According to Regulation (EC) No 1907/2006
According to Regulation (EC) No 2020/878

4-Dimethylaminopyridine

Version number: 2
Issued: 2024-04-23
Replaces SDS: 2021-12-21

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

1.1. Product identifier

Trade name
4-Dimethylaminopyridine

CAS number
1122-58-3

EC number
214-353-5

Synonyms
DMAP; N,N-dimethylpyridin-4-amine

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

Relevant identified uses
Research and development. Laboratory Chemicals. Manufacture of substances.

Not suitable for use in
Not suitable for human consumption or veterinary purposes.

1.3. Details of the supplier of the safety data sheet

Supplier
Molekula Group

Address
Molekula Ltd, Lingfield Way, Darlington,
DL1 4XX Darlington
United Kingdom

Telephone
+44 (0) 3302 000 333

Email
info@molekula.com

Web site
www.molekula.com

Contact person
Kevin Banks

Email
+44 (0) 7769276927

1.4. Emergency telephone number

Poison center/Additional emergency number
0344 892 0111 - National Poisons Information Service (Newcastle Centre)

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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Classification

Serious eye damage, hazard category 1
Hazardous to the aquatic environment — Chronic hazard category 2
Acute toxicity, oral, hazard category 3
Acute toxicity, dermal, hazard category 1
Acute toxicity, inhalation, hazard category 2
Specific Target Organ Toxicity — Single exposure, hazard category 3

Hazard statements

H301, H310, H318, H331, H370, H411

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008

Hazard pictograms

Signal word

Danger

Hazard statements

H301 Toxic if swallowed.
H310 Fatal in contact with skin.
H318 Causes serious eye damage.
H331 Toxic if inhaled.
H370 Causes damage to organs.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements

P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe dust/fumes/gas/mist/vapours/spray.
P262 Do not get in eyes, on skin, or on clothing.
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.
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P302 + P350 IF ON SKIN: Gently wash with plenty of soap and water.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P311 IF exposed or concerned: Call a POISON CENTER/doctor.
P332 + P313 If skin irritation occurs: Get medical advice/attention.
P337 + P313 If eye irritation persists: Get medical advice/attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.
P391 Collect spillage.
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.
P501 Dispose of contents/container to local regulations.

2.3. Other hazards

No data available

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical name	CAS No. EC No. REACH No. Index No.	Concentration	Classification	H-phrase M factor acute M factor chronic	Note
4-Dimethylaminopyridine	1122-58-3 214-353-5 - -	100%	Acute Tox. 3 - oral, Acute Tox. 2 - dermal, Eye Dam. 1, Acute Tox. 3 - inhala-tion, Aquatic Chronic 2, STOT SE 3	H301, H310, H318, H331, H370, H411 - -	-

Molecular weight

122.17

Substance additional information

For the complete text of H- / EUH-statements mentioned in this section, see section 16.

4-Dimethylaminopyridine

SECTION 4: First aid measures

4.1. Description of first aid measures

IF exposed or concerned: Get medical advice/attention. First aiders/ medical personnel need to protect themselves. Show this Safety Data Sheet (SDS) to medical personnel.

Inhalation

Toxic if inhaled. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor. If breathing stops, provide artificial respiration. For breathing difficulties oxygen may be necessary.

Skin contact

In case of skin contact: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. Immediately call a POISON CENTER/doctor. The casualty should be transferred to hospital for further treatment.

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: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only if the persons are fully conscious and awake). Administer activated charcoal (20 - 40g in a 10% slurry) and consult a doctor as quickly as possible. Do not attempt to neutralise.

Information for doctors

No data available.

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.

Inhalation

Single exposure may cause the following adverse effects: Difficulty in breathing. Unconsciousness, possibly death.

Skin contact

Single exposure may cause the following adverse effects: Unconsciousness, possibly death.

Eye contact

Single exposure may cause the following adverse effects: Severe irritation. Unconsciousness, possibly death.

Ingestion

Single exposure may cause the following adverse effects: Severe abdominal pain. May cause severe internal injury. Unconsciousness, possibly death.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically. No special treatment requirement.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

In case of fire: Use foam, carbon dioxide, dry powder or water fog to extinguish.

Unsuitable extinguishing media

No specific fire fighting procedure given.

5.2. Special hazards arising from the substance or mixture

Specific hazards: Toxic. Corrosive. Combustible.
Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.
Development of hazardous combustion gases or vapours possible in the event of fire.
Carbon monoxide (CO). Carbon dioxide (CO_2).
Nitrous gases (NO_x).
Vapours are heavier than air and may travel along the floor and in the bottom of containers.
Forms explosive mixtures with air on intense heating.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3. Advice for firefighters

Special protective equipment for fire-fighters

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 personal protection, see section 8. For waste disposal, see section 13.

4-Dimethylaminopyridine

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Preventive handling precautions

For precautions see section 2.2. Do not handle until all safety precautions have been read and understood. Work under hood Do not handle broken packages without protective equipment. This product is toxic. Keep containers tightly closed. Immediate first aid is necessary. Wear protective clothing, gloves, eye and face protection. Avoid contact with skin and eyes. Do not breathe dust/fume/gas/mist/vapours/spray. Avoid ingestion and inhalation. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Do not reuse empty containers.

