

**Safety data sheet**  
according to 1907/2006/EC, Article 31

Printing date 15.02.2022

Revision: 15.02.2022

**SECTION 1: Identification of the substance/mixture and of the company/undertaking**

- **1.1 Product identifier**
- **Trade name:** Nickel carbonyl
- **Item number:** 28-1150
- **CAS Number:**  
13463-39-3
- **Index number:**  
028-001-00-1
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**  
No further relevant information available.
- **1.3 Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Strem Chemicals, Inc.  
7 Mulliken Way  
NEWBURYPORT, MA 01950  
USA  
info@strem.com
- **Further information obtainable from:** Technical Department
- **1.4 Emergency telephone number:**  
EMERGENCY: CHEMTREC: + 1 (800) 424-9300  
During normal opening times: +1 (978) 499-1600

**SECTION 2: Hazards identification**

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**



GHS02 flame

Flam. Liq. 1      H224      Extremely flammable liquid and vapour.



GHS06 skull and crossbones

Acute Tox. 1      H330      Fatal if inhaled.



GHS08 health hazard

Carc. 2      H351      Suspected of causing cancer.  
Repr. 1B      H360D      May damage the unborn child.



GHS09 environment

Aquatic Acute 1      H400      Very toxic to aquatic life.  
Aquatic Chronic 1      H410      Very toxic to aquatic life with long lasting effects.

- **2.2 Label elements**
- **Labelling according to Regulation (EC) No 1272/2008**  
The substance is classified and labelled according to the CLP regulation.

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· **Hazard pictograms**



· **Signal word** *Danger*

· **Hazard-determining components of labelling:**

tetracarbonylnickel

· **Hazard statements**

H224 *Extremely flammable liquid and vapour.*

H330 *Fatal if inhaled.*

H351 *Suspected of causing cancer.*

H360D *May damage the unborn child.*

H410 *Very toxic to aquatic life with long lasting effects.*

· **Precautionary statements**

P101 *If medical advice is needed, have product container or label at hand.*

P102 *Keep out of reach of children.*

P103 *Read label before use.*

P284 *[In case of inadequate ventilation] wear respiratory protection.*

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

P260 *Do not breathe dust/fume/gas/mist/vapours/spray.*

P301+P310 *IF SWALLOWED: Immediately call a POISON CENTER/ doctor.*

P422 *Store contents under inert gas.*

P403+P235 *Store in a well-ventilated place. Keep cool.*

P501 *Dispose of contents/container in accordance with local/regional/national/international regulations.*

· **2.3 Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

**SECTION 3: Composition/information on ingredients**

· **3.1 Chemical characterisation: Substances**

· **CAS No. Description**

13463-39-3 tetracarbonylnickel

· **Identification number(s)**

· **Index number:** 028-001-00-1

**SECTION 4: First aid measures**

· **4.1 Description of first aid measures**

· **General information:**

*Immediately remove any clothing soiled by the product.*

*Remove breathing equipment only after contaminated clothing have been completely removed.*

*In case of irregular breathing or respiratory arrest provide artificial respiration.*

· **After inhalation:**

*Supply fresh air or oxygen; call for doctor.*

*In case of unconsciousness place patient stably in side position for transportation.*

· **After skin contact:** *Immediately wash with water and soap and rinse thoroughly.*

· **After eye contact:** *Rinse opened eye for several minutes under running water. Then consult a doctor.*

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- **After swallowing:** If symptoms persist consult doctor.
- **4.2 Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **4.3 Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

## SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents:**  
CO<sub>2</sub>, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **5.2 Special hazards arising from the substance or mixture**  
During heating or in case of fire poisonous gases are produced.
- **5.3 Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

## SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**  
Mount respiratory protective device.  
Wear protective equipment. Keep unprotected persons away.
- **6.2 Environmental precautions:**  
Do not allow product to reach sewage system or any water course.  
Prevent seepage into sewage system, workpits and cellars.  
Inform respective authorities in case of seepage into water course or sewage system.
- **6.3 Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
Dispose contaminated material as waste according to item 13.  
Ensure adequate ventilation.
- **6.4 Reference to other sections**  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

## SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**  
Ensure good ventilation/exhaustion at the workplace.  
Open and handle receptacle with care.  
Only handle and refill product in closed systems.  
Prevent formation of aerosols.
- **Information about fire - and explosion protection:**  
Keep ignition sources away - Do not smoke.  
Protect against electrostatic charges.  
Keep respiratory protective device available.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Store away from foodstuffs.
- **Further information about storage conditions:**  
Keep container tightly sealed.

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- Do not seal receptacle gas tight.
- Store in cool, dry conditions in well sealed receptacles.
- Protect from heat and direct sunlight.
- **7.3 Specific end use(s)** No further relevant information available.

## SECTION 8: Exposure controls/personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.

### · 8.1 Control parameters

- **Ingredients with limit values that require monitoring at the workplace:**

**13463-39-3 tetracarbonylnickel**

WEL Short-term value: 0.24 mg/m<sup>3</sup>, 0.1 ppm

- **Additional information:** The lists valid during the making were used as basis.

### · 8.2 Exposure controls

#### · **Personal protective equipment:**

##### · **General protective and hygienic measures:**

- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing
- Wash hands before breaks and at the end of work.
- Store protective clothing separately.

