

Safety Data Sheet

2,5-Furandicarboxylic Acid

Version: V2.0.0.1

Report No.: 48212G-MSDS-EN

Creation Date: 2023/10/21

Revision Date: 2023/10/21

*Prepared according to GB/T 17519-2013 and GB/T 16483-2008

1 Identification of the chemical and supplier

Product identifier

| | |
|-------------------|----------------------------|
| Product Name | 2,5-Furandicarboxylic Acid |
| Cat No. | 48212G |
| CAS No. | 3238-40-2 |
| EC No. | 221-800-8 |
| Molecular Formula | C6H4O5 |

Recommended use of the product and restrictions on use

| | |
|--------------------------|------------------------------|
| Relevant identified uses | Please consult manufacturer. |
| Uses advised against | Please consult manufacturer. |

Details of the supplier of the Safety Data Sheet

| | |
|------------------------|--|
| Name of the company | ECO Zhuo Xin Energy saving Technology (Shanghai) Company Limited |
| Address of the company | Building 66, No.1500, Xinfei road, Songjiang District, Shanghai |
| Post code | 201612 |
| Telephone number | 180016533772 |
| Fax number | 021-68296806 |
| E-mail address | zhang.hui03@eco-ceres.com.cn |

Emergency phone number

| | |
|------------------------|--------------|
| Emergency phone number | 180016533772 |
|------------------------|--------------|

2 Hazard(s) identification


Emergency overview

Solid. Serious irritating to eyes.

Hazard classification according to GHS

| | |
|-------------------------------|-------------|
| Serious Eye Damage/Irritation | Category 2A |
|-------------------------------|-------------|

GHS Label elements

| | |
|-------------------|---|
| Hazard pictograms |  |
| Signal word | Warning |

Hazard statements

| | |
|------|-------------------------------|
| H319 | Causes serious eye irritation |
|------|-------------------------------|

Precautionary statements

◆ Prevention

| | |
|------|--|
| P264 | Wash face and hands thoroughly after handling. |
|------|--|

| | |
|------|--|
| P280 | Wear protective gloves/protective clothing/eye protection/face protection. |
|------|--|

◆ Response

| | |
|-----------|---|
| P337+P313 | If eye irritation persists: Get medical advice/attention. |
|-----------|---|

| | |
|----------------|--|
| P305+P351+P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
|----------------|--|

◆ Storage

| | |
|---------|----------------|
| Storage | Not applicable |
|---------|----------------|

◆ Disposal

| | |
|----------|----------------|
| Disposal | Not applicable |
|----------|----------------|

Hazard description

◆ Physical and chemical hazards

| | |
|--|--------------------------|
| | No information available |
|--|--------------------------|

◆ Health hazards

| | |
|---------|---|
| Inhaled | Inhalation of the product may produce adverse health effects or irritation of the respiratory tract following discomfort. |
|---------|---|

| | |
|-----------|---|
| Ingestion | Accidental ingestion of the product may be harmful to the health of the individual. |
|-----------|---|

| | |
|--------------|--|
| Skin Contact | Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. |
|--------------|--|

| | |
|-----|---|
| Eye | This product may cause serious eye irritation. Severe inflammation may be expected with pain following direct contact with the eye. |
|-----|---|

◆ Environmental hazards

| | |
|--|--------------------------------------|
| | Please refer to 12th chapter of SDS. |
|--|--------------------------------------|

3 Composition/information on ingredients

Substance/mixture

| | |
|--|-----------|
| | Substance |
|--|-----------|

| Component | CAS No. | EC No. | Concentration (wt, %) |
|-----------------------------|-----------|-----------|-----------------------|
| Furan-2,5-dicarboxylic acid | 3238-40-2 | 221-800-8 | 99 |

