

SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.2
Creation Date: July 15, 2019
Revision Date: August 08, 2025

SECTION 1: Identification

1.1 GHS Product identifier

Product name 2,4-Dimethylaniline

1.2 Other means of identification

Product number CAZO111422
Other names Benzenamine, 2,4-dimethyl-; 2,4-Dimethyl aniline

1.3 Recommended use of the chemical and restrictions on use

Identified uses For laboratory and Industrial use only.
Uses advised against no data available

1.4 Supplier's details

Company CATO Research Chemicals Inc.
Address 3/F,Building B,No.179 BASIGO, Guangpu Rd East,Huangpu Dist,Guangzhou
Telephone +86-20-81960175

1.5 Emergency phone number

Emergency phone number +86-20-81960175
Service hours 'Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

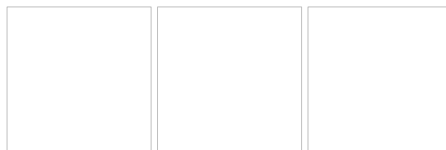
SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

Acute toxicity - Category 3, Oral
Acute toxicity - Category 3, Dermal
Eye irritation, Category 2
Acute toxicity - Category 2, Inhalation
Specific target organ toxicity – repeated exposure, Category 2
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 2

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

Hazard statement(s)

H301 Toxic if swallowed
H311 Toxic in contact with skin
H319 Causes serious eye irritation
H330 Fatal if inhaled
H373 May cause damage to organs through prolonged or repeated exposure
H411 Toxic to aquatic life with long lasting effects

Precautionary statement(s)

Prevention

P264 Wash ... thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P271 Use only outdoors or in a well-ventilated area.
P284 [In case of inadequate ventilation] wear respiratory protection.
P273 Avoid release to the environment.

Response	P301+P316 IF SWALLOWED: Get emergency medical help immediately. P321 Specific treatment (see ... on this label). P330 Rinse mouth. P302+P352 IF ON SKIN: Wash with plenty of water/... P316 Get emergency medical help immediately. P361+P364 Take off immediately all 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. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P320 Specific treatment is urgent (see ... on this label). P319 Get medical help if you feel unwell. P391 Collect spillage.
Storage	P405 Store locked up. P403+P233 Store in a well-ventilated place. Keep container tightly closed.
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

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
2,4-Dimethylaniline	2,4-xylydine	95-68-1	202-440-0	100%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Fresh air, rest. Refer for medical attention.

Following skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention .

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. Refer for medical attention .

4.2 Most important symptoms/effects, acute and delayed

SYMPTOMS: Symptoms of exposure to this compound may include headaches, drowsiness, cyanosis, mental confusion, convulsions, nervous system and blood effects, fatigue, anorexia, loss of appetite, dizziness, and damage to the lungs, liver and kidneys.
ACUTE/CHRONIC HAZARDS: This compound may be absorbed through the skin and may cause irritation on contact. When heated to decomposition it emits toxic fumes. (NTP, 1992)

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

no data available

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

Use water spray, dry chemical, foam, or CO2. Wear full protective clothing. Xylidines

5.2 Specific hazards arising from the chemical

This chemical is combustible. (NTP, 1992)

5.3 Special protective actions for fire-fighters

Use water spray, carbon dioxide, foam, powder.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal protection: chemical protection suit and filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

6.2 Environmental precautions

Personal protection: chemical protection suit and filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

6.3 Methods and materials for containment and cleaning up

Environmental considerations - land spill: Dig a pit, pond, lagoon, holding area to contain liquid or solid material. /SRP: If time permits, pits, ponds, lagoons, soak holes, or holding areas should be sealed with an impermeable flexible membrane liner. / Dike surface flow using soil, sand bags, foamed polyurethane, or foamed concrete. Absorb bulk liquid with fly ash, cement powder, or commercial sorbents. Xylidines

SECTION 7: Handling and storage

7.1 Precautions for safe handling

NO open flames. Above 90°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, acids, acid anhydrides, acid chlorides, hypochlorites, halogens and food and feedstuffs. Well closed. Provision to contain effluent from fire extinguishing. Store in an area without drain or sewer access.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

MAK: skin absorption (H); carcinogen category: 2

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 or eye protection in combination with breathing protection.

Skin protection

Protective gloves. Protective clothing.

Respiratory protection

Use ventilation, local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Liquid. Liquid.
Colour	Light-yellow.
Odour	no data available
Melting point/freezing point	< -30 °C. Atm. press.:Ca. 1 atm. Remarks:The DSC experiment showed no melting point. Visual observation: At -30°C a tube containing several mL of the sample was liquid. The melting point is below -30°C.
Boiling point or initial boiling point and boiling range	218 °C. Atm. press.:Ca. 1 atm. Remarks:As described in SOP: EQH-1020-AA-0128, the mean peak and onset (218°C) is taken as the best estimate of the boiling point. Onset: 216°C, peak: 219°C.
Flammability	Combustible. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit/flammability limit	no data available
Flash point	95 °C. Atm. press.:1 013 hPa.
Auto-ignition temperature	515 °C. Atm. press.:Ca. 990 hPa.
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	Partially miscible with water
Partition coefficient n-octanol/water	log Pow = 2.02. Temperature:23 °C.

