



SAFETY DATA SHEET FOR CHEMICALS
MSDS

ECOTEC - ARLA 32

REVISION DATE: 4/10/2018

1. - IDENTIFICATION OF PRODUCT AND COMPANY

Product name: ECOTEC - ARLA 32.

Internal Code of product identification: 119.12.0.

Company name: Usiquímica do Brasil Ltda.

Address: Rua da Lagoa, 431 - Cumbica - Guarulhos - SP.

Company Phone: (11) 3821-7000 - PBX system.

Emergency call numbers: SUATRANS - COTEC - Environmental Emergency.

DDG (0800) 0111-767 - (0800) 7071-767 - 24 HOURS.

193 - Firefighters.

Main recommended uses for the substance: Product used as an anti-pollutant agent for vehicles using diesel engines. Arla 32 is known as "Automotive Nox Liquid Reducing Agent".

2. - HAZARDS IDENTIFICATION

Substances classification:

Acute toxicity - Oral - Category 5

Corrosive/irritation to skin- Category 2

Serious eye damage / eye irritation - Category 2A

Adverse effects to the human health: Adverse to health effects are considered unlikely.

Inhalation: Inhalation of the solution produces nose irritation, throat and upper respiratory tract. It can trigger sneezing and coughing.

Eye contact: Causes irritation with redness, lacrimation and pain.


Skin contact: It has an irritating effect producing itching and local redness.

Ingestion: Ingestion of the product may cause gastrointestinal irritation. Nausea, vomiting, abdominal pain and diarrhea may appear when ingesting larger quantities of the product.

Environmental effects: The product is not expected to present a hazard to the environment.

Specific hazards: When heated, the urea solution decomposes to carbon dioxide (CO₂) and ammonia (NH₃). When burned, it emits nitrogen oxides (NO_x). In high blood concentrations, urea increases the risk of glaucoma.

GHS labeling elements, including precautionary phrases:

LABELING ELEMENTS	DATA
Product identification and supplier emergency phone	Commercial Name: ECOTEC - ARLA 32. Synonym: Carbamide, carbonyl diamide, carbonic acid diamide. Emergency call number: SUATRANS - COTEC - Environmental Emergency. DDG (0800) 0111-767 - (0800) 7071-767 - 24 HOURS.
Chemical composition	High purity urea: 32.5%. High purity water: 67.5%.
Hazard pictogram	
Warning words	ATTENTION
Hazard phrase	H315 - Causes skin irritation; H319- Causes serious eye irritation;



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Caution Phrases	<p>P280 - Use protective gloves/protective clothing/eye protection/face shield. P303+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. Please Immediately contact a TOXICOLOGICAL INFORMATION CENTER/physician. 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. Please Immediately contact a TOXICOLOGICAL INFORMATION CENTER/physician. P308+P311 - IN CASE OF exposure or suspected of exposure: Please contact a TOXICOLOGICAL INFORMATION CENTER/physician.</p>
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Other hazards which do not result in classification: No information found.

3. - COMPOSITION AND INFORMATION ON THE INGREDIENTS:

Substance: 32.5% aqueous urea solution - $(\text{NH}_2)_2\text{CO} + \text{H}_2\text{O}$.
Chemical or common name: Aqueous solution of urea - $(\text{NH}_2)_2\text{CO} + \text{H}_2\text{O}$.
Synonym (for urea): Carbamide, carbonyl diamide, carbonic acid diamide.
CAS No. (Chemical Abstract Service): CAS: 57-13-6.
Impurities that contribute to the hazard: Unidentified.

4. - FIRST AID MEASURES:

First aid measures:

Inhalation: Remove the victim to an uncontaminated and ventilated area. If you are breathing hard, administering oxygen. Apply resuscitation maneuvers in case of cardiorespiratory arrest. Immediately forward to the nearest hospital.

Skin contact: Remove clothing contaminated by the product. Wash the victim's mouth with plenty of water. If irritation persists, seek to physician.

Eye contact: Wash at once the eyes under running water for 15 minutes, lifting the eyelids to allow maximum product removal. Refer to the physician.

Ingestion: If a large amount of this substance is ingested, see to physician immediately.

What actions must be avoided: Do not induce vomiting. If vomiting occurs spontaneously, the victim shall be lying on his side to prevent pulmonary aspiration. Never administer liquids to unconscious victims.

