SAFETY DATA SHEET

Prepared in accordance with ISO 11014-1/ ANSI standard Z400.1-2004/ JIS Z 7253:2012 Revision date: 07-Oct-2016

According to JIS Z 7253: 2012, a Safety Data Sheet (SDS) must be provided for hazardous substances or mixtures. This product does not meet the classification criteria according to this standard. Therefore, such document is outside the scope of the standard and the requirements for each section do not apply.

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product Identifier

Product name: CAB-O-JET® 200 Black Colorant

Product Code: COJ200

Other means of identification

Synonyms: Modified Carbon Black Dispersion

Registration number(s) No information available

Recommended use of the chemical and restrictions on use

Recommended use: Printing Inks

Restrictions on use: Not Applicable

Details of the supplier of the safety data sheet

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2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

Not a dangerous substance or mixture according to the Globally Harmonized System (GHS).

Label Elements:

None

Hazards not otherwise classified (HNOC)

Principle Routes of Exposure:	Skin, Eyes
Eye Contact:	May cause irritation. Avoid eye contact.
Skin Contact:	May cause irritation. Avoid skin contact.
Inhalation:	Dust from dried product, aerosols and/or mist may be irritating to respiratory tract. Provide appropriate local exhaust ventilation at machinery and at places where dust from dried product, aerosols and/or mist can be generated. See also Section 8.
Ingestion:	Adverse health effects are not expected. See Section 11.
Carcinogenicity:	Does not contain any substances listed by IARC (International Agency for Research on Cancer), NTP (National Toxicology Program), OSHA (Occupational Safety and Health Administration), ACGIH (American Conference of Governmental Industrial Hygienists) or EU (European Union).
Target Organ Effects:	None under normal use
Medical Conditions Aggravated by Exposure:	None under normal use
Potential Environmental Effects:	Not expected to be harmful to the environment. However, product is dispersible in water and release to the environment should be avoided.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: Modified Carbon Black Dispersion.

Not a dangerous substance or mixture according to the Globally Harmonized System (GHS).

Chemical name	CAS No	weight-%	ENCS - Japan Existing and New Chemical Substances	ISHL No	Japan GHS Classification
Water	7732-18-5	78-81	-	-	-
Carbon black, hydroxy- and 4-sulfophenyl-modified, sodium salt	481066-70-0	19-21	-	-	No data available

4. FIRST AID MEASURES

FIRST AID MEASURES

Skin Contact	Wash thoroughly with soap and water. Seek medical attention if redness, swelling, itching, or burning occurs.

Eye contact	Flush eyes immediately with large amounts of water for 15 minutes. Seek medical attention if redness, swelling, itching, burning or visual disturbances occur.
Inhalation	If cough, shortness of breath or other breathing problems occur, move to fresh air. Seek medical attention if symptoms persist. If necessary, restore normal breathing through standard first aid measures.
Ingestion	Do not induce vomiting. If conscious, give several glasses of water. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed

Symptoms:	Product is not classified as hazardous. The most important known symptoms and effects are described in Section 2 and/or in Section 11.

Indication of any immediate medical attention and special treatment needed

Note to physicians:	Product is not classified as hazardous. Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media:
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media:
No information available.

Specific hazards arising from the chemical:
No information available.

Hazardous combustion products:
Carbon monoxide (CO). Carbon dioxide (CO2). Oxides of sulfur.

Protective equipment and precautions for firefighters:
In the event of fire, wear self-contained breathing apparatus. Wear suitable protective equipment.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions:	Use personal protective equipment. Avoid contact with skin, eyes or clothing. Avoid the formation of dust from dried product, aerosols and/or mists. Ensure adequate ventilation.

Environmental Precautions:

Environmental Precautions:	Avoid release to the environment. Dispersible in water. Local authorities should be advised if spillages cannot be contained.

Methods and material for containment and cleaning up

Methods for containment:	Prevent further leakage or spillage if safe to do so.
Methods for cleaning up:	Soak up with inert absorbent material. Pick up and transfer to properly labelled containers. See Section 13.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling: Avoid contact with skin and eyes. Avoid the formation of dust from dried product, aerosols and/or mists. Provide appropriate local exhaust ventilation at machinery and at places where dust from dried product, aerosols and/or mist can be generated. In case of insufficient ventilation, wear suitable respiratory protection equipment.

