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

1-Chloro-2,4-dinitrobenzene

Version number: 3
Issued: 2024-01-24
Replaces SDS: 2022-11-17

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

1.1. Product identifier

Trade name
1-Chloro-2,4-dinitrobenzene

CAS number
97-00-7

EC number
202-551-4

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

Relevant identified uses
Research and development.

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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According to Regulation (EC) No 2020/878

1-Chloro-2,4-dinitrobenzene

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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 — Acute hazard category 1
Hazardous to the aquatic environment — Chronic hazard category 1
Skin irritation, hazard category 2
Skin sensitisation, hazard category 1
Acute toxicity, oral, hazard category 4
Acute toxicity, dermal, hazard category 1

Hazard statements

H302, H310, H315, H317, H318, H400, H410

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008

Hazard pictograms

Signal word

Danger

Hazard statements

H302 Harmful if swallowed.
H310 Fatal in contact with skin.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H410 Very toxic to aquatic life with long lasting effects.

1-Chloro-2,4-dinitrobenzene

Precautionary statements

P261 Avoid breathing 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.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P310 Immediately call a POISON CENTER/doctor.
P321 Specific treatment (see on this label).
P330 Rinse mouth.
P391 Collect spillage.
P301 + P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P302 + P352 IF ON SKIN: Wash with plenty of water/.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332 + P313 If skin irritation occurs: Get medical advice/attention.
P405 Store locked up.
P501 Dispose of contents/container to local regulations.
P361 + P364 Take off immediately all contaminated clothing and wash it before reuse.
P362 + P364 Take off contaminated clothing and wash it before reuse.
P333 +P313 If skin irritation or rash occurs: Get medical advice/attention.

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
1-Chloro-2,4-dinitrobenzene	97-00-7 202-551-4 - -	100%	Acute Tox. 4 - oral, Acute Tox. 2 - dermal, Skin Irrit. 2, Skin Sens. 1, Eye Dam. 1, Aquatic Acute 1, Aquatic Chronic 1	H302, H310, H315, H317, H318, H400, H410 - -	-

Molecular weight

202.55

Substance additional information

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

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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).

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.

1-Chloro-2,4-dinitrobenzene

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.
Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.
Carbon monoxide (CO). Carbon dioxide (CO_2).
Nitrous gases (NO_x).
Hydrogen Chloride gas
Combustible.
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.

1-Chloro-2,4-dinitrobenzene

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Preventive handling precautions

For precautions see section 2.2. Work under hood Do not handle until all safety precautions have been read and understood. 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

No data available

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
Yellow.

Odour
No data available

Melting point / freezing point
48 - 50 °C

Boiling point or initial boiling point and boiling range
315 °C

Flammability
No data available

Lower and upper explosion limit
2 - 22 %

Flash point
194 °C
Method
CC (Closed cup).

Auto-ignition temperature
No data available

Decomposition temperature
No data available

pH
No data available

Kinematic viscosity
No data available

Solubility
No data available

Partition coefficient n-octanol/water
log Pow: 2.24 at 23.3 °C Bioaccumulation is not expected.

Vapour pressure
0.000 hPa at 25 °C

Density and/or relative density
1.7g/cm3

Relative vapour density
No data available

Particle characteristics
No data available

9.2. Other information
No data available

SECTION 10: Stability and reactivity

10.1. Reactivity
Forms explosive mixtures with air on intense heating.
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:
Alkali metals.
Alcohol.
Nitrogen oxides
Organic nitro compounds.
chlorates
Nitric acid.
Water.
Organic Substances
aluminium halides
phenols
Hydrazine hydrate
combustible substances

Risk of explosion with:
Reducing Agents.

10.4. Conditions to avoid

strong heating

10.5. Incompatible materials

There are no known reactivity hazards associated with this product.