4 First-aid measures

Description of first aid measures

| | |
|----------------|---|
| General advice | Immediate medical attention is required. Show this safety data sheet (SDS) to the doctor in attendance. |
|----------------|---|

| | |
|-------------|--|
| Eye contact | Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician if feel uncomfortable. |
|-------------|--|

| | |
|--------------|--|
| Skin contact | Take off contaminated clothing and shoes immediately. Wash off with plenty of soap and water for at least 15 minutes and consult a physician if feel |
|--------------|--|

| | |
|-----------------------------------|---|
| | uncomfortable. |
| Ingestion | Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a physician or Poison Control Center immediately. |
| Inhalation | Move victim into fresh air. If breathing is difficult, give oxygen. Do not use mouth to mouth resuscitation if victim ingested or inhaled the substance. If not breathing, give artificial respiration and consult a physician immediately. |
| Protecting of first-aiders | Ensure that medical personnel are aware of the substance involved. Take precautions to protect themselves and prevent spread of contamination. |

Most important symptoms, acute and delayed

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|---|--|
| 1 | Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. |
|---|--|

Advice for protecting the rescuer

| | |
|---|--|
| 1 | Remove all sources of ignition and increase ventilation. |
| 2 | Avoid contact with skin and eyes. |
| 3 | Avoid inhalation of dusts. |
| 4 | Use personal protective equipment including respirator. |

Special note to the doctor

| | |
|---|--------------------------|
| 1 | Treat symptomatically. |
| 2 | Symptoms may be delayed. |

5 Fire-fighting measures

Extinguishing media

| | |
|---------------------------------------|--|
| Suitable extinguishing media | Use extinguishing media suitable for surrounding area. |
| Unsuitable extinguishing media | There is no restriction on the type of extinguisher which may be used. |

Specific hazards arising from the substance or mixture

| | |
|---|---|
| 1 | Development of hazardous combustion gases or vapor possible in the event of fire. |
| 2 | May expand or decompose explosively when heated or involved in fire. |

Fire precautions and protective measures

| | |
|---|---|
| 1 | As in any fire, wear self-contained breathing apparatus (MSHA/NIOSH approved or equivalent) and full protective gear. |
| 2 | Fight fire from a safe distance, with adequate cover. |
| 3 | Prevent fire extinguishing water from contaminating surface water or the ground water system. |

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

| | |
|---|---|
| 1 | Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges. |
| 2 | Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. |
| 3 | Use personal protective equipment, do not breathe dust/fume. |

Environmental precautions

| | |
|---|---|
| 1 | Prevent further leakage or spillage if safe to do so. |
| 2 | Discharge into the environment must be avoided. |

Methods and materials for containment and cleaning up

| | |
|---|---|
| 1 | Cut off the source of the leak as much as possible. |
| 2 | Keep leaks in a ventilated place. |
| 3 | Isolation of contaminated areas and restrictions on access. |
| 4 | It is recommended that emergency personnel wear dust masks. |
| 5 | Collect the spill with a clean shovel and place it in a clean, dry, loosely closed container and move the container away from the leak. |
| 6 | Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations. |

7 Handling and storage

Handling

| | |
|---|---|
| 1 | Handling is performed in a well ventilated place. |
| 2 | Wear suitable protective equipment. |
| 3 | Avoid contact with skin and eyes. |
| 4 | Keep away from heat/sparks/open flames/ hot surfaces. |

Storage

| | |
|---|--|
| 1 | Keep containers tightly closed. |
| 2 | Keep containers in a dry, cool and well-ventilated place. |
| 3 | Keep away from heat/sparks/open flames/hot surfaces. |
| 4 | Store away from incompatible materials and foodstuff containers. |

8 Exposure controls/personal protection

Control parameters

| | |
|---|-------------------------|
| Occupational Exposure limit values | No relevant regulations |
|---|-------------------------|

◆ Biological limit values

| | |
|--------------------------------|-------------------------|
| Biological limit values | No relevant regulations |
|--------------------------------|-------------------------|





◆ Monitoring methods

| | |
|---|---|
| 1 | EN 14042 Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents. |
| 2 | GBZ/T 300 series standard Determination of toxic substances in workplace air. |

