

CO2 Absorbent Solution

Safety Data Sheet

Revision date:2/18/2013

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name. : CO2 Absorbent Solution

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

Use of the substance/mixture : Absorbent

1.3. Details of the supplier of the safety data sheet

Dwyer Instruments, Inc.
102 Highway 212
Michigan City, IN 46361
T 219-879-8868 - F 219-872-9057

1.4. Emergency telephone number

Emergency number : Call CHEMTREC day or night. Domestic North America call- 800-424-9300; International call - 703-527-3887 (collect accepted)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Acute Tox. 3 (Oral) H301
Skin Corr. 1A H314

2.2. Label elements

GHS-US labelling

Hazard pictograms (GHS-US) :



Signal word (GHS-US) :

Danger

Hazard statements (GHS-US) :

H301 - Toxic if swallowed
H314 - Causes severe skin burns and eye damage

Precautionary statements (GHS-US) :

P260 - Do not breathe dust/fume/gas/mist/vapours/spray
P264 - Wash ... thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor
P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER/doctor/...
P321 - Specific treatment (see ... on this label)
P330 - If swallowed, rinse mouth
P363 - Wash contaminated clothing before reuse
P405 - Store locked up
P501 - Dispose of contents/container to ...

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS US)

No data available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixture

Name	Product identifier	%	GHS-US classification
Potassium hydroxide	(CAS No.) 1310-58-3	8	Acute Tox. 3 (Oral), H301 Skin Corr. 1A, H314
Water	(CAS No.) 7732-18-5	92	Not classified

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SECTION 4: First aid measures

4.1. Description of first aid measures

- First-aid measures after inhalation : Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.
- First-aid measures after skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.
- First-aid measures after eye contact : Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.
- First-aid measures after ingestion : If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

4.2. Most important symptoms and effects, both acute and delayed

- Symptoms/injuries after inhalation : Severe irritant. Effects from inhalation of dust or mist vary from mild irritation to serious damage of the upper respiratory tract, depending on the severity of exposure. Symptoms may include coughing, sneezing, damage to the nasal or respiratory tract. High concentrations can cause lung damage.
- Symptoms/injuries after skin contact : Corrosive! Contact with skin can cause irritation or severe burns and scarring with greater exposures.
- Symptoms/injuries after eye contact : Highly Corrosive! Causes irritation of eyes with tearing, redness, and swelling. Greater exposures cause severe burns with possible blindness resulting.
- Symptoms/injuries after ingestion : Toxic! Swallowing may cause severe burns of mouth, throat and stomach. Other symptoms may include vomiting, diarrhea. Severe scarring of tissue and death may result. Estimated lethal dose: 5 grams.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire.
- Unsuitable extinguishing media : None.

5.2. Special hazards arising from the substance or mixture

- Fire hazard : Not combustible, but contact with water or moisture may generate enough heat to ignite combustibles.
- Explosion hazard : Can react with chemically reactive metals such as aluminum, zinc, magnesium, copper, etc. to release hydrogen gas which can form explosive mixtures with air.

5.3. Advice for firefighters

- Protection during firefighting : Firefighters should wear full protective gear.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- General measures : Avoid contact with the skin and the eyes. Wear appropriate protective clothing and respiratory protection for the situation.

6.1.1. For non-emergency personnel

No additional information available

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

- For containment : Stop the flow of material, if this is without risk.
- Methods for cleaning up : Pick up and place in a suitable container for reclamation or disposal, using a method that does not generate dust. Do not flush caustic residues to the sewer. Residues from spills can be diluted with water, neutralized with dilute acid such as acetic, hydrochloric or sulfuric. Absorb neutralized caustic residue on clay, vermiculite or other inert substance and package in a suitable container for disposal.

6.4. Reference to other sections

No additional information available

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SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Isolate from incompatible substances. Protect from moisture. Addition to water releases heat which can result in violent boiling and spattering. Always add slowly and in small amounts. Never use hot water. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Potassium hydroxide (1310-58-3)

USA ACGIH	ACGIH Ceiling (mg/m ³)	2 mg/m ³
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8.2. Exposure controls

Appropriate engineering controls : Ensure exposure is below occupational exposure limits (where available).
Hand protection : Use impervious gloves such as neoprene, nitrile, or rubber for hand protection.
Eye protection : Use chemical safety goggles and/or a full face shield where splashing is possible.
Skin and body protection : Rubber or neoprene gloves and additional protection including impervious boots, apron, or coveralls, as needed in areas of unusual exposure.
Respiratory protection : If exposure limits are exceeded or irritation is experienced, NIOSH approved respiratory protection should be worn.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Liquid
Colour : Yellow
Odour : Odorless
Odour threshold : No data available
pH : > 14
Relative evaporation rate (butylacetate=1) : No data available
Melting point : No data available
Freezing point : No data available
Boiling point : No data available
Flash point : No data available
Self ignition temperature : No data available
Decomposition temperature : No data available
Flammability (solid, gas) : No data available
Vapour pressure : No data available
Relative vapour density at 20 °C : No data available
Relative density : No data available
Solubility : Soluble
Log Pow : No data available
Log Kow : No data available
Viscosity, kinematic : No data available
Viscosity, dynamic : No data available
Explosive properties : No data available
Oxidising properties : No data available
Explosive limits : No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

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10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Will not occur.

