

**GLYOXYLIC ACID**

REVISION DATE: 10/10/2019

1. - PRODUCT AND COMPANY IDENTIFICATION**Product name:** GLYOXYLIC ACID**Internal Code of product identification:****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: Industrial use.**2. - HAZARDS IDENTIFICATION****Classification of Substance**

Corrosion to Metals - Category 1.

Corrosion to Metals - Category 1.

Acute Toxicity - Oral - Category 5.

Acute toxicity - Dermal - Category 3.

Acute Toxicity - Inhalation - Category 5.

Corrosive/irritating to the skin - Category 1B.

Serious eye damage/eye irritation - Category 1.

Respiratory Sensitization - Category 1.

Skin Sensitization - Category 1.

Aspiration hazard - Category 2.

Hazard to the aquatic environment - Category 3.

Chronic aquatic toxicity - Category 4.

Most important hazards:

It can be dangerous if inhaled. It can cause respiratory tract irritation. It can be dangerous if swallowed. It can be dangerous if absorbed through the skin. It can be cause skin irritation. Causes eye burns. May cause an allergic skin reaction. Causes serious eye damage.

Adverse effects on human health:

Inhalation: It can be dangerous if inhaled. It can cause respiratory tract irritation.

Ingestion: It can be dangerous if swallowed.


Skin: It can be dangerous if absorbed through the skin. It can be cause skin irritation.

Eyes: Causes eye burns.

Environmental effects:

It can contaminate watercourses, making them unfit for any purpose. High concentrations in the air endanger human and animal life.

GHS label elements, including precautionary phrases:

LABEL ELEMENTS	DATA
Product identification and supplier emergency telephone number.	Commercial Name: GLYOXYLIC ACID Emergency phone: SUATRANS - COTEC - Environmental Emergency. DDG (0800) 0111-767 - (0800) 7071-767 - 24 HOURS.
Hazard pictograms	
Warning words	DANGER



MATERIAL SAFETY DATA SHEET - MSDS

GLYOXYLIC ACID

REVISION DATE: 10/10/2019

Danger phrases	H290 - May be corrosive to metals H303 - May be harmful if swallowed. H311 - Toxic in contact with skin. H333 - May be harmful if inhaled. H314 - Causes severe skin burns and eye damage. H318 - Causes serious eye damage. H317 - May cause allergic skin reactions. H305 - It can be harmful if swallowed and penetrate into the respiratory tracts. H401 - toxic to aquatic organisms. H412 - May cause long-term harmful effects to the aquatic organisms.
Caution Phrases	P301+P330+P331 - IN CASE OF INGESTION: Rinse your mouth. DO NOT induce vomiting. 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- 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. P305 + P351 + P338 - 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. P308 + P311- IN CASE OF exposure or suspected exposure: Contact a TOXICOLOGICAL INFORMATION CENTER/doctor. P361 + P364- Remove at once all contaminated clothing and wash it before using it again.

Other hazards which do not result in classification: Not available.

3. - COMPOSITION AND INFORMATION ABOUT INGREDIENTS

Type of product: Substance:

Substance: Glyoxylic acid

Molecular formula: C₂H₂O₃

CAS n°: 563-96-2

Molecular weight : 74.05

Classification: corrosive

Synonyms: formyl formic acid

There are no impurities that contribute to the danger.

4. - FIRST AID MEASURE

First aid measures:

Inhalation: Remove casualty to uncontaminated, ventilated area and administer oxygen, if available. Apply resuscitation maneuvers in case of cardiorespiratory arrest. Immediately forward to the nearest hospital.

Skin contact: Carefully remove contaminated clothing and shoes and wash the affected parts with plenty of running water for 15 minutes.

Eye contact: Immediately wash eyes with running water for 15 minutes, lifting eyelids to allow maximum removal of product. After these cares refer immediately to the ophthalmologist.

Ingestion: Never give anything by mouth to unconscious or convulsive people. The conscious and alert injured person can drink water or milk. Do not induce vomiting. If vomiting occurs spontaneously, the victim must be laid on their side to prevent pulmonary aspiration. Forward it to the doctor informing the product's characteristics.

Most important symptoms and effects, acute or late

Actions to avoid: Do not induce vomiting.

Protection of the first aid provider: Use the indicated personal protection equipment.

Notes to the physician: In all cases of excessive exposure, immediate medical consultation is recommended. In case of contact with the eyes, it is advisable to consult an ophthalmologist. Keep under medical supervision for 48 hours if aspiration has occurred. Avoid aspiration. Treat symptomatically. Treatment should focus on controlling the patient's symptoms and clinical reactions. After first aid, it will only be necessary to treat the symptoms that reappear.

**5. - FIRE FIGHTING MEASURES**

Suitable extinguishing measures: In use water spray, alcohol resistant foam, dry chemical or carbon dioxide.

Inappropriate extinguishing measures: Waterjet.

Substance-specific hazards: Thermal decomposition can generate carbon oxides.