Engineering controls

| | |
|---|--|
| 1 | Ensure adequate ventilation, especially in confined areas. |
| 2 | Ensure that eyewash stations and safety showers are close to the workstation location. |
| 3 | Use explosion-proof electrical/ventilating/lighting/equipment. |
| 4 | Set up emergency exit and necessary risk-elimination area. |

Personal protection equipment

| | |
|----------------------------|--|
| General requirement |      |
|----------------------------|--|

| | |
|---------------------------------|--|
| Eye protection | Must wear appropriate safety goggles. |
| Hand protection | Must wear appropriate chemical protective gloves. |
| Respiratory protection | Must wear appropriate personal respiratory protective equipment. |
| Skin and body protection | Must wear appropriate chemical protective clothing and chemical resistant shoes. |

9 Physical and chemical properties

Physical and chemical properties

| | |
|--|--|
| Appearance | Solid |
| Odor | No information available |
| Odor threshold | No information available |
| pH | No information available |
| Melting point/freezing point(°C) | No information available |
| Initial boiling point and boiling range(°C) | No information available |
| Flash point(Closed cup,°C) | Not applicable |
| Evaporation rate | Not applicable |
| Flammability | No information available |
| Upper/lower explosive limits[%(v/v)] | Upper limit: No information available; Lower limit: No information available |
| Vapor pressure | Not applicable |
| Vapor density(Air = 1) | Not applicable |
| Relative density(Water=1) | No information available |
| Solubility | No information available |
| n-octanol/water partition coefficient | No information available |
| Auto-ignition temperature(°C) | No information available |
| Decomposition temperature(°C) | No information available |
| Kinematic viscosity | Not applicable |

10 Stability and reactivity

Stability and reactivity

| | |
|---|--|
| Reactivity | Contact with incompatible substances can cause decomposition or other chemical reactions. |
| Chemical stability | Stable under proper operation and storage conditions. |
| Possibility of hazardous reactions | No information available. |
| Conditions to avoid | Incompatible materials, heat, flame and spark. |
| Incompatible materials | No information available. |
| Hazardous decomposition products | Under normal conditions of storage and use, hazardous decomposition products should not be produced. |

11 Toxicological information

Acute toxicity

| | |
|-----------------------|--------------------------|
| Acute toxicity | No information available |
|-----------------------|--------------------------|

Carcinogenicity

| Component | List of carcinogens by the IARC Monographs | Report on Carcinogens by NTP |
|-----------------------------|--|------------------------------|
| Furan-2,5-dicarboxylic acid | Not Listed | Not Listed |

Others

| Furan-2,5-dicarboxylic acid(Component) | |
|--|--|
| Skin corrosion/irritation | Based on available data, the classification criteria are not met |
| Serious eye damage/irritation | Causes serious eye irritation(Category 2A) |
| Skin sensitization | Based on available data, the classification criteria are not met |
| Respiratory sensitization | Based on available data, the classification criteria are not met |
| Reproductive toxicity | Based on available data, the classification criteria are not met |
| STOT-single exposure | Based on available data, the classification criteria are not met |
| STOT-repeated exposure | Based on available data, the classification criteria are not met |
| Aspiration hazard | Based on available data, the classification criteria are not met |
| Germ cell mutagenicity | Based on available data, the classification criteria are not met |
| Reproductive toxicity(additional) | Based on available data, the classification criteria are not met |

12 Ecological information**Acute aquatic toxicity**

| Component | Fish | Crustaceans | Algae |
|-----------------------------|--|---|--------------------------|
| Furan-2,5-dicarboxylic acid | LC ₅₀ : > 100mg/L (96h)(Fish) | EC ₅₀ : > 100mg/L (48h)(Crustaceans) | No information available |

Chronic aquatic toxicity

| | |
|--------------------------|--------------------------|
| Chronic aquatic toxicity | No information available |
|--------------------------|--------------------------|

Persistence and degradability

| | |
|-------------------------------|--------------------------|
| Persistence and degradability | No information available |
|-------------------------------|--------------------------|

