REAGENTS DUKSAN

# SAFETY DATA SHEET

## Nitrobenzene

**Date of issue: 2019-01-11** **Revision date: 2019-01-11** **Version: R0001.0002**

## 1. IDENTIFICATION

### A. Product name

- Nitrobenzene

### 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

- Acute toxicity (oral) : Category4
- Acute toxicity (dermal) : Category3
- Acute Toxicity (Inhalation: dust / mist) : Category3
- Carcinogenicity : Category2
- Reproductive toxicity : Category2
- Specific target organ toxicity(Repeated exposure) : Category1

### B. GHS label elements

○ **Hazard symbols**



○ **Signal words**

- Danger

○ **Hazard statements**

- H302 Harmful if swallowed
- H311 Toxic in contact with skin
- H331 Toxic if inhaled
- H351 Suspected of causing cancer
- H361 Suspected of damaging fertility or the unborn child
- H372 Causes damage to organs through prolonged or repeated exposure (Refer Section SDS 11)

○ **Precautionary statements**

**1) Prevention**

- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P260 Do not breathe dust/fume.
- P261 Avoid breathing dust/fume.
- 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.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.

**2) Response**

- P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
- 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.
- P308+P313 If exposed or concerned: Get medical advice/attention.
- P311 Call a POISON CENTER or doctor/physician.
- P312 Call a POISON CENTER or doctor/physician if you feel unwell.
- P314 Get medical advice/attention if you feel unwell.
- P321 Specific treatment
- P330 Rinse mouth.
- P361 Remove/Take off immediately all contaminated clothing.
- P363 Wash contaminated clothing before reuse.

**3) Storage**

- 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 : 2, Reactivity : 1

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

| Chemical Name | Trade names and Synonyms | CAS No. | Content(%) |
|---|---|---|---|
| Nitrobenzene | - | 98-95-3 | 99 |
| Water | - | 7732-18-5 | 1 |

## 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.

### 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.
- Take the doctor's examination.

### 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.

### 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.
- Keep unauthorized personnel out.
- Do not access if the tank on fire.
- Wear appropriate protective equipment.
- Keep containers cool with water spray.

## 6. ACCIDENTAL RELEASE MEASURES

### A. Personal precautions, protective equipment and emergency procedures

- 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.
- Move container to safe area from the leak area.
- Handle the damaged containers or spilled material after wearing appropriate protective equipment
- 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

## 7. HANDLING AND STORAGE

### A. Precautions for safe handling

- Avoid direct physical contact.
- Get the manual before use.
- Refer to Engineering controls and personal protective equipment.
- Do not handle until all safety precautions have been read and understood.
- Contaminated work clothing should not be allowed out of the workplace.

### B. Conditions for safe storage, including any incompatibilities

- Save in cool, dry and well ventilated place.
- Check regularly for leaks.
- Do not apply any physical shock to container.
- Please pay attention to incompatibilities materials and conditions to avoid.
- No open fire.
- By specifying a storage area for carcinogenic substances.
- Collected them in sealed containers.
- Do not eat, drink or smoke when using this product.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### A. Exposure limits

○ **ACGIH TLV**

- [Nitrobenzene] : TWA, 1 ppm (5 mg/m3)

○ **OSHA PEL**

- [Nitrobenzene]:1ppm 5mg/m3

### 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 glove.

○ **Skin protection**

- Wear appropriate clothing.

○ **Others**

- Not available

## 9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---|---|
| A. Appearance | |
| - Appearance | liquid (oily liquid) |
| - Color | yellow |
| B. Odor | characteristic odor |
| C. Odor threshold | 1.9 ppm |
| D. pH | Not available |
| E. Melting point/Freezing point | 5.7 ℃ |
| F. Initial Boiling Point/Boiling Ranges | 210.8 ℃ |
| G. Flash point | 88 ℃ |
| H. Evaporation rate | Not available |
| I. Flammability(solid, gas) | Not available |

| | |
|---|---|
| J. Upper/Lower Flammability or explosive limits | 40 / 1.8 % |
| K. Vapour pressure | 20 ㎩ (20℃) |
| L. Solubility | 0.209 g/100㎖ (25 ℃) |
| M. Vapour density | 4.2 (air=1) |
| N. Specific gravity(Relative density) | 1.2 (water=1) |
| O. Partition coefficient of n-octanol/water | 1.85 |
| P. Autoignition temperature | 482 ℃ |
| Q. Decomposition temperature | Not available |
| R. Viscosity | 1.863 cP (25℃) |
| S. Molecular weight | 123.11 |

## 10. STABILITY AND REACTIVITY

### A. Chemical Stability

- This material is stable under recommended storage and handling conditions.