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	Test animals
1-Chloro-2,4-dinitroben-zene 97-00-7 / 202-551-4	LD50	939 mg/kg	Oral	Rat
1-Chloro-2,4-dinitroben-zene 97-00-7 / 202-551-4	LD50	130 mg/kg	Dermal	Rabbit

Skin corrosion/irritation

Product / Substance name CAS / EC no.	Result	Duration of exposure	Species
1-Chloro-2,4-dinitrobenzene 97-00-7 / 202-551-4	Severe skin irritation.	24 hours	Rabbit

Serious eye damage/irritation

Product / Substance name CAS / EC no.	Result	Duration of exposure	Species
1-Chloro-2,4-dinitrobenzene 97-00-7 / 202-551-4	Severe eye irritation.	24 hours	Rabbit

Respiratory or skin sensitisation

Product / Substance name CAS / EC no.	Result	Species	Method / Guideline
1-Chloro-2,4-dinitrobenzene 97-00-7 / 202-551-4	May cause sensitization by skin contact.	Guinea Pig	Buehler test:

Germ cell mutagenicity

Product / Substance name CAS / EC no.	Result	Metabolic activation / Exposure	Species	Method / Guideline
1-Chloro-2,4-dinitroben-zene 97-00-7 / 202-551-4	Positive.	with and without meta-bolic activation	TA98	Ames test

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
1-Chloro-2,4-dinitroben-zene 97-00-7 / 202-551-4	LC50	0.32 mg/l	96 hours	Brachydanio rerio (Zebra Fish)
1-Chloro-2,4-dinitroben-zene 97-00-7 / 202-551-4	LC50	0.71 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
1-Chloro-2,4-dinitroben-zene 97-00-7 / 202-551-4	EC50	0.151 mg/l	72 hours	Desmodesmus sub-spicatus (green algae)

Acute crustacean toxicity

Product / Substance name CAS / EC no.	Measurement type	Value / Result	Duration of exposure	Species
1-Chloro-2,4-dinitroben-zene 97-00-7 / 202-551-4	EC50	0.49 mg/l	48 hours	Daphnia magna

Chronical toxicity

Product / Substance name CAS / EC no.	Measurement type	Value / Result	Duration of exposure	Species
1-Chloro-2,4-dinitroben-zene 97-00-7 / 202-551-4	NOEC	0.1 mg/l	21 days	Daphnia magna
1-Chloro-2,4-dinitroben-zene 97-00-7 / 202-551-4	NOEC	0.05 mg/l	28 days	Brachydanio rerio (Zebra Fish)

12.2. Persistence and degradability

Persistence and degradability

Product / Substance name CAS / EC no.	Type of test	Duration	Result	Degradation
1-Chloro-2,4-dinitroben-zene 97-00-7 / 202-551-4	aerobic	28 days	<20%	The product is not read-ily 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
3441

14.2. UN proper shipping name
ADR / RID / ADN proper shipping name
CHLORODINITROBENZENES, SOLID

IMDG proper shipping name
CHLORODINITROBENZENES, SOLID

IATA proper shipping name
Chlorodinitrobenzenes, solid

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14.3. Transport hazard class(es)

Label

ADR/RID/ADN

6.1

IMDG

6.1

IATA

6.1

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

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14.4. Packing group

ADR / RID / ADN: II
IMDG: II
IATA: II

14.5. Environmental hazards

IMDG EmS

F-A, S-A

IMDG Marine Pollutant

Yes

14.6. Special precautions for user

Tunnel restriction code: D/E
Transport category: 2

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
E1 ENVIRONMENTAL HAZARDS

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

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According to Regulation (EC) No 2020/878

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SECTION 16: Other information

Phrase meaning

Eye Dam. 1 - Serious eye damage, hazard category 1
Aquatic Acute 1 - Hazardous to the aquatic environment — Acute hazard category 1
Aquatic Chronic 1 - Hazardous to the aquatic environment — Chronic hazard category 1
Skin Irrit. 2 - Skin irritation, hazard category 2
Skin Sens. 1 - Skin sensitisation, hazard category 1
Acute Tox. 4 - oral - Acute toxicity, oral, hazard category 4
Acute Tox. 1 - dermal - Acute toxicity, dermal, hazard category 1
Acute Tox. 2 - dermal - Acute toxicity, dermal, hazard category 2
H302 Harmful if swallowed.
H310 Fatal in contact with skin.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.