



SAFETY DATA SHEET

CARBON BLACK

SECTION 1: Identification

1.1 GHS Product Identifier

Product Form: Substance

Chemical name: Carbon Black

1.2 Other Means of Identification

Trade Name: CD, Conductex®, Copeblack®, Furnex®, Neotex®, PM, Raven®, Statex®, XT – powder or beads, including H, HB, D, Gold, or Ultra® versions of these grades.

ASTM				Furnex®	CD			XT
N115	N299	N351	N660	1001	1007	2143	2109	1001
N121	N326	N375	N683	1003	2005	2144	2110	1004
N134	N330	N539	N762		2019	2145	2115	1029
N220	N339	N550	N765		2041	2056	2117	1031
N231	N343	N630	N772		2045	2069	2123	1034
N234	N347	N650	N774		2142	2089	2127	1035
								1041
								1051

1.3 Recommended use of the chemical and restrictions on use

Additive for plastic and rubber; pigment; chemical reagent, additive for batteries, refractories, various. Not recommended for use as a human tattoo pigment.

1.4 Name, Address, and Telephone of the Responsible Party

Manufacturer: Columbian Chemicals Company
1800 West Oak Commons Court
Marietta, Georgia 30062, USA
+1 (770) 792-9400
bc.hse@adityabirla.com

1.5 Emergency Telephone Numbers

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

SECTION 2: Hazard(s) Identification

2.1 Classification of the substance or mixture

2.1.1 According to the criteria in OSHA HCS (2012) for classifying hazardous substances, Carbon Black is not classified for any toxicological or eco-toxicological endpoint. As a combustible dust it is designated by OSHA as a hazardous chemical. See 2.2 Labelling and 2.3 "Hazards Not Otherwise Classified (HNOC)".

- 2.1.2 According to the criteria in GHS (UN) for classifying hazardous substances, Carbon Black is not classified for any physico-chemical, toxicological or eco-toxicological endpoint. See 2.4 "Other Hazards"
- 2.1.3 According to the criteria in Regulation (EC) No. 1272/2008 (CLP) for classifying hazardous substances, Carbon Black is not classified for any physico-chemical, toxicological or eco-toxicological endpoint.
- 2.1.4 According to the criteria in the Canadian Hazardous Product Regulation (HPR) known as Worker Hazardous Material Information System 2015 (WHMIS 2015) carbon black is not classified for any health hazards. Carbon Black is classified as a Combustible Dust.

2.2 GHS Label Elements

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.

{Pictogram – not currently available for combustible dust hazard.}

2.3 Hazards Not Otherwise Classified (HNOC)

Carbon black may form an explosible dust-air mixture if dispersed. According to various international test methods (ASTM 1226, EN 14034, VDI 2263) carbon black is an explosible dust under these various test conditions (dust explosion class ST-1, weak explosion). Carbon black dust may contribute to secondary dust explosions as a result of a small primary explosion blast wave dispersing settled dust that may be ignited by the primary explosion. Carbon black can burn or smolder at temperatures greater than 400°C (>752°F) releasing hazardous products such as carbon monoxide (CO), carbon dioxide, and oxides of sulfur. At sufficient concentrations carbon monoxide when combined with carbon black can form an explosible hybrid mixture when dispersed in air. Depending on the hybrid composition (carbon black, CO, or other process related components), explosibility factors such as lower flammable limit, minimum explosible concentration (MEC), and minimum ignition energy (MIE) may change. Effective engineering practices, good housekeeping practices, and effective dust removal systems are necessary to minimize carbon black emissions and resultant build-up on horizontal and vertical surfaces. Fugitive carbon black emissions should be minimized and housekeeping practices should be instituted. See NFPA 654, Table A.6.7. Based on explosion severity and sensitivity data found in Table 1, Section 9, determine if dust concentrations and energy requirements can be achieved within silos or dust collectors then conduct an appropriate hazard assessment. See NFPA-654 and 68. Note, physical properties (particle size or shape, moisture content, chemical composition, or trace solvent level, etc.) as well as test methods and apparatus

