SAFETY DATA SHEET

PCBL Limited

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Safety Data Sheet according to United States Hazard Communication Standard: 29 CFR 1910.1200 (OSHA HazCom Standard 2012) requirements and Canada's Workplace Hazardous Materials Information System (WHMIS 2015) | S.GHS.USA.EN

SECTION 1 - IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

Product Identifier

Product name:	CARBON BLACK
Chemical Name:	Carbon Black
Synonyms:	Furnace Black
Nanoform:	Carbon black is classified as a nanoform by Commission Regulation (EU) 2018/1881.
This SDS is valid for grades	**Orient Black** - N110, N115, N121, N134, N219, N220, N231, N234, N299, N326, N330, N330B, N330T, N339, N347, N351, N375, N550, N550LG, N650, N660, N660LP, N762, N765, N772, N774, P435, PRD006, PRD016, PRD018, PRD020, PRD021. **Royale Black** - P353, P537, P824, P8242, P842, PP805, PI101, PI102, PI103, PI103i, PI109, PI137, PF401, PF402, PF606, PC501, PC502, PC503, PC505, PP1201, PP801, PP802, PP803, PE201, PE204, PF1402, PFEXP, PP131, PP802S, PP803K, P901, EI215, Energia360, Energia 361, Energia870, Energia 871, EP232, Bleumina214, Bleumina216, Bleumina218, Bleumina219, Bleumina221, Bleumina223, Bleumina312, Bleumina361, Bleumina381, Bleumina391, NuTone21, NuTone36, NuTone37, NuTone98, NuTone302, NuTone303, NuTone305, NuTone306, NuTone310, NuTone313, NuTone320, NuTone324, NuTone373, NuTone390. **CARBONEXT** - CARBONEXT10, CARBONEXT20, CARBONEXT40, CARBONEXT50, CARBONEXT60.
Proper shipping name:	CARBON BLACK
Chemical Composition:	Substantially elemental carbon, C
CAS number:	1333-86-4

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses:	Used in Rubber/Plastics/Paints/Coatings/Ink and other applications as per manufacturer's advice
Uses advised against:	Not to be used as a skin tattooing pigment, directly as cosmetic. According to manufacturer's directions.

Details of the supplier of the safety data sheet

Registered company name:	PCBL Limited
Address:	31, Netaji Subhas Road, Kolkata, West Bengal, INDIA - 700 001
Telephone:	+91-33-66251443
e-mail:	pcbl.rubbertech@rpsg.in, pcbl.specialtyblack@rpsg.in
Website:	www.pcblltd.com
CIN number:	L23109WB1960PLC024602

Emergency telephone number

Association / Organisation:	PCBL Limited
Emergency telephone numbers:	+91-9830600474/6292208335 (24 Hrs.)

SECTION 2 - HAZARDS IDENTIFICATION

Classification of the substance or mixture

USA:

As per OSHA HCS (2012) hazardous substance classification, Carbon Black is not categorized as toxicological or eco-toxicological substance. Being a combustible dust It is assigned as hazardous chemical by OSHA.

Canada:

According to Canadian Hazardous Product Regulation (HPR) which is also known as Worker Hazardous Material Information Syatem 2015 (WHMIS 2015) Carbon Black is classified as only Combustible Dust, does not encounter for any health Hazards.

GHS:

As per GHS (UN) Hazardous substance classification, Carbon Black is not considered as physico-chemical, toxicological or eco-toxicological substance.

Label Elements

Signal Word:

Warning

Hazard statements:

May form combustible dust concentrations in air

Precautionary statements:

Keep away from all ignition sources including heat, sparks and flame and dust accumulations to minimize explosion hazard.

Hazards Not Otherwise Classified (HNOC):

At a higher temperature of 400 ^{o}C (>752 ^{o}F) Carbon Black burns slowly and can produce hazardous carbon monoxide (CO), carbon dioxide (CO_2) and oxides of sulfur. Effective housekeeping and careful engineering practice are required to reduce th eemission of carbon black.

Other hazards

This substance is classified as hazardous as a combustible dust by the United States 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).
May cause reversible mechanical irritation to the eyes, skin and respiratory tract especially at concentrations above the occupational exposure limit.
Do not expose to temperatures above 300°C.

