APRs is limited. Use a positive-pressure, air supplied respirator if there is any potential for uncontrolled release, exposure levels are not known, or any circumstances where air-purifying respirators may not provide adequate protection. Use of respirators must be accompanied by a complete respiratory protection program in accordance with national standards and current best practices.
Respiratory Protection	The following agencies/organizations approve respirators and/or criteria for respirator programs: U.S.: NIOSH approval under 42 CFR 84 required. OSHA (29 CFR 1910.134, effective, 8 Apr. 98) ANZI Z88.2-1992 EU: CR592 Guidelines for the Selection and Use of Respiratory Protection. Germany: DIN/EN 143 Respiratory Protective Devices for Dusty Materials.

	UK: BS 4275 Recommendations for the Selection, Use and Maintenance of Respiratory Protective Equipment. HSE Guidance Note HS(G)53 Respiratory Protective Equipment.
Skin Protection	No special Personal Protective Equipment (PPE) required. Gloves may be used to protect hands from carbon black soiling. Wash hands and other exposed skin with mild soap and use skin cream to prevent skin drying.
Eye Protection	Eye protection recommended as a matter of good industrial safety practice.
Other Protective Equipment	A safety shower and eye wash fountain should be readily available. To identify additional PPE requirements, it is recommended that a hazard assessment in accordance with the OSHA PPE Standard (29CFR1910.132) be conducted before using this product.

Section 9: Physical and Chemical Properties

Appearance	Physical State: Solid Color: Black Form: Powder
Odor	Odorless
Molecular Weight	12
Molecular Formula	C
pH Value	>6
Boiling Point (at 760 mm Hg)	Not available.
Melting Point	Not available (decomposes)
Flash Point	Not available.
Auto-Ignition Temperature	Not available.
Explosion Limits	Not available.
Vapor Pressure (mm Hg)	Not available.
Vapor Density (Air=1)	Not available.
Solubility	Not soluble.
Specific Gravity (Water=1)	Not available.

Section 10: Stability and Reactivity

Stability	Stable under ordinary conditions of use and storage.
Hazardous Polymerization	Will not occur under normal conditions.
Hazardous Decomposition Products	Carbon monoxide, carbon dioxide, organic products of decomposition, oxides of sulfur (sulfoxides) form, if heated above decomposition temperature.
Incompatibilities	Strong oxidizers such as chlorates, bromates and nitrates.
Conditions to Avoid	Avoid high temperatures and sources of ignition. Decomposition temperature: >572° F. (>300° C.).

Section 11: Toxicological Information

Acute Toxicity	Ingestion: LD50 (rat), >8000 mg/kg
	Primary Irritation: Skin (rabbit), non-irritative, index score 0.6/8 (4.0 = severe edema) Eye (rabbit), non-irritative, Draize score 10-17/110 (100 = maximally irritating) Sensitization: no animal data available.
Subchronic Toxicity	Rat, inhalation, duration 90 days Target organ: Lungs Effect: Inflammation, hyperplasia, fibrosis NOAEL = 1.1 mg/m ³ respirable
	Rat, inhalation, duration: 2 years Target organ: Lungs Effect: Inflammation, fibrosis, tumors
Chronic Toxicity	Note: Tumors in the rat lung are related to the fine particle overload phenomenon rather than to a specific chemical effect of the dust particles in the lung. These effects in rats have been reported in studies on other inorganic insoluble particles and appear to be species specific. Tumors have not been observed in other species (i.e., mouse and hamster) for carbon black under similar circumstances and study conditions.
	Rat, oral (feeding experiments), duration: 2 years, no tumors (literature) Mouse, oral (feeding experiments), duration: 2 years, no tumors (literature) Mouse, dermal, duration: 12-18 months, no skin tumors (literature)

Authoritative body classification:

In 1995, IARC concluded, "There is inadequate evidence in humans for the carcinogenicity of carbon black." Based on rat inhalation studies IARC concluded that there is, "sufficient evidence in experimental animals for the carcinogenicity of carbon black." IARC's overall evaluation in 1995 was that, "Carbon black is possibly carcinogenic to humans (Group 2B)." This conclusion was based on IARC's guidelines that require such a classification if one species exhibits carcinogenicity in two or more studies.

