

SAFETY DATA SHEET

Product: ACQUAGEL 8 - AMMONIUM SULFATE SOLUTION

Version: 10

Date: 03/22/2021

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SECTION 1: IDENTIFICATION

Identification of the product	ACQUAGEL 8 - AMMONIUM SULFATE SOLUTION
Recommended use of the chemical and restrictions on use	Industrial use.
Company	COMPANHIA BRASILEIRA DE ESTIRENO.
Address	Rua Hidrogênio, 824 - Polo Petroquímico – Camaçari – BA - CEP: 42816-140, Brazil.
Telephone number	55 (71) 3878-6313.
Emergency telephone number	0800 110 8270 Pró-Química.

SECTION 2: HAZARD IDENTIFICATION

Classification of the substance or mixture	Acute toxicity – Oral – Category 5 Hazardous to the aquatic environment – Acute – Category 3
Classification system adopted	Globally Harmonized System of Classification and Labelling of Chemicals (GHS), United Nations.
Other hazards which do not result in classification	The product does not have other hazards.
Adequate labeling elements	
Pictograms	Not applicable.
Signal word	WARNING
Hazard statement(s):	H303 May be harmful if swallowed. H402 Harmful to aquatic life.
Precautionary statement(s):	PREVENTION: P273 Avoid release to the environment.

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RESPONSE:

P301 + P312 IF SWALLOWED: Call a POISON CENTER or a doctor, if you feel unwell.

DISPOSAL:

P501 Dispose of contents and container in accordance with local regulations.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

MIXTURES

Ingredients or impurities contributing to the hazard

Component	Concentration (%)	N° CAS
Ammonium sulfate	35.0 – 40.0	7783-20-2

SECTION 4: FIRST-AID MEASURES**Routes of exposure**

Ingestion	Do not induce vomiting. Never give anything by mouth to an unconscious person. Rinse the victim's mouth with water. Call a POISON CENTER or doctor/physician if you feel unwell. Take this SDS.
Skin	Wash exposed skin with enough water to remove the material. Wash contaminated clothing before reuse. In case of irritation: Consult a doctor. Take this SDS.
Eye	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. If eye irritation persists: Get

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	medical advice/attention. Take this SDS.
Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell. Take this SDS.
Most important symptoms/effects, acute and delayed	May be harmful if swallowed. May cause slight skin irritation with redness, and slight eye irritation with tearing and redness.
Indication of immediate medical attention and special treatment needed, if necessary	Avoid contact with the product to help the victim. Keep victim warm and quiet. Symptomatic treatment should comprise mainly supportive measures such as correction of electrolyte disturbances, metabolic, and respiratory support. In case of skin contact do not rub the affected site.

SECTION 5: FIRE-FIGHTING MEASURES

Suitable extinguishing media	Suitable: Compatible with any extinguishing media. Not recommended: Water jets directly.
Specific hazards arising from the chemical	The combustion of the chemical products or containers may form toxic and irritant gases such carbon monoxide and carbon dioxide.
Special protective actions for fire-fighters	Self-contained breathing apparatus (SCBA) with positive pressure and full protective clothing. Containers and tanks involved in the fire can be cooled by water fog.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment, and emergency procedures	
For non-emergency personnel	Remove sources of ignition preventively. Evacuate the area. Keep unauthorized persons away from the area. Stop the

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	leakage, if it can be done without risk. Do not smoke. Do not touch damaged containers or spilled material without the use of appropriate clothing. Avoid exposure to the chemical. Use personal protective equipment as described in section 8.
For emergency responders	Wear full PPE with splash goggles, safety gloves, suitable protective clothing and closed shoes. In case of leakage, where exposure is high, it is recommended the use of respiratory protective masks with filter against vapors and mists. Stop the leak if it can be done without risk.
Environmental precautions	Avoid that the spilled material reaches waterways or sewage system. Notify the relevant authorities if the product has caused environmental pollution (if it has reached water courses or if it has contaminated the soil or vegetation).
Methods and materials for containment and cleaning up	Use water mist or vapor suppressing foam to reduce the dispersion of the vapors. Use natural barriers or containment of spillage. Collect spilled product and place in appropriate containers. Adsorb the remaining product with dry sand, earth, vermiculite or other inert material. Place the adsorbed material in appropriate containers and remove them to a safe place. For disposal, proceed according to Section 13 of this SDS.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling

