

SAFETY DATA SHEETS

According to the UN GHS revision 10

Version: 1.1
Creation Date: July 15, 2024
Revision Date: January 17, 2025

SECTION 1: Identification

1.1 GHS Product identifier

Product name 2-Nitrophenol

1.2 Other means of identification

Product number CWLT600564
Other names 2-nitro-1-hydroxybenzene; o-Nitrofenol; Phenol,o-nitro

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

Acute toxicity - Category 4, Oral
Acute toxicity - Category 4, Dermal
Acute toxicity - Category 4, Inhalation
Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

Hazard statement(s)

H302 Harmful if swallowed
H312 Harmful in contact with skin
H332 Harmful if inhaled
H400 Very toxic to aquatic life
H410 Very toxic to aquatic life with long lasting effects

Precautionary statement(s)

Prevention

P264 Wash ... thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.

Response	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. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P391 Collect spillage.
Storage	none
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
2-Nitrophenol	2-nitrophenol	88-75-5	201-857-5	≈ 99%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Fresh air, rest. Refer for medical attention.

Following skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap.

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Refer for medical attention .

4.2 Most important symptoms/effects, acute and delayed

Inhalation or ingestion causes headache, drowsiness, nausea, and blue color in lips, ears, and fingernails (cyanosis). Contact with eyes causes irritation. Can be absorbed through the intact skin to give same symptoms as for inhalation. (USCG, 1999)

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

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Dinitrophenol and Related Compounds

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

If material on fire or involved in fire: Extinguish fire using agent suitable for type of surrounding fire. (Material itself does not burn or burns with difficulty.) Use water in flooding quantities as fog. Use foam, dry chemical, or carbon dioxide. Keep run-off water out of sewers and water sources. Nitrophenols

5.2 Specific hazards arising from the chemical

Special Hazards of Combustion Products: Toxic and irritating fumes of unburned material and oxides of nitrogen can form in fire. (USCG, 1999)

5.3 Special protective actions for fire-fighters

Use dry powder, carbon dioxide, water spray, alcohol-resistant foam.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Sweep spilled substance into covered containers.

6.2 Environmental precautions

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT let this chemical enter the

environment. Sweep spilled substance into covered containers.

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

NO open flames. 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 in an area without drain or sewer access. Separated from strong oxidants, strong bases, strong acids and food and feedstuffs.

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 safety goggles.

Skin protection

Protective gloves.

Respiratory protection

Use local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Solid. Needles or prisms.
Colour	Yellowish.
Odour	Peculiar, aromatic color
Melting point/freezing point	44 °C. Atm. press.:1 013 hPa.
Boiling point or initial boiling point and boiling range	214 °C. Atm. press.:1 013 hPa.
Flammability	Combustible. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit/flammability limit	no data available
Flash point	100.5 °C. Atm. press.:1 013 hPa.
Auto-ignition temperature	485 °C. Atm. press.:1 013 hPa. Remarks:Temperature class: T1.
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	Miscible with water
Partition coefficient n-octanol/water	log Pow = 1.77.
Vapour pressure	0.069 hPa. Temperature:20 °C.;0.2 hPa. Temperature:30 °C.;1 hPa. Temperature:50 °C.
Density and/or relative density	1.495 g/cm³. Temperature:20 °C.
Relative vapour density	(air = 1): 4.81
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Decomposes on burning. This produces toxic and corrosive fumes including nitrogen oxides. Reacts with strong acids, strong bases and strong oxidants.

May explode on heating. On combustion, forms nitrogen oxides. Decomposes on heating. This produces toxic fumes including nitrogen oxides. Reacts with strong oxidants.

10.2 Chemical stability

no data available

10.3 Possibility of hazardous reactions

AROMATIC NITROCOMPOUNDS ARE FLAMMABLE ... /AROMATIC NITROCOMPD/Dust explosion possible if in powder or granular form, mixed with air. 2-NITROPHENOL is a yellow, crystalline material, moderately toxic, low melting point (45° C). When heated to decomposition it emits toxic fumes of oxides of nitrogen. In molten form violent reaction with strong alkali (85% potassium hydroxide) [491 M, 1975, p. 342]. Reaction product with chlorosulfuric acid decomposes violently at room temperature [Vervalin, C. H., Hydrocarbon Proc., 1976, 55(9), p. 321].

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

The molten ortho-nitrophenol reacts violently with commercial 85% potassium hydroxide pellets. (possibly involving formation of the aci-o-nitroquinonoid salt).

