REAGENTS DUKSAN

SAFETY DATA SHEET

2,4-Dinitrophenol

Date of issue: 2019-02-18 **Revision date: 2019-02-18** **Version: R0002.0001**

1. IDENTIFICATION

A. Product name

- 2,4-Dinitrophenol

B. Recommended use and restriction on use

- General use : for experimental, research and industrial use
- Restriction on use : Never drink, Not used except for experimental, research and industrial applications.

C. Manufacturer / Supplier / Distributor information

○ **Manufacturer information**

- Company name :
- Address :
- Emergency telephone number :

○ **Supplier/Distributer information**

- Company name : DUKSAN PURE CHEMICALS
- Address : 53,SINWONRO 133BEONGIL, DANWONGU, ANSANSHI, GYUNGGIDO, KOREA
- Telephone number : 82-31-495-4055
- Emergency telephone number :
- Fax number : 82-31-495-4058

2. HAZARD IDENTIFICATION

A. GHS Classification

- Explosives : Class1.1
- Acute toxicity (oral) : Category2
- Acute toxicity (dermal) : Category1
- Acute toxicity (inhalation: vapor) : Category3
- Skin corrosion/irritation : Category2
- Serious eye damage/irritation : Category2A
- Skin sensitization : Category1
- Germ cell mutagenicity : Category2
- Specific target organ toxicity(Single exposure) : Category2
- Specific target organ toxicity(Repeated exposure) : Category2
- Acute aquatic toxicity : Category1
- Chronic aquatic toxicity : Category1

B. GHS label elements

○ **Hazard symbols**



○ **Signal words**

- Danger

○ **Hazard statements**

- H201 Explosive; mass explosion hazard
- H300 Fatal if swallowed

- H310 Fatal in contact with skin
- H315 Causes skin irritation
- H317 May cause an allergic skin reaction
- H319 Causes serious eye irritation
- H331 Toxic if inhaled
- H341 Suspected of causing genetic defects
- H371 May cause damage to organs (Refer Section SDS 11)
- H373 May cause damage to organs through prolonged or repeated exposure (Refer Section SDS 11)
- H400 Very toxic to aquatic life
- H410 Very toxic to aquatic life with long lasting effects

○ **Precautionary statements**

1) Prevention

- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
- P230 Keep wetted with designated appropriate material by Manufacturer / supplier
- P240 Ground/bond container and receiving equipment.
- P250 Do not subject to grinding/shock/friction.
- P260 Do not breathe dust/fume.
- P261 Avoid breathing dust/fume.
- P262 Do not get in eyes, on skin, or on clothing.
- P264 Wash hands thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P271 Use only outdoors or in a well-ventilated area.
- 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.

2) Response

- P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
- P302+P350 IF ON SKIN: Gently wash with plenty of soap and water.
- P302+P352 IF ON SKIN: Wash with plenty of soap and water.
- P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position 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+P313 If exposed or concerned: Get medical advice/attention.
- P309+P311 If exposed or if you feel unwell: Call a POISON CENTER or doctor/physician.
- P310 Immediately call a POISON CENTER or doctor/physician.
- P311 Call a POISON CENTER or doctor/physician.
- P314 Get medical advice/attention if you feel unwell.
- P321 Specific treatment
- P330 Rinse mouth.
- P332+P313 If skin irritation occurs: Get medical advice/attention.
- P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
- P337+P313 If eye irritation persists: Get medical advice/attention.
- P361 Remove/Take off immediately all contaminated clothing.
- P362 Take off contaminated clothing and wash before reuse.
- P363 Wash contaminated clothing before reuse.
- P370+P380 In case of fire: Evacuate area.
- P372 Explosion risk in case of fire.
- P373 DO NOT fight fire when fire reaches explosives.
- P391 Collect spillage.

3) Storage

- P401 Store in accordance with applicable regulations.
- P403+P233 Store in a well-ventilated place. Keep container tightly closed.
- P405 Store locked up.

