

# SAFETY DATA SHEET



CO<sub>2</sub> Absorber

SDS Number:  A21553-0000000030

In accordance with the Standard for Classification and Labeling of Chemical Substance and Safety Data Sheet,  
Article 10 Paragraph 1

## Section 1. Chemical product and company identification

A. Product name : CO<sub>2</sub> Absorber

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

Product use : Laboratory chemicals. Adsorbents.

C. Manufacturer / Importer / Distributor :  Manufacturer  
**Metrohm AG**  
Ionenstrasse  
9100 Herisau  
Switzerland  
Tel.: +41 (0)71 353 85 85  
Fax: +41 (0)71 353 89 01  
E-Mail: info@metrohm.com  
Web: www.metrohm.com

Supplier  
**Metrohm Korea Ltd.**  
5F, 9 Jeongui-ro 8-Gil  
Songpa-Gu  
Seoul  
Republic of Korea

Tel.: +82 (2) 2199 2800  
E-Mail: info@metrohm.kr

e-mail address of person responsible for this SDS : datasheet@metrohm.com

Emergency telephone number of the company : + 49 (0)6132-84463 (24 h, GBK GmbH)

## Section 2. Hazards identification

A. Hazard classification : SKIN IRRITATION - Category 2  
SERIOUS EYE DAMAGE - Category 1  
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3  
This product is classified in accordance with the Industrial Safety and Health Act and the Chemical Control Act.

B. GHS label elements, including precautionary statements

Symbol : 

Signal word : Danger

## Section 2. Hazards identification

<b>Hazard statements</b>	: H315 - Causes skin irritation. H318 - Causes serious eye damage. H335 - May cause respiratory irritation.
<b><u>Precautionary statements</u></b>	
<b>Prevention</b>	: P280 - Wear protective gloves. Wear eye or face protection. P261 - Avoid breathing dust or mist. P264 - Wash hands thoroughly after handling.
<b>Response</b>	: P304 + P312 - IF INHALED: Call a POISON CENTER or doctor if you feel unwell. P362 + P364 - Take off contaminated clothing and wash it before reuse. P302 + P352 - IF ON SKIN: Wash with plenty of water. P305 + P351 + P338 + P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor. P321 - Specific treatment (see the label).
<b>Storage</b>	: P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.
<b>Disposal</b>	: P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

### C. Other hazards which do not result in classification

May be irritating to eyes and skin. (Based on: pH of material/Suspension)

## Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Ingredient name	Common name	Identifiers	%
calcium dihydroxide	-	CAS: 1305-62-0 EC: 215-137-3	≥80 - ≤85
sodium hydroxide	sodium hydroxide	CAS: 1310-73-2 EC: 215-185-5	≥0.1 - ≤5
[4-[bis[4-(diethylamino)phenyl]methylene]-2,5-cyclohexadien-1-ylidene] diethylammonium chloride	-	CAS: 2390-59-2 EC: 219-231-5	≥0.1 - ≤5

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

## Section 4. First aid measures

- A. Eye contact** : Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.
- B. Skin contact** : Get medical attention immediately. Call a poison center or physician. Wash contaminated skin with soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.

## Section 4. First aid measures

- C. Inhalation** : Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- D. Ingestion** : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- E. Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

## Section 5. Fire-fighting measures

- A. Extinguishing media**
- Suitable extinguishing media** : Use water spray, fog or foam. Use dry chemical powder. Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : Do not use carbon dioxide or water jets.
- B. Specific hazards arising from the chemical** : No specific fire or explosion hazard.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:  
metal oxide/oxides
- C. Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
- Special precautions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Remark (Explosibility)** : None.

## Section 6. Accidental release measures

- A. Personal precautions, protective equipment and emergency procedures** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- B. Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
- C. Methods and materials for containment and cleaning up**
- Small spill** : Move containers from spill area. Avoid dust generation. Using a vacuum with HEPA filter will reduce dust dispersal. Place spilled material in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor.

## Section 7. Handling and storage

### A. Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

- B. Conditions for safe storage, including any incompatibilities** : Store between the following temperatures: 5 to 40°C (41 to 104°F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

## Section 8. Exposure controls/personal protection

### A. Control parameters

#### Occupational exposure limits

Ingredient name	Exposure limits
calcium dihydroxide	ISHA Article 42 (Republic of Korea, 1/2020) TWA 8 hours: 5 mg/m <sup>3</sup> .
sodium hydroxide	ISHA Article 42 (Republic of Korea, 1/2020) CEIL: 2 mg/m <sup>3</sup> .

#### Biological exposure indices

None known.