Bioaccumulative potential

| | |
|---------------------------|--------------------------|
| Bioaccumulative potential | No information available |
|---------------------------|--------------------------|

Mobility in soil

| | |
|------------------|--------------------------|
| Mobility in soil | No information available |
|------------------|--------------------------|

Results of PBT and vPvB assessment

| Component | Results of PBT and vPvB assessment [according to (EC) No 1907/2006] |
|-----------------------------|---|
| Furan-2,5-dicarboxylic acid | Not PBT/vPvB |

13 Disposal considerations**Disposal considerations**

| | |
|---------------------------------|--|
| Waste chemicals | Before disposal should refer to the relevant national and local laws and regulation. Recommend the use of incineration disposal. |
| Contaminated packaging | Containers may still present chemical hazard when empty. Keep away from hot and ignition source of fire. Return to supplier for recycling if possible. |
| Disposal recommendations | Refer to section waste chemicals and contaminated packaging. |

14 Transport information

Label and Mark

| | |
|---------------------------|----------------|
| Transporting Label | Not applicable |
|---------------------------|----------------|

IMDG-CODE

| | |
|------------------|--|
| IMDG-CODE | NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS |
|------------------|--|

IATA-DGR

| | |
|-----------------|--|
| IATA-DGR | NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS |
|-----------------|--|

UN-ADR

| | |
|---------------|--|
| UN-ADR | NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS |
|---------------|--|

Others

| | |
|----------------------------------|---|
| Methods of packing | Packaging as recommended by manufacturer. |
| Precautions for transport | Transport vehicles should be equipped with the appropriate variety and quantity of fire equipment and emergency equipment leakage during transport. Before transport, should be preceded by checking whether container integrity, sealing. The transport unit must be placarded and marked in accordance with relevant transporting requirements. |

15 Regulatory information

International chemical inventory

| Component | EC inventory | TSCA | DSL | IECSC | NZIoC | PICCS | KECI | AIIC | ENCS |
|------------------------------------|--------------|------|-----|-------|-------|-------|------|------|------|
| Furan-2,5-dicarboxylic acid | √ | √ | × | × | × | × | × | × | × |

[EC inventory] European Inventory of Existing Commercial Chemical Substances

[TSCA] United States Toxic Substances Control Act Inventory

[DSL] Canadian Domestic Substances List

[IECSC] China Inventory of Existing Chemical Substances

[NZIoC] New Zealand Inventory of Chemicals

[PICCS] Philippines Inventory of Chemicals and Chemical Substances

[KECI] Korea Existing Chemicals Inventory

[AIIC] Australian. Inventory of Industrial Chemical (AIIC)

[ENCS] Japan Inventory of Existing & New Chemical Substances

Chinese chemical inventory

| Component | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O |
|------------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Furan-2,5-dicarboxylic acid | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |