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

Substances

	Number	%[weight]	Name
1. CAS No	1333-86-4	100	Carbon Black

Additional information

HS Code: 280300

SECTION 4 - FIRST AID MEASURES

Description of first aid measures

Eye Contact:

Carbon black is not a chemical eye irritant If this product comes in contact with the eyes:

- Wash out immediately with fresh running water.
- Treat symptomatically for mechanical irritation. Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- Seek medical attention without delay; if pain persists or recurs seek medical attention.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

Skin Contact:

Carbon black is not a chemical skin irritant. Carbon black dust or powder may cause drying of the skin with repeated and prolonged contact. If skin or hair contact occurs:

- Flush skin and hair with running water (and soap if available).
- Treat symptomatically for mechanical irritation
- Seek medical attention in event of irritation.

Inhalation:

Carbon black is not a respiratory irritant, as defined by the Occupational Safety and Health Administration (OSHA) or UN GHS.

- If fumes or combustion products are inhaled remove from contaminated area. Lay the patient down. Keep warm and rested.
- Prostheses such as false teeth, which may block the airway, should be removed, where possible, prior to initiating first aid procedures.
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained.

Ingestion:

No adverse effects are expected from carbon black ingestion

- Do not induce Vomiting
- Immediately give a glass of water.
- First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

Most important symptoms and effects, both acute and delayed

See Section 11 for additional Toxicological Information.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5 - FIREFIGHTING MEASURES

Extinguishing media

- Use foam, carbon dioxide (CO_2), dry chemical, nitrogen (N_2), or water fog. A fog spray is recommended if water is used.
- Do not use a high-pressure water stream as this may spread burning powder (burning powder will float and may spread fire).
- Do not use a high-pressure media which could cause the formation of a potentially explosible dust-air mixture.

Special hazards arising from the substrate or mixture

- Avoid contamination with oxidising agents, i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result.
- Explosion: Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and the presence of an ignition source is a potential dust explosion hazard.
- May produce hazardous airborne concentrations of carbon monoxide if burning or smoldering. *Carbon black that has been on fire should be observed closely for at least 48 hours to ensure no smouldering material is present* .
- Carbon black can burn or smolder at temperatures > 300°C (>572°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.
- Dust can form an explosive mixture with air. Avoid generation of dust. Do not create a dust cloud by using a brush or compressed air. Take precautionary measures against static discharges. All metal parts of the mixing and processing equipment must be earthed/grounded. Ensure all equipment is electrically earthed/grounded before beginning transfer operations.

Advice for firefighters

Fire Fighting:

- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water courses.
- Use water delivered as a fine spray to control fire and cool adjacent area.
- Wet carbon black produces very slippery walking surfaces.

Fire/Explosion Hazard:

- Combustible solid which burns but propagates flame with difficulty; it is estimated that most organic dusts are combustible (circa 70%) - according to the circumstances under which the combustion process occurs, such materials may cause fires and / or dust explosions.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

- Wear appropriate personal protective equipment and respiratory protection to avoid skin soiling and possible mechanical irritation to the 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.
- Avoid dispersal of dust in the air (e.g., refrain from clearing dust surfaces with compressed air). Remove ignition sources.
- When airborne contaminants and concentrations cannot be immediately assessed self-contained breathing apparatus (SCBA) should be used.
- Avoid dispersal of dust in the air. Non-sparking tools should be used.

Environmental precautions

- Local authorities should be advised if significant spillages cannot be contained. See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up

Minor Spills:

- Clean up waste regularly and abnormal spills immediately.
- Small spills should be vacuumed when possible. A vacuum equipped with HEPA (high-efficiency particulate air) filtration is recommended.
- Wear protective clothing, gloves, safety glasses and a dust respirator.

Major Spills:

Moderate Hazard.

- Dry sweeping is not recommended. Water spray will produce very slippery walking surfaces and will not result in satisfactory removal of carbon black contamination.
- Large spills may be shoveled into containers. See Section 13.