4) Disposal

- P501 Dispose of contents/container in accordance with local/regional/national/international regulation

C. Other hazards which do not result in classification : (NFPA Classification)

○ **NFPA grade (0 ~ 4 level)**

- Health : 3 , Flammability : 3, Reactivity : 3

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Trade names and Synonyms	CAS No.	Content(%)
2,4-Dinitrophenol	-	51-28-5	100

4. FIRST AID MEASURES

A. Eye contact

- Do not rub your eyes.
- Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.
- Get medical attention immediately.
- Go to the hospital immediately if symptoms(flare, irritate) occur.
- Remove contact lenses if worn.

B. Skin contact

- Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Wash contaminated clothing thoroughly before re-using.
- Get medical attention immediately.
- Go to the hospital immediately if symptoms(flare, irritate) occur.
- Wash thoroughly after handling.

C. Inhalation contact

- When exposed to large amounts of steam and mist, move to fresh air.
- Take specific treatment if needed.
- Get medical attention immediately.
- If breathing is stopped or irregular, give artificial respiration and supply oxygen.
- Take the doctor's examination.

D. Ingestion contact

- Please be advised by doctor whether induction of vomit is demanded or not.
- Rinse your mouth with water immediately.
- Get medical attention immediately.
- Go to the hospital immediately if symptoms(flare, irritate) occur.

E. Delayed and immediate effects and also chronic effects from short and long term exposure

- Not available

F. Notes to physician

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.
- If exposed or concerned, get medical attention/advice.

5. FIREFIGHTING MEASURES

A. Suitable (Unsuitable) extinguishing media

- Dry chemical, carbon dioxide, regular foam extinguishing agent, spray
- Avoid use of water jet for extinguishing

B. Specific hazards arising from the chemical

- Not available

C. Special protective actions for firefighters

- Cool containers with water until well after fire is out.

- Avoid inhalation of materials or combustion by-products.
- Use appropriate extinguishing measure suitable for surrounding fire.
- Wear appropriate protective equipment.
- Keep containers cool with water spray.
- DO NOT fight fire when fire reaches explosives.
- Explosion hazards : Keep people away and fight fire from a safe distance.
- Tanks, trailers, vehicle fire: FIRE recognize the possibility container.

6. ACCIDENTAL RELEASE MEASURES

A. Personal precautions, protective equipment and emergency procedures

- Ventilate closed spaces before entering.
- Must work against the wind, let the upwind people to evacuate.
- Do not touch spilled material. Stop leak if you can do it without risk.
- Remove all sources of ignition.
- Avoid skin contact and inhalation.
- Cleanup and disposal under expert supervision is advised.
- Keep unauthorized people away,isolate hazard area and deny entry.

B. Environmental precautions

- Prevent runoff and contact with waterways, drains or sewers.
- If large amounts have been spilled, inform the relevant authorities.

C. Methods and materials for containment and cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard amount
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Small liquid state spills: Appropriate container for disposal of spilled material collected.
- Put the spilled material in an appropriate containers and clean the contaminated area
- Avoid entering to sewers or water system.
- Prevent the influx to waterways, sewers, basements or confined spaces.

7. HANDLING AND STORAGE

A. Precautions for safe handling

- Comply with all applicable laws and regulations for handling
- Get the manual before use.
- Dealing only with a well-ventilated place.
- Avoid contact with heat, sparks, flame or other ignition sources.
- Contaminated work clothing should not be allowed out of the workplace.
- Handling only authorized person.

B. Conditions for safe storage, including any incompatibilities

- Keep in the original container.
- Please pay attention to incompatibilities materials and conditions to avoid.
- Keep sealed when not in use.
- No open fire.
- Prevent static electricity and keep away from combustible materials or heat sources.
- Collected them in sealed containers.
- Do not eat, drink or smoke when using this product.
- Store away from water and sewer.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

A. Exposure limits

- **ACGIH TLV**

- Not available

○ **OSHA PEL**

- Not available

B. Engineering controls

- Business owner is recommended to maintain below recommended exposure limits for the working place with general exhaust of gas/vapour/mist/fume.