- [A]** Catalog of Hazardous Chemicals(2015 Edition), Notice 5th 2015, the former China State Administration of Work Safety together with the Ministry of Industry and Information Technology, etc.
- [B]** List of Toxic Chemicals Restricted in China, Notice 60th 2019, the Ministry of Ecology and Environment, Ministry of Commerce, General Administration of Customs.
- [C]** List of Ozone Depletion Chemicals Controlled to be Imported/Exported in China (2021) , Decree No. 50 of Ministry of Ecology and environment of PRC in 2021.
- [D]** Catalog of Hazardous Chemicals for Priority Management (First and Second batches) , Notice 95th, 2011, Notice 12th 2013, China State Administration of Work Safety.
- [E]** Catalog of Hazardous Chemicals for Environmental Management, Notice 33th 2014, The former Ministry of Environmental Protection.
- [F]** List of Various Monitoring Chemicals, 52th 2020, the Ministry of Industry and Information Technology.
- [G]** List of Priority Controlled Chemicals (the First batch), 83th 2017, the former Ministry of Environmental Protection, Ministry of Industry and Information Technology, the former National Health And Family Planning Commission.
- [H]** Catalog of Specially Controlled Hazardous Chemicals (First Edition), 1st 2020, the Ministry of Emergency Management, Ministry of Industry and Information Technology, Ministry of Public Security, Ministry of Transport.
- [I]** List of Toxic and Harmful Water Pollutants (First batch), 28th 2019, the Ministry of Ecology and Environment, National Health Commission.
- [J]** Catalog of Highly Toxic Chemicals, Notice 142th 2003, the former Ministry of Health of P.R.China.
- [K]** Dangerous Chemicals Directory Used to Manufacture Exploder (2017 Edition), Notice 11th May. 2017, Ministry of Public Security of P.R.China.
- [L]** Catalog of Stupefacient and Psychotropic Substances(2013 Edition), Notice 230th 2013, China Food and Drug Administration.
- [M]** Decree No. 445 of the State Council in 2005 and its amendment announcement.
- [N]** Catalog of Import and Export Management of Precursor Chemicals, 7th 2006, the Ministry of Commerce.
- [O]** International Verification of Precursor Chemicals Management Catalog, 8th 2006, the Ministry of Commerce, Ministry of Public Security.

Note:

- “√” Indicates that the substance included in the regulations.
 “x” No data or not included in the regulations.

16 Other information

Information on revision

| | |
|----------------------------|------------|
| Creation Date | 2023/10/21 |
| Revision Date | 2023/10/21 |
| Reason for revision | - |

Reference

- [1] IPCS: The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>.
- [2] IARC, website: <http://www.iarc.fr/>.
- [3] OECD: The Global Portal to Information on Chemical Substances, website: <https://www.echemportal.org/echemportal/substancesearch/index.action>.
- [4] CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>.
- [5] NLM: ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>.
- [6] EPA: Integrated Risk Information System, website: <http://cfpub.epa.gov/iris/>.
- [7] U.S. Department of Transportation: ERG, website: <http://www.phmsa.dot.gov/hazmat/library/erg>.
- [8] Germany GESTIS-database on hazard substance, website: <http://gestis-en.itrust.de/>.

Abbreviations and acronyms

| | | | |
|---------|----------------------------|------|--|
| CAS | Chemical Abstracts Service | UN | The United Nations |
| PC-STEL | Short term exposure limit | OECD | Organization for Economic Co-operation and Development |

| | | | |
|------------------|--------------------------------------|-----------|---|
| PC-TWA | Time Weighted Average | IMDG-CODE | International Maritime Dangerous Goods CODE |
| MAC | Maximum Allowable Concentration | IARC | International Agency for Research on Cancer |
| DNEL | Derived No Effect Level | ICAO | International Civil Aviation Organization |
| PNEC | Predicted No Effect Concentration | IATA | International Air Transportation Association |
| NOEC | No Observed Effect Concentration | ACGIH | American Conference of Governmental Industrial Hygienists |
| LC ₅₀ | Lethal Concentration 50% | NFPA | National Fire Protection Association |
| LD ₅₀ | Lethal Dose 50% | NTP | National Toxicology Program |
| EC ₅₀ | Effective Concentration 50% | PBT | Persistent, Bioaccumulative, Toxic |
| EC _x | Effective Concentration X% | vPvB | very Persistent, very Bioaccumulative |
| P _{OW} | Partition coefficient Octanol: Water | CMR | Carcinogens, mutagens or substances toxic to reproduction |
| BCF | Bioconcentration factor | RPE | Respiratory Protective Equipment |
| ED | Endocrine disruptor | | |

Disclaimer

This Safety Data Sheet (SDS) was prepared according to GB/T 16483-2008 and GB/T 17519-2013. The data included was derived from international authoritative database and provided by the enterprise. Other information was based on the present state of our knowledge. We try to ensure the correctness of all information. However, due to the diversity of information sources and the limitations of our knowledge, this document is only for user's reference. Users should make their independent judgment of suitability of this information for their particular purposes. We do not assume responsibility for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.