Reference to other sections

Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7 - HANDLING AND STORAGE

Precautions for safe handling

Safe handling

NOTE:

- Minimise dust generation and accumulation on surfaces. Use local exhaust ventilation or other appropriate engineering controls to maintain dust below the occupational exposure limit. Avoid contact with skin and eyes.
- 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.
- 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.
- Routine housekeeping should be instituted to ensure that dust do not accumulate on surfaces. Refer to NPFA 654 for good practices 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.
- Some grades of carbon black may be less electrically conductive, permitting a build-up of static energy during handling. Grounding of equipment and conveying systems may be required under certain conditions. Safe work practices include the elimination of potential ignition sources in proximity to carbon black dust; good housekeeping to avoid accumulations of dust on all surfaces; appropriate exhaust ventilation design and maintenance to control airborne dust levels to below the applicable occupational exposure limit; avoidance of dry sweeping or pressurized air for cleanup; avoidance of use of carbon black with incompatible materials (e.g., chlorates and nitrates), and appropriate employee hazard training.

Fire and explosion Protection

See section 5

Conditions for safe storage, including any incompatibilities

Keep in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Do not store together with strong oxidizing agents. Do not store together with volatile chemicals as they may be adsorbed onto product. Keep in properly labeled containers.
Carbon black is not classifiable as a Division 4.2 self-heating substance under the UN test criteria. However, the UN criteria for determining if a substance is self-heating is volume dependent, i.e., the auto-ignition temperature decreases with increasing volume. This classification may not be appropriate for large volume storage containers. Before entering vessels and confined spaces containing carbon black, test for adequate oxygen, flammable gases and potential toxic air contaminants. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosible mixture if they are released in the atmosphere in sufficient concentrations.

Suitable container:

- Polyethylene or polypropylene container.
- Check all containers are clearly labelled and free from leaks.
- Store in a dry location away from ingnition sources & away from oxidizers

Storage incompatibility:

For carbon powders:

- Avoid oxidising agents, reducing agents.
- Reaction with finely divided metals, bromates, chlorates, chloramine monoxide, dichlorine oxide, iodates, metal nitrates, oxygen difluoride, peroxyformic acid, peroxyfuroic acid and trioxygen difluoride may result in an exotherm with ignition or explosion. Less active forms of carbon will ignite or explode on suitably intimate contact with oxygen, oxides, peroxides, oxosalts, halogens, interhalogens and other oxidising species.

- Before entering vessels and confined spaces containing carbon black, test for adequate oxygen, flammable gases and potential toxic air contaminants, e.g., CO.

Package material incompatibilities:

Not Available

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

Occupational Exposure Limits (OEL)

The table below is a summary. Please see the specific legislation for complete information

Representative occupational exposure limits currently available for carbon black (CAS number: 1333-86-4). Country listing not all inclusive.

Country	Concentration in mg/m^3		
ACGIH TLV	3	TWA	inhalable
OSHA PEL	3.5	TWA	(vacated)
Alberta	3.5	TWA	
British Columbia	3.5	TWA	inhalable
Ontario	3	TWA	inhalable
Quebec	3	TWA	inhalable

NOTE:

(1) Unless otherwise indicated as "respirable" or "inhalable", the exposure limit represents a "total" value. The inhalable exposure limit has been demonstrated to be more restrictive than the total exposure limit, by a factor of approximately 3.

*Please consult the current version of the standard or regulation that may apply to your operations.

TWA	time-weighted average
mg/m^3	milligrams per cubic meter
OSHA	Occupational Safety and Health Administration

Appropriate engineering controls

Use process enclosures and/or exhaust ventilation to keep airborne dust concentrations below the applicable 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 oxygendeficient environment. Ensure that eyewash stations and safety showers are close to the workstation location.

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 minimise human contact with dust.

Recommend ongoing preventive maintenance and housekeeping programs to minimize dust release from ventilation control systems and the build-up of dust on surfaces in work environments.

Personal protection

Eye and face protection:

- Safety glasses with side shields. Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task.

Skin protection:

- Wear general protective clothing to minimise skin exposure and soiling. Work clothes should not be taken home and should be washed daily.
- Wear protective gloves to prevent soiling of hands. Use protective barrier cream before handling the product. Wash hands and other exposed skin with mild soap and water.

Respiratory protection:

- 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.
- When respiratory protection is required to minimise exposures to carbon black, programs should follow the requirements of the appropriate governing body for the country, province or state. Selected references to respiratory protection standards are provided below:
  - US: NIOSH approval under 42 CFR 84 required. OSHA (29 CFR 1910.134). ANSI Z88.2-1992 (Respiratory Protection).
  - 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.

Environmental exposure controls:

- In accordance with all local legislation and permit requirements.