### B. Possibility of hazardous reactions

- Hazardous Polymerization will not occur.

### C. Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces

### 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)**

- Harmful if swallowed

○ **(Eye·Skin)**

- Not available

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

○ **Acute toxicity**

*** Oral**

- [Nitrobenzene] : LD50 349 ㎎/㎏ Rat

*** Dermal**

- [Nitrobenzene] : LD50 760 ㎎/㎏ rabbit

*** Inhalation**

- [Nitrobenzene] : Mist LC50 2.80 mg/L/4 hr Rat

○ **Skin corrosion/irritation**

- Not available

○ **Serious eye damage/irritation**

- Not available

○ **Respiratory sensitization**

- Not available

○ **Skin sensitization**

- Not available

○ **Carcinogenicity**

*** IARC**

- [Nitrobenzene] : Group 2B

*** OSHA**

- Not available

*** ACGIH**

- [Nitrobenzene] : A3

*** NTP**

- [Nitrobenzene] : R

*** EU CLP**

- [Nitrobenzene] : Carc. 2

○ **Germ cell mutagenicity**

- Not available

○ **Reproductive toxicity**

- Suspected of damaging fertility or the unborn child

○ **STOT-single exposure**

- Not available

○ **STOT-repeated exposure**

- Causes damage to organs through prolonged or repeated exposure

○ **Aspiration hazard**

- Not available

## 12. ECOLOGICAL INFORMATION

### A. Ecotoxicity

○ **Fish**

- [Nitrobenzene] : LC50 42.6 ㎎/ℓ 96 hr Lepomis macrochirus (IUCLID)

○ **Crustaceans**

- [Nitrobenzene] : EC50 6.7 ㎎/ℓ 48 hr Mysid Shrimp (EHC230, 2003)

○ **Algae**

- [Nitrobenzene] : EC50 10.3 ㎎/ℓ 96 hr Skeletonema costatum (IUCLID)

### B. Persistence and degradability

○ **Persistence**

- [Nitrobenzene] : log Kow 1.85

○ **Degradability**

- Not available

### C. Bioaccumulative potential

○ **Bioaccumulative potential**

- [Nitrobenzene] : BCF < 10 (HSDB)

○ **Biodegration**

- [Nitrobenzene] : no rapidly degrading (the decomposition by BOD: 3.3%(Existing Chemical Safety Inspections Data)

### D. Mobility in soil

- Not available

### 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.
- Will be pre-processed by the separation of oil and water.

### 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)

- 1662

### B. Proper shipping name

- NITROBENZENE

### C. Hazard Class

- 6.1

### D. IMDG CODE/IATA DGR Packing group

- II

### E. Marine pollutant

- Not 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-A (General fire schedule)
- EmS SPILLAGE SCHEDULE : S-A (Toxic substances)

## 15. REGULATORY INFORMATION

### A. National and/or international regulatory information

○ **POPs Management Law**

- Not applicable

○ **Information of EU Classification**

*** Classification**

- [Nitrobenzene] : H351, H361f, H331, H311, H301, H372, H411

○ **U.S. Federal regulations**

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

- Not applicable

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

- [Nitrobenzene] : 453.599 kg 1000 lb

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

- [Nitrobenzene] : 4535.99 kg 10000 lb

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

- [Nitrobenzene] : 453.599 kg 1000 lb

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

- [Nitrobenzene] : 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**

- 2019-01-11

**C. Revision number and Last date revised**

- 1 times, 2019-01-11

**D. Other**

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