

SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.0
Creation Date: July 15, 2019
Revision Date: July 15, 2019

1. SECTION 1: Identification

1.1. GHS Product identifier

Product name Pivalic acid

1.2. Other means of identification

Product number -

Other names tert-Pentanoic acid; Acetic acid,trimethyl;
trimethyl-acetic acid

1.3. Recommended use of the chemical and restrictions on use

Identified uses Industrial and scientific research use.

Uses advised against no data available

1.4. Supplier's details

Company Shandong Sincere Chemical Co., Ltd.
Address No.21 Industrial North Road, Licheng District,
Jinan City,Shandong Province, China.

Telephone (+86) 188-6575-9396

1.5. Emergency phone number

Emergency phone number (+86) 188-6575-9396

Service hours Monday to Friday, 9am-5pm (Standard time zone:
UTC/GMT +8 hours).

2. SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

Acute toxicity - Category 4, Oral

Skin irritation, Category 2

Eye irritation, Category 2

2.2. GHS label elements, including precautionary statements

Pictogram(s)



Signal word Warning

Hazard statement(s) H302 Harmful if swallowedH315 Causes skin
irritationH319 Causes serious eye irritation

Precautionary statement(s)

Prevention P264 Wash ... thoroughly after handling.P270 Do
not eat, drink or smoke when using this

Response	product.P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/... P301+P317 IF SWALLOWED: Get medical help.P330 Rinse mouth.P302+P352 IF ON SKIN: Wash with plenty of water/...P321 Specific treatment (see ... on this label).P332+P317 If skin irritation occurs: Get medical help.P362+P364 Take off contaminated clothing and wash it before reuse.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	none
Disposal	P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

2.3. Other hazards which do not result in classification

no data available

3. SECTION 3: Composition/information on ingredients

3.1. Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Pivalic acid	Pivalic acid	75-98-9	200-922-5	99.0%

4. SECTION 4: First-aid measures

4.1. Description of necessary first-aid measures

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

If inhaled

Fresh air, rest.

Following skin contact

Rinse skin with plenty of water or shower.

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Rinse mouth.

4.2. Most important symptoms/effects, acute and delayed

CALL FOR MEDICAL AID. SOLID: Irritating to eyes and skin. Harmful if swallowed. IF IN EYES OR ON SKIN, flush with running water for at least 15 minutes; hold eyelids open if necessary. Wash skin with soap and water. Remove and isolate contaminated clothing and shoes at the site. If SWALLOWED and victim is UNCONSCIOUS OR HAVING CONVULSIONS, do nothing except keep victim warm. Because of low volatility, it is relatively harmless when inhaled at normal ambient temperature (around 20°C). It is slightly toxic by ingestion or skin absorption. The vapor is irritating at elevated temperatures. Can cause considerable discomfort by oral routes; may cause reversible or irreversible changes to exposed tissue, not permanent injury or death. (USCG, 1999)

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

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Organic acids and related compounds

5. SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media

Powder, alcohol-resistant foam, water spray, carbon dioxide.

5.2. Specific hazards arising from the chemical

COMBUSTIBLE. Produces vapors irritating to eyes and skin. Decomposes to produce acrid smoke and fumes. (USCG, 1999)

5.3. Special protective actions for fire-fighters

Use water spray, powder, alcohol-resistant foam, carbon dioxide.

6. SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal protection: filter respirator for organic gases and particulates adapted to the airborne concentration of the substance. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb liquid in sand or inert absorbent. If solid: sweep spilled substance into containers. If appropriate, moisten first to prevent dusting. Wash away remainder with plenty of water. Store and dispose of according to local regulations.

6.2. Environmental precautions

Personal protection: filter respirator for organic gases and particulates adapted to the airborne concentration of the substance. Collect leaking and spilled liquid in sealable containers as far as possible. If solid: sweep spilled substance into

containers. If appropriate, moisten first to prevent dusting. Wash away remainder with plenty of water.

6.3. Methods and materials for containment and cleaning up

Collect leaking liquid in sealable containers. If solid: sweep spilled substance into containers; if appropriate, moisten first to prevent dusting. Wash away remainder with plenty of water. (Extra personal protection: A/P2 filter respirator for organic vapour and harmful dust).

7. SECTION 7: Handling and storage

7.1. Precautions for safe handling

NO open flames. Above 64°C use a closed system and ventilation.