General hygiene considerations:

- Handle in accordance with good industrial hygiene and safety practice.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Black colour	Vapour density (Air = 1)	Not Applicable	
Physical state	Amorphus solid/Powder/ Granules.	Relative density (Water = 1)	1.7-1.9	at 20°C
Odour	Odourless	Bulk density (Water = 1)	200 - 680 kg/m^3	Granules
Odour threshold	Not Applicable	Bulk density (Water = 1)	100-420 kg/m^3	Powder
pH (as supplied)	2-10 [50 g/l water, at 20°C]	Partition coefficient n-octanol / water	Not Applicable	
Melting point / freezing point (°C)	Not applicable	Auto-ignition temperature (°C)	>140	
Initial boiling point and boiling range (°C)	> 4000 °C	Minimum ignition temperature:	>500°C	(BAM Furnace) VDI 2263 (cloud)
Flash point (°C)	Not Applicable		> 400°C	VDI 2263 (layer)
Evaporation rate	Not Applicable	Minimum ignition energy	> 10,000 mJ	VDI 2263
Flammability (as defined by OSHA 1910.1200)	Not Applicable	Decomposition temperature	Not Available	
Explosive Limits (dust):		Viscosity (cSt)	Not Applicable	
-Furnace black: (VDI 2263)		Molecular weight (g/mol)	12.01	
Lower	*50 g/m^3*	Taste	Not Available	
Explosive Properties:		Explosive properties	Dust may form explosible mixture in air	
Dust Explosion Class (VDI 2263, EC 84/449)	*ST1*	Oxidising properties	Not Applicable	
Maximum Absolute Explosion Pressure	*10 bar*	Surface Tension (dyn/cm or mN/m)	Not Applicable	
Maximum Rate of Pressure Rise	*30-100 bar/sec*	Volatile Component (%vol)	< 2.5% (non-oxidised Carbon Black) 2 - 8% (oxidised Carbon Black)	
Vapour pressure (kPa)	Not Applicable	Gas group	Not Applicable	
Solubility in water (g/L)	Not Soluble	pH as a solution (1%)	Not Applicable	

SECTION 10 - STABILITY AND REACTIVITY

Reactivity:

Stable under normal ambient conditions. May react exothermically upon contact with strong oxidizers.

Chemical stability:

Stable under normal ambient conditions. Prevent exposure to high temperatures and open flames.

Possibility of hazardous reactions:

Hazardous polymerisation will not occur under normal conditions.

Conditions to avoid:

Avoid high temperatures >300°C and sources of ignition

Take precautionary measures against static discharges. Avoid dust formation. Grounding of equipment and conveying systems may be required under certain conditions.

Incompatible materials:

Avoid strong oxidisers such as chlorates, bromates, and nitrates.

Hazardous decomposition products:

Dust may form explosible an mixture in air. Avoid dust formation. Do not create a dust cloud by using a brush or compressed air. Take precautionary measures against static discharges. All metal parts of the mixing and processing equipment must be earthed/grounded. Ensure all equipment is electrically earthed/grounded before beginning transfer operations.

SECTION 11 - TOXICOLOGICAL INFORMATION

Information on toxicological effects

Inhaled:

Limited evidence or practical experience suggests that the material may produce irritation of the respiratory system, in a significant number of individuals, following inhalation. In contrast to most organs, the lung can respond to a chemical insult by first removing or neutralising the irritant and then repairing the damage. The repair process, which initially evolved to protect mammalian lungs from foreign matter and antigens, may, however, produce further lung damage resulting in the impairment of gas exchange, the primary function of the lungs. Respiratory tract irritation often results in an inflammatory response involving the recruitment and activation of many cell types, mainly derived from the vascular system.

Ingestion:

The material has NOT been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence. The material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (e.g. liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality rather than those producing morbidity (disease, ill-health).

Skin Contact:

The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure is kept to a minimum and that suitable gloves be used in an occupational setting. Repeated exposure may cause skin cracking, flaking or drying following normal handling and use. Open cuts, abraded or irritated skin should not be exposed to this material Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects.

Eye:

Limited evidence exists, or practical experience suggests, that the material may cause eye irritation in a substantial number of individuals and/or is expected to produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals. Repeated or prolonged eye contact may cause inflammation characterised by temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur. Symptoms of exposure by the eye to carbon particulates include irritation and a burning sensation. Following an industrial explosion, fine particles become embedded in the cornea and conjunctiva resulting in an inflammation which persisted for 2-3 weeks.

