

According to the Brazilian Standard ABNT NBR 14725-4:2012

Revision date: 06-Jun-2016

According to the Brazilian Standard ABNT NBR 14725-4: 2012 Safety Data Sheet (SDS) must be supplied for dangerous substances or preparations. This product does not meet the classification criteria of the standard. Therefore, the content requirements in each section do not apply.

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

Product Identifier

Product name: BENTONORIT® CA1

Other means of identification

Product code: BNCA1

Synonyms: Activated carbon

Recommended use of the chemical and restrictions on use

Recommended use: Liquid and vapor applications (purification, decolorization, separation, catalyst and deodorization)

Restrictions on use: No information available

Details of the supplier of the safety data sheet

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2. HAZARDS IDENTIFICATION

Hazard Classification:

Not hazardous according to Brazilian Standard ABNT NBR 14725-2:2009.

Label Elements:

Pictogram: None

Signal Word: None
 Hazard statements: None
 Precautionary statements: None

Hazards not otherwise classified (HNOC)

This substance should be classified as Self-Heating Category 2 according to Brazilian Standard ABNT NBR 14725-4: 2012 if it is to be packed in packages with a volume of more than 450 litres or 3 m³.

Activated carbon (especially when wet) can deplete oxygen from air in enclosed spaces, and dangerously low levels of oxygen may result. Prior to entering a confined space that contains or previously contained activated carbon, the space should be evaluated for oxygen and carbon monoxide concentrations, and any other hazards, by a qualified person.

Workers should also take appropriate precautions when dealing with spent (used) activated carbons which may exhibit hazardous properties associated with the adsorbed materials.

Avoid dust formation. Powdered material may form an explosible dust-air mixture. If transferring product under pressure, avoid generation of dust if an ignition source is present.

Activated carbons have high surface area which may cause self-heating during oxidation. See Section 5.

Do not generate dust because airborne respirable crystalline silica may be generated.

Potential health effects

Principle Routes of Exposure: Inhalation, Eye contact, Skin Contact

Eye Contact: May cause mechanical irritation. Avoid contact with eyes.

Skin Contact: May cause mechanical irritation. Avoid contact with skin.

Inhalation: Dust may be irritating to respiratory tract. Provide appropriate local exhaust ventilation at machinery and at places where dust can be generated. See also Section 8.

Ingestion: Adverse health effects are not known or expected under normal use.

Carcinogenicity: See Section 11.

Target Organ Effects: Lungs, Eyes, Skin

Medical Conditions Aggravated by Exposure: Asthma, Respiratory disorder, Skin disorders

Potential Environmental Effects: None known. See also Section 12.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name	CAS No	weight-%	GHS - Classification
Activated Carbon	7440-44-0	>80	-
Bentonite	1302-78-9	<20	-

This product, which is manufactured from a naturally occurring raw material(s), contains <1% total crystalline silica (quartz, CASRN 14808-60-7).

4. FIRST AID MEASURES

FIRST AID MEASURES

Skin Contact	Wash thoroughly with soap and water. Seek medical attention if symptoms develop.
Eye contact	Flush eyes immediately with large amounts of water for 15 minutes. Seek medical attention if symptoms develop.
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: 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: Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Extinguishing Media:

Suitable Extinguishing Media: Use foam, carbon dioxide (CO₂), dry chemical or water spray. A fog is recommended if water is used.

Unsuitable Extinguishing Media: DO NOT USE a solid water stream as it may scatter and spread fire. DO NOT USE high pressure media which could cause formation of a potentially explosible dust-air mixture. In the event of a fire, spreading large amounts of activated carbon is not recommended due to the risk of creating uncontrolled dust emissions.

Specific hazards arising from the chemical: Burning produces irritant fumes. If transferring product under pressure, avoid generation of dust if an ignition source is present.

Activated carbons have high surface area which may cause self-heating during oxidation. An adequate air gap between packages of activated carbon is recommended to reduce risk of propagation of the event. Activated carbon is difficult to ignite and tends to burn slowly (smolder) without producing smoke or flame.

