

## Chemical Safety Data Sheet MSDS / SDS

**2,4-DIAMINOANISOLE**

Revision Date:2024-12-21 Revision Number:1

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

Product name : 2,4-DIAMINOANISOLE  
CBnumber : CB3139118  
CAS : 615-05-4  
EINECS Number : 210-406-1  
Synonyms : 2,4-Diaminoanisole,4-Methoxy-M-Phenylenediamine

**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**

Acute toxicity - Category 4, Oral  
Germ cell mutagenicity, Category 2  
Carcinogenicity, Category 1B  
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 2

**Label elements****Pictogram(s)**

☐☐

Signal word : Danger

**Hazard statement(s)**

H302 Harmful if swallowed  
H341 Suspected of causing genetic defects  
H350 May cause cancer  
H411 Toxic to aquatic life with long lasting effects

**Precautionary statement(s)**

P201 Obtain special instructions before use.

P273 Avoid release to the environment.

P281 Use personal protective equipment as required.

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

#### **Prevention**

P264 Wash ... thoroughly after handling.

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

P203 Obtain, read and follow all safety instructions before use.

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

P273 Avoid release to the environment.

#### **Response**

P301+P317 IF SWALLOWED: Get medical help.

P330 Rinse mouth.

P318 IF exposed or concerned, get medical advice.

P391 Collect spillage.

#### **Storage**

P405 Store locked up.

#### **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.

#### **Other hazards**

no data available

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## SECTION 3: Composition/information on ingredients

### **Substance**

Product name	: 2,4-DIAMINOANISOLE
Synonyms	: 2,4-Diaminoanisole,4-Methoxy-M-Phenylenediamine
CAS	: 615-05-4
EC number	: 210-406-1
MF	: C7H10N2O
MW	: 138.17

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## SECTION 4: First aid measures

### **Description of first aid measures**

#### **If inhaled**

Fresh air, rest.

#### **Following skin contact**

Remove contaminated clothes. Rinse and then wash skin with water and soap.

### **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 .

### **Most important symptoms and effects, both acute and delayed**

Exposure Routes: inhalation, skin absorption, ingestion, skin and/or eye contact Target Organs: Skin, thyroid, liver, reproductive system (NIOSH, 2016)

### **Indication of any immediate medical attention and special treatment needed**

Basic treatment: Establish a patent airway (oropharyngeal or nasopharyngeal airway, if needed). Suction if necessary. Watch for signs of respiratory insufficiency and assist ventilations if necessary. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Monitor for pulmonary edema and treat if necessary . Monitor for shock and treat if necessary . Anticipate seizures and treat if necessary . For eye contamination, flush eyes immediately with water. Irrigate each eye continuously with 0.9% saline (NS) during transport . Do not use emetics. For ingestion, rinse mouth and administer 5 mg/kg up to 200 ml of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool. Administer activated charcoal . Cover skin burns with dry sterile dressings after decontamination . /Organic bases/Amines and related compounds/

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## **SECTION 5: Firefighting measures**

### **Extinguishing media**

Powder, water spray, foam, carbon dioxide.

### **Specific Hazards Arising from the Chemical**

Excerpt from ERG Guide 154 [Substances - Toxic and/or Corrosive (Non-Combustible)]: Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes. Some are oxidizers and may ignite combustibles (wood, paper, oil, clothing, etc.). Contact with metals may evolve flammable hydrogen gas. Containers may explode when heated. For electric vehicles or equipment, ERG Guide 147 (lithium ion batteries) or ERG Guide 138 (sodium batteries) should also be consulted. (ERG, 2016)

### **Advice for firefighters**

Use water spray, powder, foam, carbon dioxide.

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## **SECTION 6: Accidental release measures**

### **Personal precautions, protective equipment and emergency procedures**

Personal protection: chemical protection suit including self-contained breathing apparatus. Sweep spilled substance into sealable containers. Do NOT let this chemical enter the environment.

### **Environmental precautions**

Personal protection: chemical protection suit including self-contained breathing apparatus. Sweep spilled substance into sealable containers. Do NOT let this chemical enter the environment.

### **Methods and materials for containment and cleaning up**

PRECAUTIONS FOR "CARCINOGENS": A high-efficiency particulate arrestor (HEPA) or charcoal filters can be used to minimize amt of carcinogen in exhausted air ventilated safety cabinets, lab hoods, glove boxes or animal rooms ... Filter housing that is designed so that used filters can be transferred into plastic bag without contaminating maintenance staff is avail commercially. Filters should be placed in plastic bags immediately after removal ... The plastic bag should be sealed immediately ... The sealed bag should be labelled properly ... Waste liquids ... should be placed or collected in proper containers for disposal. The lid should be secured & the bottles properly labelled. Once filled, bottles should be placed in plastic bag, so that outer surface ... is not contaminated ... The plastic bag should also be sealed & labelled. ... Broken glassware ... should be decontaminated by solvent extraction, by chemical destruction, or in specially designed incinerators. Chemical Carcinogens

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## SECTION 7: Handling and storage

### Precautions for safe handling

NO open flames. 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

Separated from strong oxidants. Well closed. Separated from strong oxidants Well closed.