C. Individual protection measures, such as personal protective equipment

○ **Respiratory protection**

- Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
- Respiratory protection is ranked in order from minimum to maximum.
- Consider warning properties before use.
- Dust, mist, fume-purifying respiratory protection
- Air-purifying respirator with high-efficiency particulate filtering
- Any respiratory protection with a electromotion fan(for dust, mist, fume-purifying)
- Self-contained breathing apparatus with a corpuscle filter of high efficiency
- For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full facepiece.

○ **Eye protection**

- Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.
- Provide an emergency eye wash station and quick drench shower in the immediate work area.

○ **Hand protection**

- Wear appropriate chemical resistant glove.

○ **Skin protection**

- Wear appropriate chemical resistant protective clothing.

○ **Others**

- Not available

9. PHYSICAL AND CHEMICAL PROPERTIES

A. Appearance	
- Appearance	Solid(Other)
- Color	yellow
B. Odor	sweet and mold odor
C. Odor threshold	Not available
D. pH	2.6 ~ 4.4
E. Melting point/Freezing point	112 ℃
F. Initial Boiling Point/Boiling Ranges	351 ℃
G. Flash point	135 ℃
H. Evaporation rate	Not available
I. Flammability(solid, gas)	Not available
J. Upper/Lower Flammability or explosive limits	Not available
K. Vapour pressure	0.00039 ㎜Hg (20 ℃)
L. Solubility	1400 ㎎/ℓ (54.5 ℃)
M. Vapour density	6.36 (air=1)
N. Specific gravity(Relative density)	1.68
O. Partition coefficient of n-octanol/water	1.67
P. Autoignition temperature	Not available
Q. Decomposition temperature	648 ㎏ cal/g mol
R. Viscosity	Not available
S. Molecular weight	184.11

10. STABILITY AND REACTIVITY

A. Chemical Stability

- May form explosive mixture.

B. Possibility of hazardous reactions

- May explode if heated.

C. Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces
- Avoid contact with heat, sparks, flame or other ignition sources.

D. Incompatible materials

- Not available

E. Hazardous decomposition products

- May emit flammable vapour if involved in fire.

11. TOXICOLOGICAL INFORMATION

A. Information on the likely routes of exposure

○ **(Respiratory tracts)**

- Not available

○ **(Oral)**

- Fatal if swallowed

○ **(Eye·Skin)**

- Causes serious eye irritation
- Causes skin irritation
- May cause an allergic skin reaction

B. Delayed and immediate effects and also chronic effects from short and long term exposure

○ **Acute toxicity**

*** Oral**

- [2,4-Dinitrophenol] : LD50 30 ㎎/㎏ Rat (HSDB)

*** Dermal**

- [2,4-Dinitrophenol] : LD50 25 ㎎/㎏ Rat (NITE)

*** Inhalation**

- Not available

○ **Skin corrosion/irritation**

- Causes skin irritation

○ **Serious eye damage/irritation**

- Causes serious eye irritation

○ **Respiratory sensitization**

- Not available

○ **Skin sensitization**

- May cause an allergic skin reaction

○ **Carcinogenicity**

*** IARC**

- Not available

*** OSHA**

- Not available

*** ACGIH**

- Not available

*** NTP**

- Not available

*** EU CLP**

- Not available

○ **Germ cell mutagenicity**

- Suspected of causing genetic defects

○ **Reproductive toxicity**

- Not available

○ **STOT-single exposure**

- May cause damage to organs

○ **STOT-repeated exposure**

- May cause damage to organs through prolonged or repeated exposure

○ **Aspiration hazard**

- Not available

12. ECOLOGICAL INFORMATION

A. Ecotoxicity

○ **Fish**

- [2,4-Dinitrophenol] : LC50 0.62 ㎎/ℓ 96 hr Lepomis macrochirus (ECOTOX)

