

SAFETY DATA SHEET

according to 1907/2006/EC, Article 3

Version no. : 2.0
Prepared on : 27.02.2026
Revised on : -

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

1.1 Product identifiers

Product name 4,4'-Methylene-bis(2-chloroaniline)
Product Number PSR50253
Brand PureSynth research chemicals
CAS No. 101-14-4

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

Identified uses Scientific research and development

1.3 Details of the supplier of the safety data sheet

Company PureSynth Research Chemicals GmbH
64683 Einhausen Marie-Curie-Straße. 3, Germany

1.4 Emergency telephone number

Worldwide Helpline No.: 1800-8908-260

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Acute toxicity, Category 4	H302: Harmful if swallowed.
Germ cell mutagenicity, Category 2	H341: Suspected of causing genetic defects.
Carcinogenicity, Category 1B	H350: May cause cancer.
Short-term (acute) aquatic hazard, Category 1	H400: Very toxic to aquatic life.
Long-term (chronic) aquatic hazard, Category 1	H341: Suspected of causing genetic defects.

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Pictogram



Signal word Danger

Hazard statement(s)

H302 Harmful if swallowed.
H341 Suspected of causing genetic defects.
H350 May cause cancer.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P202 Do not handle until all safety precautions have been read and understood.
P264 Wash skin thoroughly after handling.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.

Supplemental Hazard Statements No data available

Other hazards: This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: Composition / information on ingredients

3.1 Substances

Common names & Synonyms	Mol. formula	CAS number
4,4'-Diamino-3,3'-dichlorodiphenylmethane	C ₁₃ H ₁₂ Cl ₂ N ₂	96-18-4
Component	Classification	Concentration
4,4'-Methylenebis(2-chloroaniline)	M-Factor (Acute aquatic toxicity): 1 M-Factor (Chronic aquatic toxicity): 1 Acute toxicity estimate Acute oral toxicity: 2.000 mg/kg	>= 90 - <= 100

SECTION 4: First aid measures

Description of first aid measures

General advice

Show this safety data sheet to the doctor in attendance.

If inhaled

After inhalation: fresh air. Call in physician.

In case of skin contact

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

In case of eye contact	After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.
If swallowed	After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.
Most important symptoms and effects, both acute and delayed	The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11
Indication of any immediate medical attention and special treatment needed	No data available

SECTION 5: Firefighting measures

Extinguishing media	
Suitable extinguishing media	Water Foam Carbon dioxide (CO ₂) Dry powder
Unsuitable extinguishing media	For this substance/mixture no limitations of extinguishing agents are given.
Special hazards arising from the substance or mixture	Combustible. Hydrogen chloride gas Combustible. Vapours are heavier than air and may spread along floors. Forms explosive mixtures with air on intense heating. Development of hazardous combustion gases or vapours possible in the event of fire. Carbon oxides Nitrogen oxides (NO _x) Hydrogen chloride gas
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.
Further information	Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures	Advice for non-emergency personnel: Avoid generation and inhalation of dusts in all circumstances. Avoid substance contact. Ensure adequate ventilation.
Environmental precautions	Evacuate the danger area, observe emergency procedures, consult an expert. Do not let product enter drains.
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. Dispose of properly. Clean up affected area. Avoid generation of dusts.
Reference to other sections	For disposal see section 13.

SECTION 7: Handling and storage

Precautions for safe handling	Advice on safe handling Work under hood. Do not inhale substance/mixture.
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Conditions for safe storage, including any incompatibilities

Hygiene measures

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

Tightly closed. Dry. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorised persons.

Storage class (TRGS 510): 6.1C, Combustible, acute toxic Cat.3 / toxic compounds or compounds which causing chronic effects.

Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls / Personal protection

Control parameters

Ingredients with workplace control parameters.

Exposure controls

Appropriate engineering controls

No data available

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). Safety glasses.

Skin protection

protective clothing

Body Protection

Protective clothing

Respiratory protection

required when dusts 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.

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Control of environmental exposure

Do not let product enter drains.

SECTION 9: Physical and chemical properties

Appearance	Form: Powder to Crystal Colour: Light orange to Yellow to Green
Odour	No data available
pH - Value	No data available
Density	1440 kg/m ³ (20 °C) Method: OECD Test Guideline 109
Boiling Point	202 - 214 °C (0,4 hPa) Method: lit.
Melting Point	102 - 107 °C Method: lit.
Solubility in water	0.0138 g/l (20 °C) pH: 7.6 Method: OECD Test Guideline 105
Flash point	slightly soluble 113 °C Method: closed cup
Vapour pressure	No data available
Auto -ignition temperature	No data available
Vapour density	No data available
Flammability (solid, gas)	No data available
Evaporation rate	No data available
Partition coefficient: n- octanol / water	log Pow: 2.5 (25 °C) pH: 7 Method: OECD Test Guideline 117
Viscosity	No data available
Explosive properties	No data available
Upper / lower flammability or explosive limits	Upper explosion limit: 12.6 %(V) Lower explosion limit: 3.2 %(V)
Oxidizing properties	No data available