2.4 Other Hazards

- 2.4.1 Some grades of carbon black are sufficiently electrically non-conductive to allow a build-up of static charge during handling. Take measures to prevent the build-up of electrostatic charge. See Section 7.
- 2.4.2 Carbon black dust may cause reversible mechanical irritation to eyes; mechanical irritation, soiling, and drying of skin due to repeated washing; and temporary discomfort to upper respiratory tract especially at concentrations above the occupational exposure limit. No cases of sensitization in humans have been reported. Work environment exposure levels to carbon black dust should be controlled to below applicable occupational exposure limits.
- 2.4.3 Long-term exposure below the current U.S. OSHA PEL of 3.5 mg/m³ (when measured as traditional "total" dust) may result in a small loss of lung function (FEV1) over a working life-time.

- 2.4.4 IARC classification (based on rat studies): *Group 2B (possibly carcinogenic to humans)*. Not listed as a carcinogen by NTP, ACGIH, OSHA, or the European Union. See Section 11. Manufacturers of carbon black state that epidemiological studies of workers in the carbon black manufacturing industry in the U.S. and Europe show no significant adverse health effects due to occupational exposure.
- 2.4.5 Most carbon blacks contain trace quantities of poly-aromatic hydrocarbons (PAHs) at levels less than 0.1 % unless otherwise specified by the supplier. There are no known carcinogenic effects related to the PAH content of carbon blacks. Research has shown that the PAH content of carbon blacks is not released in biological fluids and thus not available for biological activity. See Sections 11 and 16.

SECTION 3: Composition/information on ingredients

3.1 Substances

3.1.1 Carbon Black (amorphous) 100%
Chemical formula: C

3.1.2 Common name(s), synonym(s) of the substance: furnace black, thermal black, lamp black, acetylene black

3.1.3 CAS number and other unique identifiers for the substances
CAS number: 1333-86-4
EINECS-RN: 215-609-9

3.2 Mixtures

Not applicable

SECTION 4: First-aid measures

4.1 Description of first-aid measures

4.1.1 Inhalation: As conditions permit move person to fresh air and restore normal breathing. Short-term exposures to concentrations that are well above the occupational exposure limit may produce temporary discomfort to the upper respiratory tract, which may result in coughing and wheezing. Removal from carbon black exposure is normally sufficient to cause symptoms to subside without lasting effects. Carbon black is not a respiratory irritant, as defined by the Occupational Safety and Health Administration (OSHA) or UN GHS.

Skin: Wash skin with mild soap and water. Carbon black dust or powder may cause drying of the skin due to repeated washing. Carbon black is not a chemical skin irritant. Treat symptomatically for mechanical irritation.

Eye: Rinse eyes with clean water keeping eyelid open. If symptoms develop seek medical attention. Carbon black is not a chemical eye irritant. Treat symptomatically for mechanical irritation.

Ingestion: No adverse effects are expected from carbon black ingestion. Do not induce vomiting.

4.1.2 First-aid responders should wear an approved respirator where airborne dust concentrations are expected to exceed occupational exposure limits.

4.2 Most important symptoms, both acute and delayed

See inhalation above.

4.3 Indication of any immediate medical attention and special treatment needed

See inhalation above.

SECTION 5: Fire-fighting measures

- 5.1 Extinguishing media
Use foam, carbon dioxide (CO₂), dry chemical, or water fog. A fog spray is recommended if water is used. DO NOT USE HIGH PRESSURE WATER STREAM as this may spread burning powder (burning powder will float).
- 5.2 Special hazards arising from the substance or mixture
- 5.2.1 Explosion: Avoid generating dust; fine dust dispersed in air in sufficient concentrations and in the presence of an ignition source is a potential dust explosion hazard.
- 5.2.2 May produce hazardous airborne concentrations of carbon monoxide if burning or smoldering
- 5.2.3 Carbon black can burn or smolder at temperatures greater than 400°C (>752°F) releasing hazardous products such as carbon monoxide (CO), carbon dioxide, and oxides of sulfur. At sufficient concentrations carbon monoxide, by itself, or when combined with carbon black can form an explosible hybrid mixture when dispersed in air.
- 5.2.4 May produce oxides of sulfur and carbon dioxide on combustion.
- 5.2.5 Wet carbon black produces very slippery walking surfaces.
- 5.3 Advice for fire fighters
- 5.3.1 Wear full protective firefighting gear, including self-contained breathing apparatus (SCBA). Wet carbon black produces very slippery walking surfaces.

