SAFETY DATA SHEET

Revision Date: 8th-Apr-2022

SECTION 1 COMPANY IDENTIFICATION AND CHEMICAL PRODUCT

Product Name:	Carbon Molecular Sieve
Chemical Name:	Carbon adsorbent
Type:	CMS200 CMS220 CMS240 CMS260 CMS280
Synonyms:	None
Recommended use:	As adsorbent in PSA Nitrogen generation
Uses advised against:	Not for good, drug, pesticide etc

Details of the supplier of the safety data sheet:

Company

SECTION 2 HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Eye irritation (Category 2A), H319
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335 For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements, including precautionary statements

Pictogram

Signal word

Warning

Hazard statement(s)

Causes serious eye irritation
May cause respiratory irritation

Precautionary statement (s)

Avoid breathing dust / fume / gas / mist / vapours / spray.
Wash skin thoroughly after handing.
Use only outdoors or in a well-ventilated area.
Wear protective gloves / eye protection / face protections.

IF INHALED:	Remove victim to fresh air and keep a rest in position comfortable for breathing;
IF EYES:	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do continue rinsing.

Call a poison center or doctor / physician if you feel unwell. If eye irritation persists: Get medical advice / attention.

If eye irritation persists:	Get medical advice / attention.
Storage:	Store in well-ventilated place, keep away from ignition source and high-temperature objects. Keep container tightly closed. Store locked up. Removal all ignition sources and clear up all spills immediately. Avoid generating dust. Dispose of contents / container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS
-- None

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SECTION 3 COMPOSITION ON INGREDIENTS

Substances

Substance name: Molecular Sieve Carbon Dioxide Adsorbents
CAS - No. : 7440-44-0
EC- No. : 231-153-3

Hazardous ingredients
Chemical characterization: Zeolite, crystalline, synthetic, non-fibrous
Note: Unless a component presents a severe hazard, usually it doew not need to be considered in the SDS if the concentration is less than 1%.

Components	Concentration (wt%)	CAS No.	ENS No.
C element	>99	7440-44-0	231-153-3
H2O	< 1	7732-18-5	231-791-2

For the full text of the phrases mentioned in this Section, see Section 16.

Hazardous impurities: None known.

SECTION 4 FIRST AID MEASURES

4.1 Description of first aid measures

General advise
Consult a physician. Show this safety data sheet to the doctor in attendance.
Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Flush eyes with water as a precaution.

If swallowed

Never give anything by mouth to an unconscious person.
Rinse out mouth with ample water. Give some water. Consult a physician and seek advice immediately.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

4.3 Indication of any immediate medical attention and special treatment needed
No data available

Notes: This product is a desiccant and generates heat as it adsorbs water. This used product can contain material of a hazardous nature. Identify that material and treat symptomatically.

SECTION 5 FIRE-FIGHTING MEASURES

5.1 Extinguishing Media
Suitable Extinguishing Media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Nature of decomposition products not known.

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
The product is not classified in Explosives.
The self-heating test was conducted, it is not classified in self-heating substances.
The substance does not belong to Flammable solids.
The product is not classified in oxidizing substances and organic peroxides.
The product is not classified in toxic and infections substances.
The product is not classified in radioactive material.

The product is not classified in corrosives.
The product presents no other dangerous properties.

Fire and Explosion Hazards:
Used material may contain materials of a hazardous nature. The user of this product must identify the hazards of the retained material and inform the fire lighters of these hazards.

SECTION 6 ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not allow material to be released to the environment without proper government permits.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7 HANDLING AND STORAGE

7.1 Precautions for safe handling
Suitable extinguishing media
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8 EXPOSURE CONTROLS AND PERSONAL PROTECTION

Limit Values for Exposure

Component	CAS number	ACGIH TLV-TWA	ACGIH TLV-STEL	NOISH PEL-TWA	NOISH PEL-STEL
CARBON	7440-44-0	N.E.	N.E.	N.E.	N.E.

Note: N.E. means not established.

8.1 Control parameters
Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls
Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

8.3 Personal protective equipment
Eye/face protection
* Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
* Irrigate eyes keeping eyelids apart. If discomfort persists, seek medical attention.