○ **Crustaceans**

- [2,4-Dinitrophenol] : EC50 4.85 ㎎/ℓ 96 hr Mysidopsis bahia (NLM;HSDB)

○ **Algae**

- [2,4-Dinitrophenol] : EbC50 98.7 ㎎/ℓ 96 hr Selenastrum capricornutum (NLM;HSDB)

B. Persistence and degradability

○ **Persistence**

- [2,4-Dinitrophenol] : log Kow 1.67 (HSDB)

○ **Degradability**

- Not available

C. Bioaccumulative potential

○ **Bioaccumulative potential**

- [2,4-Dinitrophenol] : BCF 16 (ECOTOX)

○ **Biodegration**

- [2,4-Dinitrophenol] : 100 (%) 14 day (e-ChemPortal;HSNO)

D. Mobility in soil

- [2,4-Dinitrophenol] : Koc 460.80 (Estimates)

E. Other adverse effects

- Not available

13. DISPOSAL CONSIDERATIONS

A. Disposal methods

- Since more than two kinds of designated waste is mixed, it is difficult to treat separately, then can be reduction or stabilization by incineration or similar process.
- If water separation is possible, pre-process with Water separation process.
- Dispose by incineration.
- Do disposal as neutralization, hydrolysis and oxidation-reduction.
- High temperature incinerating, high-temperature melt processing will be landfilled
- Solidification processing.

B. Special precautions for disposal

- The user of this product must dispose by oneself or entrust it to a waste disposer, a person who recycles other’s waste or establishes and operates waste disposal facilities.
- Dispose of waste in accordance with all applicable laws and regulations.

14. TRANSPORT INFORMATION

A. UN No. (IMDG CODE/IATA DGR)

- 0076

B. Proper shipping name

- DINITROPHENOL, DRY OR WETTED WITH LESS THAN 15 PERCENT WATER, BY MASS

C. Hazard Class

- 1.1D

D. IMDG CODE/IATA DGR Packing group

- II

E. Marine pollutant

- Applicable

F. Special precautions for user related to transport or transportation measures

- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency requirements.
- EmS FIRE SCHEDULE : F-B (Explosive substances and articles)
- EmS SPILLAGE SCHEDULE : S-Z (Toxic explosives)

15. REGULATORY INFORMATION

A. National and/or international regulatory information

○ **POPs Management Law**

- Not applicable

○ **Information of EU Classification**

*** Classification**

- [2,4-Dinitrophenol] : H331, H311, H301, H373, H400

○ **U.S. Federal regulations**

*** OSHA PROCESS SAFETY (29CFR1910.119)**

- Not applicable

*** CERCLA Section 103 (40CFR302.4)**

- [2,4-Dinitrophenol] : 4.53599 kg 10 lb

*** EPCRA Section 302 (40CFR355.30)**

- Not applicable

*** EPCRA Section 304 (40CFR355.40)**

- Not applicable

*** EPCRA Section 313 (40CFR372.65)**

- [2,4-Dinitrophenol] : Applicable

○ **Rotterdam Convention listed ingredients**

- Not applicable

○ **Stockholm Convention listed ingredients**

- Not applicable

○ **Montreal Protocol listed ingredients**

- Not applicable

16. OTHER INFORMATION

A. Reference

- The information contained herein is believed to be accurate. It is provided independently of any sale of the product for purpose of hazard communication. It is not intended to constitute performance information concerning the product. No express warranty, or implied warranty of merchantability or fitness for a particular purpose is made with respect to the product or the information contained herein.
- This Safety Data Sheet was compiled with data and information from the following sources: KOSHA, NITE, ESIS, NLM, SIDS, IPCS

B. Issue date

- 2019-02-18

C. Revision number and Last date revised

- 1 times, 2019-02-18

D. Other

- This SDS is prepared according to the Globally Harmonized System (GHS).