Conditions for safe storage, including any incompatibilities

Storage Conditions: DO NOT FREEZE. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep in properly labeled containers. Do not store together with strong oxidizing agents.

Incompatible materials: Strong oxidizers such as chlorates, bromates, and nitrates.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure guidelines: .

There are no exposure limits identified for this specific product. Exposure limits for components are stated below.

Carbon Black, CAS RN 1333-86-4:
Argentina: 3.5 mg/m^3, TWA
Australia: 3.0 mg/m^3, TWA inhalable
Belgium: 3.6 mg/m^3, TWA
Brasil: 3.5 mg/m^3, TWA
Canada (Ontario): 3.0 mg/m^3, TWA inhalable
China: 4.0 mg/m^3, TWA; 8.0 mg/m^3, STEL
Colombia: 3.0 mg/m^3, TWA inhalable
Czech Republic: 2.0 mg/m^3, TWA
Finland: 3.5 mg/m^3, TWA; 7.0 mg/m^3, STEL
France - INRS: 3.5 mg/m^3, TWA/VME inhalable
Hong Kong: 3.5 mg/m^3, TWA
Indonesia: 3.5 mg/m^3, TWA/NABs
Ireland: 3.5 mg/m^3, TWA; 7.0 mg/m^3, STEL
Italy: 3.0 mg/m^3, TWA inhalable
Japan MHLW: 3.0 mg/m^3
Japan SOH: 4.0 mg/m^3, TWA; 1.0 mg/m^3, TWA respirable
Korea: 3.5 mg/m^3, TWA
Malaysia: 3.5 mg/m^3, TWA
Netherlands - MAC: 3.5 mg/m^3, TWA inhalable
Norway: 3.5 mg/m^3, TWA
Spain: 3.5 mg/m^3, TWA (VLA-ED)
Sweden: 3.0 mg/m^3, TWA
United Kingdom - WEL: 3.5 mg/m^3, TWA inhalable; 7.0 mg/m^3, STEL inhalable
US ACGIH - TLV: 3.0 mg/m^3, TWA inhalable
US OSHA - PEL: 3.5 mg/m^3, TWA
Taiwan: 3.5 mg/m^3 TWA, 7 mg/m^3 STEL

(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.
(2) In its facilities globally, Cabot Corporation manages to the US ACGIH TLV of 3.0 mg/m^3 TWA inhalable.

AGW: Arbeitsplatzgrenzwert
INRS: Institut National de Recherche et de Securite (National Institute of Research and Security)

MAC: Maximaal Aanvaarde Concentraties (Maximum allowed concentration)
MHLW: Ministry of Health, Labor and Welfare
NABS: Nilai Ambang Batas (threshold limit value)
OEL: Occupational Exposure Limit
PEL: Permissible Exposure Limit
SOH: Society of Occupational Health
STEL: Short Term Exposure Limit
TLV: Threshold Limit Value
TRGS: Technische Regeln für Gefahrstoffe (Technical Rule for Hazardous Materials)
TWA: Time Weighted Average
US ACGIH: United States American Conference of Governmental Industrial Hygienists
US OSHA: United States Occupational Safety and Health Administration
VME: Valeur Moyenne d'Exposition (Average Level of Exposure)
WEL: Workplace Exposure Limit
VLA-ED: Valor límite ambiental de exposicíon diaria (environmental value of daily exposure limit)

Engineering Controls: Ensure adequate ventilation to minimize exposures. Provide appropriate local exhaust ventilation at machinery and at places where dust from dried product, aerosol and/or mist can be generated.

Personal protective equipment [PPE]

Respiratory Protection: Approved respirator may be necessary if local exhaust ventilation is not adequate.

Hand Protection: Wear protective gloves to prevent soiling of hands.

Eye/face Protection: Wear eye/face protection. Wear safety glasses with side shields (or goggles).

