USIQUÍMICA

ALUMINUM SULPHATE

REVISION DATE: 9/19/2022

1. -Product and company IDENTIFICATION

Product name: Iron-free aluminum sulphate, granulated or powdered.
Internal Code of product identification: 128.35.0 and 129.35.0
Company name: USIQUÍMICA DO BRASIL LTDA.
Address: Rua da Lagoa, 431 - Cumbica - Guarulhos - SP.
Company Phone: + 5511 3821-7000 (PBX system) - + 5511 2481-3355.
Emergency phone: SUATRANS - COTEC - Environmental Emergency.
DDG (0800) 0111-767 - (0800) 7071-767 - 24 HOURS.
193 – Firefighters.

Main recommended uses for the substance: Chemical product used to treat drinking water, domestic sewage, effluents, chemical industries, paper mills, textiles, among other applications.

2. -HAZARD IDENTIFICATION

Classification of Substance:
Acute Toxicity - Oral - Category 5
Corrosive/Irritating to the skin - Category 2
Serious eye damage/eye irritation - Category 2A

Adverse effects on human health:
Eye contact: May cause irritation ocular.
Skin contact: May cause skin irritation.
Inhalation: May cause irritation to the mucous membranes of the upper respiratory tract.
Ingestion: May cause irritation of mucous membrane tissues in the mouth and stomach.
Effects of chronic exposure: Non-defined
Environmental effects: Avoiding contact of the product with water courses, as it can cause an imbalance in the pH of the water in the affected area.
Physical and chemical hazards: Contact with metals.
Specific hazards: Not applicable.
Main symptoms: Irritation of the skin, eyes and mucous membranes.

GHS label elements, including precautionary phrases:

LABEL ELEMENTS	DATA
Product identification and supplier emergency telephone number.	Commercial Name: Granulated / refined aluminum sulphate. Synonym: Hydrated aluminum sulfate. Emergency phone: SUATRANS - COTEC - Environmental Emergency. DDG (0800) 0111-767 - (0800) 7071-767 - 24 HOURS.
Chemical composition.	Inorganic, non-combustible product, soluble in water, forming an acidic aqueous solution. Water-soluble aluminum (as Al_2O_3): Minimum: 15.00 % / maximum: 17.00 % Water-soluble iron (as Fe_2O_3): Maximum, 0.400%. Free acidity (as H_2SO_4): Maximum, 0.500 %. Free basicity (as Al_2O_3): Maximum, 0.400 %. Water insoluble residue, maximum: 5.00 %.
Hazard pictograms.	
Warning words.	**WARNING**
Danger phrases.	H315 Causes irritation to the skin. H320 - Causes eye irritation.

	H335 May cause irritation to the respiratory tracts. H402 - Harmful to aquatic organisms.
Precautionary phrases.	P262 - Avoid contact with eyes, skin or clothing. P260- Do not inhale dust/fume/gas/mist/vapors/spray. P273 - Avoid to release in the environment. P280 - Use protective gloves/protective clothing/eye protection/face protection. P3O3 + P361 + P353- IN CASE OF SKIN CONTACT (or with the hair): Remove immediately all contaminated clothing. Wash the skin with water/take a shower. P304+P340+P310 - IN CASE OF INHALATION: Remove the person to a ventilated area and keep the person in a rest position that does not make it difficult to breathe. Contact a TOXICOLOGICAL INFORMATION CENTER or physician immediately. P305+P351+P338+P310 - IN CASE OF EYE CONTACT: Rinse thoroughly with water for several minutes. If contact lenses are used, remove them if it is easy. Continue rinsing. Contact a TOXICOLOGICAL INFORMATION CENTER or physician immediately. P308 + P311- IN CASE OF exposure or suspected exposure: Contact a TOXICOLOGICAL INFORMATION CENTER/doctor.

Other elements which do not result in classification: It has no other hazards.

3.- COMPOSITION AND INFORMATION ON THE INGREDIENTS

Mixture: $Al_2(SO_4)_3\ xH_2O$ (X = 14 to 18 water molecules).
Common chemical name or generic name: Aluminum sulfate, hydrated dialuminium trisulfate.
Synonym: Hydrated aluminum sulfate.
Chemical Abstract Service (CAS No): 10043-01-3.
Impurities that contribute to the danger: Sulfuric acid.
CAS registration number: 7664-93-9.

