

### 1. IDENTIFICATION

<b>Product Name</b>	<b>Gluconic Acid Solution</b>
<b>Other Names</b>	No Data Available
<b>Uses</b>	Processing aids and additives.
<b>Chemical Family</b>	No Data Available
<b>Chemical Formula</b>	C6H12O7
<b>Chemical Name</b>	D-Gluconic acid, 50% solution
<b>Product Description</b>	No Data Available

#### Contact Details of the Supplier of this Safety Data Sheet

Organisation	Location	Telephone
Redox Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61-2-97333000
Redox Ltd	11 Mayo Road Wiri Auckland 2104 New Zealand	+64-9-2506222
Redox Inc.	3960 Paramount Boulevard Suite 107 Lakewood CA 90712 USA	+1-424-675-3200
Redox Chemicals Sdn Bhd	Level 2, No. 8, Jalan Sapir 33/7 Seksyen 33, Shah Alam Premier Industrial Park 40400 Shah Alam Sengalor, Malaysia	+60-3-5614-2111

#### Emergency Contact Details

*For emergencies only; DO NOT contact these companies for general product advice.*

Organisation	Location	Telephone
Poisons Information Centre	Westmead NSW	1800-251525 131126
Chemcall	Australia	1800-127406 +64-4-9179888
Chemcall	Malaysia	+64-4-9179888
Chemcall	New Zealand	0800-243622 +64-4-9179888
National Poisons Centre	New Zealand	0800-764766
CHEMTREC	USA & Canada	1-800-424-9300 CN723420 +1-703-527-3887

### 2. HAZARD IDENTIFICATION

**Poisons Schedule (Aust)**

Not Scheduled

**Globally Harmonised System**

<b>Hazard Classification</b>	NOT hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)
<b>Signal Word</b>	None

**National Transport Commission (Australia)**

Australian Code for the Transport of Dangerous Goods by Road &amp; Rail (ADG Code)

<b>Dangerous Goods Classification</b>	NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)
---------------------------------------	---

**Safe Work Australia**

National Guide for Classifying Hazardous Chemicals under the Model WHS Regulations

<b>Hazard Classification</b>	NOT hazardous according to the criteria of Safe Work Australia under Model WHS Regulations
------------------------------	--

**3. COMPOSITION/INFORMATION ON INGREDIENTS***Ingredients*

Chemical Entity	Formula	CAS Number	Proportion
D-Gluconic acid	C6H12O7	526-95-4	50 %
Water	No Data Available	7732-18-5	50 %

**4. FIRST AID MEASURES***Description of necessary measures according to routes of exposure*

<b>Swallowed</b>	IF SWALLOWED: Rinse mouth, then drink plenty of water. Do not induce vomiting. Get medical advice/attention if you feel unwell. Never give anything by mouth to an unconscious person.
<b>Eye</b>	IF IN EYES: Immediately flush eyes with running water for several minutes, holding eyelids open and occasionally lifting the upper and lower lids. Remove contact lenses if present and easy to do. Continue rinsing for at least 15 minutes. If eye irritation persists, get medical advice/attention.
<b>Skin</b>	IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. If skin irritation occurs, get medical advice/attention.
<b>Inhaled</b>	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If respiratory symptoms persist, get medical advice/attention. Give artificial respiration if victim is not breathing. Administer oxygen if breathing is difficult.
<b>Advice to Doctor</b>	Treat symptomatically. *Most important symptoms and effects, both acute and delayed: None known.
<b>Medical Conditions Aggravated by Exposure</b>	No information available.

**5. FIRE FIGHTING MEASURES**

## SAFETY DATA SHEET GLUCONIC ACID SOLUTION REVISION 4, DATE 15 DEC 2022

<b>General Measures</b>	If safe to do so, move undamaged containers from fire area. Cool containers with water spray until well after fire is out. Dike fire-control water for later disposal.
<b>Flammability Conditions</b>	Not combustible; However, following evaporation of aqueous component, residual material can burn if ignited.
<b>Extinguishing Media</b>	If material is involved in a fire, use dry chemical, Carbon dioxide (CO <sub>2</sub> ), foam or water spray for extinction.
<b>Fire and Explosion Hazard</b>	Containers may explode when heated.
<b>Hazardous Products of Combustion</b>	Fire may produce irritating and/or toxic gases, including Carbon oxides.
<b>Special Fire Fighting Instructions</b>	Contain runoff from fire control or dilution water - Runoff may cause pollution.
<b>Personal Protective Equipment</b>	Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection.
<b>Flash Point</b>	No Data Available
<b>Lower Explosion Limit</b>	No Data Available
<b>Upper Explosion Limit</b>	No Data Available
<b>Auto Ignition Temperature</b>	No Data Available
<b>Hazchem Code</b>	No Data Available