Chronic:

On the basis, primarily, of animal experiments, concern has been expressed that the material may produce carcinogenic or mutagenic effects; in respect of the available information, however, there presently exists inadequate data for making a satisfactory assessment. Prolonged or repeated skin contact may cause drying with cracking, irritation and possible dermatitis following. Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems. Chronic inhalation exposure of production workers has caused decreased pulmonary function and myocardial dystrophy.

TOXICITY

Acute Toxicity

Oral LD50	LD50/oral/rat > = 8000 mg/kg. (Equivalent to OECD TG 401)
Inhalation LC50	No data available
Dermal LD50	No data available
Assessment:	Non-toxic after ingestion

Carcinogenicity:	This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans. Inhalation (rat) TCLo: 50 mg/m3/6h/90D-I Nil reported
Skin Irritation(Rabbit):	Rabbit: not irritating. (Equivalent to OECD TG 404)
Serious Eye Damage/Irritation (Rabbit):	Rabbit: not irritating. (OECD TG 405). Cornea: 0 (max. attainable irritation score: 4). Iris: 0 (max. attainable irritation score: 2). Conjunctivae: 0 (max. attainable irritation score: 3). Chemosis: 0 (max. attainable irritation score: 4). Assessment: Not irritating to the eyes.
Sensitisation:	Guinea pig skin (Buehler Test): Not sensitising (OECD TG 406).
Mutagenicity:	In Vitro, Carbon black is not suitable to be tested 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 PAHs are very tightly bound to carbon black and not bioavailable. (Borm, 2005)
Mutagenicity:	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” (Driscoll, 1997) which led 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.
Mortality studies (Human Data):	Effect of carbon black on lung cancer was studied in UK (Sorahan, 2001) within 5 carbon black plants and the result states that the increment did not depend on the dose of carbon black. Similar study had also been conducted in Germany to evaluate the increased risk of lung cancer in one carbon black plant but similar observation had been found like Sorahan (Morfeld, 2006; Buechte, 2006). In year 2006 the extensive study of US demonstrates that there is no significant association in between the risk of lung cancer and dose of carbon black exposure (Dell, 2006). Depending on the analysis, February 2006 Wrking Group of International Agency for Research on Cancer (IARC) concluded that the human carcinogenicity evidence was inadequate on the exposure of carbon black (IARC, 2010). A further study had again been conducted by Sorahan and Harrington to re-analyze the UK report by following an alternative hypothesis and they observed a positive result for two of the five carbon black plants. For the revalidation of the German report same hypothesis had also been applied the risk factor was analyzed by Morfeld and McCunney (2009) to the German cohort but no such evidence found. As a consequence of the above studies no conducive link has been established in between the risk of lung cancer of human being and the dose of carbon black exposure.
Morbidity studies (Human Data):	Epidemiological study on carbon black production workers reflects a marginal effect on the exposure of carbon black to morbidity. In Europe respiratory morbidity analysis stated that 48 ml decline in FEV1 was observed on thr exposure of 1 mg/m^3 (inhalable fraction) of carbon black for 40-year working lifetime (Gardiner, 2001). Whereas, in 2003 study in U.S. reflected that 1 mg/m^3 8 hour TWA daily (inhalable fraction) exposure over a 40-year period declined 27 ml FEV1 (Harber, 2003). Although both the studies had a marginal significance but the decline of normal age-related has been observed of approximately 1200 ml for the same exposure of time. In U.S., 9% of the non-smoker exposure groups were effectd with chronic bronchitis and the consequence was also established for study study of Europe, which imparted a link betwee carbon black and its negligible effect on lung function.
Reproductive and Developmental Toxicity:	ASSESSMENT: No effects on reproductive organs or fetal development have been reported in long-term repeated dose toxicity studies in animals.
STOT - single exposure:	ASSESSMENT: Based on available data, specific target organ toxicity is not expected after single oral, single inhalation, or single dermal.
STOT - Repeated Exposure:	Animal Toxicity Oral Assessment Based on available data, specific target organ toxicity is not expected after repeated oral exposure. Dermal Assessment Based on available data and the chemical-physical properties (insolubility, low absorption potential), specific target organ toxicity is not expected after repeated dermal exposure.
Aspiration Hazard	
Information on other hazards	No significant acute toxicological data identified in literature search

