REAGENTS DUKSAN

SAFETY DATA SHEET

According to OSHA Hazcom Standard 29 CFR 1910.1200

Nickel Acetate tetrahydrate

Date of issue: 2019-11-01 **Revision date: 2024-05-09** **Version: R0003.0001**

1. IDENTIFICATION

A. Product name

- Nickel Acetate tetrahydrate

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

○ **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 : 82-31-495-4055
- Fax number : 82-31-495-4058

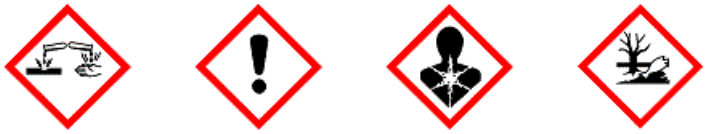
2. HAZARD IDENTIFICATION

A. GHS Classification

- Acute toxicity (oral) : Category4
- Acute Toxicity (Inhalation: dust / mist) : Category4
- Skin corrosion/irritation : Category2
- Serious eye damage/irritation : Category1
- Respiratory sensitization : Category1
- Skin sensitization : Category1
- Germ cell mutagenicity : Category2
- Carcinogenicity : Category1A
- Reproductive toxicity : Category1B
- Specific target organ toxicity(Repeated exposure) : Category1
- Acute aquatic toxicity : Category1
- Chronic aquatic toxicity : Category1

B. GHS label elements

○ **Hazard symbols**



○ **Signal words**

- Danger

○ **Hazard statements**

- H302 Harmful if swallowed

- H315 Causes skin irritation
- H317 May cause an allergic skin reaction
- H318 Causes serious eye damage
- H332 Harmful if inhaled
- H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled
- H341 Suspected of causing genetic defects
- H350 May cause cancer
- H360 May damage fertility or the unborn child
- H372 Causes 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.
- 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.
- 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.
- P285 In case of inadequate ventilation wear respiratory 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.
- 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.
- P310 Immediately 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.
- P332+P313 If skin irritation occurs: Get medical advice/attention.
- P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
- P342+P311 If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.
- P362 Take off contaminated clothing and wash before reuse.
- P363 Wash contaminated clothing before reuse.
- P391 Collect spillage.

3) Storage

- 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 : 2 , Flammability : 1, Reactivity : 0

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Trade names and Synonyms	CAS No.	Content(%)
NICKEL ACETATE TETRAHYDRATE	-	6018-89-9	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.
- 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.
- Remove contaminated clothing, shoes and isolate.
- Wash thoroughly after handling.
- Wear gloves when washing the patient, and please avoid contact with contaminated clothing.

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.
- Go to the hospital immediately if symptoms(flare, irritate) occur.
- If breathing is stopped or irregular, give artificial respiration and supply oxygen.

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.
- Remove to fresh air and keep at rest in a position comfortable for breathing.

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 approach the tank surrounded by fire until it is extinguished.
- 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
- 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.
- Notify the central and local government if the emission reach the standard threshold.
- Disposal of waste shall be in compliance with the Wastes Control?Act
- 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.
- Spilled material should be treated as a potential risk of waste collected.

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

- 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.
- Store away from water and sewer.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

A. Exposure limits

○ **ACGIH TLV**

- Not available

○ **OSHA PEL**

- [NICKEL ACETATE TETRAHYDRATE]: 1mg/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	Solid(Other)
- Color	green
B. Odor	characteristic odor
C. Odor threshold	Not available
D. pH	Not available
E. Melting point/Freezing point	Not available
F. Initial Boiling Point/Boiling Ranges	16 ℃
G. Flash point	Not available
H. Evaporation rate	Not available
I. Flammability(solid, gas)	Not available
J. Upper/Lower Flammability or explosive limits	Not available
K. Vapour pressure	Not available
L. Solubility	Not available
M. Vapour density	Not available
N. Specific gravity(Relative density)	1.744g/cm3
O. Partition coefficient of n-octanol/water	Not available
P. Autoignition temperature	Not available
Q. Decomposition temperature	250 ℃
R. Viscosity	Not available
S. Molecular weight	248.84

