Revision date: September 9th, 2025

TOKAI CARBON CB

Safety Data Sheet

According to the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Carbon Black

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product name: Carbon Black – all grades
REACH Registration Number: 01-2119384822-32-0002

1.2 Recommended use and restriction of use on chemical
-Additive and filler for plastics, rubber, pigments, and other specialty products.
-Not recommended as a human tattooing pigment.

1.3 Manufacturer/supplier

Tokai Carbon CB
301 Commerce Street, Suite 500
Fort Worth, TX 76102

1.4 Emergency numbers for spills, leaks, fire, exposure, or accident

CHEMTREC: 1-800-424-9300 (US)
CANUTEC: 613-996-6666 (Canada)

for all other information please contact our customer service number at 800-767-2227.

2. HAZARDS IDENTIFICATION

2.1 Classification

Canada WHMIS - Not classified for any health hazards, is classified as combustible dust.
European Union - Not hazardous substance or preparation under CLP-Regulation (EC) No. 1272/2008.
European Union - Not a hazardous substance according to Directive 67/548/EC.
United States OSHA - Classified as hazardous under 29 CFR 1910.1000, Table Z-1.
GHS - Not a hazardous substance or preparation under Globally Harmonized System

2.2 Label elements

Pictogram – not currently available for combustible dust hazard.
Signal word – WARNING: May form explosible dust-air mixture if dispersed.

- Keep away from all ignition sources including heat, sparks, and flame.
- Prevent dust accumulations to minimize explosion hazard.
- Control dust exposures to below applicable occupational exposure limits.

2.3 Hazards Not Otherwise Classified

Carbon black may become a combustible dust under certain conditions. Hazardous products of combustion may include carbon monoxide, carbon dioxide, and oxides of sulfur.

Emergency Overview

A black, odorless powder, which can burn or smolder at temperatures greater than 572ºF (>300ºC). Hazardous products of decomposition can include carbon monoxide, carbon dioxide, and oxides of sulfur. May cause mechanical irritation to the eyes and the respiratory tract especially at concentrations above the occupational exposure limit. Some grades of Carbon Black are sufficiently electrically non-conductive to allow a buildup of static charge during handling. Take measures to prevent the build up of electrostatic charge.

2.4 Routes of Exposure: Inhalation, eye and skin

2.5 Potential Health Effects

Inhalation: Temporary discomfort to upper respiratory tract may occur due to mechanical irritation when exposures are well above the occupational exposure limit. Long-term exposure may result in a small non-clinically significant increase in normal loss in one aspect of lung function (FEV_1).
(See Section 11)
Ingestion: No evidence of adverse effects from available data.
Eye: High dust concentrations may cause mechanical irritation to eye.
Skin: May cause mechanical irritation, soiling and drying of skin.
Sensitization: No cases of sensitization in humans have been reported
Chronic: IARC listed; Group 2B (possibly carcinogenic to humans). Not listed as a carcinogen by NTP, ACGIH, OSHA or the European Union. (See Section 11)

There are no known human carcinogenic effects related to the PAH content of Carbon Blacks. Recent research has shown that the PAH content of Carbon Blacks is not released from Carbon Black in biological fluids and thus not available for biological activity.

2.6 Potential Environmental Effects

No significant environmental hazards are associated with Carbon Black release to the environment. Carbon Black is not soluble in water. (See Section 12)

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Component(s)

Carbon Black, amorphous (100%)
Chemical formula: C
CAS number: 1333-86-4
EINECS number: 215-609-9

4. FIRST-AID MEASURES

4.1 First aid procedures

Inhalation: Take affected persons out in fresh air, if necessary.
Skin: Wash skin with mild soap and water. If symptoms develop, seek medical attention.
Eye: Rinse eyes thoroughly with plenty of water keeping eyelid open. If symptoms develop, seek medical attention.
Ingestion: Do not induce vomiting. If conscious, rinse mouth with water.

4.2 Note to physicians: Treat symptomatically

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing Media

Use foam, carbon dioxide (CO_2), dry chemical, or water spray. 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.