Brief description of the main symptoms and effects: It can cause skin irritation with redness, pain and dryness. May cause mild eye irritation with redness and lachrimation. Can be harmful if swallowed and penetrate into the respiratory tract's chemical pneumonitis. Single exposure can cause narcotic effects such as drowsiness, mental confusion, loss of consciousness, headache and dizziness; and irritation to the respiratory tract with cough, sore throat and shortness of breath.

Notes to the physician: Avoid contact with the product to help the victim. Keep the victim on standing and heated. Do not give anything by mouth to an unconscious person. Symptomatic treatment must include, mainly, supportive measures such as correction of hydro electrolytic, metabolic disorders, as well as respiratory assistance. In case of contact with the skin and/or eyes, do not rub the affected parts.

5. - FIRE FIGHTING MEASURES

Extinguishing measures appropriate: The solution does not present a fire risk. Use appropriate measures to combat the fire in the surrounding area.

Not recommended extinguishing measures: Do not use water jets.

Specific hazards of chemical combustion: The reaction of urea with nitrates presents the risk of fire and explosion. Urea is not a fuel, but it decomposes at temperatures above 133 ° C to form toxic vapors.

fire fighter protection: Special protective equipment for personnel deployed for firefighting. No



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do stay in the danger zone without self-contained breathing apparatus suitable for breathing independently of the environment. To avoid contact with the skin, keep a safe distance and wear suitable protective clothing. Refresh closed containers exposed to fire with sprayable water. Suppress (throw) with water jets (fog) the gases, vapors and mists. Avoid to contamination of surface water and groundwater with water to firefighting.

6. - MEASURES OF CONTROL FOR SPILL OR LEAK

Personal precautions, protective equipment and emergency procedures:

Staff that is not part of the emergency services: Do not breathe vapor or aerosols. Avoid to contact with the substance. Ensuring adequate ventilation. Evacuating the hazard area, observe emergency procedures. If necessary, consult a specialist.

For the staff of the emergency department: Using complete PPE, with PVC protective gloves, safety glasses with side protection and appropriate protective clothing. The material used must be waterproof. In case of large leaks, where exposure is large, it is recommended to use a protective mask with a filter against vapors or mists.

Removal ignition sources: Keeping away from sources of heat and ignition. Urea It presents a of decomposition risk when exposed to heat or flame.

Prevention of inhalation and contact with skin, mucous membranes and eyes: Please see Section 8, Field: "Appropriate personal protective equipment".

Precautions to the environment: Avoid to spilled product reaching watercourses. Collect the spilled product, adsorb the remaining product with inert material, place the material in appropriate containers for proper final disposal.

Methods and materials for containment and cleaning: Use water fog or vapor suppressing foam to reduce dispersion of vapors. Use natural or spill containment barriers. Collect the spilled product and place in proper containers. Absorb the remaining product with dry sand, earth, vermiculite, or any other inert material. Place the absorbed material in appropriate containers and remove them to a safe place.

Disposal: The waste must be disposed in according with the current environmental legislation. Keep chemicals in their original containers. Do not mix with other wastes. The handling of dirty containers must be conducted in the same way as the product itself. An MSDS must be generated from the generated waste.

Differences in the measures of large and small leaks: There is no differentiation

7. - HANDLING AND STORAGE

Handling:

Technical measures: Use only in areas provided with adequate exhaust ventilation. Providing the product handling area with emergency shower set and eye wash. Handling must only be done with the indicated PPEs and under safe conditions.

Prevention of worker's exposure: Avoid a formation of vapors / aerosol. Working with exhaust / chimney. Do not inhale the substance / mixture. Wear specific PPEs - splashes glasses, face shield, PVC gloves and protective clothing. To avoid inhaling alkaline vapors.

Washing after handling and decontaminate PPEs after use. The PPEs 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. Do not mix or store the product in contact with incompatible materials such as: oxidizing, acidic or alkaline materials.

Storage:

Appropriate: Keep the container hermetically sealed in a dry, cool and well-ventilated area. Never expose the container containing the product to direct sunlight.

To be avoided: Contact with the following incompatible materials: metals, alkaline metals, permanganates, glass, concrete, alkaline hydroxides (solutions) aggregated the information contained in the emergency sheet of this product.

Hygiene measures:

Appropriate: Always sanitize the hands before handling any food, as there is a risk of contamination of the food. Contaminated clothing must be washed and sanitized before the use. Keeping gloves free from moisture and decontaminated.

Inappropriate: Direct contact with the product and / or its residues.



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Technical measures:

Adequate conditions: Storing in polypropylene containers or closed storage tanks at room temperature. Liquid industrial urea must be stored in a place without risk of contamination or alteration of its physical and chemical properties.