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## SECTION 8: Exposure controls/personal protection

### Control parameters

#### Occupational Exposure limit values

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

#### 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 face shield or eye protection in combination with breathing protection.

#### Skin protection

Protective gloves. Protective clothing.

#### Respiratory protection

Use local exhaust or breathing protection.

#### Thermal hazards

no data available

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## SECTION 9: Physical and chemical properties

## Information on basic physicochemical properties

Physical state	neat
Colour	Needles from ether
Odour	no data available
Melting point/freezing point	66-68°C
Boiling point or initial boiling point and boiling range	286.3°C at 760 mmHg
Flammability	Combustible Solid
Lower and upper explosion limit/flammability limit	no data available
Flash point	no data available
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	Soluble in alcohol, hot ether; slightly soluble in DMSO
Partition coefficient n-octanol/water	log Kow = -0.31 (est)
Vapour pressure	0.047 mm Hg at 25 deg C (est)
Density and/or relative density	1.17g/cm <sup>3</sup>
Relative vapour density	(air = 1): 4.77
Particle characteristics	no data available

## SECTION 10: Stability and reactivity

### Reactivity

NIOSH considers 2,4-diaminoanisol (and its salts) to be a potential occupational carcinogen.

Decomposes on heating. This produces toxic fumes including nitrogen oxides. Reacts with strong oxidants.

### Chemical stability

no data available

### Possibility of hazardous reactions

2,4-DIAMINOANISOLE is incompatible with the following: Strong oxidizers (NIOSH, 2016).

### Conditions to avoid

no data available

### Incompatible materials

Strong oxidizers.

### Hazardous decomposition products

The substance decomposes on heating producing toxic fumes including nitrogen oxides.

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## SECTION 11: Toxicological information

### Acute toxicity

- Oral: LD50 Rat oral 460 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

Evaluation: There is inadequate evidence in humans for the carcinogenicity of 2,4-diaminoanisoole. There is sufficient evidence in experimental animals for the carcinogenicity of 2,4-diaminoanisoole. Overall evaluation: 2,4-Diaminoanisoole is possibly carcinogenic to humans (Group 2B).  
2,4-Diaminoanisoole and its salts

### Reproductive toxicity

no data available

### STOT-single exposure

no data available

### STOT-repeated exposure

This substance is possibly carcinogenic to humans.

### 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.

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## SECTION 12: Ecological information

### Toxicity

Toxicity to fish: no data available

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

no data available

## Bioaccumulative potential

A range of BCF values of 1.3 to 4.6 were measured for carp exposed to 2 ppm 2,4-diaminoanisole over the course of a 6 week incubation period(1). According to a classification scheme(2), this BCF range suggests bioconcentration in aquatic organisms is low(SRC).

## Mobility in soil

Using a structure estimation method based on molecular connectivity indices(1), the Koc for 2,4-diaminoanisole can be estimated to be 53(SRC). According to a classification scheme(2), this estimated Koc value suggests that 2,4-diaminoanisole is expected to have high mobility in soil. 2,4-Diaminoanisole is a weak base with an estimated pKa of 5.15(SRC), calculated by a method based on linear free energy relationships and perturbed molecular orbital theory(3). This estimated pKa indicates that 2,4-diaminoanisole will partially exist in the protonated form in acidic moist soils and cations generally adsorb to soils more strongly than their neutral counterparts(4). Moreover, anilines (aromatic amines) are expected to bind strongly to humus or organic matter in soils due to the high reactivity of the aromatic amino group(5,6), suggesting that the mobility of 2,4-diaminoanisole may be much lower in some soils than indicated by the estimated Koc value(SRC).

## Other adverse effects

no data available

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# 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.

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# 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

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## 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**

Listed.

#### **China Catalog of Hazardous chemicals 2015**

Not Listed.

#### **New Zealand Inventory of Chemicals (NZIoC)**

Listed.

#### **PICCS**

Not Listed.

#### **Vietnam National Chemical Inventory**

Listed.

#### **IECSC**

Not Listed.

#### **Korea Existing Chemicals List (KECL)**

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](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

Do NOT take working clothes home.

#### Disclaimer:

The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability of this SDS. The authors of this MSDS will not be held responsible for any harm caused by the use of this MSDS.