5.2 Protection of Firefighters

Products of combustion include carbon monoxide (CO), carbon dioxide (CO_2), and oxides of sulfur. Wear full protective fire fighting gear including self-contained breathing apparatus (SCBA).

6. ACCIDENTAL RELEASE MEASURES

NOTE: Wet Carbon Black produces dangerously slippery walking surfaces. Small spills should be vacuumed when possible. Dry sweeping is not recommended. A vacuum equipped with HEPA (high efficiency particulate air) filtration is recommended. If necessary**,** light water spray will reduce dust for dry sweeping. Large spills may be shoveled into containers. (See Section 13) Wear appropriate personal protective equipment and respiratory protection. (See Section 8)

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.

7. HANDLING AND STORAGE

7.1 Handling

Avoid dust exposures above the occupational exposure limit. Wash exposed skin daily. Use local exhaust ventilation to control exposures to below occupational exposure limit. Fine dust may cause electrical shorts and is capable of penetrating electrical equipment unless tightly sealed. If hot work (welding, torch cutting, etc.) is required the immediate work area must be cleared of Carbon Black product and dust.

7.2 Storage

Store in dry place away from ignition sources and strong oxidizers. 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.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Exposure guidelines

Country	Occupational Exposure Limit (mg/m^3)
Australia	3.0 TWA
Canada	3.5 TWA
EU REACH DNEL	2.0 (inhalable)
France	3.5 TWA
Germany MAKs TRGS 900	 1.5 respirable TWA 4.0 inhalable TWA 6.0 respirable TWA
Italy	3.5 TWA
Korea	3.5 TWA
Spain	3.5 TWA
United Kingdom OES STEL	 3.5 TWA (inhalable) 7.0, 10 minutes (inhalable)
United States OSHA-PEL ACGIH-TLV NIOSH -REL	 3.5 TWA (total) 3.0 TWA (inhalable) 3.5 TWA (see Section 11)
Sweden	3.0 TWA
Japan	3.0 (inhalable) TWA 0.3 (respirable) TWA

MAK = maximum concentration values in the workplace
OES = occupational exposure standard
PEL = permissible exposure limit
REL = recommended exposure limit
STEL = short-term exposure limit
TWA = 8-hour time weighted average

8.2 Engineering controls

Use process enclosures and/or exhaust ventilation to keep airborne dust concentrations below the occupational exposure limit.

8.3 Personal Protective Equipment (PPE)

No special PPE required. Gloves may be used to protect hands from Carbon Black soiling. Work clothes should not be taken home and should be washed daily. Eye protection recommended as a matter of good industrial safety practice.

Skin Protection: Wash hands and other exposed skin with mild soap and use skin cream to prevent skin drying.

Respiratory Protection**:** 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. A complete respiratory protection program in accordance with national standards and current best practices must accompany use of any respirator.

8.4 General Hygiene Considerations

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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	powder or pellet
Color:	black
Odor:	odorless
Molecular formula:	C
Molecular weight (as carbon):	12
Melting point/range:	not applicable
Boiling point/range:	not applicable
Vapor pressure :	not applicable
Density: (20ºC)	1.7 – 1.9 g/cm3
Bulk density:	20 – 550 kg/m3
Solubility:	insoluble in water
pH value:	>7 [50 g/l water, 68ºF (20ºC)]
Partition coefficient:	not applicable
Viscosity:	not applicable
BET surface area	71 (m^2/gram)

Flammable and Explosive Properties

Flashpoint	not applicable
Spontaneous Ignition (transport):	>284ºF (>140ºC)
Explosive Limits (dust):	
Furnace black[1]	
Lower	50 g/m^3
Upper	not determined
Maximum Absolute Explosion Pressure[1]	10 bar
Maximum Rate of Pressure Rise[1]	30-100 bar/sec.
Dust Explosion Class[2]	ST 1
Ignition Energy[1]	
Furnace black	>0.5 kJ
Minimum Ignition Temperature[1]	
Method: VDI 2263 (BAM Furnace)	>932ºF (>500ºC)
Goldberg-Greenwald Furnace	>600ºF (>315ºC)
Minimum Ignition Energy[1]	>5 kJ
Burn Velocity[2](not classifiable as "Highly Flammable", or "Easily Ignitable")	>45 seconds
Flammability Classification (as defined by OSHA 1910.1200):	not applicable