Keeping containers closed and in a well-ventilated place. Keep containers protected from heat and direct sunlight. Highly reactive or incompatible with oxidizing materials, acids and alkalis. To avoid any change in product quality during storage and transport, the following physical conditions should be met:

- A storage temperature below 30 ° C is recommended.
- A storage temperature above - 11 ° C is recommended to avoid crystallization of the product, which occurs from - 11.5 ° C.
- Protect from sunlight to prevent algae.
- Use tightly closed containers to protect both the container and the product from any contaminating agent. Prolonged storage at a temperature above 30 ° C will cause hydrolysis, which leads to the formation of ammonia and increased pressure, and will shorten the product's life.

The urea solution must be transported in isolated tanks or plastic containers.

Packaging safe materials:

Recommended: Original material.

8. - EXPOSURE CONTROLS AND INDIVIDUAL PROTECTION

Parameters of specific control:

Occupational exposure limits: For urea: AIHA WEEL: 10 mg / m³ (8 am, TWA).

Biological indicators: Not found.

Other limits and values: N.A.

Measures of engineering control: Handling the product in a location with good natural or mechanical ventilation, in order to keep the concentration of vapors / dust below the tolerance limit. Promote mechanical ventilation and a direct exhaust system to the outside environment. These measures help to reduce product exposure. It is recommended to make emergency showers and eye washers available in the work area. Engineering control measures are the most effective in reducing product exposure.

Appropriate personal protective equipment:

Protection for the eyes/face: Wear chemical safety glasses when there is potential for eye contact.

Skin protection: Protect the product's contact with the skin by wearing long-length gloves, protective clothing and appropriate footwear.

Respiratory protection: In cases of high potential for exposure to vapors / mists of the product, use respirator with air supply, full face piece, operated in positive pressure mode. This can be used in combination with a full face piece (SCBA) respirator, operated in positive pressure mode. Follow the guidance of the Programa de Prevenção Respiratória (PPR), 3-ed. São Paulo: Fundacentro, 2002.

Thermal hazards: No thermal hazards. **Special precautions:** Expose yourself only as necessary.



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9. - PHYSICAL AND CHEMICAL PROPERTIES

Physical condition: Liquid.

Form: Not applicable.

Color: Colorless.

Odor: No smell or a slight smell of ammonia.

pH: close to 9.8 (32% in water).

Crystallization point: -11.5 °C, approximately.

Boiling point: 132.7°C (literature data).

Flash point: Not applicable.

Evaporation rate: Not applicable.

Flammability: Non-flammable.

Upper / lower explosive or flammable limits: Not applicable.

Vapor pressure: Not applicable.

Vapor density: Not applicable.

Density: 1087.0 - 1093.0 kg/m³.

Solubility (urea in water): Unlimited.

Solubility (urea in ethanol): 72 g/1000 mL (30°C).

Partition coefficient octanol / water: Not applicable.

Auto-ignition temperature: Not applicable.

Decomposition temperature (urea): 142°C.

Viscosity: 1.4 mPa.s (32% solution) at 25 °C.

Thermal Conductivity (at 25 °C): 0.570 W / m K approx.

Specific heat (at 25 °C): 3.40 kJ / kg K approx.

Superficial tension: min. 65 mN / m.

Other information:

Molecular weight: 60.06 g / mol (urea).

18 g / mol (water).

31.5 g / mol (32% solution)

10. - STABILITY AND REACTIVITY

Specific conditions:

Reactivity: Urea reacts violently with gallium perchlorate. Reacts with chlorine to form chloramines. Urea also reacts with sodium hypochlorite, sodium nitrate, calcium hypochlorite, sodium nitrite, strong oxidizing agents (permanganate, nitrate, dichromate, chloride).

Chemical stability: Product is stable under normal condition. In the presence of heat, urea becomes unstable and decomposes. It does not polymerize.

Conditions to be avoided: High temperatures and contact with incompatible products.

Materials or incompatible substances: Urea can be slightly corrosive to steel, aluminum, zinc and copper. **Hazardous**

decomposition products: Urea decomposes under heat and can form products such as: ammonia, nitrogen oxides, cyanuric acid, cyanic acid, biuret and carbon dioxide.

11. - TOXICOLOGICAL INFORMATION

Information according to the different manners of exposure:

Acute Toxicity: Contact with ARLA 32 may cause irritation to the respiratory tract and eyes. Product no classified as acute toxic by oral administration.

DL50 (oral, rat): > 5000 mg/kg

Corrosion/irritation of skin: Causes irritation with redness, pain and dryness.