Safe handling of the substance or mixture	Schedule a first aid action before starting the activity with the product. The use of the product is restricted to professionals. Caution - Avoid exposure - obtain special instructions before use. Handle in a well ventilated area or with general system of
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	ventilation/local exhaust. Avoid exposure to the chemical. Avoid vapors and mists formation. Avoid contact with incompatible materials. Use personal protective equipment as described in Section 8.
General hygiene:	Wash hands and face thoroughly after handling and before eating, drinking, smoking or going to the bathroom. Contaminated clothing should be changed and washed before reuse. Remove clothing and protective equipment contaminated before entering eating areas.
Conditions for safe storage, including any incompatibilities	
Technical measures for prevention of fire and explosion	It is not expected that the product presents a fire or explosion hazard.
Adequate conditions	Store the product in a cool, ventilated place. Keep container closed. Keep stored at room temperature. It is not necessary the addition of stabilizers and antioxidants to ensure the durability of the product. Keep away from incompatible materials.
Packaging compatibilities	Similar to the original packaging.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters	
Occupational exposure limit	Not established.
Biological limit:	Not established.
Other limits and values	Not established.
Appropriate engineering controls	Promote direct mechanical ventilation and exhaust system to the outside environment. These measures help reduce exposure to product.
Individual protection measures, such as personal protective equipment (PPE)	

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Eye/face protection	Splash goggles.
Skin protection	Safety gloves, suitable protective clothing and closed shoes.
Respiratory protection	In case of exposure to the product, use respiratory masks with a filter against vapors and mists. It is recommended to use respiratory protective equipment with filters for organic vapors. Based on the inhalation hazard of the product, a risk assessment must be carried out to adequately define respiratory protection in view of the conditions of use of the product.
Thermal hazards	It is not necessary to use specific EPIs, since the product does not present thermal hazards.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical state	Liquid.
Colour	Dark brown.
Odour	Characteristic.
Melting point/freezing point	Not available.
Boiling point or initial boiling point and boiling range	Not available.
Flammability	Not available.
Lower and upper explosion limit /flammability limit	Not available.
Flash point	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.

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pH	6,0 - 9,0.
Kinematic viscosity	Not available.
Solubility	Miscible in water.
Partition coefficient n-octanol/water (log value)	Log kow: 0,48.
Vapour pressure	Not available.
Density and/or relative density	1,2 g/cm ³ .
Relative vapour density	Not available.
Particle characteristics	Not available.
Other information	Not applicable.

SECTION 10: STABILITY AND REACTIVITY

Reactivity and chemical stability	Product not reactive. The product is stable under normal conditions of storage and use.
Possibility of hazardous reactions	There are not known hazardous reactions with the product.
Conditions to avoid	High temperatures, heat, friction and contact with incompatible materials.
Incompatible material	Strong acids and bases, oxidizing agents, copper and mixtures thereof.
Hazardous decomposition products	The combustion of the chemical or its packaging can form carbon monoxide and carbon dioxide and sulfur oxides.

SECTION 11: TOXICOLOGICAL INFORMATION

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Acute toxicity	<p>May be harmful if swallowed. Product not classified as acute toxic by dermal route. Based on available acute inhalation toxicity information, the classification criteria were not met.</p> <p>ATEmix (Acute Toxicity Estimate)</p> <p>ATEmix (oral): 4250 mg/kg</p> <p>ATEmix (dermal): > 2000 mg/kg</p> <p>Information related to:</p> <ul style="list-style-type: none">- Ammonium sulfate <p>LD50 (oral, rats): 4250 mg/kg</p> <p>LD50 (dermal, rats): > 2000 mg/kg</p> <p>LC50 (inhalation, rats, 8h): > 1.000 mg/m³.</p>
Skin corrosion/irritation	May cause slight skin irritation with redness.
Serious eye damage/irritation	May cause slight eye irritation with tearing and redness.
Respiratory or skin sensitization	<p>The product is not expected to cause respiratory or skin sensitization.</p> <p>Test performed on guinea pigs, negative result, non-sensitizing ammonium sulfate.</p>
Germ cell mutagenicity	<p>The product is not expected to cause germ cell mutagenicity.</p> <p>Ammonium sulfate was not mutagenic in bacteria (Ames test) and yeasts with and without metabolic activation systems. It did not induce chromosomal aberrations in human or mammalian cell cultures.</p>
Carcinogenicity	The product is not expected to have carcinogenic potential.
Reproductive toxicity	<p>The product is not expected to cause reproductive toxicity.</p> <p>There are no valid studies available on the effects of ammonium sulfate on fertility and development. Based on data for a similar ammonium compound (diammonium phosphate), which was tested up to 1,500 mg / kg body weight in a screening study</p>

