

SAFETY DATA SHEETS

According to the UN GHS revision 8

Version: 1.1
Creation Date: May 08, 2018
Revision Date: July 15, 2019

1. Identification

1.1. GHS Product identifier

Product name 2,2,6,6-tetramethylpiperidinoxy(TEMPO)

1.2. Other means of identification

Product number 0215001

Other names 2,2,6,6-Tetramethylpiperidoxyl;
2,2,6,6-Tetramethyl-1-piperidinyloxy, free radical;
2,2,6,6-Tetramethylpiperidine 1-oxyl;
2,2,6,6-Tetramethylpiperidine 1-Oxyl Free Radical

1.3. Recommended use of the chemical and restrictions on use

Identified uses Industrial and scientific research uses.
Laboratory chemicals, Manufacture of substances

1.4. Supplier's details

Company NanJing Liskon Biological Technology Co.,ltd
Telephone +86 025-52110956

1.5. Emergency phone number

Emergency phone number +86 025-52110956
Service hours Monday to Friday, 9am-5pm (Standard time zone:
UTC/GMT +8 hours).

2. Hazard identification

2.1. Classification of the substance or mixture

Skin corrosion, Category 1C
Serious eye damage, Category 1
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 3

2.2. GHS label elements, including precautionary statements

Pictogram(s)



Signal word Danger
Hazard statement(s) H314 Causes severe skin burns and eye damage
H318 Causes serious eye damage
H412 Harmful to aquatic life with long lasting effects

Precautionary statement(s)

Prevention	P260 Do not breathe dust/fume/gas/mist/vapours/spray.P264 Wash ... thoroughly after handling.P280 Wear protective gloves/protective clothing/eye protection/face protection.P273 Avoid release to the environment.
Response	P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].P363 Wash contaminated clothing before reuse.P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.P310 Immediately call a POISON CENTER/doctor/...P321 Specific treatment (see ... on this label).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	P405 Store locked up.
Storage	P405 Store locked up.

2.3. Other hazards which do not result in classification

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

3. Composition/information on ingredients

3.1. Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
2,2,6,6-tetramethylpiperidinoxy	2,2,6,6-tetramethylpiperidinoxy	2564-83-2	219-888-8	100%

4. First-aid measures

4.1. Description of necessary first-aid measures

General advice

Medical attention is required. Consult a doctor. Show this safety data sheet (SDS) to the doctor in attendance.

If inhaled

Move the victim into fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and consult a doctor immediately. Do not use mouth to mouth resuscitation if the victim ingested or inhaled the chemical.

Following skin contact

Take off contaminated clothing immediately. Wash off with soap and plenty of water. Consult a doctor.

Following eye contact

Rinse with pure water for at least 15 minutes. Consult a doctor.

Following ingestion

Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control Center immediately.

4.2. Most important symptoms/effects, acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3. Indication of immediate medical attention and special treatment needed, if necessary

no data available

5. Fire-fighting measures**5.1. Extinguishing media****Suitable extinguishing media**

Use dry chemical, carbon dioxide or alcohol-resistant foam.

5.2. Specific hazards arising from the chemical

Carbon oxides, Nitrogen oxides (NO_x)

5.3. Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

6. Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

Avoid dust formation. Avoid breathing mist, gas or vapours. Avoid contacting with skin and eye. Use personal protective equipment. Wear chemical impermeable gloves. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

6.2. Environmental precautions

Prevent further spillage or leakage if it is safe to do so. Do not let the chemical enter drains. Discharge into the environment must be avoided.

6.3. Methods and materials for containment and cleaning up

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

7. Handling and storage

7.1. Precautions for safe handling

Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

7.2. Conditions for safe storage, including any incompatibilities

Store the container tightly closed in a dry, cool and well-ventilated place. Store apart from foodstuff containers or incompatible materials.

8. Exposure controls/personal protection

8.1. Control parameters

8.2. Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

8.3. Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industria situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use (EN 143) respirator cartridges as a backup to engineering controls. If th full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH(US) or CEN (EU).

Control of environmental exposure

Do not let product enter drains.

9. Physical and chemical properties

Physical state	crystals or powder
Colour	red, orange
Odour	no data available
Melting point/ freezing point	36-38°C(lit.)
Boiling point or initial	193°C/12mmHg(lit.)
Refractive index	1.4350 (estimate)
Storage temp	2-8°C
Flash point	154 °F
Water Solubility	Soluble in all organic solvents. Insoluble in water.
Merck	14,9140
pH	8.3 (9g/l, H ₂ O, 20°C)
Stability	Stable. Incompatible with strong acids, strong oxidizing agents. Refrigerate.
Solubility	9.7g/l
Vapour pressure	0.4 hPa (20 °C)
Density	1 g/cm ³

10. Stability and reactivity

10.1. Reactivity

10.2. Chemical stability

Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

10.4. Conditions to avoid

10.5. Incompatible materials

Strong oxidizing agents, Strong acids.

10.6. Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NO_x) Other decomposition products - No data available
 In the event of fire: see section 5

11. Toxicological information

Acute toxicity

Skin corrosion/irritation

Skin - Rabbit(2,2,6,6-Tetramethylpiperidinoxy)

Result: Severe skin irritation - 4 h

Serious eye damage/irritation

Eyes - Rabbit(2,2,6,6-Tetramethylpiperidinoxy)

Result: Severe eye irritation - 24 h

Respiratory or skin sensitization

Germ cell mutagenicity

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity

STOT-single exposure

STOT-repeated exposure

Aspiration hazard

12. Ecological information

12.1. Toxicity

12.2. Persistence and degradability

12.3. Bioaccumulative potential

12.4. Mobility in soil

12.5. Other adverse effects

13. Disposal considerations

13.1. Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

14. Transport information

14.1. UN Number

ADR/RID: UN3263 (For reference only, please check.)

IMDG: UN3263 (For reference only, please check.)

IATA: UN3263 (For reference only, please check.)

14.2. UN Proper Shipping Name

ADR/RID: CORROSIVE SOLID, BASIC, ORGANIC, N.O.S. (For reference only, please check.)	IMDG: CORROSIVE SOLID, BASIC, ORGANIC, N.O.S. (For reference only, please check.)	IATA: CORROSIVE SOLID, BASIC, ORGANIC, N.O.S. (For reference only, please check.)
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14.3. Transport hazard class(es)

ADR/RID: 8 (For reference only, please check.)	IMDG: 8 (For reference only, please check.)	IATA: 8 (For reference only, please check.)
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14.4. Packing group, if applicable

ADR/RID: I (For reference only, please check.)	IMDG: I (For reference only, please check.)	IATA: I (For reference only, please check.)
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14.5. Environmental hazards

ADR/RID: No	IMDG: No	IATA: No
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14.6. Special precautions for user

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

15. Regulatory information

15.1. Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
2,2,6,6-tetramethylpiperidinoxy	2,2,6,6-tetramethylpiperidinoxy	2564-83-2	219-888-8
European Inventory of Existing Commercial Chemical Substances (EINECS)	Listed.		
EC Inventory	Listed.		
United States Toxic Substances Control Act (TSCA) Inventory	Listed.		
China Catalog of Hazardous chemicals 2015	Not Listed.		
New Zealand Inventory of Chemicals (NZIoC)	Listed.		
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	Not Listed.		
Vietnam National Chemical Inventory	Listed.		
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)	Listed.		
Korea Existing Chemicals List (KECL)	Not Listed.		

16. Other information

Information on revision

Creation Date May 8, 2019

Revision Date July 15, 2019

Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

- IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. We as supplier shall not be held liable for any damage resulting from handling or from contact with the above product.