### 6. ACCIDENTAL RELEASE MEASURES

<b>General Response Procedure</b>	Ensure adequate ventilation. Do not touch or walk through spilled material. Avoid breathing mist/vapours and contact with eyes, skin and clothing.
<b>Clean Up Procedures</b>	Absorb with earth, sand or other non-combustible material and keep in suitable, closed containers for disposal (see SECTION 13).
<b>Containment</b>	Stop leak if you can do it without risk. Prevent entry into waterways, sewers, basements or confined areas. Dike far ahead of large spill for later disposal.
<b>Decontamination</b>	After cleaning, flush away traces with water.
<b>Environmental Precautionary Measures</b>	Prevent entry into drains and waterways.
<b>Evacuation Criteria</b>	Spill or leak area should be isolated immediately. Keep unauthorised personnel away.
<b>Personal Precautionary Measures</b>	Use personal protective equipment as required (see SECTION 8).

### 7. HANDLING AND STORAGE

<b>Handling</b>	Safety showers and eyewash facilities should be provided within the immediate work area for emergency use. Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Avoid breathing mist/vapours and contact with eyes, skin and clothing. Do not ingest. Use personal protective equipment as required (see SECTION 8).
<b>Storage</b>	Store in a cool, dry and well-ventilated place, out of direct sunlight. Keep container tightly closed. Keep away from heat and sources of ignition - No smoking. Keep away from foodstuffs and incompatible materials (see SECTION 10).
<b>Container</b>	Keep in original container.

### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<b>General</b>	Contains no substances with occupational exposure limit values.
<b>Exposure Limits</b>	No Data Available
<b>Biological Limits</b>	No information available.
	A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust

<b>Engineering Measures</b>	ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area.
<b>Personal Protection Equipment</b>	<ul style="list-style-type: none"> <li>- Respiratory protection: Not required; except in case of aerosol formation. Recommended: use a full-face respirator with multi-purpose combination or type ABEK respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator (refer to AS/NZS 1715 &amp; 1716).</li> <li>- Eye/face protection: Wear appropriate eye protection to avoid eye contact. Recommended: Safety glasses.</li> <li>- Hand protection: Handle with gloves. Recommended: Chemical-resistant, impervious gloves, e.g. Nitrile rubber.</li> <li>- Skin/body protection: Wear appropriate personal protective clothing to avoid skin contact. Recommended: Impervious clothing. Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled.</li> </ul>
<b>Special Hazards Precautions</b>	No information available.
<b>Work Hygienic Practices</b>	Do not eat, drink or smoke when using this product. Wash hands before breaks and at the end of workday. Take off contaminated clothing and wash it before reuse.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical State</b>	Liquid
<b>Appearance</b>	Transparent liquid
<b>Odour</b>	Characteristic
<b>Colour</b>	Light yellow
<b>pH</b>	No Data Available
<b>Vapour Pressure</b>	No Data Available
<b>Relative Vapour Density</b>	No Data Available
<b>Boiling Point</b>	No Data Available
<b>Melting Point</b>	No Data Available
<b>Freezing Point</b>	No Data Available
<b>Solubility</b>	No Data Available
<b>Specific Gravity</b>	No Data Available
<b>Flash Point</b>	No Data Available
<b>Auto Ignition Temp</b>	No Data Available
<b>Evaporation Rate</b>	No Data Available
<b>Bulk Density</b>	No Data Available
<b>Corrosion Rate</b>	No Data Available
<b>Decomposition Temperature</b>	No Data Available
<b>Density</b>	No Data Available
<b>Specific Heat</b>	No Data Available
<b>Molecular Weight</b>	No Data Available
<b>Net Propellant Weight</b>	No Data Available
<b>Octanol Water Coefficient</b>	No Data Available
<b>Particle Size</b>	No Data Available
<b>Partition Coefficient</b>	No Data Available
<b>Saturated Vapour Concentration</b>	No Data Available
<b>Vapour Temperature</b>	No Data Available
<b>Viscosity</b>	No Data Available
<b>Volatile Percent</b>	No Data Available
<b>VOC Volume</b>	No Data Available
<b>Additional Characteristics</b>	No information available.
<b>Potential for Dust Explosion</b>	Not applicable.

