

Safety Data Sheet

Product name: Acetic anhydride

CAS No.: 108-24-7

Prepared in accordance with GB/T 16483, GB/T 17519

SECTION 1: Identification of the substance/mixture and of the company/undertaking

>Product identifier

- Product name: Acetic anhydride
- CBnumber: CB2852742
- CAS: 108-24-7
- EINECS Number: 203-564-8
- Synonyms: acetic anhydride,Ac₂O

>Relevant identified uses of the substance or mixture and uses advised against

- Relevant identified uses: For R&D use only. Not for medicinal, household or other use.
- Uses advised against: none

>Company Identification

- Company: Linyi Tuohui New Materials Co., Ltd.
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SECTION 2: Hazards identification

>GHS Label elements, including precautionary statements

- Symbol(GHS)



- Signal wordDanger

Precautionary statements

P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.

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

P301+P312 IF SWALLOWED: call a POISON CENTER or doctor/physician IF you feel unwell.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing.

Rinse SKIN with water/shower.

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

Hazard statements

H226 Flammable liquid and vapour

H302 Harmful if swallowed

H314 Causes severe skin burns and eye damage

H330 Fatal if inhaled

SECTION 3: Composition/information on ingredients

>Substance

- Product name: Acetic anhydride
- Synonyms: acetic anhydride, Ac₂O
- CAS: 108-24-7
- EC number: 203-564-8
- MF: C₄ H₆ O₃
- MW: 102.09

SECTION 4: First aid measures

>4.1 Description of first-aid measures

General advice

First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

If inhaled

After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician immediately.

In case of eye contact

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist.

Remove contact lenses.

If swallowed

After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

>4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11

>4.3 Indication of any immediate medical attention and special treatment needed

No data available

>4.4 Notes to physician

No data available

SECTION 5: Firefighting measures

>5.1 Extinguishing media**Suitable extinguishing media**

Dry powder Carbon dioxide (CO₂)

Unsuitable extinguishing media

Water Foam

>5.2 Special hazards arising from the substance or mixture

Carbon oxides

Combustible.

Vapors are heavier than air and may spread along floors.

Forms explosive mixtures with air at elevated temperatures.

Development of hazardous combustion gases or vapours possible in the event of fire.

>5.3 Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

>NFPA 704

SECTION 6: Accidental release measures

>6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact.

Ensure adequate ventilation. Keep away from heat and sources of ignition.

Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection see section 8.

>6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

>6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g.

Chemizorb). Dispose of properly. Clean up affected area.

>6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

>7.1 Precautions for safe handling

Advice on safe handling

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2.2.

>7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorized persons.

Reacts violently with water.

Storage class

Storage class (TRGS 510): 3: Flammable liquids

SECTION 8: Exposure controls/personal protection

>8.1 Control parameters

Ingredients with workplace control parameters

['Component', 'CAS-No.', 'Value', 'Control\parameters', 'Basis']	['Acetic anhydride', '108-24-7', 'PC-TWA', '16 mg/m3', 'Occupational exposure limits for\nhazardous agents in the\nworkplace - Chemical\nhazardous agents.']
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>8.2 Exposure controls

Appropriate engineering controls

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection

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

Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact

Material: butyl-rubber

Minimum layer thickness: 0.7 mm

Break through time: 480 min

Material tested:Butoject (KCL 898)

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Splash contact

Material: Latex gloves

Minimum layer thickness: 0.6 mm

Break through time: 60 min

Material tested: Lapren (KCL 706 / Aldrich Z677558, Size M)

Body Protection

Flame retardant antistatic protective clothing.

Respiratory protection

required when vapours/aerosols are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure

Do not let product enter drains. Risk of explosion.

SECTION 9: Physical and chemical properties

>Information on basic physicochemical properties

- a) Physical state liquid
- b) Color colorless
- c) Odor pungent
- d) Melting point/freezing point Melting point/range: -73 °C - lit.
- e) Initial boiling point and boiling range 138 - 140 °C - lit.
- f) Flammability (solid, gas) No data available
- g) Upper/lower flammability or explosive limits Upper explosion limit: 10.3 % (V)
Lower explosion limit: 2.7 % (V)
- h) Flash point 49 °C - closed cup
- i) Autoignition temperature 316 °C at 1,013.25 hPa
- j) Decomposition temperature No data available
- k) pH 3 (10 g/l, H₂O, 20 °C)
- l) Viscosity Viscosity, kinematic: No data available
Viscosity, dynamic: 0.84 mPa.s at 25 °C
- m) Water solubility 107 g/l at 15 °C - slightly soluble Hydrolysis
- n) Partition coefficient n-octanol/water log Pow: ca. -0.5 at 20 °C - Bioaccumulation is not expected.
- o) Vapor pressure 13 hPa at 36 °C
- p) Density 1.08 g/cm³ - lit.
- Relative density 1.087
- q) Relative vapor density 3.5 (vs air)

- r) Particle characteristics No data available
- s) Explosive properties No data available
- t) Oxidizing properties none
- Solubility Miscible with ether, chloroform and benzene.
- Dielectric constant 20.0

>9.2 Other safety information

Surface tension

31.93 mN/m at 25 °C

SECTION 10: Stability and reactivity

>10.1 Chemical stability

Decomposes when moist.

