

SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.2
Creation Date: July 15, 2019
Revision Date: August 08, 2025

SECTION 1: Identification

1.1 GHS Product identifier

Product name 4-Nitrophenylhydrazine

1.2 Other means of identification

Product number C1000004

Other names Hydrazine, (4-nitrophenyl)-; (4-nitrophenyl)hydrazine; 4-Nitrophenylhydrazine

1.3 Recommended use of the chemical and restrictions on use

Identified uses For laboratory and Industrial use only.

Uses advised against no data available

1.4 Supplier's details

Company CATO Research Chemicals Inc.

Address 3/F,Building B,No.179 BASIGO, Guangpu Rd East,Huangpu Dist,Guangzhou

Telephone +86-20-81960175

1.5 Emergency phone number

Emergency phone number +86-20-81960175

Service hours 'Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

Flammable solids, Category 2

Acute toxicity - Category 4, Oral

Acute toxicity - Category 4, Dermal

Skin irritation, Category 2

Skin sensitization, Category 1

Eye irritation, Category 2

Specific target organ toxicity – single exposure, Category 3

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Warning

Hazard statement(s)

H228 Flammable solid

H302 Harmful if swallowed

H312 Harmful in contact with skin

H315 Causes skin irritation

H317 May cause an allergic skin reaction

H319 Causes serious eye irritation

H335 May cause respiratory irritation

Precautionary statement(s)

Prevention	P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P240 Ground and bond container and receiving equipment. P241 Use explosion-proof [electrical/ventilating/lighting/...] equipment. P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/... P264 Wash ... thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P261 Avoid breathing dust/fume/gas/mist/vapours/spray. P272 Contaminated work clothing should not be allowed out of the workplace. P271 Use only outdoors or in a well-ventilated area.
Response	P370+P378 In case of fire: Use ... to extinguish. P301+P317 IF SWALLOWED: Get medical help. P330 Rinse mouth. P302+P352 IF ON SKIN: Wash with plenty of water/... P317 Get medical help. P321 Specific treatment (see ... on this label). P362+P364 Take off contaminated clothing and wash it before reuse. P332+P317 If skin irritation occurs: Get medical help. P333+P317 If skin irritation or rash occurs: Get medical help. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P319 Get medical help if you feel unwell.
Storage	P403+P233 Store in a well-ventilated place. Keep container tightly closed. 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.

2.3 Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
4-Nitrophenylhydrazine	4-nitrophenylhydrazine	100-16-3	202-824-8	100%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Move the victim into fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and consult a doctor immediately. Do not use mouth to mouth resuscitation if the victim ingested or inhaled the chemical.

Following skin contact

Take off contaminated clothing immediately. Wash off with soap and plenty of water. Consult a doctor.

Following eye contact

Rinse with pure water for at least 15 minutes. Consult a doctor.

Following ingestion

Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control Center immediately.

4.2 Most important symptoms/effects, acute and delayed

Excerpt from ERG Guide 113 [Flammable Solids - Toxic (Wet/Desensitized Explosive)]: Some are toxic and may be fatal if inhaled, swallowed or absorbed through skin. Contact may cause burns to skin and eyes. Fire may produce irritating, corrosive and/or toxic gases. Runoff from fire control or dilution water may cause pollution. (ERG, 2016)

4.3 Indication of immediate medical attention and special treatment needed, if necessary

no data available

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

Excerpt from ERG Guide 113 [Flammable Solids - Toxic (Wet/Desensitized Explosive)]: CARGO FIRE: DO NOT fight fire when fire reaches cargo! Cargo may EXPLODE! Stop all traffic and clear the area for at least 1600 meters (1 mile) in all directions and let burn. Do

not move cargo or vehicle if cargo has been exposed to heat. TIRE OR VEHICLE FIRE: Use plenty of water - FLOOD it! If water is not available, use CO₂, dry chemical or dirt. If possible, and WITHOUT RISK, use unmanned hose holders or monitor nozzles from maximum distance to prevent fire from spreading to cargo area. Pay special attention to tire fires as re-ignition may occur. Stand by, at a safe distance, with extinguisher ready for possible re-ignition. (ERG, 2016)

5.2 Specific hazards arising from the chemical

Excerpt from ERG Guide 113 [Flammable Solids - Toxic (Wet/Desensitized Explosive)]: Flammable/combustible material. May be ignited by heat, sparks or flames. DRIED OUT material may explode if exposed to heat, flame, friction or shock; treat as an explosive, refer to ERG Guide 112. Keep material wet with water or treat as an explosive, refer to ERG Guide 112. Runoff to sewer may create fire or explosion hazard. (ERG, 2016)

5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing mist, gas or vapours. Avoid contacting with skin and eye. Use personal protective equipment. Wear chemical impermeable gloves. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

6.2 Environmental precautions

Prevent further spillage or leakage if it is safe to do so. Do not let the chemical enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

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.

