# SECTION 1: Identification

## 1.1. Identification

<table>
<thead>
<tr>
<th>Product name</th>
<th>NICKEL FORMATE, dihydrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product code</td>
<td>CXNI045</td>
</tr>
<tr>
<td>Product form</td>
<td>Substance</td>
</tr>
<tr>
<td>Physical state</td>
<td>Solid</td>
</tr>
<tr>
<td>Formula</td>
<td>C2H2NiO4·2H2O</td>
</tr>
<tr>
<td>Synonyms</td>
<td>FORMIC ACID, NICKEL SALT</td>
</tr>
<tr>
<td>Chemical family</td>
<td>METAL COMPOUND</td>
</tr>
</tbody>
</table>

## 1.2. Recommended use and restrictions on use

**Recommended use**: Chemical intermediate

## 1.3. Supplier

**GELEST, INC.**

11 East Steel Road

Morrisville, PA 19067

USA

T 215-547-1015 - F 215-547-2484 - (M-F): 8:00 AM - 5:30 PM EST

info@gelest.com - www.gelest.com

## 1.4. Emergency telephone number

**Emergency number**: CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International)

# SECTION 2: Hazard(s) identification

## 2.1. Classification of the substance or mixture

---

### GHS-US classification

<table>
<thead>
<tr>
<th>Hazard statement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin corrosion/irritation Category 2</td>
<td>H315 - Causes skin irritation</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation Category 2A</td>
<td>H319 - Causes serious eye irritation</td>
</tr>
<tr>
<td>Respiratory sensitization, Category 1</td>
<td>H334 - May cause an allergy or asthma symptoms or breathing difficulties if inhaled</td>
</tr>
<tr>
<td>Carcinogenicity Category 1A</td>
<td>H350 - May cause cancer</td>
</tr>
</tbody>
</table>

Full text of H statements: see section 16

## 2.2. GHS Label elements, including precautionary statements

### GHS US labeling

<table>
<thead>
<tr>
<th>Hazard pictograms (GHS US)</th>
<th>Danger</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Signal word (GHS US)</th>
<th>Danger</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Hazard statements (GHS US)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>H315 -</td>
<td>Causes skin irritation</td>
</tr>
<tr>
<td>H319 -</td>
<td>Causes serious eye irritation</td>
</tr>
<tr>
<td>H334 - May cause an allergy or asthma symptoms or breathing difficulties if inhaled</td>
<td></td>
</tr>
<tr>
<td>H350 - May cause cancer</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Precautionary statements (GHS US)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P202 - Do not handle until all safety precautions have been read and understood.</td>
<td></td>
</tr>
<tr>
<td>P280 - Wear protective gloves/protective clothing/eye protection/face protection.</td>
<td></td>
</tr>
<tr>
<td>P308+P313 - If exposed or concerned: Get medical advice/attention.</td>
<td></td>
</tr>
<tr>
<td>P261 - Avoid breathing dust.</td>
<td></td>
</tr>
<tr>
<td>P264 - Wash hands thoroughly after handling.</td>
<td></td>
</tr>
<tr>
<td>P284 - Wear respiratory protection..</td>
<td></td>
</tr>
<tr>
<td>P302+P352 - If skin irritation occurs: Get medical advice/attention.</td>
<td></td>
</tr>
<tr>
<td>P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing</td>
<td></td>
</tr>
<tr>
<td>P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing</td>
<td></td>
</tr>
<tr>
<td>P337+P313 - If eye irritation persists: Get medical advice/attention.</td>
<td></td>
</tr>
<tr>
<td>P321 - Specific treatment (see first aid instructions on this label)</td>
<td></td>
</tr>
<tr>
<td>P342+P311 - If experiencing respiratory symptoms: Call a doctor</td>
<td></td>
</tr>
<tr>
<td>P362+P364 - Take off contaminated clothing and wash it before reuse.</td>
<td></td>
</tr>
<tr>
<td>P405 - Store locked up.</td>
<td></td>
</tr>
<tr>
<td>P501 - Dispose of contents/container to licensed waste disposal facility.</td>
<td></td>
</tr>
</tbody>
</table>
NICKEL FORMATE, dihydrate
Safety Data Sheet

2.3. Hazards not otherwise classified (HNOC)
No additional information available

2.4. Unknown acute toxicity (GHS US)
Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

<table>
<thead>
<tr>
<th>Substance type</th>
<th>Name</th>
<th>CAS-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mono-constituent</td>
<td>NICKEL FORMATE, dihydrate</td>
<td>3349-06-2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nickel formate, dihydrate</td>
<td>(CAS-No.) 3349-06-2</td>
<td>95 - 100</td>
<td>Skin Irrit. 2, H315 Eye Irrit. 2A, H319 Resp. Sens. 1, H334 Carc. 1A, H350</td>
</tr>
</tbody>
</table>

Full text of hazard classes and H-statements : see section 16

3.2. Mixtures
Not applicable

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general : Remove contaminated clothing and shoes. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). If possible show this sheet; if not available show packaging or label.