##### · **Respiratory protection:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

##### · **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

##### · **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

##### · **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

##### · **Eye protection:**



Tightly sealed goggles

### · 9.1 Information on basic physical and chemical properties

#### · **General Information**

##### · **Appearance:**

- |                         |                 |
|-------------------------|-----------------|
| <b>Form:</b>            | Liquid          |
| <b>Colour:</b>          | Colourless      |
| <b>Odour:</b>           | Acrid           |
| <b>Odour threshold:</b> | Not determined. |

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· <b>pH-value:</b>	Not determined.
· <b>Change in condition</b> Melting point/freezing point:	Undetermined.
Initial boiling point and boiling range:	43 °C
· <b>Flash point:</b>	Not applicable.
· <b>Flammability (solid, gas):</b>	Not determined.
· <b>Ignition temperature:</b>	60 °C
· <b>Decomposition temperature:</b>	Not determined.
· <b>Auto-ignition temperature:</b>	Not determined.
· <b>Explosive properties:</b>	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
· <b>Explosion limits:</b> Lower:	2 Vol %
Upper:	34 Vol %
· <b>Vapour pressure at 20 °C:</b>	480 hPa
· <b>Density at 20 °C:</b>	1.32 g/cm <sup>3</sup>
· <b>Relative density</b>	Not determined.
· <b>Vapour density</b>	Not determined.
· <b>Evaporation rate</b>	Not determined.
· <b>Solubility in / Miscibility with water at 20 °C:</b>	0.18 g/l
· <b>Partition coefficient: n-octanol/water:</b>	Not determined.
· <b>Viscosity:</b> Dynamic:	Not determined.
Kinematic:	Not determined.
· <b>Solvent content:</b> Organic solvents:	0.0 %
VOC (EC)	0.00 %
· <b>9.2 Other information</b>	No further relevant information available.

## SECTION 10: Stability and reactivity

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **10.3 Possibility of hazardous reactions** No dangerous reactions known.
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:** No dangerous decomposition products known.

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## SECTION 11: Toxicological information

### · 11.1 Information on toxicological effects

- **Acute toxicity**  
Fatal if inhaled.

### · **LD/LC50 values relevant for classification:**

Inhalative	LC50/4 h	67 mg/l (mouse)
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- **Primary irritant effect:**
- **Skin corrosion/irritation** Based on available data, the classification criteria are not met.
- **Serious eye damage/irritation** Based on available data, the classification criteria are not met.
- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity**  
Suspected of causing cancer.
- **Reproductive toxicity**  
May damage the unborn child.
- **STOT-single exposure** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.

## SECTION 12: Ecological information

- **12.1 Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **12.2 Persistence and degradability** No further relevant information available.
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.
- **Ecotoxicological effects:**
- **Remark:** Very toxic for fish
- **Additional ecological information:**
- **General notes:**  
Also poisonous for fish and plankton in water bodies.  
Very toxic for aquatic organisms
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

## SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
- **Recommendation**  
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

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**SECTION 14: Transport information**

· <b>14.1 UN-Number</b>	
· <b>ADR, IMDG, IATA</b>	UN1259
· <b>14.2 UN proper shipping name</b>	
· <b>ADR</b>	1259 NICKEL CARBONYL
· <b>IMDG</b>	NICKEL CARBONYL, MARINE POLLUTANT
· <b>IATA</b>	NICKEL CARBONYL
· <b>14.3 Transport hazard class(es)</b>	
· <b>ADR</b>	
	  
· <b>Class</b>	6
· <b>Label</b>	6.1+3
· <b>IMDG</b>	
	  
· <b>Class</b>	6.1 Toxic substances.
· <b>Label</b>	6.1/3
· <b>IATA</b>	
	 
· <b>Class</b>	6.1 Toxic substances.
· <b>Label</b>	6.1 (3)
· <b>14.4 Packing group</b>	
· <b>ADR, IMDG, IATA</b>	I
· <b>14.5 Environmental hazards:</b>	
· <b>Marine pollutant:</b>	Yes Symbol (fish and tree)
· <b>Special marking (ADR):</b>	Symbol (fish and tree)
· <b>14.6 Special precautions for user</b>	Not applicable.
· <b>Danger code (Kemler):</b>	663
· <b>EMS Number:</b>	F-E,S-D
· <b>Stowage Category</b>	D
· <b>Stowage Code</b>	SW2 Clear of living quarters.
· <b>Segregation Code</b>	SG63 Stow "separated longitudinally by an intervening complete compartment or hold from" Class 1.
· <b>14.7 Transport in bulk according to Annex II of Marpol and the IBC Code</b>	Not applicable.

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· **Transport/Additional information:**

· **ADR**

· **Limited quantities (LQ)**

0

· **Excepted quantities (EQ)**

Code: E5

Maximum net quantity per inner packaging: 1 ml

Maximum net quantity per outer packaging: 300 ml

· **Transport category**

1

· **Tunnel restriction code**

C/D

· **IMDG**

· **Limited quantities (LQ)**

0

· **Excepted quantities (EQ)**

Code: E5

Maximum net quantity per inner packaging: 1 ml

Maximum net quantity per outer packaging: 300 ml

· **UN "Model Regulation":**

UN 1259 NICKEL CARBONYL, 6.1 (3), I

**SECTION 15: Regulatory information**

· **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

· **Directive 2012/18/EU**

· **Named dangerous substances - ANNEX I** Substance is not listed.

· **Seveso category**

H1 ACUTE TOXIC

P5a FLAMMABLE LIQUIDS

E1 Hazardous to the Aquatic Environment

· **Qualifying quantity (tonnes) for the application of lower-tier requirements** 5 t

· **Qualifying quantity (tonnes) for the application of upper-tier requirements** 20 t

· **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3, 27, 30

· **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

**SECTION 16: Other information**

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:** Technical Department.

· **Contact:** Technical Director

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Flam. Liq. 1: Flammable liquids – Category 1

Acute Tox. 1: Acute toxicity – Category 1

Carc. 2: Carcinogenicity – Category 2

Repr. 1B: Reproductive toxicity – Category 1B

Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1

Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1