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)**

- May cause allergy or asthma symptoms or breathing difficulties if inhaled

○ **(Oral)**

- Harmful if swallowed

○ **(Eye·Skin)**

- Causes serious eye damage
- 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**

- [NICKEL ACETATE TETRAHYDRATE] : LD50 350 ㎎/㎏ Rat, (LD50 550 ㎎/㎏ Rat (OECD TG 425, GLP) (ECHA))

*** Dermal**

- Not available

*** Inhalation**

- [NICKEL ACETATE TETRAHYDRATE] : Dust LC50 2.48 ㎎/ℓ 4 hr Rat (OECD TG 403, GLP 규산울 쉴 CAS No. 10101-97-0)(ECHA)

○ **Skin corrosion/irritation**

- Causes skin irritation

○ **Serious eye damage/irritation**

- Causes serious eye damage

○ **Respiratory sensitization**

- May cause allergy or asthma symptoms or breathing difficulties if inhaled

○ **Skin sensitization**

- May cause an allergic skin reaction

○ **Carcinogenicity**

*** IARC**

- [NICKEL ACETATE TETRAHYDRATE] : Group 1 (Nickel compounds)

*** OSHA**

- Not available

*** ACGIH**

- [NICKEL ACETATE TETRAHYDRATE] : A4 (Nickel soluble inorganic compounds)

*** NTP**

- [NICKEL ACETATE TETRAHYDRATE] : K (Nickel Compounds)

*** EU CLP**

- Not available

○ **Germ cell mutagenicity**

- Suspected of causing genetic defects

○ **Reproductive toxicity**

- May damage 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**

- [NICKEL ACETATE TETRAHYDRATE] : LC50 15.3 ㎎/ℓ 96 hr Oncorhynchus mykiss(유사물질 CAS No. 7718-54-9)(ECHA)

○ **Crustaceans**

- [NICKEL ACETATE TETRAHYDRATE] : LC50 0.0276 ㎎/ℓ 48 hr Ceriodaphnia dubia(유사물질 CAS No. 7718-54-9)(ECHA)

○ **Algae**

- [NICKEL ACETATE TETRAHYDRATE] : EC50 0.0815 ~ 0.148 ㎎/ℓ 72 hr 기타(OECD TG 201 유사물질 CAS No. 7718-54-9)(ECHA)

B. Persistence and degradability

○ **Persistence**

- Not available

○ **Degradability**

- Not available

C. Bioaccumulative potential

○ **Bioaccumulative potential**

- [NICKEL ACETATE TETRAHYDRATE] : 1401 (Conc. in environment / dose: 100 ug Ni/L)(ECHA)

○ **Biodegration**

- Not available

D. Mobility in soil

- Not available

E. Other adverse effects

- Not available

13. DISPOSAL CONSIDERATIONS

A. Disposal methods

- Stabilization and minimization treatment by incineration or similar method can be applied, if more than two kinds of designated wastes are in mixture state and it is impractical to separate them
- Oil water separation technology shall be applied as pre-waste treatment if it is applicable
- It shall be treated 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

- Anyone with business license number who generates industrial wastes shall treat the waste by him/herself or by entrusting to the legal entities who treat the wastes, recycle the wastes of others or install and operate the waste treatment facilities according to the Wastes Control Act
- Dispose of waste in accordance with all applicable laws and regulations.

14. TRANSPORT INFORMATION

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

- 3282

B. Proper shipping name

- ORGANOMETALLIC COMPOUND, TOXIC, LIQUID, N.O.S.

C. Hazard Class

- 6.1

D. IMDG CODE/IATA DGR Packing group

- I

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-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**

- Not applicable

○ **U.S. Federal regulations**

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

- Not applicable

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

- Not applicable

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

- Not applicable

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

- Not applicable

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

- Not 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

- 2019-11-01

C. Revision number and Last date revised

- 2 times, 2024-05-09

D. Other

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