

Safety Data Sheet

#16119261 · Full 16-section SDS

According to Regulation (EC) No 1907/2006

According to Regulation (EC) No 2020/878

PRODUCT	CAS NUMBER	FORMULA	VERSION	REVISION DATE
3,3'-Diaminobenzidine	91-95-2	(NH2)2C6H3C6H3(NH2)2	—	06 Nov 2025

SECTION 1

Identification

1.1 Product identifier

Product name 3,3'-Diaminobenzidine

CAS number 91-95-2

EC / EINECS number 202-110-6

Chemical formula (NH2)2C6H3C6H3(NH2)2

Molecular weight 214.27

SMILES C1=CC(=C(C=C1C2=CC(=C(C=C2)N)N)N)N

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

Research and development. Laboratory Chemicals. Manufacture of substances.
Not suitable for human consumption or veterinary purposes.

1.3 Details of the supplier of the safety data sheet

Molekula Limited
1 Millennium Way, Newton Aycliffe
Durham, DL5 6JW, United Kingdom
info@molekula.com · +44 (0) 3302 000333

1.4 Emergency telephone number

0344 892 0111 — National Poisons Information Service (NPIS) (United Kingdom — for healthcare professionals (via TOXBASE))

SECTION 2

Hazard identification

2.1 Classification of the substance or mixture

Acute Tox. 4; H302

Eye Irrit. 2; H319

Muta. 2; H341

Carc. 1A or Carc. 1B; H350

2.2 Label elements



DANGER

CODE	HAZARD STATEMENT
------	------------------

H302	Harmful if swallowed
------	----------------------

H319	Causes serious eye irritation
------	-------------------------------

H341	Suspected of causing genetic defects
------	--------------------------------------

H350	May cause cancer
------	------------------

CODE	PRECAUTIONARY STATEMENT
------	-------------------------

P201	Obtain special instructions before use
------	--

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

P301+312	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
----------	---

P305+351+338	IF IN EYES: Rinse with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing
--------------	---

P308+313	IF exposed or concerned: Get medical advice/attention
----------	---

2.3 Other hazards

This product does not contain any known or suspected Endocrine disruptors. Does not contain components considered to be persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB).

SECTION 3

Composition / information on ingredients

3.1 Substances

Name	3,3'-Diaminobenzidine
CAS number	91-95-2
EC number	202-110-6
Concentration / purity	~100.0%
Classification according to Regulation (EC) No 1272/2008	Acute Tox. 4; H302 Eye Irrit. 2; H319 Muta. 2; H341 Carc. 1A or Carc. 1B; H350
Hazard statements	H302, H319, H341, H350
Acute toxicity estimate (ATE)	None reported
Impurities / stabilising additives	Not applicable

SECTION 4

First-aid measures

4.1 Description of first aid measures

Inhalation	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Serious cases: If not breathing, give artificial respiration.
Skin contact	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. Contact physician if discomfort continues.
Eye contact	Remove contact lenses if present. Rinse eyes with water. Continue to rinse for at least 15 minutes and seek medical attention.
Ingestion	IF SWALLOWED: Drink plenty of water. Get medical attention if any discomfort continues.

Get medical attention if any discomfort continues. Show this Safety Data Sheet (SDS) to medical personnel. First aiders/ medical personnel need to protect themselves.

4.2 Most important symptoms and effects, both acute and delayed

The severity of the symptoms described will vary dependant of the concentration and the length of exposure. See section 11 for more detailed information on health effects and symptoms.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically. No special treatment requirement.

SECTION 5

Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media Water Foam Carbon dioxide (CO₂) Dry powder

Unsuitable extinguishing media No specific firefighting procedure given

5.2 Special hazards arising from the substance or mixture

Combustible
Carbon monoxide (CO)
Carbon dioxide (CO₂)
Nitrogen oxides (NO_x)
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters

Evacuate area. Avoid breathing gas, fume, vapours or spray. Cool containers exposed to heat with water spray and remove container, if no risk is involved.

SECTION 6

Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Avoid breathing dust/fume/gas/mist/vapours/spray. Provide adequate ventilation. Avoid contact with skin and eyes. Avoid dust formation. For personal protection, see section 8

6.2 Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

6.3 Methods and material for containment and cleaning up

Collect spillage with shovel, broom or the like and reuse, if possible. Dispose of large amounts of spillage/waste according to agreement with local authorities

6.4 Reference to other sections

For specific precautions, see Section 8 and Section 13.

SECTION 7

Handling & storage

7.1 Precautions for safe handling

Work under hood. Observe good chemical hygiene practices. Keep away from food, drink and animal feeding stuffs.

Wash contaminated skin thoroughly after handling. Do not eat, drink or smoke when using this product. Remove contaminated clothing and launder thoroughly before re-use.

7.2 Conditions for safe storage, including any incompatibilities

Storage temperature	Ambient
---------------------	---------

Conditions for safe storage (incompatibilities)	Light sensitive. Storage class (TRGS 510): 6.1C: Combustible, acute toxic Cat.3 / toxic compounds or compounds which causing chronic effects
---	---

7.3 Specific end use(s)

See Section 1.2.