4 - FIRST AID MEASURES

First aid measures:
Inhalation: Remove casualty to uncontaminated, ventilated area. If breathing is difficult, give oxygen. Apply resuscitation maneuvers in case of cardiorespiratory arrest. Immediately forward to the nearest hospital.
Skin contact: Remove clothing contaminated by the product. Wash contact areas with plenty of water. If irritation persists, seek medical attention.
Eye contact: Immediately wash eyes with running water for 15 minutes, lifting eyelids to allow maximum removal of product. seek medical attention.
Ingestion: If a large amount of this substance is ingested, refer immediately to a doctor.
What actions must be avoided: Do not induce vomiting. If vomiting occurs spontaneously, the victim must be laid on their side to prevent pulmonary aspiration. Never administer liquids to unconscious victims.
Brief description of the main symptoms and effects: May cause respiratory system irritation if dust is inhaled. May cause eye irritation which should cease after product removal. In case of prolonged exposure to the product, skin irritations are possible.
Notes to the physician: Avoid contact with the product to help the victim. Keep victim at rest and warm. Do not give anything by mouth to an unconscious person. The symptomatic treatment must include, above all, supportive measures such as correction of hydroelectrolytic, metabolic disorders, as well as respiratory assistance. In case of contact with the skin and/or eyes, do not rub the affected parts.

5. - FIREFIGHTING MEASURES

Suitable extinguishing measures: Foam, CO_2, chemical powder and water as a latter case.
Unappropriated extinguishing measures: water gun.
Other relevant information: If diluted, it becomes an acid corrosive product, dangerous for health and the environment.
Specific hazards: At high temperatures there is the possibility of product decomposition with the release of toxic and irritating gases (SOx). As it contains Sulfuric Acid in its formulation, it is possible that a reaction is generated

exothermic when in contact with other products soluble in water and with an alkaline pH.
Fire fighter Protection: Use autonomous breathing equipment and appropriate clothing against fire. Do not enter confined areas without proper protective equipment (PPE); this should include self-contained masks to protect against the harmful effects of combustion products or lack of oxygen. Isolate the area of risk and prohibit the people entrance. In case of fire, use a water spray to cool the containers exposed to fire. Keep a safe distance from the flames to avoid burns by irradiation. Use extinction processes that preserve the environment.

6. - CONTROL MEASURES FOR SPILLING OR LEAKING

Personal precautions, protective equipment and emergency procedures:
Personnel who are not part of the emergency services: Do not breathe vapors or aerosols. Avoiding contact with the substance. Ensuring adequate ventilation. Evacuating the danger area, observe emergency procedures. If necessary, consult an expert.
For the staff of the emergency department: Use protective waterproof and resistant to chemicals clothing. Arrange the grounding of all equipment that will be used in the handling of the spilled product. Eliminate all possible ignition sources, such as, open flames, hot elements without isolation, electric or mechanical sparks, cigarettes, electrical circuits, etc. To prevent the use of any action or proceeding that results in the generation of sparks or flames.
Removal of ignition sources: Keep away from sources of heat and ignition.
Prevention of inhalation and contact with skin, mucous membranes and eyes: See Section 8, Field:
" Appropriate Personal Protective Equipment".
Precautions to the environment: Isolate the area of the accident. To prevent the spread of the spilled product, avoiding the contamination of rivers and water springs. Seal the leak, if possible, to avoid contact with the skin and with the clothes. Never dispose the spilled material to sewage systems. Leaks must be reported to the manufacturer and/or the environmental agencies.
Methods and materials for containment and cleaning: Washing the area with plenty of water and neutralize with hydrated lime or soda lime.
Disposal: Waste must be disposed of in accordance with current Environmental Legislation. Keep chemicals in their original containers. Do not mix with other waste. Handling dirty containers must be carried out in the same way as the product itself. An MSDS of the generated waste must be generated.
Differences in the action of large and small leaks: There is no differentiation.
Prevention and secondary hazards: Assess the pH of soil and water with suspected contamination.