Hazardous combustion products: Materials allowed to smolder for long periods in enclosed spaces may produce amounts of carbon monoxide which reach the lower explosive limit (carbon monoxide LEL = 12.5% in air). Used activated carbon may produce additional combustion products which are based on the substance(s) adsorbed. Carbon monoxide (CO). Carbon dioxide (CO₂).

Special protective equipment for fire-fighters

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: Avoid dust formation. Ensure adequate ventilation. Use personal protective equipment. See also Section 8.

Environmental Precautions:

Environmental Precautions: No special environmental precautions required. 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: Avoid dry sweeping and use water spraying or vacuum cleaning systems to prevent airborne dust generation. If the spilled material contains dust or has the potential to create dust, use explosion-proof vacuums and/or cleaning systems suitable for combustible dusts. Use of a vacuum with high efficiency particulate air (HEPA) filtration is recommended. Do not create a dust cloud by using a brush or compressed air. Pick up and transfer to properly labelled containers. Spent granular activated carbon may be recyclable. Dispose of virgin (unused) carbon (surplus or spillage) in a facility permitted for non-hazardous wastes. Spent (used) carbon should be disposed of in accordance with applicable laws. Do not reuse empty bags: dispose of in a facility permitted for non-hazardous wastes. See Section 13.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling: Avoid contact with skin and eyes. Avoid dust formation. Do not breathe dust. Provide appropriate local exhaust ventilation at machinery and at places where dust can be generated. Do not create a dust cloud by using a brush or compressed air. Dust may form explosible mixture in air.

Activated carbons have high surface area which may cause self-heating during oxidation. 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. Fine dust is capable of penetrating electrical equipment and may cause electrical shorts. If hot work (welding, torch cutting, etc.) is required the immediate work area must be cleared of product and dust.

General hygiene considerations: Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Storage Conditions: 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. Activated carbon is difficult to ignite and tends to burn slowly (smolder) without producing smoke or flame. 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. Prior to entering a confined space that contains

or previously contained activated carbon, the space should be evaluated for oxygen and carbon monoxide concentrations, and any other hazards, by a qualified person.

Incompatible materials: Strong oxidizing agents. Strong acids.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure guidelines: .

Exposure limits for components or similar components are stated below.

Dust, or Particulates Not Otherwise Specified:	Austria MAK:	10 mg/m ³ , STEL 2x30 min, Inhalable dust 5 mg/m ³ , TWA, Inhalable dust
	Belgium:	10 mg/m ³ , TWA, Inhalable 3 mg/m ³ TWA, Respirable
	Canada (Saskatchewan):	10 mg/m ³ , TWA, Inhalable 3 mg/m ³ TWA, Respirable
	China:	8 mg/m ³ , TWA 10 mg/m ³ , STEL
	France:	10 mg/m ³ , TWA Inhalable dust 5 mg/m ³ , TWA Respirable dust
	Germany - TRGS 900:	10 mg/m ³ , TWA, Inhalable 3 mg/m ³ , Respirable fraction
	Hong Kong:	10 mg/m ³ , TWA
	Ireland:	10 mg/m ³ , TWA, Total inhalable 4 mg/m ³ , TWA, Respirable
	Italy:	10 mg/m ³ , TWA, Inhalable 3 mg/m ³ , TWA, Respirable
	Japan:	3 mg/m ³ TWA, Respirable
	Malaysia:	10 mg/m ³ , TWA, Inhalable 3 mg/m ³ , TWA, Respirable
	The Netherlands:	3.5 mg/m ³ , Inhalable
	Spain:	10 mg/m ³ , VLA, Inhalable 3 mg/m ³ , VLA, Respirable
	Sweden:	10 mg/m ³ , NGV, Total inhalable 5 mg/m ³ , NGV, Respirable
	United Kingdom - WEL:	10 mg/m ³ , TWA, Total Inhalable dust 4 mg/m ³ , TWA, Respirable dust