10.4. Conditions to avoid

Heat, moisture, incompatibles.

10.5. Incompatible materials

Contact with acids, flammable liquids and organic halogen compounds, especially trichloroethylene, may cause fire or explosion. Contact with nitromethane and other similar nitro compounds cause formation of shock sensitive salts. Contact with metals such as aluminum, tin and zinc causes formation of flammable hydrogen gas.

10.6. Hazardous decomposition products

Carbon monoxide when reacting with carbohydrates, and hydrogen gas when reacting with aluminum, zinc and tin. Thermal oxidation can produce toxic fumes of potassium oxide (K₂O).

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Toxic if swallowed.

CO2 Absorbent Solution	
ATE (oral)	500 mg/kg
Water (7732-18-5)	
LD50 oral rat	> 90 ml/kg
Potassium hydroxide (1310-58-3)	
LD50 oral rat	214 mg/kg

Skin corrosion/irritation : Causes severe skin burns and eye damage.

pH: > 14

Serious eye damage/irritation : Not classified

pH: > 14

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

SECTION 12: Ecological information

12.1. Toxicity

Potassium hydroxide (1310-58-3)	
LC50 fishes 1	80 mg/l (Exposure time: 96 h - Species: Gambusia affinis [static])

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

Potassium hydroxide (1310-58-3)	
Log Pow	0.65

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Dispose of contents/container in accordance with local/regional/national/international regulations.

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SECTION 14: Transport information

In accordance with DOT / ADR / RID / ADNR / IMDG / ICAO / IATA

14.1. UN number

UN-No.(DOT) : 3266
DOT NA no. UN3266

14.2. UN proper shipping name

DOT Proper Shipping Name : Corrosive liquid, basic, inorganic, n.o.s. (potassium hydroxide)
Department of Transportation (DOT) Hazard Classes : 8 - Class 8 - Corrosive material 49 CFR 173.136
Hazard labels (DOT) : 8 - Corrosive substances



DOT Symbols : G - Identifies PSN requiring a technical name
Packing group (DOT) : II - Medium Danger
DOT Special Provisions (49 CFR 172.102) : B2 - MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 and DOT 406 cargo tanks are not authorized.
IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized.
T11 - 6 178.274(d)(2) Normal..... 178.275(d)(3)
TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees celsius of the liquid during filling, and is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transportation (tr) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively.
TP27 - A portable tank having a minimum test pressure of 4 bar (400 kPa) may be used provided the calculated test pressure is 4 bar or less based on the MAWP of the hazardous material, as defined in 178.275 of this subchapter, where the test pressure is 1.5 times the MAWP.
DOT Packaging Exceptions (49 CFR 173.xxx) : 154
DOT Packaging Non Bulk (49 CFR 173.xxx) : 202
DOT Packaging Bulk (49 CFR 173.xxx) : 242

14.3. Additional information

Other information : No supplementary information available.

Overland transport

No additional information available

Transport by sea

DOT Vessel Stowage Location : B - (i) The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) "On deck only" on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.
DOT Vessel Stowage Other : 40 - Stow "clear of living quarters", 52 - Stow "separated from" acids

Air transport

DOT Quantity Limitations Passenger aircraft/rail : 1 L
(49 CFR 173.27)
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 30 L

SECTION 15: Regulatory information

15.1. US Federal regulations

Water (7732-18-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Potassium hydroxide (1310-58-3)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

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15.2. International regulations

CANADA

Water (7732-18-5)

Listed on the Canadian DSL (Domestic Substances List) inventory.

WHMIS Classification	Uncontrolled product according to WHMIS classification criteria
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Potassium hydroxide (1310-58-3)

Listed on the Canadian DSL (Domestic Substances List) inventory.

WHMIS Classification	Class D Division 1 Subdivision B - Toxic material causing immediate and serious toxic effects Class E - Corrosive Material
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15.3. US State regulations

Potassium hydroxide (1310-58-3)

U.S. - Massachusetts - Right To Know List
U.S. - Minnesota - Hazardous Substance List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Full text of H-phrases:

Acute Tox. 3 (Oral)	Acute toxicity (oral) Category 3
Skin Corr. 1A	skin corrosion/irritation Category 1A
H301	Toxic if swallowed
H314	Causes severe skin burns and eye damage

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.