SECTION 6: Accidental release measures

- 6.1 Personal precautions, protective equipment and emergency procedures
- 6.1.1 Non-Emergency Personnel: Wear appropriate personal protective equipment and respiratory protection to avoid skin soiling and possible mechanical irritation to eyes and upper respiratory tract from airborne dust. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosible mixture if they are released into the atmosphere in sufficient concentrations. Refer to NPFA 654 for good practices. Remove ignition sources. Avoid dispersal of dust in the air (e.g., refrain from clearing dust surfaces with compressed air). Ensure adequate ventilation to control dust to below current occupational exposure limits. Wet carbon black produces very slippery walking surfaces. See Section 8.
- 6.1.2 Emergency Responders: When airborne contaminants and concentrations cannot be immediately assessed self-contained breathing apparatus (SCBA) should be used. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosible mixture if they are released into the atmosphere in sufficient concentrations. Refer to NPFA 654 for good practices. Remove ignition sources. Avoid dispersal of dust in the air (e.g., refrain from clearing dust surfaces with compressed air). Non-sparking tools should be used. Exposure to untreated carbon blacks does not require the use of special impervious clothing or gloves. Use of gloves, boots and other clothing to protect skin and work clothing from soiling is optional.
- 6.2 Environmental precautions
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.

In the US, carbon black is not a hazardous substance under the Comprehensive, Environmental Response, Compensation, and Liability Act (40 CFR 302), or the Clean Water Act (40 CFR 116), or a hazardous air pollutant under the Clean Air Act Amendments of 1990 (40 CFR 63).

6.3 Methods and materials for containment and cleaning up

Small spills should be vacuumed when possible. Dry sweeping is not recommended. A vacuum equipped with high efficiency particulate air (HEPA) filtration is recommended. If necessary, light water spray will reduce dust for dry sweeping. Large spills may be shoveled into containers.

6.4 Reference to other sections

See section 8. See section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

7.1.1 Minimize dust generation and accumulation on surfaces. Use local exhaust ventilation or other appropriate engineering controls to maintain dust below the occupational exposure limit. Dust may cause electrical shorts if able to penetrate electrical boxes and other electrical devices, possibly creating electrical hazards resulting in equipment failure. Electrical devices should be tightly sealed or purged with clean air, periodically inspected, and cleaned, as required.

7.1.2 If hot work (welding, torch cutting, etc.) is required the immediate work area must be cleared of carbon black product, dust and other combustible materials. Approved fire and heat resistant welding blankets may provide additional thermal protection from sparks and splatter. Follow standard safe practices for welding, cutting, and allied processes as described in ANSI Z49.1.

7.1.3 Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres.

7.2 Conditions for safe storage, including any incompatibilities

7.2.1 Store in a 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.

7.2.3 Carbon black is not classifiable as a Division 4.2 self-heating substance under the UN test criteria. However, these criteria are volume dependent, i.e, the auto-ignition temperature decreases with increasing volume. This classification may not be appropriate for large volume storage containers.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Exposure limit values

Canada:	3.0 mg/m ³ TWA, inhalable
US ACGIH - TLV:	3.0 mg/m ³ TWA, inhalable
US OSHA - PEL:	3.5 mg/m ³ TWA, inhalable

8.2 Exposure controls

8.2.1 Engineering controls: Use process enclosures and/or exhaust ventilation to keep airborne dust concentrations below the occupational exposure limit. Depending on processing requirements, equipment, and the composition, concentration, and energy requirements of intermediates and/or finished products, dust control systems may require explosion relief vents, or an explosion suppression system, or an oxygen-deficient environment. See NFPA 654 and 68.