General hygiene

Observe good chemical hygiene practices. Remove contaminated clothing immediately and wash skin with soap and water. Remove contaminated clothing and launder thoroughly before re-use. Wash skin thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

Store at room temperature. Store in a dry place. Store in a closed container.

Storage class : Toxic storage.

7.3. Specific end use(s)

No specific usage precautions noted.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

DNEL/DMEL

Product/Substance name (CAS No./EC No.)	Type	Exposure	Value	Population	Effects
4-Dimethylaminopyridine (1122-58-3/214-353-5)	DNEL	Chronic (long term) Dermal	0.01 mg/kg bw/day	Workers	Systemic
4-Dimethylaminopyridine (1122-58-3/214-353-5)	DNEL	Acute (short term) Inhalation	0.1 mg/m³	Workers	Systemic
4-Dimethylaminopyridine (1122-58-3/214-353-5)	DNEL	Chronic (long term) Inhalation	0.05 mg/m³	Workers	Systemic

PNEC/PEC

4-Dimethylaminopyridine

Product/Substance name (CAS No./EC No.)	Type	Environmental compartment	Value
4-Dimethylaminopyridine (1122-58-3/214-353-5)	PNEC	Freshwater	0.004 mg/l
4-Dimethylaminopyridine (1122-58-3/214-353-5)	PNEC	Sediment (freshwater)	0.038 mg/kg sediment dw
4-Dimethylaminopyridine (1122-58-3/214-353-5)	PNEC	Intermittent releases	0.04 mg/l
4-Dimethylaminopyridine (1122-58-3/214-353-5)	PNEC	Sewage Treatment Plant	50 mg/l
4-Dimethylaminopyridine (1122-58-3/214-353-5)	PNEC	Soil	0.0036 mg/kg soil dry weight
4-Dimethylaminopyridine (1122-58-3/214-353-5)	PNEC	Marine water	0.0004 mg/l
4-Dimethylaminopyridine (1122-58-3/214-353-5)	PNEC	Sediment (marine water)	0.0038 mg/l

8.2. Exposure controls

Personal Protective Equipment Symbols

Eye / face protection

Wear eye protection.

Hand protection

Wear protective gloves. Recommended gloves: Nitrile.
Glove Thickness: 0.11mm
Breakthrough time: 8 hours
Always inspect gloves before use. If signs of wear and tear are noticed then the gloves should be replaced.
No specific hygiene procedures noted, but good personal hygiene practices are always advisable, especially when working with chemicals. Wash contaminated skin thoroughly after handling.

Other skin protection

Wash skin thoroughly after handling.

Respiratory protection

Provide adequate ventilation. If ventilation is insufficient, suitable respiratory protection must be provided.

Environmental exposure controls
Avoid discharge into drains.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state
Solid

Colour
White.

Odour
Strong.

Melting point / freezing point
110 - 113 °C

Boiling point or initial boiling point and boiling range
162 °C

Flammability
No data available

Lower and upper explosion limit
No data available

Flash point
124 °C

Auto-ignition temperature
420 °C

Decomposition temperature
No data available

pH
11.4

Kinematic viscosity
No data available

Solubility
No data available

Partition coefficient n-octanol/water
No data available

4-Dimethylaminopyridine

Vapour pressure
No data available

Density and/or relative density
No data available

Relative vapour density
No data available

Explosive properties
Not classified as explosive.

Particle characteristics
No data available

9.2. Other information
No data available

SECTION 10: Stability and reactivity

10.1. Reactivity
There are no known reactivity hazards associated with this product.
15 (approx) Kelvin below the flash point is to be rated as critical.

10.2. Chemical stability
Stable under normal temperature conditions. Stable under the prescribed storage conditions.

10.3. Possibility of hazardous reactions
Violent reactions possible with:
Strong oxidising agents.
Acids.
Caution! In contact with nitrites, nitrates, nitrous acid possible liberation of nitrosamines!

10.4. Conditions to avoid
strong heating

10.5. Incompatible materials
Strong oxidising agents.

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

Product / Substance name CAS / EC no.	Dose descriptor	Value / Dose	Exposure route	Duration of exposure	Test animals
4-Dimethylaminopyridine 1122-58-3 / 214-353-5	LD50	140 mg/kg	Oral	-	Rat
4-Dimethylaminopyridine 1122-58-3 / 214-353-5	LC50	0.53 mg/l	Inhalation.	4 hours	Rat
4-Dimethylaminopyridine 1122-58-3 / 214-353-5	LD50	90 mg/kg	Dermal	-	Rabbit

Serious eye damage/irritation

Product / Substance name CAS / EC no.	Result	Species
4-Dimethylaminopyridine 1122-58-3 / 214-353-5	Corrosive.	Rabbit

Respiratory or skin sensitisation

Product / Substance name CAS / EC no.	Result	Species	Method / Guideline
4-Dimethylaminopyridine 1122-58-3 / 214-353-5	Negative.	Guinea Pig	Buehler test:

Germ cell mutagenicity

Product / Substance name CAS / EC no.	Result	Metabolic activation / Exposure	Species	Method / Guideline
4-Dimethylaminopyridine 1122-58-3 / 214-353-5	Negative.	with and without metabolic activation	Escherichia coli/Salmonella typhimurium	Ames test
4-Dimethylaminopyridine 1122-58-3 / 214-353-5	Negative.	with and without metabolic activation	Mouse lymphoma cells	In vitro mammalian cell gene mutation test.