Skin and Body Protection: Wear suitable protective clothing. Wash clothing daily. Work clothing should not be allowed out of the workplace.

Other: Handle in accordance with good industrial hygiene and safety practice. Emergency eyewash and safety shower should be located nearby.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid	Odor:	None
Appearance:	Colored liquid	Odor threshold:	Not Applicable
Color:	Black		

Property	Values	**Remarks • Method**
pH:	6.8-8.5	
Melting point/freezing point:		Not Applicable
Boiling point / boiling range:	~ 100 °C	No information available
Evaporation Rate:		Not Applicable
Vapor pressure:		No information available
Vapor Density:		No information available
Density:		No information available
Bulk Density:		Not Applicable
Specific Gravity at 20°C:	1.11 g/cm3	at 20°C
Water solubility:	Insoluble but readily dispersible	Insoluble but readily dispersible
Solubility(ies):		No information available
Partition Coefficient (n-octanol/water):	< 0.492 mg/l	@ 20 °C

Decomposition temperature:		No information available
Viscosity:	2 - 4 cP	No information available
Kinematic viscosity:		No information available
Dynamic viscosity:		No information available
Oxidizing Properties:		Not Applicable
Softening point:		No information available
VOC content (%):		Not Applicable
% Volatile (by Volume):		No information available
% Volatile (by Weight):		No information available
Surface Tension:		No information available
Explosive properties:		Not Applicable
Flash Point:		Not Applicable
Flammability (solid, gas):		No information available
Flammability Limit in Air:		No information available
Explosion Limits in Air - Upper (g/m^3):		No information available
Explosion Limits in Air - Lower (g/m^3):		No information available
Autoignition Temperature:		No information available
Minimum Ignition Temperature:		No information available
		No information available
Minimum Ignition Energy:		No information available
Ignition Energy:		No information available
Maximum Absolute Explosion Pressure:		No information available
Maximum Rate of Pressure Rise:		No information available
Burn Velocity:		No information available
Kst Value:		No information available
Dust Explosion Classification:		No information available

10. STABILITY AND REACTIVITY

Reactivity: May react exothermically upon contact with strong oxidizers.

Stability: Stable.

Explosion data See also Section 9.

Sensitivity to Mechanical Impact: None.

Sensitivity to Static Discharge: None.

Possibility of hazardous reactions: None under normal processing.

Hazardous polymerization: Hazardous polymerization does not occur.

Conditions to avoid: None known.

Incompatible materials: Strong oxidizers such as chlorates, bromates, and nitrates.

Hazardous decomposition products: Carbon monoxide (CO). Carbon dioxide (CO2). Sulfur oxides.

11. TOXICOLOGICAL INFORMATION

Information given is based on data on the components and the toxicology of similar products.

Acute toxicity

Oral LD50:	LD50/oral/rat = > 5000 mg/kg.
Inhalation LC50:	Due to the product's physical characteristics, no suitable testing procedure is available
Dermal LD50:	LD50/dermal/rabbit = > 2000 mg/kg.
Skin corrosion/irritation:	Primary irritation index = 0.25/8 Slight irritation
Serious eye damage/eye irritation:	Rabbit. Draize score 7.0/110 (1 hr). Non-irritating.
Sensitization:	A delayed contact hypersensitivity study in guinea pigs utilizing the Magnusson and Kligman Maximization technique was performed. Did not cause sensitization on laboratory animals.
Germ Cell Mutagenicity	Not mutagenic in Ames test, chromosomal aberration in Chinese hamster ovary (CHO) cells.
Carcinogenicity:	Product not tested. Information below pertains to the raw material (carbon black).

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 the "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.

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 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.

Reproductive and Developmental Toxicity:

Product not tested. Information below pertains to the raw material (carbon black).

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

STOT - single exposure:

Product not tested. Information below pertains to the raw material (carbon black).

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

STOT - repeated exposure:

Product not tested. Information below pertains to the raw material (carbon black).

ANIMAL TOXICITY:

Repeated dose toxicity: inhalation (rat), 90 days, No Observed Adverse Effect Concentration (NOAEC) = 1.1 mg/m^3 (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.