<b>Fast or Intensely Burning Characteristics</b>	No information available.
<b>Flame Propagation or Burning Rate of Solid Materials</b>	No information available.
<b>Non-Flammables That Could Contribute Unusual Hazards to a Fire</b>	No information available.
<b>Properties That May Initiate or Contribute to Fire Intensity</b>	Not combustible; However, following evaporation of aqueous component, residual material can burn if ignited.
<b>Reactions That Release Gases or Vapours</b>	Decomposition may produce irritating and/or toxic gases, including Carbon oxides.
<b>Release of Invisible Flammable Vapours and Gases</b>	No information available.

## 10. STABILITY AND REACTIVITY

<b>General Information</b>	No information available.
<b>Chemical Stability</b>	Stable under recommended use and storage conditions.
<b>Conditions to Avoid</b>	Avoid high temperatures for prolonged periods and sources of ignition.
<b>Materials to Avoid</b>	Incompatible/reactive with strong oxidising agents.
<b>Hazardous Decomposition Products</b>	Decomposition may produce irritating and/or toxic gases, including Carbon oxides.
<b>Hazardous Polymerisation</b>	Product will not undergo hazardous polymerisation.

## 11. TOXICOLOGICAL INFORMATION

<b>General Information</b>	<p>Information on toxicological effects:</p> <ul style="list-style-type: none"> <li>- Acute toxicity: No data available.</li> <li>- Skin corrosion/irritation: Gluconic acid is not classified as a skin irritant. Gluconic acid (50% in water) was reported to cause very slight erythema in 3 out of 6 rabbit after 4 hours of exposure under occlusive conditions [ECHA].</li> <li>- Serious eye damage/irritation: Gluconic acid is not classified as an eye irritant. Gluconic acid is slightly irritating to rabbit eyes; The test substance (50% in water) generally caused slight redness and slight swelling of the conjunctivae; however, these effects resolved after 72 hours [ECHA].</li> <li>- Respiratory/skin sensitisation: Gluconic acid was reported to be non-sensitising to skin in a local lymph node assay conducted in mice in a GLP-compliant study performed according to test guidelines [ECHA].</li> <li>- Germ cell mutagenicity: The genetic toxicity potential of gluconic acid (GA) has been assessed in 3 in vitro studies (including a bacterial reverse mutation assay, an in vitro mammalian chromosome aberration assay, and an in vitro mammalian cell gene mutation test). Negative results were reported in all studies [ECHA].</li> <li>- Carcinogenicity: No data available.</li> <li>- Reproductive toxicity: No data available.</li> <li>- STOT (single exposure): No data available.</li> <li>- STOT (repeated exposure): No data available.</li> <li>- Aspiration toxicity: No data available.</li> </ul> <p>Information on possible routes of exposure:</p> <ul style="list-style-type: none"> <li>- Ingestion: There may be irritation of the throat.</li> <li>- Eye contact: There may be irritation and redness.</li> <li>- Skin contact: There may be mild irritation at the site of contact.</li> <li>- Inhalation: No symptoms.</li> </ul> <p>Chronic effects: No information available.</p>
<b>Carcinogen Category</b>	None

**12. ECOLOGICAL INFORMATION**

<b>Ecotoxicity</b>	No information available.
<b>Persistence/Degradability</b>	Readily biodegradable (D-gluconic acid).
<b>Mobility</b>	D-gluconic acid is expected to have a low potential for adsorption.
<b>Environmental Fate</b>	Prevent entry into drains and waterways.
<b>Bioaccumulation Potential</b>	D-gluconic acid is expected to have a low potential for bioaccumulation.
<b>Environmental Impact</b>	No Data Available

**13. DISPOSAL CONSIDERATIONS**

<b>General Information</b>	Dispose of contents/container to a licensed disposal company and in accordance with local/regional/national regulations.
<b>Special Precautions for Land Fill</b>	No information available.