Other safety information: No data available

SECTION 10: Stability and reactivity

Reactivity	Forms explosive mixtures with air on intense heating. A range from approx. 15 Kelvin below the flash point is to be rated as critical. The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.
Chemical stability	The product is chemically stable under standard ambient conditions (room temperature)
Possibility of hazardous reactions	No data available
Condition to avoid	Strong heating.
Incompatible materials	Strong acids Strong bases Strong oxidizing agents
Hazardous decomposition products	In the event of fire: see section 5

SECTION 11: Toxicological information

Acute toxicity	LD50 Oral - Rat - female - 2000 mg/kg (OECD Test Guideline 423) Acute toxicity estimate Oral - 2.000 mg/kg (ATE value derived from LD50/LC50 value) Inhalation: No data available LD50 Dermal - Rat - male and female - > 2.000 mg/kg (OECD Test Guideline 402)
Skin corrosion/irritation	No data available
Serious eye damage/eye irritation	No data available
Respiratory or skin sensitization	Mouse Result: Does not cause skin sensitisation. (OECD Test Guideline 429) In vitro tests showed mutagenic effects Test Type: Ames test Test system: S. typhimurium Method: OECD Test Guideline 471
Germ cell mutagenicity	Result: positive Test Type: Mammal Test system: Lungs Result: positive Species: Rat Result: positive
Carcinogenicity	This product is or contains a component that has been reported to be probably carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification. Possible human carcinogen
Reproductive toxicity	No data available
Specific target organ toxicity - single exposure	No data available
Specific target organ toxicity - repeated exposure	No data available
Aspiration hazard	No data available
Additional Information	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Absorption into the body leads to the formation of methemoglobin which in sufficient concentration causes cyanosis. Onset may be delayed 2 to 4 hours or longer. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

Toxicity

Toxicity to fish	LC50 (Oryzias latipes): 0.606 mg/l Exposure time: 96 h
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Toxicity to daphnia and other aquatic invertebrates	Test Type: semi-static test Method: OECD Test Guideline 203 EC50 (Daphnia magna (Water flea)): 0.916 mg/l Exposure time: 48 h
Toxicity to algae	Test Type: Immobilization Method: OECD Test Guideline 202 ErC50 (Pseudokirchneriella subcapitata (algae)): > 0.189 mg/l Exposure time: 72 h Test Type: Growth inhibition Method: OECD Test Guideline 201
Toxicity to bacteria	EC50 (Sludge Treatment): > 100 mg/l Exposure time: 3 h
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	Test Type: Respiration inhibition Method: OECD Test Guideline 209 LC50: 0.0464 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) Method: OECD Test Guideline 211
Persistence and degradability	No data available
Bioaccumulative potential	No data available
Mobility in soil	No data available
Results of PBT and vPvB assessment	This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.
Endocrine disrupting properties	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.
Other adverse effects	No data available.

SECTION 13: Disposal considerations

Waste treatment methods	Waste material must be disposed of in accordance with the national and local regulations.
Products	Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.
Contaminated packaging	Dispose of as unused product.

SECTION 14: Transport information

	UN no.	UN proper shipping name	Hazard Class(es)	Packaging group	Marine Pollutant
ADR / RID	3077	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (4,4'-Methylenebis(2-chloroaniline))	9	III	NO
IMDG	3077	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (4,4'-Methylenebis(2-chloroaniline))	9	III	Yes

IATA	3077	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (4,4'- Methylenebis(2-chloroaniline))	9	III	NO
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SECTION 15: Regulatory information

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII)	Conditions of restriction for the following entries should be considered: Number on list 28: 4,4'- Methylenebis(2-chloroaniline) Number on list 43: 4,4'- Methylenebis(2-chloroaniline) Number on list 75: If you intend to use this product as tattoo ink, please contact your vendor. 4,4'-Methylenebis(2- chloroaniline)
REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).	4,4'-Methylenebis(2- chloroaniline)
Regulation (EU) No 2024/590 on substances that deplete the ozone layer	Not applicable
Regulation (EU) 2019/1021 on persistent organic pollutants (recast)	Not applicable
REACH - List of substances subject to authorisation (Annex XIV)	4,4'-Methylenebis(2- chloroaniline)
This product contains a substance listed on Annex XIV of the REACH Regulation (EC) Nr. 1907/2006	
Listed substance	4,4'-Methylenebis(2- chloroaniline)

After the sunset date the use of this substance requires either an authorization or can only be used for exempted uses, e.g. use in scientific research and development which includes routine analytics or use as intermediate.

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.	E1	ENVIRONMENTAL HAZARDS
	23	4,4'-Methylenebis (2- chloraniline) and/or salts, in powder form

Other regulations No data available

Chemical safety assessment

For this product a chemical safety assessment was not carried out.

SECTION 16: Other information

The information in this SDS 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. The user must be determined suitability of this information for his application.