7.2 Conditions for safe storage, including any incompatibilities

Store the container tightly closed in a dry, cool and well-ventilated place. Store apart from foodstuff containers or incompatible materials.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear tightly fitting safety goggles with side-shields conforming to EN 166(EU) or NIOSH (US).

Skin protection

Wear fire/flame resistant and impervious clothing. Handle with gloves. Gloves must be inspected prior to use. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	4-Nitrophenylhydrazine is a orange-red leaflet or needles wetted with water. It will emit toxic oxides of nitrogen when heated to decomposition. It is slightly heavier than water and insoluble in water. It may be irritating to skin, eyes and mucous membranes. It may be toxic by ingestion. It may be explosive and sensitive to friction in the dry state. It is used as a reagent for ketones and aliphatic aldehydes.
Colour	no data available
Odour	no data available
Melting point/freezing point	156 °C
Boiling point or initial boiling point and boiling range	344°C at 760 mmHg
Flammability	no data available
Lower and upper explosion limit/flammability limit	no data available
Flash point	161.8°C
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	Partially miscible with water
Partition coefficient n-octanol/water	no data available
Vapour pressure	6.79E-05mmHg at 25°C
Density and/or relative density	1.419 g/cm3
Relative vapour density	no data available
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

No rapid reaction with air No rapid reaction with water

10.2 Chemical stability

no data available

10.3 Possibility of hazardous reactions

4-NITROPHENYLHYDRAZINE is a powerful explosive. It can SELF-IGNITE in the presence of contaminants. Auto-ignition temperature may vary for 4-nitrophenylhydrazine similar to that of hydrazine which has an autoignition of as low as 74oC in contact with iron rust. Dangerous fire hazard or severe explosion can occur when exposed to heat, flame or oxidizing agents. Severe explosion may also occur by chemical reaction with alkali metals; BaO; CaO; K; Na; NH3; Cl2; chromates; CuO; Cu++ salts; F2; H2O2; iron rust; metallic oxides; PbO2;Ni; Ni(ClO4)2; HNO3; N2O; O2; liquid O2; K2Cr2O7; Na2Cr2O7; tetryl; zinc diamide; Zn(C2H5)2. Dangerous; when heated to decomposition it emits highly toxic nitrogen compounds; may explode by heat or chemical reaction. (Sax and Lewis, 1987) under Hydrazine p. 538-539.

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

no data available

10.6 Hazardous decomposition products

no data available

SECTION 11: Toxicological information

Acute toxicity

- Oral: no data available
- 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

no data available

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

SECTION 12: Ecological information

12.1 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

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 Other adverse effects

no data available

SECTION 13: Disposal considerations

13.1 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.

SECTION 14: Transport information

14.1 UN Number

ADR/RID: UN3376 (For reference only, please check.)	IMDG: UN3376 (For reference only, please check.)	IATA: UN3376 (For reference only, please check.)
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14.2 UN Proper Shipping Name

ADR/RID: 4-NITROPHENYLHYDRAZINE, with not less than 30% water, by mass (For reference only, please check.)	IMDG: 4-NITROPHENYLHYDRAZINE, with not less than 30% water, by mass (For reference only, please check.)	IATA: 4-NITROPHENYLHYDRAZINE, with not less than 30% water, by mass (For reference only, please check.)
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14.3 Transport hazard class(es)

ADR/RID: 4.1 (For reference only, please check.)	IMDG: 4.1 (For reference only, please check.)	IATA: 4.1 (For reference only, please check.)
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14.4 Packing group, if applicable

ADR/RID: I (For reference only, please check.)	IMDG: I (For reference only, please check.)	IATA: I (For reference only, please check.)
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14.5 Environmental hazards

ADR/RID: No

IMDG: No

IATA: No

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
4-nitrophenylhydrazine	4-nitrophenylhydrazine	100-16-3	202-824-8
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			Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.
Korea Existing Chemicals List (KECL)			Not Listed.

SECTION 16: Other information

Information on revision

Creation Date

July 15, 2019

Revision Date

August 08, 2025

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
- 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/>

Any questions regarding this SDS, Please send your inquiry to info@cato-chem.com

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