7. - HANDLING AND STORAGE

Handling:
Technical measures Using only in areas provided with adequate exhaust ventilation. Providing the product handling area with a set of emergency shower and eye wash. Handling must only be done with the indicated PPE and under safe conditions.
Prevention of worker's exposure: Avoiding the formation of vapors/aerosols. Working with exhaust / chimney. Do not inhale the substance/mixture. Using specific PPE's - splash goggles, face shield, PVC gloves and protective clothing. Avoid inhaling vapors.
Wash after handling and decontaminate PPE's after use. PPE's must be approved for use only with the respective CAs – Certificates of Approval.
Precautions and guidelines for safe handling: Use personal protective equipment (PPE) to avoid direct contact with the product. Handling the product in a well-ventilated place. Forms a slippery layer with water.

Storage:
Appropriate: Keep container tightly closed in a dry, cool and well-ventilated area. Keep in a cool, dry place in unopened original packaging. Avoid damp, wet and lightly wet conditions, temperature extremes and sources of ignition.
To avoid: Strong oxidizing agents.
Hygiene measures:
Appropriate: Always sanitize your hands before handling any food, as there is a risk of food contamination. Contaminated clothing must be washed and sanitized before use. Always keep gloves free of

moisture and decontaminated.
Inappropriate: Direct contact with the product and/or its residues.
Technical measures
Suitable conditions: Keep containers closed and in a well-ventilated place. Keep containers away from heat and direct sunlight. Avoid extreme temperatures. Avoid moisture.
Safe materials for packaging:
Recommendations: Transparent polyethylene bags or white laminated raffia bags, net weights of 25 kg or 40 kg (in case of solid product).

8. - EXPOSURE CONTROLS AND PERSONAL PROTECTION

Parameters of specific control:
Occupational exposure limits:
Occupational exposure limits: Not available.
Assess the pH of soil and water with suspected contamination.

Biological indicators: Not available.
Other limits and values: Not available.
Measures of engineering control: Handling the product in a place with good natural or mechanical ventilation, in order to keep the concentration of vapors/dust below the tolerance limit. Provide mechanical ventilation and direct exhaust system to the outside environment. These measures help to reduce exposure to the product. It is recommended to make emergency showers and eye washes available in the work area. Engineering control measures are most effective in reducing product exposure.

Appropriate Personal Protective Equipment:
Eye and face protection: Safety glasses, maintaining good facial seal.
Protection of the skin and body: Wear clothing such as a long-sleeved shirt, pants, gloves and shoes suitable for handling the product.
Respiratory protection: Respiratory masks, types: full-facial; semifacial, with filters coupled against aerosols.
Thermal hazards: Data not available.

9. - PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Granular or ventilated solid.
Color: Light brown to gray.
Odor and odor limit: Odorless.
pH: 3.00 to 4.00 (2.0% solution (mass/volume).
Melting point: 92 °C with decomposition.
Freezing point: Not available.
Initial boiling point and boiling temperature range: Not available.
Flash point: Not available.
Evaporation rate: Not available.
Flammability (solid): Not available.
Lower/upper flammability or explosiveness limit: Not available.
Vapor pressure: Not available.
Vapor Density: Not available.
Relative Density 1.106 g/ml (granulate) / 0.701 (refined). Solubility: 300 g/L in water at 20 °C.
Partition coefficient - n-octanol / water: Not available.
Auto-ignition temperature: Not available.
Decomposition temperature: From 86 °C.
Viscosity: Not applicable.

10. - STABILITY AND REACTIVITY

Reactivity: Strong bases, metals and strong oxidizing agents.
Chemical stability: The product is stable under normal conditions.
Possibility of hazardous reactions: In reaction with alkaline-based neutralizers, aluminum hydroxide and

alkaline salt are formed.
Conditions to avoid: Contact with metals, ignition sources and heat.
Materials or incompatible substances: Oxidizing agents. Reacts with alkalis and attacks metals in the presence of water **Hazardous decomposition products:** Fire can produce toxic and irritating gases in addition to Carbon Monoxide and Carbon Dioxide.