Vapour pressure	1.6 Pa. Temperature: 20 °C.; 2.9 Pa. Temperature: 25 °C.; 40 Pa. Temperature: 50 °C.
Density and/or relative density	0.97 g/ml. Temperature: 20 °C.
Relative vapour density	4.2 (vs air)
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Decomposes on burning. This produces toxic and corrosive fumes including nitrogen oxides. Reacts violently with strong oxidants. Reacts with hypochlorites. This produces explosive chloroamines. Reacts with acids, acid anhydrides, acid chlorides and halogens. Attacks plastic and rubber.

10.2 Chemical stability

no data available

10.3 Possibility of hazardous reactions

2,4-XYLIDINE ignites on contact with fuming nitric acid (NTP, 1992). Neutralizes acids in exothermic reactions to form salts plus water. May be incompatible with isocyanates, halogenated organics, peroxides, phenols (acidic), epoxides, anhydrides, and acid halides. Flammable gaseous hydrogen may be generated in combination with strong reducing agents, such as hydrides.

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Strong oxidizers, hypochlorite bleaches Xylidines

10.6 Hazardous decomposition products

When heated to decompose, xylidines emit highly toxic fumes. Xylidines

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 - rat (male) - 1 259 mg/kg bw. Remarks: LD50 as hydrochloride.
- Inhalation: LC50 - rat (male/female) - 1.53 mg/L air.
- 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

Classification of carcinogenicity: 1) evidence in humans: no adequate data; 2) evidence in animals: inadequate. Overall summary evaluation of carcinogenic risk humans is Group 3: The agent is not classifiable as to its carcinogenicity to humans. From table

Reproductive toxicity

no data available

STOT-single exposure

The substance is irritating to the eyes. The substance is mildly irritating to the skin. Exposure at high levels could cause lowering of consciousness. Exposure at high levels could cause formation of methaemoglobin. The effects may be delayed. Medical observation is indicated.

STOT-repeated exposure

The substance may have effects on the blood. This may result in anaemia. The substance may have effects on the kidneys and liver.

Aspiration hazard

A harmful contamination of the air will be reached slowly on evaporation of this substance at 20°C; on spraying or dispersing, however, much faster.

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: NOEC - *Leuciscus idus* - 50 mg/L - 48 h.
- Toxicity to daphnia and other aquatic invertebrates: EC50 - *Daphnia magna* - > 16 - < 650 mg/L - 24 h.
- Toxicity to algae: EC50 - *Desmodesmus subspicatus* (previous name: *Scenedesmus subspicatus*) - 28.6 mg/L - 72 h.
- Toxicity to microorganisms: EC0 - sewage, domestic - 150 mg/L - 24 h.

12.2 Persistence and degradability

2,4-Xylidine, incubated in chernozem soil at 500 ppm/kg, was biodegraded within 2 days; its transformation product was stable for >90 days(1). 2,4-Xylidine, initially present at 20 mg/l, was degraded by 36% in 6 hours using an activated sludge inoculum under aerobic conditions(2). In the Japanese MITI test, 2,4-xylidine (present at 100 mg/l) was classified as slow to biodegrade indicating that only 0-29% of the theoretical BOD was reached in 2 weeks using an activated sludge inoculum(3).

12.3 Bioaccumulative potential

An estimated BCF value of 11 was calculated for 2,4-xylidine(SRC), using a measured log Kow of 1.68(1) and a recommended regression-derived equation(2). According to a classification scheme(3), this BCF value suggests that bioconcentration in aquatic organisms is low(SRC).

12.4 Mobility in soil

The Koc of 2,4-xylidine is estimated as approximately 200(SRC), using a measured log Kow of 1.68(1) and a regression-derived equation(2,SRC). According to a recommended classification scheme(3), this estimated Koc value suggests that 2,4-xylidine has moderate mobility in soil(SRC). However, adsorption to soil due to the high reactivity of the aromatic amino group to humus or soil organic matter rather than to clay particles may cause decreased mobility of this compound(4,5). Low adsorption is observed at a neutral pH with pure clay minerals or soils for substituted anilines(5).

12.5 Other adverse effects

no data available

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.

SECTION 14: Transport information

14.1 UN Number

ADR/RID: UN1711 (For reference only, please check.) IMDG: UN1711 (For reference only, please check.) IATA: UN1711 (For reference only, please check.)

14.2 UN Proper Shipping Name

ADR/RID: XYLIDINES, LIQUID (For reference only, please check.) IMDG: XYLIDINES, LIQUID (For reference only, please check.) IATA: XYLIDINES, LIQUID (For reference only, please check.)

14.3 Transport hazard class(es)

ADR/RID: 6.1 (For reference only, please check.) IMDG: 6.1 (For reference only, please check.) IATA: 6.1 (For reference only, please check.)

14.4 Packing group, if applicable

ADR/RID: II (For reference only, please check.) IMDG: II (For reference only, please check.) IATA: II (For reference only, please check.)

14.5 Environmental hazards

ADR/RID: Yes IMDG: Yes IATA: Yes

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to IMO instruments

no data available

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
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2,4-xylydine	2,4-xylydine	95-68-1	202-440-0
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			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.

SECTION 16: Other information

Information on revision

Creation Date July 15, 2019
Revision Date August 08, 2025

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/>

Other Information

Depending on the degree of exposure, periodic medical examination is suggested. Specific treatment is necessary in case of poisoning with this substance; the appropriate means with instructions must be available. TLV only established for mixed isomers, see ICSC 0600. See ICSCs 0451, 0600, 1519, 1686 and 1687.

Any questions regarding this SDS, Please send your inquiry to info@cato-chem.com

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