**14. TRANSPORT INFORMATION****Land Transport (Australia)**

ADG Code

<b>Proper Shipping Name</b>	D-Gluconic acid, 50% Solution
<b>Class</b>	No Data Available
<b>Subsidiary Risk(s)</b>	No Data Available
	No Data Available
<b>UN Number</b>	No Data Available
<b>Hazchem</b>	No Data Available
<b>Pack Group</b>	No Data Available
<b>Special Provision</b>	No Data Available
<b>Comments</b>	NON-DANGEROUS GOODS: Not regulated for LAND transport.

**Land Transport (Malaysia)**

ADR Code

<b>Proper Shipping Name</b>	D-Gluconic acid, 50% Solution
<b>Class</b>	No Data Available
<b>Subsidiary Risk(s)</b>	No Data Available
	No Data Available
<b>UN Number</b>	No Data Available
<b>Hazchem</b>	No Data Available
<b>Pack Group</b>	No Data Available
<b>Special Provision</b>	No Data Available
<b>Comments</b>	NON-DANGEROUS GOODS: Not regulated for LAND transport.

**Land Transport (New Zealand)**

NZS5433

# SAFETY DATA SHEET GLUCONIC ACID SOLUTION REVISION 4, DATE 15 DEC 2022

<b>Proper Shipping Name</b>	D-Gluconic acid, 50% Solution
<b>Class</b>	No Data Available
<b>Subsidiary Risk(s)</b>	No Data Available
	No Data Available
<b>UN Number</b>	No Data Available
<b>Hazchem</b>	No Data Available
<b>Pack Group</b>	No Data Available
<b>Special Provision</b>	No Data Available
<b>Comments</b>	NON-DANGEROUS GOODS: Not regulated for LAND transport.

## Land Transport (United States of America)

US DOT

<b>Proper Shipping Name</b>	D-Gluconic acid, 50% Solution
<b>Class</b>	No Data Available
<b>Subsidiary Risk(s)</b>	No Data Available
	No Data Available
<b>UN Number</b>	No Data Available
<b>Hazchem</b>	No Data Available
<b>Pack Group</b>	No Data Available
<b>Special Provision</b>	No Data Available
<b>Comments</b>	NON-DANGEROUS GOODS: Not regulated for LAND transport.

## Sea Transport

IMDG Code

<b>Proper Shipping Name</b>	D-Gluconic acid, 50% Solution
<b>Class</b>	No Data Available
<b>Subsidiary Risk(s)</b>	No Data Available
<b>UN Number</b>	No Data Available
<b>Hazchem</b>	No Data Available
<b>Pack Group</b>	No Data Available
<b>Special Provision</b>	No Data Available
<b>EMS</b>	No Data Available
<b>Marine Pollutant</b>	No
<b>Comments</b>	NON-DANGEROUS GOODS: Not regulated for SEA transport.

## Air Transport

IATA DGR

<b>Proper Shipping Name</b>	D-Gluconic acid, 50% Solution
<b>Class</b>	No Data Available
<b>Subsidiary Risk(s)</b>	No Data Available
<b>UN Number</b>	No Data Available
<b>Hazchem</b>	No Data Available
<b>Pack Group</b>	No Data Available
<b>Special Provision</b>	No Data Available
<b>Comments</b>	NON-DANGEROUS GOODS: Not regulated for AIR transport.

