

**Safety Data Sheet**

according to 29 CFR 1910.1200(g)

RAVEN 410 Carbon Black

Revision date: 06.04.2020

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1. Identification**Product identifier**

RAVEN 410 Carbon Black

Substance name: Carbon Black
CAS No: 1333-86-4

Recommended use of the chemical and restrictions on use**Use of the substance/mixture**

test dust

Details of the supplier of the safety data sheet

Company name: Powder Technology Inc.
Street: 1300 Grey Fox Road
Place: USA-55112 Arden Hills, MN
Telephone: +1 952 894 -8737
e-mail: sales@powdertechologyinc.com
Internet: http://www.powdertechologyinc.com

Emergency phone number: +1 952 894 -8737**2. Hazard(s) identification****Classification of the chemical****29 CFR Part 1910.1200**

Combustible Dust: Comb. Dust

Label elements**29 CFR Part 1910.1200**

Signal word: Warning

Special labelling of certain mixtures

May form combustible dust concentrations in air.

Hazards not otherwise classified

No information available.

3. Composition/information on ingredients**Substances****Chemical characterization**

Carbon Black (PAK weight fraction in %: < 0,1)

4. First-aid measures**Description of first aid measures****General information**

In all cases of doubt, or when symptoms persist, seek medical advice.

After inhalation

Provide fresh air. In case of irregular breathing or respiratory arrest provide artificial respiration. If experiencing respiratory symptoms: Call a doctor.

After contact with skin

Wash with plenty of water. Take off immediately all contaminated clothing and wash it before reuse. In case of skin reactions, consult a physician.

After contact with eyes

Rinse immediately carefully and thoroughly with eye-bath or water. Remove contact lenses, if present and easy

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to do. Continue rinsing. In case of eye irritation consult an ophthalmologist.

After ingestion

Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person or a person with cramps. Call a physician immediately.

Most important symptoms and effects, both acute and delayed

No information available.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Foam, Carbon dioxide (CO₂), Extinguishing powder. Water fog.
Co-ordinate fire-fighting measures to the fire surroundings.

Unsuitable extinguishing media

High power water jet. High power water jet.

Specific hazards arising from the chemical

Combustible. May form combustible dust concentrations in air.

In case of fire: Carbon monoxide, Carbon dioxide (CO₂), Sulphur oxides.

Special protective equipment and precautions for fire-fighters

In case of fire: Wear self-contained breathing apparatus. Use caution when applying carbon dioxide in confined spaces. Carbon dioxide can displace oxygen.

Additional information

Knock down dust with water spray jet. Suppress gases/vapours/mists with water spray jet. Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep away from sources of ignition - No smoking. Provide adequate ventilation. Avoid dust formation. Do not breathe dust. Avoid contact with skin, eyes and clothes. Use personal protection equipment. Remove persons to safety.

Environmental precautions

Avoid release to the environment. Clean contaminated articles and floor according to the environmental legislation.

Methods and material for containment and cleaning up

Take up mechanically. Take up dust-free and set down dust-free. Treat the recovered material as prescribed in the section on waste disposal.

Reference to other sections

Safe handling: see section 7

Personal protection equipment: see section 8

Disposal: see section 13

7. Handling and storage

Precautions for safe handling

Advice on safe handling

Provide adequate ventilation. Avoid dust formation. Do not breathe dust. Avoid contact with skin, eyes and clothes. Use personal protection equipment. Remove persons to safety.

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Advice on protection against fire and explosion

Avoid dust formation. Keep away from sources of ignition - No smoking. Take precautionary measures against static discharges. May form combustible dust concentrations in air.

Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep container tightly closed. Handle and open container with care. Keep container dry. Conditions to avoid: Dust deposits.

Hints on joint storage

Do not store together with: Oxidising agent.

Further information on storage conditions

Keep away from heat.

8. Exposure controls/personal protection

Control parameters

Exposure limits

CAS No.	Substance	ppm	mg/m ³	f/cc	Category	Origin
1333-86-4	Carbon black (in presence of polycyclic aromatic hydrocarbons (PAHs)) (as PAHs)	-	0.1		TWA (8 h)	REL
1333-86-4	Carbon black (inhalable fraction)		3		TWA (8 h)	ACGIH-2019
1333-86-4	Carbon black	-	3.5		TWA (8 h)	PEL

Exposure controls

Appropriate engineering controls

Provide adequate ventilation as well as local exhaust at critical locations.

Protective and hygiene measures

Do not breathe dust. Avoid dust formation. Draw up and observe skin protection programme. Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat, drink, smoke, sniff. Avoid contact with skin, eyes and clothes.

Eye/face protection

Wear eye protection/face protection.
Suitable eye protection: Dust protection goggles.

Hand protection

Wear suitable gloves.

The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

Skin protection

Wear suitable protective clothing.

Respiratory protection

In case of inadequate ventilation wear respiratory protection. Respiratory protection necessary at:
Generation/formation of dust.
Suitable respiratory protective equipment: particulates filter device (DIN EN 143).

Environmental exposure controls

Avoid release to the environment.

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9. Physical and chemical properties**Information on basic physical and chemical properties**

Physical state:	solid	
Color:	black	
Odor:	odourless	
pH-Value:		not determined

Changes in the physical state

Melting point/freezing point:	not determined
Initial boiling point and boiling range:	not determined
Flash point:	not applicable

Flammability

Solid:	not determined
Gas:	not applicable

Explosive properties

May form combustible dust concentrations in air.

Lower explosion limits:	60 g/m ³
Upper explosion limits:	not determined
Ignition temperature:	not determined

Auto-ignition temperature

Solid:	> 140 °C
Gas:	not applicable

Decomposition temperature:	300 °C
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Oxidizing properties

Not oxidising.