First-aid measures after inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If you feel unwell, seek medical advice.

First-aid measures after skin contact : Wash with plenty of soap and water. Get medical advice/attention.

First-aid measures after eye contact : Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.

First-aid measures after ingestion : Never give anything by mouth to an unconscious person. Get medical advice/attention.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects : May cause cancer. May cause an allergy or asthma symptoms or breathing difficulties if inhaled.

Symptoms/effects after inhalation : May cause irritation to the respiratory tract.

Symptoms/effects after skin contact : Causes skin irritation.

Symptoms/effects after eye contact : Causes serious eye irritation.

Symptoms/effects after ingestion : May be harmful if swallowed.

Chronic symptoms : Some nickel organic salts have been reported to be experimental neoplastigens and tumorigens. No testing has been conducted on nickel pentanedionate. Nickel formate should be handled as a carcinogen.

4.3. Immediate medical attention and special treatment, if necessary
No additional information available

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media


Unsuitable extinguishing media : None known.

5.2. Specific hazards arising from the chemical

Fire hazard : Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Exercise caution when fighting any chemical fire. Use water spray to cool exposed surfaces.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Avoid contact with skin and eyes. Do not breathe dust.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment : Wear protective equipment as described in Section 8.

Emergency procedures : Evacuate unnecessary personnel.
NICKEL FORMATE, dihydrate
Safety Data Sheet

6.1.2. For emergency responders
Protective equipment: Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: “Exposure controls/personal protection”.

6.2. Environmental precautions
Prevent entry to sewers and public waters. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up
For containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

Methods for cleaning up: Sweep or shovel spills into appropriate container for disposal.

6.4. Reference to other sections
See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Precautions for safe handling: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid contact with skin and eyes. Do not breathe dust. Avoid dust formation. Provide local exhaust or general room ventilation to minimize exposure to dust.

Hygiene measures: Wash contaminated clothing before reuse. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities
Storage conditions: Keep container tightly closed. Store locked up.
Incompatible materials: Oxidizing agent.
Storage area: Store in a well-ventilated place. Store away from heat.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

| Nickel formate, dihydrate (3349-06-2) |
|-------------------------------|----------------|
| OSHA                          | OSHA PEL (TWA) (mg/m³) |
|                               | 1 mg/m³ for nickel |

8.2. Appropriate engineering controls
Appropriate engineering controls: Provide local exhaust or general room ventilation.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:
Avoid all unnecessary exposure. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Hand protection:
Neoprene or nitrile rubber gloves

Eye protection:
Chemical goggles. Contact lenses should not be worn

Skin and body protection:
Wear suitable protective clothing

Respiratory protection:
Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. NIOSH-certified dust and mist (teal cartridge) respirator.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Solid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Powder.</td>
</tr>
<tr>
<td>Molecular mass</td>
<td>184.77/202.77 g/mol</td>
</tr>
<tr>
<td>Color</td>
<td>Green-turquoise.</td>
</tr>
<tr>
<td>Odor</td>
<td>No data available</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>Refractive index</td>
<td>No data available</td>
</tr>
</tbody>
</table>
NICKEL FORMATE, dihydrate
Safety Data Sheet

pH : No data available
Relative evaporation rate (butyl acetate=1) : No data available
Melting point : No data available
Freezing point : No data available
Boiling point : No data available
Flash point : > 200 °C
Auto-ignition temperature : No data available
Decomposition temperature : No data available
Flammability (solid, gas) : No data available
Vapor pressure : < 1 mm Hg @ 25°C
Relative vapor density at 20 °C : No data available
Relative density : 2.15
% Volatiles : < 2 %
Solubility : Soluble in water.
Log Pow : No data available
Log Kow : No data available
Viscosity, kinematic : No data available
Viscosity, dynamic : No data available
Explosive properties : No data available
Oxidizing properties : No data available
Explosion limits : No data available