Carcinogenicity

In its 1987 review, IARC concluded, "There is sufficient evidence in experimental animals for the carcinogenicity of carbon black extracts." Carbon black extracts are classified as, possibly carcinogenic to humans (Group 2B). Carbon black is not designated a carcinogen by the U.S. National Toxicology Program (NTP) or the U.S. Occupational Safety and Health Administration (OSHA). The American Conference of Governmental Industrial Hygienists classifies carbon black as A4, Not Classifiable as a Human Carcinogen.

The U.S. National Institute of Occupational Safety and Health (NIOSH) 1978 criteria document on carbon black recommends that only carbon blacks with Polycyclic Aromatic Hydrocarbon (PAH) levels greater than 0.1% require the measurement of PAHs in air. As some PAHs are possible human carcinogens, NIOSH recommends an exposure limit of 0.1 mg/m³ for PAHs in air, measured as the cyclohexane-extractable

fraction.

Mutagenic effects:

Because carbon black is not soluble or dispersible in aqueous systems testing in bacterial and other in-vitro systems should be conducted using DMSO.

In an experimental investigation, mutational changes in the hprt gene were reported in alveolar epithelial cells in the rat following inhalation exposure to carbon black. This observation is believed to be rat specific and a consequence of "lung overload" (see Chronic Toxicity above).

Reproductive effects: No effects have been reported in reproductive organs in long term animal studies.

Results of epidemiological studies of carbon black production workers suggest that cumulative exposure to carbon black may result in small decrements in lung function, as measured by FEV1. A recent U.S. respiratory morbidity study suggested a 27 ml decline in FEV1 from a 1 mg/m³ (inhalable fraction) exposure over a 40-year period. An older European investigation suggested an exposure to 1 mg/m³ (inhalable fraction) of carbon black over a 40-year working-lifetime will result in a 48 ml decline in FEV1. In contrast, normal age related decline over a similar period of time would be approximately 1200 ml.

Epidemiology

The relationship between symptoms and exposure to carbon black is less clear. In the U.S. study, 9% of the highest exposure group (in contrast to 5% of the unexposed group) reported symptoms consistent with chronic bronchitis. In the European study, methodological limitations in the administration of the questionnaire limit drawing of definitive conclusions about symptoms. This study, however, indicated a link between carbon black and small opacities on chest films. with negligible effects on lung functions. A study of carbon black workers in the UK showed an elevated incidence of lung cancer but it was not considered to be related to carbon black.

Section 12: Ecological Information

Acute fish toxicity: LC50 (96h) >1000 mg/l, *Brachydanio rerio* (zebrafish), (OECD Guideline 203).

Aquatic Toxicity Acute water flea toxicity: EC50 (24h) >5600 mg/l. *Daphnia magna* (waterflea), (OECD Guideline 202).

Acute algae toxicity: EC50 (72h) >10,000 mg/l NOEC 50-10,000 mg/l *Scenedesmus subspicatus*, (OECD Guideline 201)

Behavior in Water Treatment Plants Activated sludge, EC0 (3 h) >=800 mg/l. DEV L3 (TTC test)

Mobility: Not soluble in water.

Environmental Fate

Bioaccumulation: Potential bioaccumulation is not expected because of physiochemical properties of the substance.

Section 13: Disposal Considerations

Product Can be burned in suitable incineration plants or disposed of in a suitable landfill in accordance with the regulations issued by the appropriate federal, provincial, state and local authorities.

EU: Waste code (EU): See industry specific waste code. See European Waste Catalogue (Council Directive 75/422/ECC).

Country Specific Waste Information

U.S.: Not a hazardous waste under U.S. RCRA, 40 CFR 261.

Canada: Not a hazardous waste under provincial regulations.

Empty Containers

Return reusable container to manufacturer. Paper bags may be incinerated, or recycled, or disposed of in an appropriate landfill in accordance with national and local laws.