SECTION 8

Exposure controls / personal protection

8.1 Control parameters

Occupational exposure limits (OEL / WEL)	None reported
--	---------------

DNEC/PNEC data	DNEL/DMEL: Not reported PNEC: Not reported
----------------	---

8.2 Exposure controls

Eye / face protection	Safety glasses Wear eye/face protection as recommended. All eye/face protection should comply with EN ISO 16321-1:2022.
Skin / hand protection	Gloves: Nitrile Rubber, 0.11mm (480 mins).
Respiratory protection	Full-face respirator Keep self-contained breathing apparatus readily available for emergency use. Provide adequate ventilation. If ventilation is insufficient, suitable respiratory protection must be provided. Respiratory equipment: Reusable Air-Purifying Respirator (APR). Filter type: ABEK. Standard: EN 14387.
Other protection	Protective clothing
Environmental exposure controls	Avoid discharge into drains.

SECTION 9

Physical & chemical properties

9.1 Information on basic physical and chemical properties

Appearance / physical state	Solid DERIVED FROM: LITERATURE
Colour	No data available
Odour	Not known DERIVED FROM: LITERATURE
Melting / freezing point	175 - 177 °C DERIVED FROM: LITERATURE
Boiling point	No data available DERIVED FROM: LITERATURE
Flammability	Not applicable
Lower and upper explosion limit	No data available DERIVED FROM: LITERATURE
Flash point	Not applicable
Auto-ignition temperature	No data available DERIVED FROM: LITERATURE
Decomposition temperature	No data available DERIVED FROM: LITERATURE
pH	No data available DERIVED FROM: LITERATURE
Acidity	Neutral DERIVED FROM: LITERATURE
Kinematic viscosity	No data available DERIVED FROM: LITERATURE
Solubility	No data available
Partition coefficient n-octanol/water (log value)	No data available DERIVED FROM: LITERATURE

Vapour pressure	No data available DERIVED FROM: LITERATURE
Density (g/mL)	<i>Not applicable</i>
Relative vapour density	No data available DERIVED FROM: LITERATURE
Particle characteristics	No data available DERIVED FROM: LITERATURE

9.2 Other information

No data available

SECTION 10

Stability & reactivity

10.1 Reactivity

There are no known reactivity hazards associated with this product.

10.2 Chemical stability

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.

10.3 Possibility of hazardous reactions

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

10.4 Conditions to avoid

Violent reactions possible with: Strong oxidizing agents Caution! In contact with nitrites, nitrates, nitrous acid possible liberation of nitrosamines!

10.5 Incompatible materials

No data available

10.6 Hazardous decomposition products

See section 5

SECTION 11

Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity (LD50 / LC50)	LD50 Oral - Mouse - 1,834 mg/kg
Skin corrosion / irritation	<i>No data available</i>
Eye corrosion / irritation	Causes eye irritation.
Respiratory / skin sensitisation	<i>No data available</i>
Carcinogenicity	<i>No data available</i>

Mutagenicity

In vitro tests showed mutagenic effects
Test Type: Ames test Species: Salmonella typhimurium Metabolic activation: with and without metabolic activation Result: positive
Test Type: unscheduled DNA synthesis assay Test system: rat hepatocytes Result: positive
Species: Mouse Application Route: Intraperitoneal Remarks: Cytogenetic analysis

Reproductive toxicity

No data available

STOT (single / repeated exposure)

No data available

Aspiration hazard

Material is a solid.

11.2 Information on other hazards

Not considered an endocrine disruptor

SECTION 12

Ecological information

12.1 Toxicity

No data available

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

This substance 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.

12.6 Endocrine disrupting properties

See Section 11.2.

12.7 Other adverse effects

No data available

SECTION 13

Disposal considerations

13.1 Waste treatment methods

Dispose of in accordance with local/national regulations

SECTION 14

Transport information

14.1 UN number or ID number

Not applicable

14.2 UN proper shipping name

Not applicable

14.3 Transport hazard class(es)

Not applicable

14.4 Packing group

Not applicable

14.5 Environmental hazards

Not applicable

14.6 Special precautions for user

Special precautions for user Not applicable

Transport category Not applicable

Tunnel code Not applicable

Packing instruction (ADR) Not applicable

Packing instruction (IMDG) Not applicable

14.7 Maritime transport in bulk according to IMO instruments

No data available

SECTION 15

Regulatory information

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

Substance-specific regulations (e.g. licences) No data available

REACH code Y110

ECHA notification Not applicable

15.2 Chemical safety assessment

No

SECTION 16

Other information

Revision notes / other information This version (v10) was created on 13.10.2026 and is the first version of this SDS.

This Safety Data Sheet was generated automatically from the data Molekula holds against this product, in the 16-section GHS/CLP format. Fields shown as "No data available" carry no recorded value; fields shown as "Not applicable" were assessed as not relevant to this substance. For queries, contact Molekula at info@molekula.com.