## Section 8. Exposure controls/personal protection

- Appropriate engineering controls** : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
- B. Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.
- Personal protective equipment**
- C. Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.
- Eye protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.  
**Recommended:** > 8 hours (breakthrough time): nitrile rubber (thickness  $\geq 0.11$  mm).
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

## Section 9. Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

- A. Appearance**
- Physical state** : Solid.
- Color** : White.
- B. Odor** : Odorless.
- C. Odor threshold** : Not applicable.
- D. pH** : ca. 12 [Suspension (water)]
- E. Melting/freezing point** : Not available.
- F. Boiling point or initial boiling point and boiling range** : Not available.
- G. Flash point** : Not applicable.
- Fire point** : Not available.
- H. Evaporation rate** : Not available.
- I. Flammability (solid, gas)** : Not available.

## Section 9. Physical and chemical properties

- J. Lower and upper explosive (flammable) limits** : Not applicable.
- Explosive properties** : None.
- K. Vapor pressure** : Not available.
- L. Solubility in water** : Soluble. [~ 1 g/L]
- M. Vapor density** : Not applicable.
- N. Relative density** : Not available.
- Density** : 0.73 to 0.93 g/cm<sup>3</sup> [Bulk density]
- O. Partition coefficient: n-octanol/water** : Not applicable.
- P. Auto-ignition temperature** : Not applicable.
- Q. Decomposition temperature** : Not available.
- R. Viscosity** : Dynamic (room temperature): Not applicable.  
Kinematic (room temperature): Not applicable.  
Kinematic (40°C (104°F)): Not available.
- S. Molecular weight** : Not applicable.

### Particle characteristics

- Median particle size** : Not available.

## Section 10. Stability and reactivity

- A. Chemical stability** : The product is stable.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- B. Conditions to avoid** : Keep away from heat, sparks and flame. Avoid dust generation. Protect from moisture.
- C. Incompatible materials** : Reactive or incompatible with the following materials: light metals, acids.
- D. Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section 11. Toxicological information

- A. Information on the likely routes of exposure** : Not available.
- Potential acute health effects**
- Inhalation** : May cause respiratory irritation.
- Ingestion** : No known significant effects or critical hazards.
- Skin contact** : Causes skin irritation.
- Eye contact** : Causes serious eye damage.
- Over-exposure signs/symptoms**
- Inhalation** : Adverse symptoms may include the following:  
respiratory tract irritation  
coughing
- Ingestion** : Adverse symptoms may include the following:  
stomach pains

## Section 11. Toxicological information

**Skin contact** : Adverse symptoms may include the following:  
pain or irritation  
redness  
blistering may occur

**Eye contact** : Adverse symptoms may include the following:  
pain  
watering  
redness

### B. Health hazards

#### Acute toxicity

**Conclusion/Summary** : Not available.

#### Irritation/Corrosion

Product/ingredient name	Result and Species	Exposure	Remarks
CO <sub>2</sub> Absorber	Skin - Rabbit - Not irritant - [OECD 404]	-	-
	Eyes - Rabbit - Corrosive - [OECD 405]	-	-

#### Conclusion/Summary

**Skin** : Causes skin irritation. (Based on: pH of material/Suspension, Expert judgment)

**Eyes** : Causes serious eye damage.

**Respiratory** : Not available.

#### Respiratory or skin sensitization

#### Conclusion/Summary

**Skin** : Not available.

**Respiratory** : Not available.

#### CMR - ISHA Article 42 Occupational Exposure Limits

Not available.

#### Mutagenicity

**Conclusion/Summary** : Not available.

#### Carcinogenicity

**Conclusion/Summary** : Not available.

#### Reproductive toxicity

**Conclusion/Summary** : Not available.

#### Teratogenicity

**Conclusion/Summary** : Not available.

#### Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
calcium dihydroxide	Category 3	-	Respiratory tract irritation
[4-[bis[4-(diethylamino)phenyl]methylene]-2,5-cyclohexadien-1-ylidene]diethylammonium chloride	Category 3	-	Respiratory tract irritation

#### Specific target organ toxicity (repeated exposure)

Not available.

#### Aspiration hazard

Not available.

#### Potential chronic health effects

## Section 11. Toxicological information

### Chronic toxicity

Not available.

- Conclusion/Summary** : Not available.  
**General** : No known significant effects or critical hazards.  
**Carcinogenicity** : No known significant effects or critical hazards.  
**Mutagenicity** : No known significant effects or critical hazards.  
**Reproductive toxicity** : No known significant effects or critical hazards.

### Numerical measures of toxicity

#### Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
CO <sub>2</sub> adsorption cartridge CW	N/A	N/A	N/A	N/A	N/A

## Section 12. Ecological information

### A. Ecotoxicity

**Conclusion/Summary** : Not available.

### B. Persistence and degradability

**Conclusion/Summary** : There are no data available on the mixture itself.

### C. Bioaccumulative potential

Not available.