Local exhaust ventilation recommended for all transfer points to mixers, blenders, batch feeding processes and point sources that may release dust to work environment. Recommend mechanical handling to minimize human contact with dust. Recommend ongoing preventive maintenance and housekeeping to minimize dust.

8.3 Individual Protection Measures, such as Personal Protective Equipment (PPE)

8.3.1 Respiratory: Approved air purifying respirator (APR) should be used where airborne dust concentrations are expected to exceed occupational exposure limits. Use a positive-pressure, air supplied respirator if there is any potential for uncontrolled release, exposure levels are not known, or in circumstances where APRs may not provide adequate protection.

Eye/Face protection: Safety glasses or goggles.

Skin protection: Wear general protective clothing to minimize skin contact. Work clothes should not be taken home and should be washed daily.

8.3.2 General hygiene considerations: Emergency eyewash and safety showers should be in close proximity. Wash hands and face thoroughly with mild soap before eating or drinking.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance:	powder or pellet
Color:	black
Odor:	odorless
Odor threshold:	not applicable
Molecular formula:	C
Molecular weight (as carbon):	12
Melting point/range:	>3000 °C
Boiling point/range:	>3000 °C
Evaporation rate:	not applicable
Vapor pressure:	not applicable
Density (20°C):	1.7 – 1.9 g/cm ³
Bulk density:	1.25 – 40 lb/ft ³ , 20 – 640 kg/m ³
Solubility:	insoluble in water
pH value:	5 - 10 [50 g/L water, 20 °C (68 °F)] – non-post-treated carbon black 2 - 7 [50 g/L water, 20 °C (68 °F)] – post-treated carbon black
Partition coefficient:	not applicable
Viscosity:	not applicable
Decomposition temperature:	300 °C (572 °F)
Auto-ignition temperature:	>140 °C (>284 °F)
Flashpoint:	not applicable
Flammability classification:	not flammable
Maximum rate of pressure rise (Kst):	30-100 bar/s (ASTM 1226-10 or VDI 2263-1)
Maximum Pressure (Pmax):	10 bar (ASTM 1226-10 or VDI 2263-1)
Minimum explosive concentration (MEC):	50 g/m ³ (ASTM E1515)
Dust explosion class:	ST 1
Minimum ignition temperature (MIT):	>600 °C (ASTM 1491-97) (BAM oven)
Minimum ignition energy (MIE):	>1 kJ (ASTM E2019-03)
Minimum auto-ignition temperature(MAIT):	>400 °C (ASTM E2021-09)(dust layer)

9.2 Other information

Not available

SECTION 10: Stability and reactivity

- 10.1 Reactivity
Stable under normal ambient conditions
- 10.2 Chemical stability
Stable under normal ambient conditions. Prevent exposure to high temperatures and open flames.
- 10.3 Possibility of hazardous reactions
Hazardous polymerization will not occur.
- 10.4 Conditions to avoid
Avoid high temperatures >400°C (>752°C) and sources of ignition.
- 10.5 Incompatible materials
Strong oxidizers such as chlorates, bromates, and nitrates.
- 10.6 Hazardous decomposition products
Carbon monoxide, carbon dioxide, organic products of decomposition, oxides of sulfur (sulfoxides) form if heated above decomposition temperature.

SECTION 11: Toxicological information

- 11.1 Acute Toxicity
Acute oral toxicity: LD₅₀ (rat) > 8000 mg/kg. (Equivalent to OECD TG 401)
Acute inhalation toxicity: not determined.
Acute dermal toxicity: not determined.