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

Separated from strong oxidants and food and feedstuffs. Separated from strong oxidants, food and feedstuffs.

8. SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

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

Wear safety goggles.

Skin protection

Protective gloves.

Respiratory protection

Use local exhaust.

Thermal hazards

no data available

9. SECTION 9: Physical and chemical properties and safety characteristics

Physical state

Solid. Solid.

Colour

Na. (Pt/Co) (Max 50) scale - White solid.

Odour	no data available
Melting point/freezing point	36 °C. Atm. press.:1 013 hPa.
Boiling point or initial boiling point and boiling range	160 - 162 °C. Atm. press.:1 013 hPa.
Flammability	Combustible.
Lower and upper explosion limit/flammability limit	no data available
Flash point	78 °C. Atm. press.:1 013 hPa.
Auto-ignition temperature	560 °C. Atm. press.:1 013 hPa.
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	kinematic viscosity (in mm ² /s) = 1.7. Temperature:60.0°C.
Solubility	Very soluble in ethanol, ethyl ether
Partition coefficient n-octanol/water	log Pow = < 1. Temperature:20 °C.;log Pow = 1.8. Temperature:20 °C.
Vapour pressure	0.73 kPa. Temperature:50 °C.;9 kPa. Temperature:100 °C.
Density and/or relative density	0.9 g/cm ³ . Temperature:40 °C.
Relative vapour density	3.6 (vs air)
Particle characteristics	no data available

10. SECTION 10: Stability and reactivity

10.1. Reactivity

The solution in water is a weak acid. The substance is a weak base. Reacts violently with strong oxidants. Attacks many metals. This produces flammable/explosive gas (hydrogen - see ICSC 0001).

10.2. Chemical stability

no data available

10.3. Possibility of hazardous reactions

Combustible. TRIMETHYLACETIC ACID is a carboxylic acid. Carboxylic acids donate hydrogen ions if a base is present to accept them. They react in this way with all bases, both organic (for example, the amines) and inorganic. Their reactions with bases, called "neutralizations", are accompanied by the evolution of substantial amounts of heat. Neutralization between an acid and a base produces water plus a salt. Carboxylic acids with six or fewer carbon atoms are freely or moderately soluble in water; those with more than six carbons are slightly soluble in water. Soluble carboxylic acid dissociate to an extent in water to yield hydrogen ions. The pH of solutions of carboxylic acids is therefore less than 7.0. Many insoluble carboxylic acids react rapidly with aqueous solutions containing a

chemical base and dissolve as the neutralization generates a soluble salt. Carboxylic acids in aqueous solution and liquid or molten carboxylic acids can react with active metals to form gaseous hydrogen and a metal salt. Such reactions occur in principle for solid carboxylic acids as well, but are slow if the solid acid remains dry. Even "insoluble" carboxylic acids may absorb enough water from the air and dissolve sufficiently in it to corrode or dissolve iron, steel, and aluminum parts and containers. Carboxylic acids, like other acids, react with cyanide salts to generate gaseous hydrogen cyanide. The reaction is slower for dry, solid carboxylic acids. Insoluble carboxylic acids react with solutions of cyanides to cause the release of gaseous hydrogen cyanide. Flammable and/or toxic gases and heat are generated by the reaction of carboxylic acids with diazo compounds, dithiocarbamates, isocyanates, mercaptans, nitrides, and sulfides. Carboxylic acids, especially in aqueous solution, also react with sulfites, nitrites, thiosulfates (to give H₂S and SO₃), dithionites (SO₂), to generate flammable and/or toxic gases and heat. Their reaction with carbonates and bicarbonates generates a harmless gas (carbon dioxide) but still heat. Like other organic compounds, carboxylic acids can be oxidized by strong oxidizing agents and reduced by strong reducing agents. These reactions generate heat. A wide variety of products is possible. Like other acids, carboxylic acids may initiate polymerization reactions; like other acids, they often catalyze (increase the rate of) chemical reactions.

10.4. Conditions to avoid

no data available

10.5. Incompatible materials

no data available

10.6. Hazardous decomposition products

When heated to decomposition it emits acrid smoke and irritating fumes.

