

Chemical Safety Data Sheet MSDS / SDS

4,4'-DDERevision Date:2025-02-01 Revision Number:1

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

Product name : 4,4'-DDE
CBnumber : CB9776968
CAS : 72-55-9
EINECS Number : 200-784-6
Synonyms : p,p'-DDE,4,4'-DDE

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 : Chemicalbook
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing
Telephone : 400-158-6606

SECTION 2: Hazards identification**Classification of the substance or mixture**

Not classified.

Label elements**Pictogram(s)**

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Signal word : Danger

Hazard statement(s)

H225 Highly Flammable liquid and vapour
H302 Harmful if swallowed
H304 May be fatal if swallowed and enters airways
H315 Causes skin irritation
H336 May cause drowsiness or dizziness
H350 May cause cancer
H351 Suspected of causing cancer
H370 Causes damage to organs

H410 Very toxic to aquatic life with long lasting effects

H411 Toxic to aquatic life with long lasting effects

Precautionary statement(s)

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

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

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P264 Wash hands thoroughly after handling.

P264 Wash skin thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P273 Avoid release to the environment.

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

P281 Use personal protective equipment as required.

P311 Call a POISON CENTER or doctor/physician.

P331 Do NOT induce vomiting.

P391 Collect spillage. Hazardous to the aquatic environment

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

P308+P313 IF exposed or concerned: Get medical advice/attention.

P405 Store locked up.

P501 Dispose of contents/container to....

Prevention

none

Response

none

Storage

none

Disposal

none

Other hazards

no data available

SECTION 3: Composition/information on ingredients

Substance

Product name : 4,4'-DDE
Synonyms : p,p'-DDE,4,4'-DDE
CAS : 72-55-9
EC number : 200-784-6
MF : C14H8Cl4
MW : 318.03

SECTION 4: First aid measures

Description of first aid measures

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.

Most important symptoms and effects, both acute and delayed

SYMPTOMS: Symptoms of exposure to this compound may include liver and kidney damage. Based on data for a similar compound, symptoms may also include vomiting, headache, fatigue, malaise, numbness and partial paralysis of the extremities, moderate ataxia, exaggeration of part of the reflexes, mild convulsions, loss of proprioception and vibratory sensation of the extremities, hyperactive knee-jerk reflexes, excitement, confusion and increased respiration. It may also cause nausea and diarrhea. Other symptoms may include tremors of the head and neck muscles, cardiac and respiratory failure and even death. It may also cause paresthesias of the tongue, lips and face, irritability and dizziness. It may cause tonic and clonic convulsions. Other symptoms include apprehension and hyperesthesia of the mouth and face. It may also cause "yellow vision". **ACUTE/CHRONIC HAZARDS:** This compound is harmful if ingested, inhaled or absorbed through the skin. It may cause irritation. There is clear evidence that this compound is an animal carcinogen. When heated to decomposition it emits very toxic fumes of carbon monoxide and carbon dioxide. It may also emit toxic fumes of hydrogen chloride gas. (NTP, 1992)

Indication of any immediate medical attention and special treatment needed

Observation. Persons exposed to high levels of organochlorine pesticides by any route should be observed for sensory disturbances, incoordination, speech slurring, mental aberrations, and involuntary motor activity that would warn of imminent convulsions. Solid organochlorine insecticides

SECTION 5: Firefighting measures

Extinguishing media

Fires involving this material can be controlled with a dry chemical, carbon dioxide or Halon extinguisher. (NTP, 1992)

Specific Hazards Arising from the Chemical

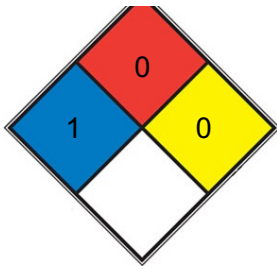
Flash point data for this chemical are not available. It is probably combustible. (NTP, 1992)

Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

NFPA 704





■ HEALTH 1 Exposure would cause irritation with only minor residual injury (e.g. [acetone](#), sodium bromate, potassium chloride)

Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete,

■ FIRE 0 stone, and sand. Materials that will not burn in air when exposed to a temperature of 820 °C (1,500 °F) for a period of 5 minutes.(e.g. Carbon tetrachloride)

■ REACT 0 Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium,[N2](#))

□ SPEC.

□ HAZ.

SECTION 6: Accidental release measures

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.

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.

Methods and materials for containment and cleaning up

SRP: Wastewater from contaminant suppression, cleaning of protective clothing/equipment, or contaminated sites should be contained and evaluated for subject chemical or decomposition product concentrations. Concentrations shall be lower than applicable environmental discharge or disposal criteria. Alternatively, pretreatment and/or discharge to a POTW is acceptable only after review by the governing authority. Due consideration shall be given to remediation worker exposure (inhalation, dermal and ingestion) as well as fate during treatment, transfer and disposal. If it is not practicable to manage the chemical in this fashion, it must meet Hazardous Material Criteria for disposal.

SECTION 7: Handling and storage

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.

Conditions for safe storage, including any incompatibilities

PRECAUTIONS FOR "CARCINOGENS": Storage site should be as close as practicable to lab in which carcinogens are to be used, so that only small quantities required for ... expt need to be carried. Carcinogens should be kept in only one section of cupboard, an explosion-proof refrigerator or freezer (depending on chemico-physical properties ...) that bears appropriate label. An inventory ... should be kept, showing

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

Exposure controls

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

Individual protection measures

Eye/face protection

Wear tightly fitting safety goggles with side-shields conforming to EN 166(EU) or NIOSH (US).

Skin protection

Wear fire/flame resistant and impervious clothing. Handle with gloves. Gloves must be inspected prior to use. 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.