Skin protection
* Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product.

Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

* Remove contaminated clothing. Flush contaminated skin with plenty of running water. If discomfort persists, seek medical attention.

Body Protection

Impervious clothing. The type of protective equipment must be Selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type
ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components
tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Do not let product enter drains.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

1) Appearance	Pellet or cylindrical
Form	Solid
Color	Black
2) Odour	Odourless
3) Odour Threshold	No data available
4) pH	No data available
5) Melting point/freezing point	>1000℃
6) Initial boiling point and boiling	No data available
7) Flash point	Not applicable
8) Evaporation rate	No data available
9) Flammability (solid, gas)	No data available

10) Upper/lower flammability	No data available
11) Vapour pressure	No data available
12) Vapour density	No data available
13) Relative density	0.67 g/mL
14) Water solubility	No data available
15) Partition coefficient: n- octanol/water	No data available
16) Auto-ignition temperature	No data available
17) Decomposition temperature	No data available
18) Viscosity	No data available
19) Explosive properties	No data available
20) Oxidizing properties	No data available

9.2 Other information

Molecular formular	C
Molecular weight	12

SECTION 10 STABLITY AND REACTIVITY

10.1	Reactivity	No data available
10.2	Chemical stability	Stable under recommended storage conditions.
10.3	Possibility of hazardous reactions	No data available
10.4	Conditions to avoid	Avoid moisture
10.5	Incompatible materials	Strong acids, Strong bases, Halogenated hydrocarbon, Oxygen difluoride, Sodium nitrate, Strong oxidizing agents
10.6	Hazardous decomposition products	Carbon oxides

Other decomposition products -	No data available
In the event of fire:	see section 5.

SECTION 11 TOXICOLGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LC50 Rat - Inhalation: N/A
LD50 Oral - Rat - > 10,000 mg/kg
LD50 Rat - > 2,000 mg/kg
No data available

Skin corrosion/irritation
Skin - Human
Result: No skin irritation

Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
Human
Lymphocyte
Cytogenetic analysis
Mouse Cytogenetic analysis
Carcinogenicity

IARC:
No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP:
No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:
No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
Inhalation - May cause respiratory irritation.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
Cough, Difficulty in breathing, Gastrointestinal disturbance, prolonged or repeated exposure can cause: Damage to the lungs. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12 ECOLOGICAL INFORMATION

12.1 Toxicity
See section 11.

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
No data available

SECTION 13 DISPOSAL INFORMATION

Waste Disposal Methods
Product
Offer surplus and non-recyclable solutions to a licensed disposal company.

Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

Disposal methods
Disposal must be in accordance with local laws and regulations.

SECTION 14 TRANSPORT INFORMATION

DOT	Not regulated
TDG	Not regulated
IATA	Not regulated
IMDG/IMO	Not regulated

SECTION 15 REGULATORY INFORMATION

European /International Regulations

OSHA:	Hazardous by definition of Hazard Communication Standard (29CFR 1910.1200).
EINICS Status:	This chemical is included in EINECS inventory.
EPA ESCA Status:	This chemical is included in TSCA inventory.
Canadian DSL (Domestic Substance List):	
HMIS (Hazardous Material Identification System Ratings):	Health: 2 Flammability: 0 Physical hazard: 0 Personal protection: E (4. Severe Hazard; 3. Serious Hazard; 2. Moderate Hazard; 1. Slight Hazard; 0. Minimal Hazard)
WHMIS (Canadian Workplace Hazardous Material Identification System Ratings):	Not listed

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GB 12268-2012 List of dangerous goods	This product is not a dangerous goods on the GB 12268-2012 list of dangerous goods.

SECTION 16 OTHER INFORMATION

Abbreviations and Acronyms	ADR: European Agreement concerning the International Carriage of Dangerous by Road. RID: Regulations Concerning the International Transport of Dangerous Goods by Rail. IMDG: International Maritime Code for Dangerous Goods IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA) ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO) EINECS: European Inventory of Existing Commercial Chemical Substances. CAS: Chemical Abstracts Service LC50: Lethal concentration, 50 percent LD50: Lethal dose, 50 percent.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, is the responsibility of the user.

End of SDS