## National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

**Dangerous Goods Classification**

NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road &amp; Rail (ADG Code)

**15. REGULATORY INFORMATION****General Information** No Data Available**Poisons Schedule (Aust)** Not Scheduled**Environmental Protection Authority (New Zealand)**

Hazardous Substances and New Organisms Amendment Act 2015

**Approval Code** Not Hazardous**National/Regional Inventories**

<b>Australia (AIC)</b>	Listed
<b>Canada (DSL)</b>	Listed
<b>Canada (NDSL)</b>	Not Determined
<b>China (IECSC)</b>	Listed
<b>Europe (EINECS)</b>	208-401-4
<b>Europe (REACH)</b>	Not Determined
<b>Japan (ENCS/METI)</b>	2-1409
<b>Korea (KECI)</b>	KE-17664
<b>Malaysia (EHS Register)</b>	Not Determined
<b>New Zealand (NZIoC)</b>	Listed
<b>Philippines (PICCS)</b>	Listed
<b>Switzerland (Giftliste 1)</b>	Not Determined
<b>Switzerland (Inventory of Notified Substances)</b>	Not Determined
<b>Taiwan (NCSR)</b>	Listed
<b>USA (TSCA)</b>	Listed

**16. OTHER INFORMATION****Related Product Codes** GLUCAC1000, GLUCAC1001, GLUCAC1002, GLUCAC2000, GLUCAC4000, GLUCAC4050, GLUCAC4100, GLUCAC4301, GLUCAC5000, GLUCAC5100**Revision** 4



# SAFETY DATA SHEET GLUCONIC ACID SOLUTION REVISION 4, DATE 15 DEC 2022

<b>Revision Date</b>	15 Dec 2022
<b>Key/Legend</b>	< Less Than > Greater Than <b>AICS</b> Australian Inventory of Chemical Substances <b>atm</b> Atmosphere <b>CAS</b> Chemical Abstracts Service (Registry Number) <b>cm<sup>2</sup></b> Square Centimetres <b>CO<sub>2</sub></b> Carbon Dioxide <b>COD</b> Chemical Oxygen Demand <b>deg C (°C)</b> Degrees Celcius <b>EPA (New Zealand)</b> Environmental Protection Authority of New Zealand <b>deg F (°F)</b> Degrees Farenheit <b>g</b> Grams <b>g/cm<sup>3</sup></b> Grams per Cubic Centimetre <b>g/l</b> Grams per Litre <b>HSNO</b> Hazardous Substance and New Organism <b>IDLH</b> Immediately Dangerous to Life and Health <b>immiscible</b> Liquids are insoluable in each other. <b>inHg</b> Inch of Mercury <b>inH<sub>2</sub>O</b> Inch of Water <b>K</b> Kelvin <b>kg</b> Kilogram <b>kg/m<sup>3</sup></b> Kilograms per Cubic Metre <b>lb</b> Pound <b>LC50</b> LC stands for lethal concentration. LC50 is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours. <b>LD50</b> LD stands for Lethal Dose. LD50 is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals. <b>ltr or L</b> Litre <b>m<sup>3</sup></b> Cubic Metre <b>mbar</b> Millibar <b>mg</b> Milligram <b>mg/24H</b> Milligrams per 24 Hours <b>mg/kg</b> Milligrams per Kilogram <b>mg/m<sup>3</sup></b> Milligrams per Cubic Metre <b>Misc or Miscible</b> Liquids form one homogeneous liquid phase regardless of the amount of either component present. <b>mm</b> Millimetre <b>mmH<sub>2</sub>O</b> Millimetres of Water <b>mPa.s</b> Millipascals per Second <b>N/A</b> Not Applicable <b>NIOSH</b> National Institute for Occupational Safety and Health <b>NOHSC</b> National Occupational Health and Safety Commission <b>OECD</b> Organisation for Economic Co-operation and Development <b>Oz</b> Ounce <b>PEL</b> Permissible Exposure Limit <b>Pa</b> Pascal <b>ppb</b> Parts per Billion <b>ppm</b> Parts per Million <b>ppm/2h</b> Parts per Million per 2 Hours <b>ppm/6h</b> Parts per Million per 6 Hours <b>psi</b> Pounds per Square Inch <b>R</b> Rankine <b>RCP</b> Reciprocal Calculation Procedure <b>STEL</b> Short Term Exposure Limit <b>TLV</b> Threshold Limit Value <b>tne</b> Tonne <b>TWA</b> Time Weighted Average <b>ug/24H</b> Micrograms per 24 Hours <b>UN</b> United Nations <b>wt</b> Weight