Severe ocular lesions/eye irritation: It can cause irritation with lacrimation and pain.

Respiratory or skin sensitization: Contact prolonged and may cause irritation.

Germ cell mutagenicity: It has no mutagenic effect.

Carcinogenicity: It has no carcinogenic effect.

Reproductive toxicity: Not classified for reproductive toxicity.

Toxicity to organs - specific targets - single exposure: Ingestion in large quantities can cause damage to the gastrointestinal tract and pain in the abdomen.



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Toxicity to organs - specific targets - repetitive exposure: Repeated exposure can cause irritation to the respiratory tract.

Aspiration hazard: It may cause coughing or light irritation in the throat.

12. - ECOLOGICAL INFORMATION

Environmental effects, behaviors and impacts of the product:

Ecotoxicity: The product is not expected to present a hazard to aquatic organisms. CL_{50} (fish, 96 h): > 9.100 mg/L. CE_{50} (daphnia, 24 h): > 10.000 mg/L.

Persistence and degradability: Substantially biodegradable in soil and water. Values not found.

Bio accumulative potential: Low potential for bioaccumulation. Log Pow <1.

Mobility in soil: urea soluble in water. Values not found.

Other adverse effects: In case of spill, the product must be collected. Falling product into streams and rivers must be avoided. In this case, report the fact immediately to the environmental control body in the region. High concentrations of the product can impact the aquatic environment by decreasing the concentration of dissolved oxygen due to favoring and / or inducing the eutrophication process.

13. - CONSIDERATION ON THE FINAL DISPOSAL

Recommended methods for final destination:

The treatment and disposal of product wastes must be carried out in an appropriate environment, by people trained with 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 that all Federal, State and local agencies receive appropriate notices of spills and disposal methods. CONAMA Resolution 005/1993, Law No. 12,305, of as August 2, 2010 (National Policy on Solid Waste). Neutralize slowly and carefully with lime, if possible.

Waste of products:

Please consult environmental regulatory agencies for counselling on the acceptable disposal practices. Please contact the relevant local authorities. It can be incinerated when in compliance with local regulations. Or dispose of at an approved chemical waste landfill.

- Used Package:

Empty packages must be drained and covered before handling and transport operations. If the packaging is not conveniently washed and decontaminated, it is considered to contain product.

14. - TRANSPORT INFORMATION

National and International Regulations

Land:

Resolution No. 5232 of as Wednesday, December 14, 2016 of the National Land Transport Agency (ANTT), *Approves the Supplementary Instructions to the Regulation for the Land Transportation of Dangerous Products and their modifications.*

ONU number: Product not classified by the Legislation in force on the o transport of dangerous products.

Appropriate name for shipment: -

Risk class: -

Risk subclass: -

Risk number: -

Packaging group: -

Waterway:

DPC - Directorate of Ports and Coasts (Transport in Brazilian waters) Maritime Authority Standards (NORMAM) NORMAM 01 / DPC: Vessels Employed in Open Sea Navigation

ONU number: Product not classified by the Legislation in force on the o transport of dangerous products.

Appropriate name for shipment: -

Risk class: -

Risk subclass: -

Risk number: -

Packaging group: -



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Air:

ANAC - Civil Aviation National Agency - Resolution No. 129 of as 8 January, 2009
RBAC No. 175 - (BRAZILIAN CIVIL AVIATION REGULATION) - TRANSPORT OF DANGEROUS MATERIALS 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)
ONU number: Product not classified by the Legislation in force on the o transport of dangerous products.

Appropriate name for shipment: -

Risk class: -

Risk subclass: -

Risk number: -

Packaging group: -

15. - INFORMATION ON THE REGULATIONS

Specific regulations for the chemicals:

Federal Decree No. 2,657 of as July 3, 1998;

Standard ABNT-NBR 14725:2014;

Ordinance No. 229, of as May 24, 2011 - Amends Regulatory Standard No. 26.

Ordinance No. 1,274, as of August 25, 2003: Product subject to control and inspection by the Ministry of Justice - Federal Police Department - MJ / DPF, when it comes to import, export and re-export, prior authorization of DPF is essential to carry out these operations.

16. - OTHER INFORMATION

The information in this sheet corresponds to the current status of our knowledge and our product experience and is not exhaustive. Applies to the product under the conditions specified, unless mention otherwise. In case of combinations or mixtures, make sure that no new hazards can appear. This information does not exempt, in any case, the user of the product from respecting the all legislative, regulatory and administrative texts related to the product, safety, hygiene and protection of human and environmental health.

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