### D. Mobility in soil

- Soil/Water partition coefficient** : Not available.  
**Mobility** : Not available.

**E. Other adverse effects** : No known significant effects or critical hazards.

## Section 13. Disposal considerations

- A. Disposal methods** : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.
- B. Disposal precautions** : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

## Section 14. Transport information

	UN	IMDG	IATA
<b>A. UN number</b>	Not regulated.	Not regulated.	Not regulated.
<b>B. UN proper shipping name</b>	Not regulated.	Not regulated.	Not regulated.
<b>C. Transport hazard class(es)</b>	Not regulated.	Not regulated.	Not regulated.
<b>Label</b>			
<b>D. Packing group</b>	Not regulated.	Not regulated.	Not regulated.
<b>E. Environmental hazards</b>	No.	Marine Pollutant: No	No.

**F. Special precautions for user** : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

**Transport in bulk according to IMO instruments** :  Not intended.

## Section 15. Regulatory information

### A. Regulation according to ISHA

**ISHA article 117 (Harmful substances prohibited from manufacture)** : None of the components are listed.

**ISHA article 118 (Harmful substances requiring permission)** : None of the components are listed.

### Exposure Limits of Chemical Substances and Physical Factors

The following components have an OEL:  
calcium dihydroxide  
sodium hydroxide

**ISHA Enforcement Regs Annex 19 (Exposure standards established for harmful factors)** : None of the components are listed.

**ISHA Enforcement Regs Annex 21 (Harmful factors subject to Work Environment Measurement)** : The following components are listed: sodium hydroxide

**ISHA Enforcement Regs Annex 22 (Harmful Factors Subject to Special Health Check-up)** : None of the components are listed.

**Standard of Industrial Safety and Health Annex 12 (Hazardous substances subject to control)** : The following components are listed: sodium hydroxide

## Section 15. Regulatory information

### B. Regulation according to Chemicals Control Act

**Article 11 (TRI)** : The following components are listed: Sodium hydroxide

**Article 18 Prohibited (K-Reach Article 27)** : None of the components are listed.

**Article 19 Candidate substances subject to authorization (K-Reach Article 25)** : None of the components are listed.

**Article 19 Subject to authorization (K-Reach Article 25)** : None of the components are listed.

**Article 20 Toxic Chemicals (K-Reach Article 20)** : Not applicable

**Article 20 Restricted (K-Reach Article 27)** : None of the components are listed.

**Article 39 (Accident Precaution Chemicals)**  
Not listed.

### MoE 2021-51 - Regulations on the quantity of toxic substances, restricted substances, prohibited substances and permitted substances

Ingredient name	Higher regulated quantity	Lower regulated quantity
Sodium hydroxide	-	20 tonnes

**Existing Chemical Substances Subject to Registration** : The following components are listed: Sodium hydroxide

**C. Dangerous Materials Safety Management Act** : Not regulated.

**D. Wastes regulation** : Dispose of contents and container in accordance with all local, regional, national and international regulations.

### E. Other regulations in Korea and International regulations

**Article 2 of Youth Protection Act on Substances Hazardous to Youth** : Not applicable.

#### International regulations

#### Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

#### Montreal Protocol

Not listed.

#### Stockholm Convention on Persistent Organic Pollutants

Not listed.

#### Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

#### UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

#### OECD Comprehensive Global PFAS Database

Not listed.

#### Inventory list

**Australia** : All components are listed or exempted.

## Section 15. Regulatory information

<b>Canada</b>	: All components are listed or exempted.
<b>China</b>	: All components are listed or exempted.
<b>Eurasian Economic Union</b>	: <b>Russian Federation inventory</b> : All components are listed or exempted.
<b>Japan</b>	: <b>Japan inventory (ISHL)</b> : <input checked="" type="checkbox"/> All components are listed or exempted.
<b>New Zealand</b>	: All components are listed or exempted.
<b>Philippines</b>	: All components are listed or exempted.
<b>Taiwan</b>	: All components are listed or exempted.
<b>United States</b>	: All components are active or exempted.
<b>Viet Nam</b>	: All components are listed or exempted.

## Section 16. Other information

<b>A. References</b>	: - Registry of Toxic Effects of Chemical Substances - United States Environmental Protection Agency ECOTOX
<b>B. Date of issue/Date of revision</b>	: 2025/12/04
<b>Date of previous issue</b>	: 2024/12/16
<b>C. Version</b>	: 3
<b>Date of printing</b>	: <b>2025/12/05</b>

Other

### Indicates information that has changed from previously issued version.

<b>Key to abbreviations</b>	: ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association IBC = Intermediate Bulk Container IMDG = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition coefficient MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution) N/A = Not available SGG = Segregation Group UN = United Nations
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### Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.