	US ACGIH - PNOS:	10 mg/m ³ , TWA, Inhalable 3 mg/m ³ , TWA, Respirable
	US OSHA - PEL:	15 mg/m ³ , TWA, Total dust 5 mg/m ³ , TWA, Respirable
Silica, Crystalline (Quartz) CAS RN 14808-60-7:	Austria MAK:	0.15 mg/m ³ , TWA (Respirable)
	Belgium:	0.1 mg/m ³ , TWA (Alveolar fraction)
	Denmark:	0.1 mg/m ³ , TWA (Respirable)
	Finland:	0.05 mg/m ³ , TWA (Respirable)
	France:	0.1 mg/m ³ , VME (Alveolar fraction)
	Ireland:	0.1 mg/m ³ , TWA (Respirable)
	Italy:	0.025 mg/m ³ , TWA (Respirable)
	Japan:	(3 mg/m ³)/(1.19%SiO ₂ + 1) (Respirable)
	Switzerland:	0.15 mg/m ³ , TWA (Respirable)
	UK WEL:	0.1 mg/m ³ , TWA (Respirable)
	US OSHA PEL:	0.05 mg/m ³ (Respirable)
	US ACGIH TLV:	0.025mg/m ³ (Respirable)

MAK: Maximale Arbeitsplatzkonzentration (Maximum Workplace Concentration)

NGV: Nivå Gräns Värde (Level Limit Value)

PEL: Permissible Exposure Limit

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

VLA: Valore Limite Ambientales (Environmental Limit Value)

WEL: Workplace Exposure Limit

Engineering Controls: Ensure adequate ventilation to maintain exposures below occupational limits. Provide appropriate local exhaust ventilation at machinery and at places where dust can be generated.

Personal protective equipment [PPE]

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

Hand Protection: Wear suitable gloves.

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.

Environmental exposure controls: No special environmental precautions required. Local authorities should be advised if spillages cannot be contained.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information given is based on data obtained from this substance or from similar substances.

Physical State:	Solid	Odor:	Generally odorless. May produce slight sulfur smell when wet.
Appearance:	Extruded	Odor threshold:	Not Applicable
Color:	Black		
<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>	
pH:		Not Applicable	
Melting point/freezing point:		Not Applicable	
Boiling point / boiling range:		Not Applicable	
Evaporation Rate:		Not Applicable	
Vapor pressure:		Not Applicable	
Vapor Density:		Not Applicable	
Density:		No information available	
Bulk Density:	200-300 kg/m ³		
Specific Gravity at 20°C:		No information available	
Water solubility:		Insoluble	
Solubility(ies):		No information available	
Partition Coefficient (n-octanol/water):		No information available	
Decomposition temperature:		No information available	
Viscosity:		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:		Dust may form explosible mixture in air	
Flash Point:		Not Applicable	
Flammability (solid, gas):		Chemically activated carbon is not considered to be highly flammable according to the criteria of EEC Directive 92/69 A.10	
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):	50 g/m ³	EN 14034-3	
Autoignition Temperature:		No information available	
Minimum Ignition Temperature:	630-640 °C	BS EN 50281-2:1999 or IEC 61241-2-1	
Minimum Ignition Energy:	> 1 J	BS EN 13821 or IEC 61241-2-3	
Ignition Energy:		No information available	
Maximum Absolute Explosion Pressure:	9.3 bar	EN 14034-2	
Maximum Rate of Pressure Rise:	539 bar/sec	EN 14034	
Burn Velocity:		No information available	
Kst Value:	149 bar.meter/second	EN 14034-2	
Dust Explosion Classification:	ST1		

10. STABILITY AND REACTIVITY

Reactivity:	May react exothermically upon contact with strong oxidizers.
Stability:	Stable under recommended handling and storage conditions.
Possibility of hazardous reactions:	None under normal processing.
Hazardous polymerization:	Hazardous polymerization does not occur.
Conditions to avoid:	Keep away from heat and sources of ignition. Avoid dust formation. Activated carbon (especially when wet) can deplete oxygen from air in enclosed spaces, and dangerously low levels of oxygen may result. Activated carbons have high surface area which may cause self-heating during oxidation.
Incompatible materials:	Strong oxidizing agents. Strong acids.
Explosion data	See also Section 9.
Sensitivity to Mechanical Impact:	Not sensitive to mechanical impact.
Sensitivity to Static Discharge:	Dust may form explosible 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.
Hazardous decomposition products:	Materials allowed to smolder for long periods in enclosed spaces may produce amounts of carbon monoxide which reach the lower explosive limit (carbon monoxide LEL = 12.5% in air). Used activated carbon may produce additional combustion products which are based on the substance(s) adsorbed. Carbon oxides.