Assessment: Non-toxic after ingestion.
- 11.2 Skin Corrosion/Irritation
Rabbit: not irritating. (Equivalent to OECD TG 404)
Edema = 0 (max. attainable irritation score: 4)
Erythema = 0 (max. attainable irritation score: 4)

Assessment: Not irritating to skin.
- 11.3 Sensitization
Guinea pig skin (Buehler Test): Not sensitizing (OECD TG 406)

Assessment: Not sensitizing in animals.
No cases of sensitization in humans have been reported.
- 11.4 Germ cell Mutagenicity
In vitro: Carbon black is not suitable to be tested directly in bacterial (Ames test) and other *in vitro* systems because of its insolubility. However, when organic solvent extracts of carbon black have been tested, results showed no mutagenic effects. Organic solvent extracts of carbon black can contain traces of polycyclic aromatic hydrocarbons (PAHs). A study to examine the bioavailability of these PAHs showed that they are very tightly bound to carbon black and are not bioavailable (Borm, 2005).

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 (Driscoll, 1997). This observation is considered to be rat-specific and a consequence of "lung overload," which leads to chronic inflammation and release of reactive oxygen species. This is considered to be a secondary genotoxic effect and, thus, carbon black itself would not be considered to be mutagenic.

Assessment: *In vivo* mutagenicity in rats occurs by mechanisms secondary to a threshold effect and is a consequence of "lung overload," which leads to chronic inflammation and the release of genotoxic oxygen species. This mechanism is considered to be a secondary genotoxic effect and, thus, carbon black itself would not be considered to be mutagenic.

11.5 Carcinogenicity

11.5.1 Animal toxicity

Rat, oral, duration 2 years.

Effect: no tumors.

Mouse, oral, duration 2 years.

Effect: no tumors.

Mouse, dermal, 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 "lung overload" 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 (ILSI, 2000). 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.

11.5.2 Mortality studies (human data)

A study on carbon black production workers in the UK (Sorahan, 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 (Morfeld, 2006; Buechte, 2006) found a similar increase in lung cancer risk but, like the Sorahan, 2001 (UK study), found no association with carbon black exposure. A large US study of 18 plants showed a reduction in lung cancer risk in carbon black production workers (Dell, 2006). Based upon these studies, the February 2006 Working Group at the International Agency for Research on Cancer (IARC) concluded that the human evidence for carcinogenicity was *inadequate* (IARC, 2010).

Since the IARC evaluation of carbon black, Sorahan and Harrington (2007) have 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 (2009) 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.

IARC cancer classification: In 2006 IARC re-affirmed its 1995 finding that there is "*inadequate evidence*" from human health studies to assess whether carbon black causes cancer in humans. IARC concluded that there is "*sufficient evidence*" in experimental animal studies for the carcinogenicity of carbon black. IARC's overall evaluation is that carbon black is "*possibly carcinogenic to humans (Group 2B)*". This

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conclusion was based on IARC's guidelines, which generally require such a classification if one species exhibits carcinogenicity in two or more animal studies (IARC, 2010).

Solvent extracts of carbon black were used in one study of rats in which skin tumors were found after dermal application and several studies of mice in which sarcomas were found following subcutaneous injection. IARC concluded that there was "*sufficient evidence*" that carbon black extracts can cause cancer in animals (Group 2B).

ACGIH cancer classification: Confirmed Animal Carcinogen with Unknown Relevance to Humans (Category A3 Carcinogen).

Assessment: Applying the guidelines of self-classification under the Globally Harmonized System of Classification and Labeling of Chemicals, carbon black is not classified as a carcinogen. Lung tumors are induced in rats as a result of repeated exposure to inert, poorly soluble particles like carbon black and other poorly soluble particles. Rat tumors are a result of a secondary non-genotoxic mechanism associated with the phenomenon of lung overload. This is a species-specific mechanism that has questionable relevance for classification in humans. In support of this opinion, the CLP Guidance for Specific Target Organ Toxicity – Repeated Exposure (STOT-RE), cites lung overload under mechanisms not relevant to humans. Human health studies show that exposure to carbon black does not increase the risk of carcinogenicity.

11.6 Reproductive and Developmental Toxicity

No effects on reproductive organs or fetal development have been reported in long-term repeated dose toxicity studies in animals.