Respiratory protection

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties

Information on basic physicochemical properties

| | |
|--|-------------------------------------|
| Physical state | neat |
| Colour | White, crystalline, odorless powder |
| Odour | no data available |
| Melting point/freezing point | 4°C(lit.) |
| Boiling point or initial boiling point and boiling range | 124°C/16mmHg(lit.) |
| Flammability | no data available |
| Lower and upper explosion limit/flammability limit | no data available |
| Flash point | 107°C(lit.) |
| Auto-ignition temperature | no data available |
| Decomposition temperature | no data available |
| pH | no data available |

| | |
|---------------------------------------|------------------------------------|
| Kinematic viscosity | no data available |
| Solubility | ethanol: soluble |
| Partition coefficient n-octanol/water | log Kow = 6.51 |
| Vapour pressure | 13 at 30 °C (Wescott et al., 1981) |
| Density and/or relative density | no data available |
| Relative vapour density | no data available |
| Particle characteristics | no data available |

SECTION 10: Stability and reactivity

Reactivity

no data available

Chemical stability

no data available

Possibility of hazardous reactions

P,P'-DDE is sensitive to exposure to light. This compound is incompatible with strong oxidizing agents and strong bases. Oxidation is catalyzed by UV radiation. (NTP, 1992)

Conditions to avoid

no data available

Incompatible materials

no data available

Hazardous decomposition products

When heated to decomposition it emits very toxic fumes of /chlorides/.

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 Rat oral 880 mg/kg
- Inhalation: no data available
- Dermal: no data available

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

Cancer Classification: Group B2 Probable Human Carcinogen

Reproductive toxicity

No information is available on the reproductive or developmental effects of DDT or DDE in humans via inhalation exposure. No studies are available on the developmental effects in humans after oral exposure to DDT or DDE. However, DDT and DDE have been found in human blood, placental tissue, and umbilical cord blood. Epidemiologic studies did not find an association between DDT maternal blood levels and miscarriages or premature rupture of fetal membranes in humans. Oral animal studies have reported reproductive effects, such as reduced fertility, adverse effects on spermatogenesis, and decreased testicular and ovarian weights from DDT exposure. Developmental effects, such as embryotoxicity and fetotoxicity, but not teratogenicity (birth defects) have also been observed in oral animal studies. DDT has been shown to elicit estrogenic activity in rats after oral exposure .

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

SECTION 12: Ecological information

Toxicity

Toxicity to fish: LC50; Species: *Oncorhynchus mykiss* (Rainbow trout, weight 0.8 g); Conditions: freshwater, static, 12 deg C, pH 7.1, hardness 44 mg/L CaCO₃; Concentration: >87 ug/L for 24 hr /99% purity, technical material

Toxicity to daphnia and other aquatic invertebrates: no data available

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

Persistence and degradability

AEROBIC: DDE was not degraded in static screening tests using settled domestic wastewater inoculum with yeast extract, with 3 additional subcultures added every 7 days(1). No degradation of DDE exposed to ocean sediments in seawater under aerobic conditions were observed after 12 months(2). No degradation of DDE observed after 8 weeks of exposure of DDE in lab tests to raw water from a stream which received domestic and industrial wastes and farm runoff(3). Half-life of DDE exposed to river sediments was 1,100 days(4). BOD after 30 days of <1.0 ug O₂/mL for DDE exposed to soil inoculum indicated only slight biodegradation(5).

Bioaccumulative potential

BCF values of DDE have been reported in the following aquatic organisms: rainbow trout, 81,000(2); fathead minnow, 51,000(3); fish (no

species reported, static microcosm study), 27,500(4); *Gambusia affinis*, 217 (3 days exposure)(1); trout, 1.8×10^5 , bluegill sunfish, 1.1×10^5 (6). According to a classification scheme(7), these BCF data suggest bioconcentration in aquatic organisms is very high(SRC). BCF values of 28,600 have been reported in zooplankton(5).

Mobility in soil

The Koc value of p,p'-DDE in soil from Taichung, Taiwan was measured as 26,300(1) and 75,860(2) in soil column batch experiments. The avg log Koc value of DDE in lake sediment was 4.58(3). According to a classification scheme(4), these Koc values suggest that DDE is expected to be immobile in soil(SRC).

Toxics Screening Level

The Initial Risk Screening Level (IRSL) for p,p'-DDE is 0.01 $\mu\text{g}/\text{m}^3$ based on an annual averaging time.

Other adverse effects

no data available

SECTION 13: Disposal considerations

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.

SECTION 14: Transport information

UN Number

ADR/RID: UN3077 (For reference only, please check.)

IMDG: UN3077 (For reference only, please check.)

IATA: UN3077 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (For reference only, please check.)

IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (For reference only, please check.)

IATA: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (For reference only, please check.)

Transport hazard class(es)

ADR/RID: 9 (For reference only, please check.)

IMDG: 9 (For reference only, please check.)

IATA: 9 (For reference only, please check.)

Packing group, if applicable

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

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

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

Environmental hazards

ADR/RID: Yes

IMDG: Yes

IATA: Yes

Special precautions for user

no data available

Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

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

European Inventory of Existing Commercial Chemical Substances (EINECS)

Listed.

EC Inventory

Listed.

United States Toxic Substances Control Act (TSCA) Inventory

Not Listed.

China Catalog of Hazardous chemicals 2015

Not Listed.

New Zealand Inventory of Chemicals (NZIoC)

Listed.

PICCS

Listed.

Vietnam National Chemical Inventory

Listed.

IECSC

Listed.

Korea Existing Chemicals List (KECL)

Not Listed.

SECTION 16: Other information

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/>

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