[1]*German VDI Guideline 2263, Test Methods for the Determination of the Safety Characteristics of Dusts*.
[2]*German VDI Guideline 2263 and EC Directive 84/449*

10. STABILITY AND REACTIVITY

Stability: stable under normal ambient conditions

Decomposition: >572ºF (>300ºC)

Conditions to avoid: exposure to high temp. >572ºF (>300ºC) and open flames

Materials to avoid: strong oxidizers such as chlorates, bromates, and nitrates

Hazardous decomposition products: carbon monoxide, carbon dioxide, organic products of decomposition, oxides or sulfur (sulfoxides) form if heated above decomposition temperature

Hazardous polymerization: will not occur

Sensitivity to static discharge: Dust may form explosible mixture in air. Avoid dust formation. Do not create a dust cloud. Take precautionary measures against static discharges. Ensure all equipment is grounded before beginning transfer or mixing operations.

11. TOXICOLOGICAL INFORMATION

11.1 Acute Toxicity
Acute oral toxicity: LD_{50} (rat), > 8000 mg/kg

Primary skin irritation:
rabbit: non-irritative, index score 0.6/8 (4.0 = severe edema)

Primary eye irritation:
rabbit: non-irritative, Draize score 10-17/110
(100 = maximally irritating)

11.2 Subchronic toxicity
Rat, inhalation, duration 90 days, NOAEL – 1.0 mg/m^3 (respirable)
Target organ: lungs;
Effect: inflammation, hyperplasia, fibrosis

11.3 Chronic toxicity
Rat, oral, duration 2 years
Effect: no tumors

Mouse, oral, duration 2 years
Effect: no tumors

Mouse, derma, duration 18 months
Effect: no skin tumors

Rat, inhalation, duration 2 years
Target organ: lungs
Effect: inflammation, fibrosis, tumors
Note: Tumors in the rat lung are considered to be related to the "particle overload phenomenon" rather than to a specific chemical effect of Carbon Black itself in the lung. These effects in rats have been reported in many studies on other poorly soluble inorganic particles and appear to be rat specific. Tumors have not been observed in other species (i.e., mouse and hamster) for Carbon Black or other poorly soluble particles under similar circumstances and study conditions.

11.4 Sensitization
No evidence of sensitization was found in animals.
No cases of sensitization in humans have been reported.

11.5 Carcinogenicity
Tumor development in Rats caused by lung overload, no epidemiological evidence for lung tumors in Humans.

Lung tumors in rats are the result of exposure under "lung overload" conditions. The development of lung tumors in rats is specific to this species. Mouse and hamster do not develop lung tumors under similar test conditions. The CLP guidance on classification and labeling states, that "lung overload" in animals is listed under mechanism not relevant to humans.

IARC listed: Group 2B (possibly carcinogenic to humans). Not listed as a human carcinogen by NTP, ACGIH, OSHA, or the European Union. ACGIH listed as A3 Confirmed animal carcinogen with unknown relevance to humans: The agent is carcinogenic in experimental animals at a relatively high dose, by route(s) of administration, at site(s), of histological type(s), or by mechanism(s) that may not be relevant to

worker exposure. Available epidemiologic studies do not confirm an increased risk of cancer in exposed humans. Available evidence does not suggest that the agent is likely to cause cancer in humans except under uncommon or unlikely routes or levels of exposure.