Special Methods: Avoid the application of excess water, as there may be contamination of water courses.

Firefighting team protection measures: Use personal protective equipment, especially respiratory protection. In case of fire there is the possibility of decomposition with the release of irritating toxic gases (SOx) . Wear self-contained or blown air mask and acid-resistant PVC clothing.

6. - MEASURES OF CONTROL FOR ACCIDENTAL SPILLS OR LEAKAGE

Personal precautions, protective equipment and emergency procedures. For the staff that is not part of the emergency services:

Prevention of inhalation and contact with skin, mucous membranes and eyes: Use personal protective equipment appropriate.

For personnel who are part of the emergency services:

Wear personal protective equipment, isolate the area, remove all organics or fuel, and provide adequate ventilation to disperse the gas.

Precautions to the environment: It can contaminate watercourses, making them unfit for any purpose. High concentrations in the air endanger human and animal life. Storage sites must have containment dikes.

Methods and material for containment and cleaning up

Recovery: Try to contain the spilled liquid with a sand or earth dam. If possible, transfer the product. Never use organic material to absorb spillage.

Collect the product with a clean shovel or other instrument that does not disperse the product. Place material in appropriate containers and remove to safe place.

Disposal: Neutralize the residue slowly and carefully before taking it to final disposal.

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 alkaline 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. Do not mix or store the product in contact with incompatible materials.

Storage:

Appropriate: Keep container tightly closed in a dry, cool and well-ventilated area. Never expose the container containing the product directly to sunlight.

To avoid: Contact with incompatible materials.

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 from moisture and decontaminated.

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

Technical measures Store in a cool place. Keep container tightly closed in a dry and well-ventilated place.

Hygroscopic. Strongly hygroscopic Store under inert gas. Keep the product in its original packaging and in a cool, dry place, out of direct sunlight and fireproof.

**GLYOXYLIC ACID**

REVISION DATE: 10/10/2019

Store away from food. Out of reach of children. Keep away from incompatible materials.

Appropriate packaging: Cans.

8. - EXPOSURE CONTROL AND PERSONAL PROTECTION

Parameters of specific control:

Other limits and values: Not considered.

Measures of engineering control: To reduce the possibility of a health risk, ensure sufficient ventilation or the existence of exhaust in the room to control ambient concentration to low levels.

Recommended procedures for monitoring: subject exposed individuals to periodic tests of respiratory function, periodic medical examination should emphasize the possibility of bronchial hyperreactivity occurring in long-term exposures.

Personal Protective Equipment:

Protection for the eyes/face: Wear approved protective eyewear. Wear eye protection.

Skin protection: In case of risk of contact: Wear an apron or special protective clothing.

Hand protection: Wear protective gloves.

Respiratory protection: In case of exposure to mist, spray or aerosol exposure, wear suitable protective clothing. Breathing apparatus with combined filter.

Other Additional Protections: Provide special facilities – emergency shower and eye wash. Wear appropriate clothing to prevent repeated or prolonged skin contact.

Hygiene measures: No smoking in the work area! Wash at the end of each work shift and before eating, smoking or using the toilet. Wash off immediately with soap and water if skin becomes contaminated. Immediately remove any clothing that becomes contaminated. Do not eat, drink or smoke during use.

9. - PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Liquid.

Color: Light yellow.

pH: Data not available.

Melting point / freezing point: Melting point/range: 49 - 52 °C.

Initial boiling point and boiling temperature range: 100 °C.

Flash point: 100° C (closed bottle).

Evaporation rate: Data not available.

Flammability: Data not available.

Lower/upper flammability or explosiveness limit: Data not available.

Steam pressure: data not available.

Vapor density: Data not available.

Density: data not available.

Solubility: data not available.

-n-octane / water partition coefficient: data not available.

Autoignition temperature: data not available.

decomposition temperature: data not available.

Viscosity: data not available.

Refractive index: Data not available.

10. - STABILITY AND REACTIVITY

Specific conditions:

Reactivity: Stable under usual handling and storage conditions.

Chemical stability: Stable product under normal conditions of temperature and pressure.

Conditions to avoid: High temperatures. Contact with incompatible materials.

Incompatible materials: Bases, oxidizers, reducing agents.

Possibility of hazardous reactions: No information available.

Hazardous decomposition products: No known hazardous decomposition products at room temperature. When heated, it can release carbon oxides.

**GLYOXYLIC ACID**

REVISION DATE: 10/10/2019

11. - TOXICOLOGICAL INFORMATION**Information according to the different routes of exposure:****Acute toxicity:**

Data not available.