11.7 Specific target organ toxicity – single exposure (STOT-SE)

Based on available data, specific target organ toxicity is not expected after single oral, single inhalation, or single dermal exposure.

11.8 Specific target organ toxicity – repeated exposure (STOT-RE)

11.8.1 Animal toxicity

Repeated dose toxicity: inhalation (rat), 90 days, No Observed Adverse Effect Concentration (NOAEC) = 1.1 mg/m³ (respirable)

Target organ/effects at higher doses are lung inflammation, hyperplasia, and fibrosis.

Repeated dose toxicity: oral (mouse), 2 yrs, No Observed Effect Level (NOEL) = 137 mg/kg (body wt.)

Repeated dose toxicity: oral (rat), 2 yrs, NOEL = 52 mg/kg (body wt.)

Although carbon black produces pulmonary irritation, cellular proliferation, fibrosis, and lung tumors in the rat under conditions of lung overload, there is evidence to demonstrate that this response is principally a species-specific response that is not relevant to humans.

11.8.2 Morbidity studies (human data)

Results of epidemiological studies of carbon black production workers suggest that cumulative exposure to carbon black may result in small, non-clinical decrements in lung function. A U.S. respiratory morbidity study suggested a 27 ml decline in FEV₁ from a 1 mg/m³ 8 hour TWA daily (inhalable fraction) exposure over a 40-year period (Harber, 2003). An earlier European investigation suggested that exposure to 1 mg/m³ (inhalable fraction) of carbon black over a 40-year working lifetime would result in a 48 ml decline in FEV₁ (Gardiner, 2001). 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.

In the U.S. study, 9% of the highest non-smokers 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.

Assessment: Inhalation - Applying the guidelines of self-classification under GHS, carbon black is not classified under STOT-RE for effects on the lung. Classification is not warranted on the basis of the unique response of rats resulting from "lung overload" following exposure to poorly soluble particles such as carbon black. The pattern of pulmonary effects in the rat, such as inflammation and fibrotic responses, are not observed in other rodent species, non-human primates, or humans under similar exposure conditions. Lung overload does not appear to be relevant for human health. Overall, the epidemiological evidence from well-conducted investigations has shown no causative link between carbon black exposure and the risk of non-malignant respiratory disease in humans. A STOT-RE classification for carbon black after repeated inhalation exposure is not warranted.

Oral: Based on available data, specific target organ toxicity is not expected after repeated oral exposure.

Dermal: Based on available data and the chemical-physical properties (insolubility, low absorption potential), specific target organ toxicity is not expected after repeated dermal exposure.

11.9 Aspiration hazard

Based on industrial experience and the available data, no aspiration hazard is expected.

SECTION 12: Ecological information

12.1 Toxicity

12.1.1 Aquatic toxicity

Acute fish toxicity: LC0 (96 h) 1000mg/l,
Species: *Brachydanio rerio* (zebrafish),
Method: OECD Guideline 203

Acute invertebrate toxicity:
EC50 (24 h) > 5600 mg/l.
Species: *Daphnia magna* (waterflea),
Method: OECD Guideline 202

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

Activated sludge:
EC0 (3 h) > 400 mg/l.
EC10 (3h): ca. 800 mg/l
Method: DEV L3 (TTC test)

12.2 Persistence and degradability

Not soluble in water. Expected to remain on soil surface. Not expected to degrade.

12.3 Bioaccumulative potential

Potential bioaccumulation is not expected because of the physicochemical properties of the substance.

12.4 Mobility in soil
Not soluble in water. Not expected to migrate.

12.5 Other adverse effects
No other data are available.

SECTION 13: Disposal considerations

13.1 Product disposal
Product should be disposed of in accordance with the regulations issued by the appropriate federal, provincial, state, and local authorities.

Canada:	Not a hazardous waste under provincial regulations
USA:	Not a hazardous waste under U.S. RCRA, 40 CFR 261.