The product is chemically stable under standard ambient conditions (room temperature) .

>10.2 Possibility of hazardous reactions

Risk of explosion with: ethanol potassium permanganate

Strong oxidizing agents perchloric acid

Nitric acid hydrogen peroxide chromium(VI) oxide barium peroxide peroxi compounds ammonium nitrate with

Nitric acid

Exothermic reaction with:

Ammonia

Potassium hydroxide nitrates

Sodium hydroxide

Acetic acid, diluted

Violent reactions possible with:

Water

Possible formation of: acetic acid

>10.3 Conditions to avoid

Do not allow water to enter container because of violent reaction.

Heating.

>10.4 Incompatible materials

No data available

>10.5 Hazardous decomposition products

In the event of fire: see section 5

SECTION 11: Toxicological information

>11.1 Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - male and female - 630 mg/kg

Remarks: (ECHA)

LC50 Inhalation - Rat - 4 h - > 0.5 - < 2 mg/l - vapor (OECD Test Guideline 412)

Remarks: (ECHA)

Dermal: No data available

Skin corrosion/irritation

Skin - in vitro test

Result: Causes burns. - 4 h

Remarks: (ECHA)

Serious eye damage/eye irritation

Eyes - Rat

Result: Corrosive - 24 h

Remarks: (ECHA)

Remarks: Causes serious eye damage.

Respiratory or skin sensitization

Classified based on available data. For more details, see section 2

Germ cell mutagenicity

Test Type: In vitro mammalian cell gene mutation test

Test system: mouse lymphoma cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 476

Result: negative

Test Type: Ames test

Test system: Salmonella typhimurium

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

Test Type: Chromosome aberration test in vitro

Test system: Chinese hamster ovary cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 473

Result: negative

Test Type: Micronucleus test

Species: Rat

Cell type: Bone marrow

Application Route: inhalation (vapor)

Method: OECD Test Guideline 474

Result: negative

Carcinogenicity

Reproductive toxicity

Specific target organ toxicity - single exposure

Specific target organ toxicity - repeated exposure

Aspiration hazard

>11.2 Additional Information

RTECS: AK1925000 burning sensation, Cough, wheezing, laryngitis, Shortness of breath, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

Toxicity to fish semi-static test LC50 - *Oncorhynchus mykiss* (rainbow trout) - > 300.82 mg/l - 96 h (OECD Test Guideline 203)

Remarks: (in analogy to similar products)

Toxicity to daphnia static test EC50 - *Daphnia magna* (Water flea) - > 1,000 mg/l - 48 h and other aquatic (OECD Test Guideline 202) invertebrates

Toxicity to algae static test ErC50 - *Skeletonema costatum* - > 300.82 mg/l - 72 h (ISO 10253)

Toxicity to bacteria static test NOEC - *Pseudomonas putida* - 1,150 mg/l - 16 h

Remarks: (ECHA)

>12.2 Persistence and degradability

Biodegradability Zahn-Wellens Test - Exposure time 5 d

Result: > 95 % - Readily biodegradable.

(OECD Test Guideline 302B)

>12.3 Bioaccumulative potential

No bioaccumulation is to be expected ($\log Pow \leq 4$).

>12.4 Mobility in soil

No data available

>12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

>12.6 Endocrine disrupting properties

>12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

>13.1 Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company.

SECTION 14: Transport information

>14.1 UN number

ADR/RID: 1715

IMDG: 1715

IATA-DGR: 1715

>14.2 UN proper shipping name

ADR/RID: ACETIC ANHYDRIDE

IMDG: ACETIC ANHYDRIDE

IATA-DGR: Acetic anhydride

>14.3 Transport hazard class(es)

ADR/RID: 8 (3)

IMDG: 8 (3)

IATA-DGR: 8 (3)

>14.4 Packaging group

ADR/RID: II

IMDG: II

IATA-DGR: II

>14.5 Environmental hazards

ADR/RID: no

IMDG Marine pollutant: no

IATA-DGR: no

>14.6 Special precautions for user

Based on chemical properties, choose appropriate tools and conditions of transport.

Transporting tools shall be equipped with appropriate and sufficient firefighting equipment and emergency leaking installations. If transporting by road, please go along the specified route.

>14.7 Incompatible materials

SECTION 15: Regulatory information

>15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulatory information

Law on the Prevention and Control of Occupational Diseases

Regulations on Safety Management of Hazardous Chemicals

Catalogue of Hazardous Chemicals : Listed

Other regulations

Please pay attention on the waste treatment should also comply with local regulations requirement.

SECTION 16: Other information

>Abbreviations and acronyms

CAS: Chemical Abstracts Service

TWA: Time-Weighted Average

STEL: Short-Term Exposure Limit

LD50: Lethal Dose 50%

LC50: Lethal Concentration 50%

EC50: Effective Concentration 50%

PEL: Permissible Exposure Limit

TLV: Threshold Limit Value

IMDG: International Maritime Dangerous Goods Code

IATA: International Air Transport Association

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

DOT: US Department of Transportation

NFPA: National Fire Protection Association

NIOSH: National Institute for Occupational Safety and Health

OSHA: Occupational Safety and Health Administration