STOT-single exposure

Product / Substance name CAS / EC no.	Result
4-Dimethylaminopyridine 1122-58-3 / 214-353-5	Causes damage to organs (nervous system) through prolonged or repeated exposure.

Aspiration hazard

Based on available data, the classification criteria are not met.

11.2. Information on other hazards

No data available

SECTION 12: Ecological information

12.1. Toxicity

Acute fish toxicity

Product / Substance name CAS / EC no.	Measurement type	Value / Result	Duration of exposure	Species
4-Dimethylaminopyridine 1122-58-3 / 214-353-5	LC50	11.6 mg/l	96 hours	Brachydanio rerio (Zebra Fish)

Acute algae toxicity

Product / Substance name CAS / EC no.	Measurement type	Value / Result	Duration of exposure	Species
4-Dimethylaminopyridine 1122-58-3 / 214-353-5	ErC50	4.22 mg/l	72 hours	Pseudokirchneriella sub-capitata

Acute crustacean toxicity

Product / Substance name CAS / EC no.	Measurement type	Value / Result	Duration of exposure	Species
4-Dimethylaminopyridine 1122-58-3 / 214-353-5	LC50	>100 mg/l	48 hours	Daphnia magna

Micro-/macro organism toxicity

Product / Substance name CAS / EC no.	Measurement type	Value / Result	Duration of exposure	Species
4-Dimethylaminopyridine 1122-58-3 / 214-353-5	IC50	527.09 mg/l	60 hours	Tetrahymena pyriformis

12.2. Persistence and degradability

Persistence and degradability

Product / Substance name CAS / EC no.	Type of test	Duration	Result	Degradation
4-Dimethylaminopyridine 1122-58-3 / 214-353-5	aerobic	28 days	0%	The product is not readily biodegradable.

12.3. Bioaccumulative potential

No data available

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

No data available

12.6. Endocrine disrupting properties

This product does not contain any known or suspected endocrine disruptors.

12.7. Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal considerations

Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION 14: Transport information

14.1. UN number

2811

14.2. UN proper shipping name

ADR / RID / ADN proper shipping name

TOXIC SOLID, ORGANIC, N.O.S. (4-Dimethylaminopyridine (DMAP))

IMDG proper shipping name
TOXIC SOLID, ORGANIC, N.O.S. (4-Dimethylaminopyridine (DMAP))

IATA proper shipping name
Toxic solid, organic, n.o.s. (4-Dimethylaminopyridine (DMAP))

14.3. Transport hazard class(es)

Label
ADR/RID/ADN

6.1 *Environmental hazard*

IMDG

6.1 *Environmental hazard*

IATA

6.1 *Environmental hazard*

ADR / RID Class
6.1

ADR / RID Classification code
T2

ADR / RID hazard identification number
60

IMDG Class
6.1

IATA Class
6.1

ADN Class
6.1

ADN Class Code
T2

14.4. Packing group
ADR / RID / ADN: II
IMDG: II
IATA: II

14.5. Environmental hazards
Not applicable

14.6. Special precautions for user
Special precautions for user
Tunnel restriction code: D/E
Transport category: 2

IMDG EmS
F-A, S-A

14.7. Maritime transport in bulk according to IMO instruments
IBC Instruction: IBC08

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
EU regulations
This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.
This material safety data sheet complies with the requirements of Regulation (EU) 2020/878.

National regulations
Directive: 2012/18/EU:
H2 ACUTE TOXIC
E2 ENVIRONMENTAL HAZARDS

15.2. Chemical safety assessment
No chemical safety assessment has been carried out.

According to Regulation (EC) No 1907/2006
According to Regulation (EC) No 2020/878

4-Dimethylaminopyridine

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SECTION 16: Other information

Phrase meaning

Eye Dam. 1 - Serious eye damage, hazard category 1
Aquatic Chronic 2 - Hazardous to the aquatic environment — Chronic hazard category 2
Acute Tox. 3 - oral - Acute toxicity, oral, hazard category 3
Acute Tox. 1 - dermal - Acute toxicity, dermal, hazard category 1
Acute Tox. 2 - inhalation - Acute toxicity, inhalation, hazard category 2
STOT SE 3 - Specific Target Organ Toxicity — Single exposure, hazard category 3
Acute Tox. 2 - dermal - Acute toxicity, dermal, hazard category 2
Acute Tox. 3 - inhalation - Acute toxicity, inhalation, hazard category 3
H301 Toxic if swallowed.
H310 Fatal in contact with skin.
H318 Causes serious eye damage.
H331 Toxic if inhaled.
H370 Causes damage to organs.
H411 Toxic to aquatic life with long lasting effects.