10.6 Hazardous decomposition products

When heated to decomp it emits toxic fumes of /nitrogen oxides/.

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 - rat (male/female) - > 3 200 mg/kg bw. Remarks: 3/10 animals died at the highest dose.
- Inhalation: LC0 - rat - 0.22 mg/L air.
- Dermal: LD50 - rabbit - > 7 940 mg/kg bw.

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

The substance is mildly irritating to the eyes and skin. Ingestion could cause effects on the blood. This may result in the formation of methaemoglobin.

STOT-repeated exposure

no data available

Aspiration hazard

A harmful concentration of airborne particles can be reached quickly.

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: LC50 - Danio rerio (previous name: Brachydanio rerio) - > 100 - <= 150 mg/L - 1 h.
- Toxicity to daphnia and other aquatic invertebrates: EC0 - Daphnia magna - 25 mg/L - 24 h.
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

12.2 Persistence and degradability

AEROBIC: More than 64 days were required to biodegrade 2-nitrophenol in an aqueous soil solution(1) however 2-nitrophenol was completely degraded in 7-14 days in a second soil inoculum(2). 2-Nitrophenol was mineralized 10% in a terrestrial ecosystem over the

course of 10 days(3). 2-Nitrophenol, present at 100 mg/L, reached 0% of its theoretical BOD in 2 weeks using an activated sludge inoculum at 30 mg/L in the Japanese MITI test(4). A half-life of about 37 days was observed for 2-nitrophenol in a laboratory batch microcosm incubated with sediment and groundwater(5). 2-Nitrophenol was degraded over 80% in an aerobic groundwater/sediment microcosm from a landfill during a 60 day incubation period(6). First-order rate constants of 0.01/day to 0.05/day were determined for 2-nitrophenol in aerobic aquifer material(7), corresponding to half-lives of about 14-69 days(SRC).

12.3 Bioaccumulative potential

BCF values of <2.2 to 5 were measured for carp (*Cyprinus carpio*) exposed to 1 ppm of 2-nitrophenol over a 6 week incubation period(1); BCF values of <22 were measured for carp exposed to 0.1 ppm 2-nitrophenol over a 6 week incubation period(1). According to a classification scheme(2), these BCF values suggest bioconcentration in aquatic organisms is low.

12.4 Mobility in soil

The Koc of 2-nitrophenol in five reference European soils (pH 3.2-7.4) ranged from 32.1 to 265.7 with Koc generally decreasing with increasing pH(1); similar Koc values were determined for a second-generation set of five reference European soils(2). The Koc for 2-nitrophenol in Brookston clay loam was 114(3). In sorption studies using peat, 2-nitrophenol had measured Koc values of 85 (when 2-nitrophenol was in the neutral state) and 13 (when 2-nitrophenol existed as anionic species)(4). According to a classification scheme(5), a Koc range of 13 to 265 suggests that 2-nitrophenol is expected to have very high to moderate mobility in soil. The pKa of 2-nitrophenol is 7.23(6), indicating that this compound will exist partially in anion form in the environment and anions generally do not adsorb more strongly to soils containing organic carbon and clay than their neutral counterparts(7).

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: UN1663 (For reference only, please check.) IMDG: UN1663 (For reference only, please check.) IATA: UN1663 (For reference only, please check.)

14.2 UN Proper Shipping Name

ADR/RID: NITROPHENOLS (o-, m-, p-) (For reference only, please check.) IMDG: NITROPHENOLS (o-, m-, p-) (For reference only, please check.) IATA: NITROPHENOLS (o-, m-, p-) (For reference only, please check.)

14.3 Transport hazard class(es)

ADR/RID: 6.1 (For reference only, please check.) IMDG: 6.1 (For reference only, please check.) IATA: 6.1 (For reference only, please check.)

14.4 Packing group, if applicable

ADR/RID: III (For reference only, please check.) IMDG: III (For reference only, please check.) IATA: III (For reference only, please check.)

14.5 Environmental hazards

ADR/RID: Yes IMDG: Yes IATA: Yes

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
2-nitrophenol	2-nitrophenol	88-75-5	201-857-5
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)	Listed.

SECTION 16: Other information

Information on revision

Creation Date July 15, 2024
Revision Date January 17, 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/>

Other Information

Specific treatment is necessary in case of poisoning with this substance; the appropriate means with instructions must be available.

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

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