Section 14: Transportation Information

U.S. DOT Information Not regulated

Carbon black is not classified as a hazardous material by the following country regulations/agencies:

Canadian Transport of Dangerous Goods Regulation European Transport of Dangerous Goods Regulation GGVS, GGVE, RID, ADR, IMDG Code, ICAO-TI United Nations (no UN number) U.S. Department of Transportation

Additional Markings

International transportation identification:
"Carbon black, non-activated, mineral origin"
Not dangerous according to IMDG-Code
Not dangerous according to ICAO-TI
UN Shipping Class: Not classified.
UN Packing Group: Not classified.
U.S. Rail Regulations: Not classified.

Section 15: Regulatory Information

OSHA: This document has been prepared in accordance with the MSDS requirements of the OSHA Hazard Communication Standard.

Clean Air Act Section 112: This product contains the following components present at or above the OSHA de minimus level and listed as Hazardous Air Pollutants: None

This product contains the following components present at or above the OSHA de minimus level and listed as Extremely Hazardous Air Pollutants: None

SARA Section 302: This product contains the following components listed as Extremely Hazardous Substances: None

U.S. Regulatory Information

SARA Section 311/312: Hazard Classifications: Delayed (chronic)

U.S. Regulatory Information SARA Section 311/312: Hazard Classifications: Delayed (chronic)

SARA Section 313: This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372: None

TSCA: This product or its components are listed in or exempt from the TSCA inventory requirements. This product contains the following non-proprietary substances subject to export notification under Section 12(b) of TSCA: None

Other U.S. Federal Regulation Information: Carbon black is not a hazardous substance under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA, 40 CFR 302), or

Section 16: Other Information

Miscellaneous Manufactured carbon blacks generally contain less than 0.1% of solvent extractable polycyclic aromatic hydrocarbons (PAH). Solvent extractable PAH content depends on numerous factors including, but not limited to, the manufacturing process, desired product specifications, and the analytical procedure used to measure and identify solvent extractable materials. Questions concerning PAH content of carbon black and analytical procedures should be addressed to your carbon black supplier. The carbon black industry continues to sponsor research designed to identify adverse health effects from long term exposure to carbon black.

HMIS Ratings Health: 1 (low)
Flammability: 1 (low)
Physical Hazard: 0 (none)

the Clean Water Act (40 CFR 116); it is not a hazardous air pollutant under the Clean Air Act Amendments of 1990 (CAA 40 CFR).

Carbon black is on the Chemical Hazard Information Profile (CHIP) list under TSCA.

State Regulations California (Proposition 65): This product contains the following substance known to the State of California to cause cancer: Carbon Black CAS RN: 1333-86-4 (Airborne, unbound particles of respirable size [\leq 10 micrometers])

Carbon black, CAS No. 1333-86-4, appears on the following inventories:

Europe (EU): EINECS (European Inventory of Existing Commercial Chemical Substances), EINECS-RN: 215-609-9.

Europe: Carbon black is not defined as a dangerous substance regarding EU Directive 67/548/EEC and its various amendments and adaptations.

Australia: AICS (Australian Inventory of Chemical Substances).

International Regulatory Information

Canada: WHMIS, class D2A.

Canada: CEPA (Canadian Environmental Protection Act), domestic substance list (DSL).

Japan: MITI (Ministry of International Trade and Industry) List of Existing Chemicals Substances. 10-3074/5-3328 and 10-3073/5-5222 (Section-Structure No./Class Reference No.) Carbon Black, Oil Treated is not present on the Japan Inventory.

Korea: TCC-ECL (Toxic Chemical Control Law Existing Chemical List) KE-04882.

China: Inventory of Existing Chemical Substances.

Section 16: Other Information

Miscellaneous	Manufactured carbon blacks generally contain less than 0.1% of solvent extractable polycyclic aromatic hydrocarbons (PAH). Solvent extractable PAH content depends on numerous factors including, but not limited to, the manufacturing process, desired product specifications, and the analytical procedure used to measure and identify solvent extractable materials. Questions concerning PAH content of carbon black and analytical procedures should be addressed to your carbon black supplier. The carbon black industry continues to sponsor research designed to identify adverse health effects from long term exposure to carbon black.
HMIS Ratings	Health: 1 (low) Flammability: 1 (low) Physical Hazard: 0 (none)

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