11. TOXICOLOGICAL INFORMATION

Information given is based on data on activated carbon unless otherwise specified.

Acute toxicity

Not classified.

Oral LD50:	LD50/oral/rat = >2000 mg/kg. (OECD 423).
Inhalation LC50:	LC50/inhalation/1h/rat = >8.5 mg/L (OECD 403)
Dermal LD50:	Absorption highly unlikely, no health effects known.

Skin corrosion/irritation: Not classified
Skin irritation test, rabbit (OECD 404): Not irritating

Serious eye damage/eye irritation: Not classified. Eye irritation test, rabbit (OECD 405): Not irritating.

Sensitization: Not classified. Not sensitizing based on Local Lymph Node Assay (OECD 429).

Mutagenicity:	Not classified. - Gene mutation in bacteria (Bacterial Reverse Mutation Assay/Ames) (OECD 471): not mutagenic. - In vitro Mammalian Chromosome Aberration Test (OECD 473): not clastogenic. - In vitro Mammalian Cell Gene Mutation Test (OECD 476): non-mutagenic.
Carcinogenicity:	Not classified. Contains a component (crystalline silica) that is listed by IARC as group 1, by ACGIH as group A2, and by NTP as a known human carcinogen.
Reproductive Toxicity:	Not classified. Repeated dose inhalation toxicity test showed no reproductive target organ effects, and a toxicokinetic study showed no product migration to reproductive organs.
STOT - single exposure:	Not classified.
STOT - repeated exposure:	Not classified. Repeated dose toxicity study, inhalation (rat) 90 days (OECD 413): NOAEC 7.29 mg/m ³ (respirable). This test was conducted on activated carbon containing negligible crystalline silica; therefore activated carbon itself is not classified for STOT-RE. Although respirable crystalline silica is classified as STOT-RE1, this product contains <1% respirable crystalline silica, therefore it is not classified for STOT-RE.
Aspiration Hazard:	Based on industrial experience and available data, no aspiration hazard is expected.

12. ECOLOGICAL INFORMATION

Information given is based on data on activated carbon unless otherwise specified.

Aquatic Toxicity:	Non toxic. The substance is highly insoluble in water and the substance is unlikely to cross biological membranes. No adverse ecological effects are known.
Terrestrial Toxicity:	Earthworm reproduction study (OECD 222), NOAEC for body weight reduction 1000 mg/kg soil; NOAEC for reproduction 3200 mg/kg soil. Non toxic in soil.
<u>ENVIRONMENTAL FATE</u>	
Persistence and degradability	Not expected to degrade.
Bioaccumulation	Not expected due to physicochemical properties of the substance.
Mobility:	Not expected to migrate. Insoluble.
Distribution to Environmental Compartments:	Insoluble. Expected to remain on soil surface.
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 of wastes

Disposal should be in accordance with applicable regional, national and local laws and regulations.

14. TRANSPORT INFORMATION

This substance should be classified as UN1362, Hazard Class 4.2 (Spontaneously combustible due to self-heating), Packing Group III, "Carbon, Activated", if it is to be transported in packages with a volume of more than 450 litres or 3 m³, according to the UN Dangerous Goods 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

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	Does not comply
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

16. OTHER INFORMATIONDisclaimer:

The information set forth is based on information that Cabot Corporation believes to be accurate. No warranty, expressed or implied, is intended. The information is provided solely for your information and consideration and Cabot assumes no legal responsibility for use or reliance thereon. In the event of a discrepancy between the information on the non-English document and its English counterpart, the English version shall supersede.

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End of Safety Data Sheet