9.2. Other information
No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity
No additional information available

10.2. Chemical stability
Stable.

10.3. Possibility of hazardous reactions
No additional information available

10.4. Conditions to avoid
No additional information available

10.5. Incompatible materials
Oxidizing agent.

10.6. Hazardous decomposition products
Nickel oxide fumes, Organic acid vapors.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity : Not classified
Skin corrosion/irritation : Causes skin irritation.
Serious eye damage/irritation : Causes serious eye irritation.
Respiratory or skin sensitization : May cause an allergy or asthma symptoms or breathing difficulties if inhaled.
Germ cell mutagenicity : Not classified
Carcinogenicity : May cause cancer.
Reproductive toxicity : Not classified
Specific target organ toxicity – single exposure : Not classified
Specific target organ toxicity – repeated exposure : Not classified
Aspiration hazard : Not classified
Symptoms/effects after inhalation : May cause irritation to the respiratory tract.
Symptoms/effects after skin contact : Causes skin irritation.
Symptoms/effects after eye contact : Causes serious eye irritation.
NICKEL FORMATE, dihydrate
Safety Data Sheet

Symptoms/effects after ingestion: May be harmful if swallowed.
Chronic symptoms: Some nickel organic salts have been reported to be experimental neoplastigens and tumorigens. No testing has been conducted on nickel pentanedionate. Nickel formate should be handled as a carcinogen.
Reason for classification: Expert judgment

SECTION 12: Ecological information
12.1. Toxicity
No additional information available
12.2. Persistence and degradability
No additional information available
12.3. Bioaccumulative potential
No additional information available
12.4. Mobility in soil
No additional information available
12.5. Other adverse effects
Other adverse effects: This substance may be hazardous to the environment.
Effect on the ozone layer: No additional information available

SECTION 13: Disposal considerations
13.1. Disposal methods
Sewage disposal recommendations: Do not dispose of waste into sewer.
Product/Packaging disposal recommendations: Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to licensed waste disposal facility.
Ecology - waste materials: Avoid release to the environment.

SECTION 14: Transport information
14.1. UN number
Not regulated for transport.
14.2. UN proper shipping name
Not applicable
14.3. Additional information
Other information: No supplementary information available.

Transport by sea
No additional information available
Air transport
No additional information available

SECTION 15: Regulatory information
15.1. US Federal regulations
<table>
<thead>
<tr>
<th>NICKEL FORMATE, dihydrate (3349-06-2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SARA Section 313 - Emission Reporting</td>
</tr>
</tbody>
</table>

Nickel formate, dihydrate (3349-06-2)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations
CANADA
<table>
<thead>
<tr>
<th>Nickel formate, dihydrate (3349-06-2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listed on the Canadian NDSL (Non-Domestic Substances List)</td>
</tr>
</tbody>
</table>

EU-Regulations
<table>
<thead>
<tr>
<th>Nickel formate, dihydrate (3349-06-2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)</td>
</tr>
</tbody>
</table>

Print date: 04/10/2019
Nickel formate, dihydrate (3349-06-2)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECS (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Japanese Pollutant Release and Transfer Register Law (PRTR Law)

SECTION 16: Other information

Full text of H-phrases:

<table>
<thead>
<tr>
<th>H315</th>
<th>Causes skin irritation</th>
</tr>
</thead>
<tbody>
<tr>
<td>H319</td>
<td>Causes serious eye irritation</td>
</tr>
<tr>
<td>H334</td>
<td>May cause an allergy or asthma symptoms or breathing difficulties if inhaled</td>
</tr>
<tr>
<td>H350</td>
<td>May cause cancer</td>
</tr>
</tbody>
</table>

Abbreviations and acronyms:

Abbreviations: ND: Not Determined, No Data; NA: Not Applicable; LD: Lethal Dose; LC: Lethal Concentration; ATE: Acute Toxicity Estimates; H: hour; °C unless otherwise stated; mm: millimeters Hg, torr; PEL: permissible exposure level; TWA: time weighted average; TLV: threshold limit value; TG: Test Guideline; NIOSH: National Institute for Occupational Safety and Health; IARC: International Agency for Research on Cancer; NTP: National Toxicology Program; HMIS: Hazardous Material Information System; CAS No.: Chemical Abstract Service Registration Number; EC No.: European Commission Registration Number; EC Index No.: European Commission Index Number; OECD: The Organisation for Economic Co-operation and Development; GHS: The Globally Harmonized System of Classification and Labelling; APF: Assigned Protection Factor.

Hazard Rating

Health: 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given
Flammability: 1 Slight Hazard - Materials that must be preheated before ignition will occur. Includes liquids, solids and semi solids having a flash point above 200 F. (Class IIIB)
Physical: 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.

Prepared by safety and environmental affairs.

Date of issue: 07/15/2016 Version: 1.0

SDS US (GHS HazCom 2012) - Custom

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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