11.6 Mutagenic effects

In Vitro

Carbon Black is not suitable to be tested in bacterial (Ames test) and other *in vitro* systems because of its insolubility. When tested, however, results for Carbon Black showed no mutagenic effects. Organic solvent extracts of Carbon Black can, however, contain traces of polycyclic aromatic hydrocarbons (PAHs). A study to examine the bioavailability of these PAHs showed that PAHs are very tightly bound to Carbon Black and not bioavailable.

In Vivo

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" which led to chronic inflammation and release of oxygen species. (see Chronic toxicity above). This is considered to be a secondary genotoxic effect and, thus, Carbon Black itself would not be considered to be mutagenic.

11.7 Reproductive effects

No effects have been reported in long-term animal studies.

11.8 Epidemiology

Results of epidemiological studies of Carbon Black production workers suggest that cumulative exposure to Carbon Black may result in small decrements in lung function. A recent U.S. respiratory morbidity study suggested a 27 ml decline in FEV_1 from a 1 mg/m^3 (inhalable fraction) exposure over a 40-year period. An older European investigation suggested that exposure to 1 mg/m^3 (inhalable fraction) of Carbon Black over a 40-year working lifetime would result in a 48 ml decline in FEV_1. However, the estimates from both studies were only of borderline statistical significance. Normal age-related decline over a similar period of time would be approximately 1200 ml.

The relationship between other respiratory symptoms and exposure to Carbon Black is even 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 the conclusions that can be drawn about reported symptoms. This study, however, indicated a link between Carbon Black and small opacities on chest films, with negligible effects on lung function.

A study on Carbon Black production workers in the UK (Sorahan *et al* 2001) found an increased risk of lung cancer in two of the five plants studied; however, the increase was not related to the dose of Carbon Black. Thus, the authors did not consider the increased risk in lung cancer to be due to Carbon Black exposure. A German study of Carbon Black workers at one plant (Wellmann *et al.* 2006, Morfeld *et al*. 2006(a), Buechte *et al.* 2006, Morfeld *et al.* 2006(b)) found a similar increase in lung cancer risk but, like the 2001 UK study, found no association with Carbon Black exposure. In contrast, a large US study (Dell *et al.* 2006) of 18 plants showed a reduction in lung cancer risk in Carbon Black production workers. Based upon these studies, the February 2006 Working Group at IARC concluded that the human evidence for carcinogenicity was *inadequate* (Baan *et al.* 2006).

Since this IARC evaluation of Carbon Black, Sorahan and Harrington (2007) re-analyzed the UK study data using an alternative exposure hypothesis and found a positive association with Carbon Black exposure in two of the five plants. The same exposure hypothesis was applied by Morfeld and McCunney (2007) to the German cohort; in contrast, they found no association between Carbon Black exposure and lung cancer risk and, thus, no support for the alternative exposure hypothesis used by Sorahan and Harrington. Overall, as a result of these detailed investigations, no causative link between Carbon Black exposure and cancer risk in humans has been demonstrated. This view is consistent with the IARC evaluation in 2006.

12. ECOLOGICAL DATA

Ecotoxicity
Aquatic toxicity: Acute fish toxicity: LC50 (96 h) > 1000mg/l, *Brachydanio rerio* (zebrafish), (OECD Guideline 203).
Acute water flea toxicity: EC50 (24 h) > 5600 mg/l. *Daphnia magna* (waterflea), (OECD Guideline 202).
Acute algae toxicity: EC 50 (72 h) >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.
Bioaccumulation: Potential bioaccumulation is not expected because of physio-chemical properties of the substance.

13. DISPOSAL CONSIDERATIONS

Product can be burned in suitable incineration plants or disposed of in a suitable landfill in accordance with the regulations of the appropriate federal, provincial, state and local authorities.
EU - See European Waste Catalogue (Council Directive 75/422/EEC).
U.S. - Not a hazardous waste under U.S. RCRA, 40 CFR 261.
Canada - Not a hazardous waste under provincial regulations.
Container/Packaging - Return reusable containers to manufacturer. Paper bags may be incinerated, recycled, or disposed of in an appropriate landfill in accordance with national and local laws.