SECTION 12 - ECOLOGICAL INFORMATION

Toxicity

Acute fish toxicity: LC50 (96 h) > 1000 mg/l, Species: Brachydanio rerio (zebra fish),

Acute invertebrate toxicity: Method: OECD Guideline 203, EC50 (24 h) > 5600 mg/l., Species: Daphnia magna (water flea)

Acute algae toxicity: Method: OECD Guideline 202, EC 50 (72 h) >10,000 mg/l, NOEC 50 >10,000 mg/l, Species: Scenedesmus subspicatus

Activated sludge: Method: OECD Guideline 201, EC0 (3 h) >= 800 mg/l, Method: DEV L3 (TTC test)

Persistence and degradability

The methods for determining biodegradability are not applicable to inorganic substances

Bioaccumulative potential

Not expected due to physicochemical properties of the substance.

Mobility in soil

Not expected to migrate. Insoluble.

Other adverse effects

No information available

SECTION 13 - DISPOSAL CONSIDERATIONS

RCRA	Not a hazardous waste under U.S. RCRA, 40 CFR 261
Canadian Waste Classification:	Not a hazardous waste under provincial regulations.

Waste treatment methods

Containers may still present a chemical hazard/ danger when empty. Return to supplier for reuse/ recycling if possible.

Otherwise:

If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill. Where possible retain label warnings and SDS and observe all notices pertaining to the product.

SECTION 14 - TRANSPORT INFORMATION

Labels Required

Marine Pollutant No

Land transport (ADR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Inland waterways transport (ADN): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Not Applicable

The following organizations do not classify carbon black as a "hazardous cargo" if it is "carbon, non-activated, mineral origin". PCBL's carbon blacks meets this definition.

- Canadian Transport of Dangerous Goods Regulation
- European Transport of Dangerous Goods Regulation
- GGVS, GGVE, RID, ADR, IMDG Code, ICAO-TI
- United Nations Recommendations on the Transport of Dangerous Goods
- United States Department of Transportation Hazardous Materials Regulations (DOT)
- International Air Transport Association (IATA)

SECTION 15 - REGULATORY INFORMATION

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

Carbon Black (1333-86-4*) is found on the following regulatory lists

TSCA	- United States Toxic Substances Control Act Section 12(b) Inventory
DSL/NDSL	- Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS	- European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS	- Japan Existing and New Chemical Substances
IECSC	- China Inventory of Existing Chemical Substances
KECL	- Korea Existing Chemicals Inventory
PICCS	- Philippines Inventory of Chemicals and Chemical Substances
AICS	- Australian Inventory of Chemical Substances
NZIoC	- New Zealand Inventory of Chemicals
TCSI	- Taiwan Chemical Substance Inventory
ICOP	- The Industry Code of Practice on Chemical Classification and Hazard Communication (Amendment) 2019, Malaysia

US Priority List found on the following for the Development of Proposition 65 Safe Harbor Levels - No Significant Risk Levels (NSRLs) for Carcinogens and Maximum Allowable Dose Levels regulatory lists (MADLs) for Chemicals Causing Reproductive Toxicity”,” US - Minnesota Permissible Exposure Limits (PELs)","US - California Proposition 65 Carcinogens”, “US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants”, “US ACGIH Threshold Limit Values (TLV)","US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants”,” US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory”,” US OSHA Permissible Exposure Levels (PELs) - Table Z1","US - New Jersey Right to Know - Special Health Hazard Substance List (SHHSL): Carcinogens". SARA 311/312 Hazard Categories: Sections 311/312 apply if Carbon Black is present at any one time in amounts equal to or greater than 10,000 pounds. Under Section 311/312 – SDS requirements, carbon black is determined to be hazardous according to the following EPA hazard categories: Combustible Dust. Clean Air Act Amendments of 1990 (CAA, Section 112, 40 CFR 82): This product does not contain any components listed as a Hazardous Air Pollutant, Flammable Substance, Toxic Substance, or Class 1 or 2 Ozone Depletor. CWA (Clean Water Act): This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42). CERCLA: This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355).There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

SECTION 16 - OTHER INFORMATION

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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