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/m^3 8 hour TWA daily (inhalable fraction) exposure over a 40-year period (Harber, 2003). An earlier 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 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.

INHALATION ASSESSMENT:

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 the "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 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: Product not tested. Information below pertains to the raw material (carbon black).

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

12. ECOLOGICAL INFORMATION

Information given is based on data on the components and the toxicology of similar products.

Aquatic Toxicity:
Fish LC50 (96 hours): > 100 mg/l
Daphnia magna EC50 (48 hours): > 1000 mg/l
Algae EC50 (72 hours, growth inhibition): > 100 mg/l
Activated Sludge EC50 (respiration inhibition): > 1000 mg/l

ENVIRONMENTAL FATE

Persistence and degradability: Not expected due to physicochemical properties of the substance.

Bioaccumulation: Not expected due to physicochemical properties of the substance. Log Pow <-0.3.

Mobility: Not soluble in water, but highly dispersible.

Distribution to Environmental Compartments: Dispersible.

Other adverse effects: No information available.

13. DISPOSAL CONSIDERATIONS

Disclaimer: Information in this section pertains to the product as shipped in its intended composition as described in Section 3 of this SDS. Contamination or processing may change waste characteristics and requirements. Regulations may also apply to empty containers, liners or rinsate. State/provincial and local regulations may be different from federal regulations.

Disposal considerations: Dispose in accordance with applicable legislations. When selecting a disposal alternative, landfill is not recommended due to the water dispersible characteristics of this material. Same consideration should be given to the disposal of empty containers. Reuse is not recommended.

14. TRANSPORT INFORMATION

Japanese Regulations

Shipping Safety Law: Not determined

Not classified as dangerous in the meaning of transport regulations.

DOT

UN/ID no	Not regulated
Proper Shipping Name	Not regulated
Hazard Class	Not regulated
Packing group	Not regulated

ICAO (air)

UN/ID no	Not regulated
Proper Shipping Name	Not regulated
Hazard Class	Not regulated
Packing group	Not regulated

IATA

UN/ID no	Not regulated
Proper Shipping Name	Not regulated
Hazard Class	Not regulated
Packing group	Not regulated

IMDG

UN/ID no	Not regulated
Proper Shipping Name	Not regulated
Hazard Class	Not regulated
Packing group	Not regulated

RID

UN/ID no	Not regulated
Proper Shipping Name	Not regulated
Hazard Class	Not regulated
Packing group	Not regulated

ADR

UN/ID no	Not regulated
Proper Shipping Name	Not regulated
Hazard Class	Not regulated
Packing group	Not regulated

15. REGULATORY INFORMATION

Japanese Regulations
Does not contain substances regulated under the following laws:

Industrial Safety & Health Law (ISHL) Notifiable Substances:	Not regulated.
Monitoring (Designated) Chemical Substances:	Not regulated.
Fire Service Law:	Not regulated.
Poisonous and Deleterious Substances Control Law:	Not regulated.

International Inventories

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory	Complies
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List	Complies
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances	Complies
ENCS - Japan Existing and New Chemical Substances	Complies
IECSC - China Inventory of Existing Chemical Substances	Complies
KECL - Korean Existing and Evaluated Chemical Substances	Complies
PICCS - Philippines Inventory of Chemicals and Chemical Substances	Complies
AICS - Australian Inventory of Chemical Substances	Complies
NZIoC - New Zealand Inventory of Chemicals	Complies
TCSI - Taiwan Chemical Substance Inventory	Complies

Note: The chemicals in inkjet and toner cartridges may not be subject to notification when imported as finished cartridges in the following countries under an "article" exemption: Canada (but not the Province of Ontario), Japan and New Zealand. Please contact your Cabot sales representative for more information.

16. OTHER INFORMATION

HMIS Rating HMIS Index: * - chronic, 0 - minimal, 1 - slight, 2 - moderate, 3 - serious, 4 - severe

Health Hazards: 1 Flammability: 0 Physical Hazards: 0

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Prepared by:	Cabot Corporation - Safety, Health and Environmental Affairs
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End of Safety Data Sheet