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	according to OECD TG 422 in rats, it can be concluded that ammonium ions, even the proven dose, no toxic effects on fertility. In the 13-week ammonium sulfate feeding study in rats, no histological changes were observed in the testes up to 1792 mg / kg body weight.
STOT - Single exposure	Inhalation of the product may cause respiratory irritation with coughing and sneezing by mechanical action.
STOT - Repeated exposure	It is not expected that the product presents aspiration hazard.
Aspiration hazard	Based on available information, the classification criteria have not been met.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity	Harmful to aquatic life. LC50 (Oncorhynchus mykiss, 96h): 53 mg/LC EC50 (Daphnia magna, 48h): 169 mg/L. EC50 (Chlorella vulgaris, 18 dias): 2.700 mg/L.
Persistence and degradability	The product is not expected to show persistence, it is expected to degrade rapidly. The product is biodegradable in water.
Bioaccumulative potential	Presents low bioacumulative potencial in aquatic organisms. Log kow: 0,48.
Mobility in soil	No data available.
Other adverse effects	High concentrations of the product can impact the aquatic environment, reducing the concentration of dissolved oxygen by favoring and / or inducing the eutrophication process.

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SECTION 13: DISPOSAL CONSIDERATIONS

Disposal methods

Product	The treatment and disposal should be evaluated for each specific product. Keep the product remains in its original and properly closed. Disposal should be performed as established for the product. Do not reuse empty containers. These may contain product residues and should be kept closed and sent for proper disposal as established for the product.
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SECTION 14: Transport information

Road	UN - "United Nations". Recommendations on the TRANSPORT OF DANGEROUS GOODS. Model Regulations.
Rail	Convention concerning International Carriage by Rail (COTIF) Appendix C - Regulations concerning the International Carriage of Dangerous Goods by Rail - RID
Sea	IMO – International Maritime Organization International Maritime Dangerous Goods Code (IMDG Code)
Air	IATA - International Air Transport Association Dangerous Goods Regulation (DGR)
UN Number	1093
Special precautions	There is no need of special precautions. Consult regulations:
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	- International Maritime Organization. MARPOL: Articles, protocols, annexes, unified interpretations of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto, consolidated

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edition. IMO, London, 2006.

- International Maritime Organization. IBC code: International code for the construction and equipment of shipping carrying dangerous chemicals in bulk: With Standards and guidelines relevant to the code. IMO, London, 2007.

SECTION 15: REGULATORY INFORMATION

Regulations for chemical products

Convention concerning Safety in the use of Chemicals at Work (Convention 170) - International Labour Organization, 1990.

SECTION 16: OTHER INFORMATION

This SDS was prepared based on current knowledge about the proper product handling and under normal conditions of use, in accordance with the application specified on the packaging. Any other use of the product involving their combination with other materials, and use various forms of those indicated, are the responsibility of the user. Warns that the handling of any chemical substance requires the prior knowledge of its hazards for the user. In the workplace it is for the user company's product promotes training of its collaborators about the possible risks arising from exposure to the chemical.

Revised and adequate in march 2021.

Subtitles and abbreviations:

ACGIH – American Conference of Governmental Industrial Hygienists

BEI – Biological Exposure Index

CAS – Chemical Abstracts Service

EC₅₀ – Effective concentration 50%

LC₅₀ – Lethal concentration 50%

LD₅₀ – Lethal dose 50%

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IARC – International Agency for Research on Cancer

IDLH – Immediately Dangerous to Life or Health

kow – Octanol/Water Partition Coefficient

NOEC – No Observed Effect Concentration

STEL – Short Term Exposure Limit

TLV – Threshold Limit Value

TWA – Time Weighted Average

References:

ACGIH. AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIALS HYGIENISTS. TLVs® and BEIs®: Based on the Documentation of the Threshold Limit Values (TLVs®) for Chemical Substances and Physical Agents & Biological Exposure Indices (BEIs®). Cincinnati-USA, 2020.

GHS. Globally Harmonized System of Classification and Labelling of Chemicals. 8. rev. ed. New York: United Nations, 2015.

SDS. Safety Data Sheet. Ammonium sulfate Solution. COMPANHIA BRASILEIRA DE ESTIRENO. Versão: 9. Data: 17.04.18.