

SECTION 1: Identification

1.1 GHS Product identifier

Product name 2-amino-4,6-dinitrophenol

1.2 Other means of identification

Product number -

Other names 4,6-dinitro-2-aminophenol; Zoba 4R; 2-amino-4,6-DNP

1.3 Recommended use of the chemical and restrictions on use

Identified uses Industrial and scientific research uses.

Uses advised against no data available

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

Explosives, Division 1.1

Acute toxicity - Category 4, Oral

Acute toxicity - Category 4, Dermal

Acute toxicity - Category 4, Inhalation

Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 3

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

Hazard statement(s)

H201 Explosive; mass explosion hazard

H302 Harmful if swallowed

H312 Harmful in contact with skin

H332 Harmful if inhaled

H412 Harmful to aquatic life with long lasting effects

Precautionary statement(s)

Prevention

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P230 Keep wetted with ...

P234 Keep only in original packaging.

P240 Ground and bond container and receiving equipment.

P250 Do not subject to grinding/shock/friction/â€¦.

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.

P271 Use only outdoors or in a well-ventilated area.

P273 Avoid release to the environment.

Response

P370+P372+P380+P373 In case of fire: Explosion risk. Evacuate area. DO NOT fight fire when fire reaches explosives.

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.

Storage

P401 Store in accordance withâ€¦

Disposal

P503 Refer to manufacturer/supplierâ€¦ for information on disposal/recovery/recycling.

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
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2-amino-4,6-dinitrophenol	2-amino-4,6-dinitrophenol	96-91-3	202-544-6	100%
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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

SYMPTOMS: Dizziness, abdominal cramps, vomiting, bloody diarrhea, weakness, convulsions and collapse. Small repeated doses may lead to weakness general depression, headache, and mental impairment. ACUTE/CHRONIC HAZARDS: This compound is a fire hazard and should not be subjected to shock or heat. This compound is a local irritant. (NTP, 1992)

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

Basic treatment: Establish a patent airway. Suction if necessary. Watch for signs of respiratory insufficiency and assist ventilations if necessary. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Monitor for shock and treat if necessary. Monitor for pulmonary edema and treat if necessary. Anticipate seizures and treat if necessary. For eye contamination, flush eyes if immediately with water. Irrigate each eye continuously with normal saline during transport. Do not use emetics. For ingestion, rinse mouth and administer 5 mL/kg up to 200 mL of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool. Administer activated charcoal. Cover skin burns with dry sterile dressings after decontamination. Rapid body cooling may be necessary in case of hyperthermia. Salicylates are contraindicated. Dinitrophenol and related compounds

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

Fires involving this chemical can be controlled using dry chemical, CO₂, or Halon foam extinguishers. (NTP, 1992)

5.2 Specific hazards arising from the chemical

This chemical ignites rapidly and burns relatively fast. (NTP, 1992)

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	Solid. Crystalline.
Colour	Dark red.
Odour	no data available
Melting point/freezing point	169 Å°C. Remarks:Other details not available.
Boiling point or initial boiling point and boiling range	375.27 Å°C. Remarks:Other details not available.
Flammability	no data available
Lower and upper explosion limit/flammability limit	no data available
Flash point	210 Å°C.
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	less than 1 mg/mL at 68.9Å° F (NTP, 1992)
Partition coefficient n-octanol/water	log Pow = 0.93. Remarks:Other details not available.
Vapour pressure	0 Pa. Temperature:25 Å°C. Remarks:Reported as 0.000000416 mmHg.
Density and/or relative density	1.749 g/cm 3
Relative vapour density	no data available
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Highly flammable. Insoluble in water.

10.2 Chemical stability

no data available

10.3 Possibility of hazardous reactions

IN CONTACT WITH OPEN FLAME IN GLASS TUBE OR BEAKER, IGNITES RAPIDLY & BURNS RELATIVELY FAST...2-AMINO-4,6-DINITROPHENOL should not be subjected to strong shock or heat, and is a dangerous fire risk. This compound reacts with strong oxidizing agents. (NTP, 1992). Explodes if dried and exposed to heat, flame, friction or shock. Wetting greatly reduces this tendency. Treat as an explosive. Mixing with reducing agents, including hydrides, sulfides, nitrides, and alkali metals may lead to a vigorous reaction that culminates in a detonation. May explode in the presence of a base such as sodium hydroxide or potassium hydroxide, even in the presence of water or organic solvents. May be incompatible with isocyanates, halogenated organics, peroxides, phenols (acidic), epoxides, anhydrides, and acid halides. An amino acid (reacts as an acid with bases and as a base with acids).

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Combustible when exposed to ... oxidizers.

10.6 Hazardous decomposition products

When heated to decomposition it emits toxic fumes of nitroxides.

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 - rat (male/female) - 110 mg/kg bw.
- Inhalation: no data available
- Dermal: LD50 - rabbit (male/female) - > 5 000 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

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: LC50 - Oncorhynchus mykiss (previous name: Salmo gairdneri) - 46.2 mg/L - 96 h.
- Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia magna - 7.371 mg/L - 48 h.
- Toxicity to algae: EC50 - microalgae - 10.45 mg/L - 72 h.
- Toxicity to microorganisms: IC50 - Tetrahymena pyriformis - 52.2 mg/L - 48 h.

12.2 Persistence and degradability

no data available

12.3 Bioaccumulative potential

A BCF value of 42 was reported for 4,6-dinitro-2-aminophenol in rainbow trout(1). According to a classification scheme(2), this BCF value suggests that bioconcentration in aquatic organisms is moderate.

12.4 Mobility in soil

The Koc of 4,6-dinitro-2-aminophenol is estimated as approximately 75(SRC), from its log Kow of 0.93(1) and a regression derived equation(2). According to a classification scheme(3), this estimated Koc value suggests that 4,6-dinitro-2-aminophenol is expected to have high mobility in soil.

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: UN3317 (For reference only, please check.) IMDG: UN3317 (For reference only, please check.) IATA: UN3317 (For reference only, please check.)

14.2 UN Proper Shipping Name

ADR/RID: 2-AMINO-4,6-DINITROPHENOL, WETTED with not less than 20% water, by mass (For reference only, please check.) IMDG: 2-AMINO-4,6-DINITROPHENOL, WETTED with not less than 20% water, by mass (For reference only, please check.) IATA: 2-AMINO-4,6-DINITROPHENOL, WETTED with not less than 20% water, by mass (For reference only, please check.)

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.)

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.)

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
2-amino-4,6-dinitrophenol	2-amino-4,6-dinitrophenol	96-91-3	202-544-6
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Not Listed.
China Catalog of Hazardous chemicals 2015			Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Not 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, 2019

Revision Date July 15, 2019

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/>