Vapor pressure:	not determined
Density:	1,9 g/cm ³
Water solubility:	Immiscible

Solubility in other solvents

not determined

Partition coefficient:	not determined
Viscosity / dynamic:	not applicable
Viscosity / kinematic:	not applicable
Vapor density:	not determined
Evaporation rate:	not determined

Other information

Solid content:	100,00 %
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Odour threshold: not applicable

10. Stability and reactivity**Reactivity**

No hazardous reaction when handled and stored according to provisions.

Chemical stability

Stability:	Stable
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The product is stable under storage at normal ambient temperatures.

Possibility of hazardous reactions

Hazardous reactions: May occur

May form combustible dust concentrations in air.

Conditions to avoid

Heat

Incompatible materials

Oxidising agent

Hazardous decomposition products

In case of fire: Carbon monoxide, Carbon dioxide (CO₂), Sulphur oxides.

11. Toxicological information**Information on toxicological effects****Route(s) of Entry**

Inhalation, oral, Eye contact.

Acute toxicity

Based on available data, the classification criteria are not met.

Irritation and corrosivity

Based on available data, the classification criteria are not met.

Sensitizing effects

Based on available data, the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction

Based on available data, the classification criteria are not met.

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 was that, "Carbon black is possibly carcinogenic to humans (Group 2B)". This conclusion was based on IARC's guidelines, which require such a classification if one species exhibits carcinogenicity in two or more studies. 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), the U.S. Occupational Safety and Health Administration (OSHA) or the European Union (EU). 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 PAH contaminant 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.

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 thus considered to be a secondary genotoxic effect and thus carbon black itself would not be considered to be mutagenic.

Specific target organ toxicity (STOT) - single exposure

Based on available data, the classification criteria are not met.

Specific target organ toxicity (STOT) - repeated exposure

Based on available data, the classification criteria are not met.

Carcinogenicity (OSHA): Not listed.

Carcinogenicity (IARC): Carbon black (CAS 1333-86-4) is listed in group 2B.

Carcinogenicity (NTP): Not listed.

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Aspiration hazard

Based on available data, the classification criteria are not met.

Further information

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. 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 the 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 function. 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.

12. Ecological information

Ecotoxicity

The product is not: Ecotoxic.

Persistence and degradability

Activated sludge
EC0 (3 h) > 800 mg/l.
DEV L3 (TTC test)

Bioaccumulative potential

The product has not been tested.

Mobility in soil

The product has not been tested.

Other adverse effects

No information available.

Further information

Avoid release to the environment.

13. Disposal considerations

Waste treatment methods

Disposal recommendations

Dispose of waste according to applicable legislation.

Contaminated packaging

Wash with plenty of water. Completely emptied packages can be recycled.

14. Transport information

US DOT 49 CFR 172.101

Proper shipping name:

No dangerous good in sense of this transport regulation.

Marine transport (IMDG)

UN number:

No dangerous good in sense of this transport regulation.

UN proper shipping name:

No dangerous good in sense of this transport regulation.

Transport hazard class(es):

No dangerous good in sense of this transport regulation.

Packing group:

No dangerous good in sense of this transport regulation.

Air transport (ICAO-TI/IATA-DGR)

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UN number:	No dangerous good in sense of this transport regulation.
UN proper shipping name:	No dangerous good in sense of this transport regulation.
Transport hazard class(es):	No dangerous good in sense of this transport regulation.
Packing group:	No dangerous good in sense of this transport regulation.

Environmental hazards

ENVIRONMENTALLY HAZARDOUS: no

Special precautions for user

No information available.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

not applicable

15. Regulatory information

U.S. Regulations

National Inventory TSCA

CAS No. 1333-86-4: Yes.

State Regulations

Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65, State of California)

WARNING: This product can expose you to chemicals including Carbon black (airborne, unbound particles of respirable size) (cancer), which are known to the State of California to cause cancer, birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

16. Other information

Hazardous Materials Information Label (HMIS)

Health:	0
Flammability:	2
Physical Hazard:	0

NFPA Hazard Ratings

Health:	0
Flammability:	2
Reactivity:	0
Unique Hazard:	

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Abbreviations and acronyms

ACGIH: American Conference of Governmental Industrial Hygienists
 CFR: Code of Federal Regulations
 DOT: Department of Transportation
 ICAO: International Civil Aviation Organization
 IMDG: International Maritime Code for Dangerous Goods
 IATA: International Air Transport Association
 IARC: International Agency for Research on Cancer
 GHS: Globally Harmonized System of Classification and Labelling of Chemicals
 CAS: Chemical Abstracts Service
 NFPA: National Fire Protection Association
 NTP: National Toxicology Program
 OSHA: Occupational Safety and Health Administration
 PEL: permissible exposure limit
 REL: recommended exposure limit
 SARA: Superfund Amendments and Reauthorization Act

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STEL: Short-term exposure limit
TSCA: Toxic Substances Control Act
TWA: time-weighted average
TI: Technical Instructions
DGR: Dangerous Goods Regulations
UN: United Nations
ATE: Acute toxicity estimate
LC50: Lethal concentration, 50%
LD50: Lethal dose, 50%
LL50: Lethal loading, 50%
EL50: Effect loading, 50%
EC50: Effective Concentration 50%
ErC50: Effective Concentration 50%, growth rate
NOEC: No Observed Effect Concentration
BCF: Bio-concentration factor
MARPOL: International Convention for the Prevention of Marine Pollution from Ships
IBC: Intermediate Bulk Container
VOC: Volatile Organic Compounds

Other data

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.