14. TRANSPORT INFORMATION

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 Regulations
GGVS, GGVE, RID, ADR, IMDG Code, ICAO-TI
United Nations (no UN number)
U.S. Department of Transportation

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.

15. REGULATORY INFORMATION

15.1 European Union (EU)
Classification: Not defined as a dangerous substance or preparation according to Council Directive 67/548/EEC and its various amendments and adaptations.
Symbol: None required

15.2 Germany: water classification.WGK Number (Kenn-Nr): 1742. WGK Class (Wassergefährdungsklasse): nwg (non-hazardous to waters). Not a hazardous substance as defined by the Chemicals Act or Hazardous Substance Ordinance.

15.3 Canada: WHMIS Classification: D2A
Statement of Equivalence: "This product has been classified in accordance with the hazard criteria of the

Controlled Products Regulations and the SDS contains all the information required by the *Controlled Products Regulations*." Ingredient Disclosure List: Contains Carbon Black. See Section 2.

15.4 United States

Federal Regulations
Superfund Amendments and Reauthorization Act (SARA) Title III
Section 313 Toxic Substances: Does not contain any components subject to this section.
Toxic Release Inventory (TRI): Under EPA's Toxics Release Inventory (TRI) program the reporting threshold for 21 Polycyclic Aromatic Compounds (PACs) has been lowered to 100 pounds per year manufactured, processed, or otherwise used. (64 CFR 58666, Oct. 29, 1999) The 100 pounds/yr applies to the cumulative total of 21 specific PACs. Carbon Black may contain certain of these PACs and the user is advised to evaluate their own TRI reporting responsibilities.

OSHA 29 CFR 1910.1200: Classified as hazardous due to combustible dust potential. See Section 2.

State Regulations
California Safe Drinking Water and Toxics Enforcement Act of 1986
(Proposition 65): "Carbon Black (airborne, unbound particles of respirable size)" is a California Proposition 65 listed substance. All three listing qualifiers (airborne, unbound (not bound within a matrix), and respirable size (10 micrometers or less in diameter)) must be met for this substance to be considered a Proposition 65 listed substance.

15.5 Inventory Status
All components either are listed on or exempt from the following inventories:

Australia: Australian Inventory of Chemical Substances (AICS)
Canada: Domestic Substances List (DSL)
China: Inventory of Existing Chemical Substances
European Union: European Inventory of Existing Commercial Chemical Substances (EINECS) No. 215-609-9.
Japan: Existing and New Chemical Substances (ENCS) No. 5-3328.
Korea: Existing Chemical Substances List (ECL) No. KE-04882
New Zealand: Hazardous Substances and New Organisms Act, approval code HSR002801 (New Zealand Inventory of Chemicals
Philippines: Philippine Inventory of Chemicals and Chemical Substances (PICCS)
United States: Toxic Substances Control Act (TSCA)

16. OTHER INFORMATION

16.1 Polycyclic Aromatic Hydrocarbon (PAH) Content. 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.

16.2 National Fire Protection Association (NFPA) Rating:
Health: 0
Flammability: 1
Reactivity: 0
0 = minimal, 1 = slight, 2 = moderate, 3 = serious, 4 = severe
[Note: Chronic effects are not taken into consideration in the NFPA rating]

16.3 Hazardous Materials Identification System® (HMIS®) Rating:
Health: 1*
Flammability: 1

Physical Hazard: 0
0 = minimal, 1 = slight, 2 = moderate, 3 = serious, 4 = severe
HMIS® is a registered trademark of the National Paint and Coatings Association
[Note: the Health rating is a "1". The asterisk must be added to represent the chronic hazard (Carbon Black listed on IARC)]*

Disclaimer

The data and information presented herein corresponds to the present state of our knowledge and experience and is intended to describe our product with respect to possible occupational safety and health concerns. The user of this product has sole responsibility to determine the suitability of the product for any use and manner of use intended, and for determining the regulations applicable to such use in the relevant jurisdiction. This SDS is updated on a periodic basis in accordance with applicable health and safety standards.