Skin corrosion/irritation: Skin - rabbit - No skin irritation - 4 h - OECD Test Guideline 404.**Severe ocular lesions/eye irritation:** Eyes - rabbit - Risk of serious damage to eyes. - OECD TG 405.**Respiratory or skin sensitization:** mouse - May cause an allergic skin reaction.**Germ cell mutagenicity:** Data not available.**Carcinogenicity:** IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a probable, possible, or confirmed carcinogen by the IARC.**Reproductive and lactation toxicity:** data not available.**Systemic toxicity for specific target organs - single exposure:** Data not available.**Systemic toxicity for specific target organs - repeated exposure:** Data not available.**Aspiration hazard:** Data not available.**Potential health effects:** Inhalation: It can be dangerous if inhaled. It can cause respiratory tract irritation. Ingestion: It can be dangerous if swallowed. Skin: It can be dangerous if absorbed through the skin. It can be cause skin irritation. Eyes: Causes eye burns.**12. - TOXICOLOGICAL INFORMATION****- Environmental effects, behaviors and impacts of the product:****Ecotoxicity:** Ecotoxicity values are not known.**Persistence and degradability:** No information available.**Bio accumulative potential:** No information available.**Partition coefficient:** Not determined.**Mobility in soil:** No information available.**Results of PBT and vPvB assessment:** No information available.**Other adverse effects:** None known.**13. - CONSIDERATIONS ABOUT THE 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. Neutralize slowly and carefully with lime, if possible.

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 Terrestrial****Regulations:**

Resolution No. 5232 as of December 14, 2016 of the Brazilian National Land Transport Agency (ANTT), *Approves the Supplementary Instructions to the Land Transport of Dangerous Goods Regulations and their amendments.*

UN number: 3265.**Appropriate name for shipment:** CORROSIVE LIQUID, ACID, ORGANIC, NE (Glyoxylic acid)



MATERIAL SAFETY DATA SHEET - MSDS

GLYOXYLIC ACID

REVISION DATE: 10/10/2019

Risk class: 8.

Risk number: 80.

Packing group: II

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: 3265.

Appropriate name for shipment: CORROSIVE LIQUID, ACID, ORGANIC, NE (Glyoxylic acid)

Risk class: 8.

Risk number: 80.

Packing group: II

EmS: F-A,S-B

- 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: 3265.

Appropriate name for shipment: CORROSIVE LIQUID, ACID, ORGANIC, NE (Glyoxylic acid)

Risk class: 8.

Risk number: 80.

Packing group: II

15. - REGULATIONS 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.

Bibliographical References:

AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIALS HYGIENISTS. TLVs® and BEIs®: Based on “Documentation” dos Limites de Exposição Ocupacional (TLVs®) para Substâncias Químicas e Agentes Físicos & Índices Biológicos de Exposição (BEIs®). Tradução Associação Brasileira de Higienistas Ocupacionais. São Paulo, 2016.

BRAZIL. MINISTÉRIO DO TRABALHO E EMPREGO (MTE). Regulatory Standard (NR) No. 7: Occupational Health Medical Control Program. Brasília, DF. Jun. 1978.

BRAZIL. MINISTÉRIO DO TRABALHO E EMPREGO (MTE). Regulatory Standard (NR) No. 15: Unhealthy activities and operations. Brasília, DF. Jun. 1978.

US EPA. 2011. EPI Suite™ for Microsoft® Windows, v 4.10. United States: Environmental Protection Agency, Washington. 2011. Available at:

< <http://www.epa.gov/oppt/exposure/pubs/episuite.htm>>. Access on: October , 2019.

Globally Harmonized System of Classification and Labelling of Chemicals (GHS). 7. rev. United Nations, 2017.



MATERIAL SAFETY DATA SHEET - MSDS

GLYOXYLIC ACID

REVISION DATE: 10/10/2019

HSDB – HAZARDOUS SUBSTANCES DATA BANK. Available at: <http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB>.
Access on: October , 2019.

IARC – INTERNATIONAL AGENCY FOR RESEARCH ON CANCER. Available at:
<http://monographs.iarc.fr/ENG/Classification/index.php>. Access on: October , 2019.

IPCS – INTERNATIONAL PROGRAMME ON CHEMICAL SAFETY – INCHEM. Available at:
<http://www.inchem.org/>. Access on: October , 2019.

IUCLID – INTERNATIONAL UNIFORM CHEMICAL INFORMATION DATABASE. [S.I.]: European chemical Bureau. Available at:
<http://ecb.jrc.ec.europa.eu>. Access on: October , 2019.

NIOSH – NATIONAL INSTITUTE OF OCCUPATIONAL AND SAFETY. International Chemical Safety Cards. Available at:
<http://www.cdc.gov/niosh/>. Access on: October , 2019.

NITE-GHS JAPAN – NATIONAL INSTITUTE OF TECHNOLOGY AND EVALUATION. Available at:
http://www.safe.nite.go.jp/english/ghs_index.html. Access on: October , 2019.

U.S. ENVIRONMENTAL PROTECTION AGENCY. ECOSAR – Ecological Structure-Activity Relationships. Version 1.11 Available at:
<http://www.epa.gov/oppt/newchems/tools/21ecosar.htm>. Access on: October , 2019.