11. SECTION 11: Toxicological information

Acute toxicity

- Oral: LD₅₀ - rat (male) - 2 000 mg/kg bw.
- Inhalation: LC₅₀ - rat (male/female) - > 5.3 mg/L air (analytical).
- Dermal: LD₅₀ - rat (male/female) - 3 160 mg/kg bw.

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available

STOT-single exposure

The substance is severely irritating to the eyes, skin and upper respiratory tract.
The substance is irritating to the gastrointestinal tract.

STOT-repeated exposure

no data available

Aspiration hazard

No indication can be given about the rate at which a harmful concentration of this substance in the air is reached on evaporation at 20°C.

12. SECTION 12: Ecological information

12.1. Toxicity

- Toxicity to fish: NOEC - *Oncorhynchus mykiss* (previous name: *Salmo gairdneri*) - 300 mg/L - 96 h. Remarks:Initially added.
- Toxicity to daphnia and other aquatic invertebrates: IC50 - *Daphnia magna* - 320 mg/L - 24 h. Remarks:Initially added.
- Toxicity to algae: EC50 - *Pseudokirchneriella subcapitata* (previous names: *Raphidocelis subcapitata*, *Selenastrum capricornutum*) - > 979 mg/L - 72 h.
- Toxicity to microorganisms: NOEC - activated sludge of a predominantly domestic sewage - 1 000 mg/L - 3 h.

12.2. Persistence and degradability

AEROBIC: 2,2-Dimethylpropanoic acid at a high initial concn of 100 ppm exhibited a 24% theoretical BOD over an incubation period of 5 days in an aerobic screening study at 21 deg C using sewage inoculum(1). An aerobic screening study using activated sludge inoculum at pH 7 showed only a small removal of 2,2-dimethylpropanoic acid (high initial concn of 500 ppm) in a Warburg respirometer at pH 7(5). 2,2-Dimethylpropanoic acid exhibited a 10% theoretical BOD over an incubation period of 5 days in an aerobic screening study at 20 deg C using sewage inoculum(2). 2,2-Dimethylpropanoic acid at an initial concn of 3.4 ppm exhibited a 52% theoretical BOD over an incubation period of 10 days in an aerobic screening study at 25 deg C and pH 6.5-7.5 using sewage inoculum(3). 2,2-Dimethylpropanoic acid at an initial concn of 4.1 ppm exhibited 1.2, 0, 14, and 86% theoretical BOD over respective incubation periods of 2, 5, 10, and 20 days in an aerobic screening study at 25 deg C using soil inoculum(4).

12.3. Bioaccumulative potential

The BCF of 2,2-dimethylpropanoic acid was $0.2-1.2$ at a concentration of 1 ppb and 2.3 at a concentration of 0.1 ppb using carp (*Cyprinus carpio*) which were exposed over a 6-week period(1). According to a classification scheme(2), these BCFs suggest bioconcentration in aquatic organisms is low(SRC).

12.4. Mobility in soil

The Koc of 2,2-dimethylpropanoic acid is estimated as 150(SRC), using a log Kow of 1.48(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated Koc value suggests that 2,2-dimethylpropanoic acid is expected to have high mobility in soil. The pKa of 2,2-dimethylpropanoic acid is 5.03(4), indicating that this compound will exist partially in anion form in the environment and anions generally do not adsorb more strongly to soils containing organic carbon and clay than their neutral counterparts(5).

12.5. Other adverse effects

no data available

13. SECTION 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. SECTION 14: Transport information

14.1. UN Number

ADR/RID: UN3261 (For reference only, please check.)

IMDG: UN3261 (For reference only, please check.)

IATA: UN3261 (For reference only, please check.)

14.2. UN Proper Shipping Name

ADR/RID: CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S. (For reference only, please check.)

IMDG: CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S. (For reference only, please check.)

IATA: CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S. (For reference only, please check.)

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.)

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.)

14.5. Environmental hazards

ADR/RID: No

IMDG: No

IATA: No

14.6. Special precautions for user

no data available

14.7. Transport in bulk according to IMO instruments

no data available

15. SECTION 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	
Pivalic acid	Pivalic acid	75-98-9	200-922-5	
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)				Listed.
Vietnam National Chemical Inventory				Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)				Listed.
Korea Existing Chemicals List (KECL)				Listed.

16. SECTION 16: Other information

Information on revision

Creation Date July 15, 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.