13.1 Container/Packaging disposal
Empty packaging must be disposed of in accordance with national and local laws.

SECTION 14: Transport information

14.1 UN Number
Not available. Carbon black is not classified as a hazardous material by the UN.

14.2 UN proper shipping name
Not applicable

14.3 Transport hazard class(es)
Not applicable

14.4 Packing group
Not applicable

14.5 Environmental hazards
Not applicable

14.6 Special precautions for user
None

14.7 Additional information
US-DOT transport information: not regulated.

International transport identification: "Carbon black, non-activated, mineral origin." Carbon black is not a Division 4.2 hazard.

Carbon black is not restricted for transport by the following regulations:

- UN Model Regulations on the Transport of Dangerous Goods
- European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)
- European Agreement concerning the International Carriage of Dangerous Goods by Rail (RID)
- European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN)
- International Maritime Dangerous Goods Code (IMDG)
- Convention on International Civil Aviation – Annex 18 – Safe Transport of Dangerous Goods by Air
- International Air Transport Association (IATA-DGR)

- MARPOL 73/78, Annex II
- International Bulk Chemical Code (IBC)
- United States Department of Transportation
- Canadian Transport of Dangerous Goods Regulation
- Australian Dangerous Goods Code

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1 Inventory

Carbon black, CAS number 1333-86-4, appears on the following inventories:

Australia:	AICS
Canada:	DSL
China:	IECSC
Europe (EU):	EINECS (EINECS-RN: 215-609-9)
Japan:	ENCS(10-3074/5-3328 and 0-0073/5-5222) Pneumoconiosis Law Enforcement regulations clause 2 Industrial Safety and Health Law Clause 57-2 ISHL
Korea:	TCC-ECL (KE-04682)
Philippines:	PICCS
Taiwan:	CSNN
New Zealand:	HSNO (approval code HSR002801)
USA:	TSCA

15.1.4 United States

SARA 313 (TRI): Carbon black is not a SARA 313 chemical.

The reporting threshold for 21 Polycyclic Aromatic Compounds (PACs) has been lowered to 100 pounds per year manufactured, processed, or otherwise used. (64 Fed. Reg. 58666 (Oct. 29, 1999).) The 100 pounds/yr applies to the cumulative total of 21 specific PACs. Section 1.5.1 indicates that the *de minimis* exemption (i.e., disregarding amounts less than 0.1%) has been eliminated for PACs. Carbon black may contain certain of these PACs and the user is advised to evaluate their own TRI reporting responsibilities. (Note: Benzo (g,h,i) perylene is listed separately and has a 10 lb. reporting threshold.)

SARA 311/312: applies if carbon black is present at any one time in amounts equal to or greater than 10,000 pounds.

Immediate health hazard:	No
Delayed (chronic) health hazard:	Yes
Sudden release of pressure hazard:	No
Reactive hazard:	No

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. Certain polycyclic aromatic hydrocarbons (PAHs) that may be found adsorbed onto the surface of carbon black are California Proposition 65 listed substances. Certain metals, including arsenic, cadmium, lead, mercury, and nickel, may be present on and/or in carbon black and are California Proposition 65 listed substances. "Carbon-black extracts" is a California Proposition 65 listed substance.

15.1.5 Canada

Worker Hazardous Material Information System (WHMIS), Classification Combustible Dust

Statement of Equivalence: "This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and MSDS/SDS contains all the information required by the Controlled Products Regulations."

Ingredients Disclosure List: Contains carbon black. See Section 2.

SECTION 16: Other Information

NFPA (National Fire Protection Association) Rating:

Health:	0
Flammability:	1
Reactivity:	0

Revision Date: 24 April 2015

References:

Borm, P.J.A., Cakmak, G., Jermann, E., Weishaupt C., Kempers, P., van Schooten, F.J., Oberdorster, G., Schins, R.P. (2005) Formation of PAH-DNA adducts after in-vivo and vitro exposure of rats and lung cell to different commercial carbon blacks. *Tox.Appl. Pharm.* 1:205(2):157-67.

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The carbon black industry continues to sponsor research designed to identify adverse health effects from long-term exposure to carbon black. This SDS is updated as new health and safety information becomes available.

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 health and safety 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.