11. - TOXICOLOGICAL INFORMATION

Information according to the different routes of exposure:
Acute toxicity: Not available.
Skin corrosion/irritation: Not available.
Severe ocular lesions/eye irritation: Not available. Respiratory or
Skin sensitization: Not available.
Germ cell mutagenicity: It has no mutagenic effect.
Carcinogenicity: It has no carcinogenic effect.
Reproductive toxicity: It has no toxic effect on reproduction.
Specific target organ toxicity- single exposure: Not available.
Specific target organ toxicity- repetitive exposure: Not available.
Aspiration hazard: Not available.

12. - ECOLOGICAL INFORMATION

Environmental effects, behaviors and impacts of the product Ecotoxicity
Acute ecotoxicity: Not available.
Chronic ecotoxicity: Not available.
Persistence and degradability in water and soil: Instant hydrolysis.
Bioaccumulative potential: Not applicable; inorganic compound.
Mobility in soil: Not available.
Other adverse effects: Not available.

13. - CONSIDERATIONS ON FINAL DISPOSAL

Recommended methods for final disposal:
The treatment and disposal of product residues must be done in a suitable environment, by people trained in the use of special equipment and the recommended PPE's to avoid contact with the product, its vapors or mists. Leaks must be contained and collected for later disposal after neutralization.
Product:
Ensure all Federal, State and local agencies receive proper notice of spills and disposal methods. CONAMA Resolution 005/1993, Law No. 12,305, as of August 2, 2010 (National Solid Waste Policy).
Product waste:
Consult environmental regulatory agencies for advice on acceptable regulatory practices. Come in contact with relevant local authorities. It can be incinerated when in compliance with local regulations. Or dispose of in an approved chemical waste landfill.
Used Package:
Empty containers must be drained and covered before handling and transport operations. If the package is not properly washed and decontaminated, it is considered to contain the product.

14. - TRANSPORT INFORMATION

National and International Regulations
Land:
Resolution No. 5947/2021 of the Brazilian National Land Transport Agency (ANTT), Approves the Complementary Instructions to the Regulation of Land Transport of Dangerous Goods and its amendments.
UN number: Product not covered by current regulations on the transport of dangerous products.
Appropriate name for shipment: -
Risk class: -
Risk subclass: -

Risk number: -
Packing group: -

Waterway:
DPC – Directorate of Ports and Coasts (Transport in Brazilian waters) Maritime Authority Regulations (NORMAM)
NORMAM 01/DPC: Vessels Used in Open-seas Navigation
UN number: Product not covered by current regulations on the transport of dangerous products.
Appropriate name for shipment: -
Risk class: -
Risk subclass: -
Risk number: -
Packing group: --

- Air Transport:
ANAC - National Civil Aviation Agency - Resolution No. 129 as of January 8, 2009
RBAC N°175 - (BRAZILIAN CIVIL AVIATION REGULATION) - TRANSPORTATION OF DANGEROUS ITEMS IN CIVIL AIRCRAFT
IS No. 175-001 - SUPPLEMENTARY INSTRUCTION - IS
ICAO - "International Civil Aviation Organization" - Doc 9284-NA/905
IATA - "International Air Transport Association"
Dangerous Goods Regulation (DGR)
UN number: Product not covered by current regulations on the transport of dangerous products.
Appropriate name for shipment: -
Risk class: -
Risk subclass: -
Risk number: -
Packing group: -

15. –REGULATORY INFORMATION

Specific regulations for the chemical product:
Federal Decree No. 2,657, as of July 3, 1998;
Standard ABNT-NBR 14725:2014;
Ordinance No. 229, as of May 24, 2011 – Changes Regulatory Standard No. 26.

16. -OTHER INFORMATION

The information on this sheet corresponds to the current state of our knowledge and experience of the product and is not exhaustive. It applies to the product under the conditions specified, unless otherwise stated. In case of combinations or mixtures, make sure that no new danger can appear. This information does not, in any case, exempt the user of the product from complying with all legislative, regulatory and administrative texts relating to the product, safety, hygiene and protection of human and environmental health.

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