

# SAFETY DATA SHEET

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## SECTION 1. IDENTIFICATION

**Product Name:** Nickel Carbonyl

**CAS #:** 13463-39-3

**Relevant identified uses of the substance:** Scientific research and development

**Supplier details:**

Stanford Advanced Materials

E-mail: [sales@samaterials.com](mailto:sales@samaterials.com)

Tel: (949) 407-8904

Address: 23661 Birtcher Dr., Lake Forest, CA 92630 U.S.A.

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## SECTION 2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS02 Flame

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

GHS06 Skull and crossbones

Acute Tox. 1 H330 Fatal if inhaled.

GHS08 Health hazard

Carc. 2 H351 Suspected of causing cancer.

Repr. 1B H360 May damage fertility or the unborn child.

Label elements

GHS label elements

The substance is classified and labeled according to the Globally Harmonized System (GHS).

Hazard pictograms

GHS02 GHS06 GHS08

Signal word Danger

Hazard-determining components of labeling:

tEtracarbonylnickel

Hazard statements H224 Extremely flammable liquid and vapor.

H330 Fatal if inhaled.

H351 Suspected of causing cancer.

H360 May damage fertility or the unborn child.

Precautionary statements

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P260 Do not breathe dust/fume/gas/mist/vapors/spray.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

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.

Classification system:

NFPA ratings (scale 0 - 4)

Health = 4

Fire = 3

Reactivity = 0

HMIS-ratings (scale 0 - 4)

Health = \*4

Fire = 3

Reactivity = 0

Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

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## **SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Chemical characterization: Substances

CAS No. Description

13463-39-3 Tetracarbonylnickel

Identification number(s)

Index number: 028-001-00-1

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## **SECTION 4. FIRST AID MEASURES**

Description of first aid measures

General information:

Immediately remove any clothing soiled by the product.

Remove breathing apparatus 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.

After swallowing: If symptoms persist consult doctor.

Information for doctor:

Most important symptoms and effects, both acute and delayed No further relevant information available. Indication of any immediate medical attention and special treatment needed

No further relevant information available.

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## **SECTION 5. FIREFIGHTING MEASURES**

Extinguishing media

Suitable extinguishing agents:

CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

For safety reasons unsuitable extinguishing agents: Water with full jet

Special hazards arising from the substance or mixture

During heating or in case of fire poisonous gases are produced.

Advice for firefighters

Protective equipment: Mouth respiratory protective device.

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## **SECTION 6. ACCIDENTAL RELEASE MEASURES**

Personal precautions, protective equipment and emergency procedures

Mount respiratory protective device.

Wear protective equipment. Keep unprotected persons away.

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.

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.

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.

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## **SECTION 7. HANDLING AND STORAGE**

Handling:

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 protection against explosions and fires:

Keep ignition sources away - Do not smoke.

Protect against electrostatic charges.

Keep respiratory protective device available.

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: Not required.

Further information about storage conditions:

Keep receptacle tightly sealed. Do not gas tight seal receptacle.

Store in cool, dry conditions in well sealed receptacles.

Protect from heat and direct sunlight.

Specific end use(s) No further relevant information available.

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## **SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

Additional information about design of technical systems: No further data; see item 7.

Control parameters

Components with limit values that require monitoring at the workplace:

13463-39-3 tetracarbonylnickel

PEL Long-term value: 0.007 mg/m<sup>3</sup>, 0.001 ppm

REL Long-term value: 0.007 mg/m<sup>3</sup>, 0.001 ppm

See Pocket Guide App. A

TLV Ceiling limit value: 0.12 mg/m<sup>3</sup>, 0.05 ppm as Ni

Additional information: The lists that were valid during the creation were used as basis.

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.

Breathing equipment:

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use

respiratory protective device that is independent of circulating air.

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

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## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

General Information Appearance:

Form: Liquid

Color: Colorless

Odor: Acrid

Odor threshold: Not determined.

pH-value: Not determined.

Change in condition

Melting point/Melting range: -19.3 °C (-3 °F)

Boiling point/Boiling range: 43 °C (109 °F)

Flash point: Not applicable.

Flammability (solid, gaseous): Not applicable.

Ignition temperature: 60 °C (140 °F)

Decomposition temperature: Not determined.

Auto igniting: Not determined.

Danger of explosion: Not determined.

Explosion limits:

Lower: 2 Vol %

Upper: 34 Vol %

Vapor pressure at 20 °C (68 °F): 480mm (30 hPa (360mm (23 mm Hg)

Density at 20 °C (68 °F): 1.32 g/cm<sup>3</sup> (11.015 lbs/gal)

Relative density Not determined.

Vapor density Not determined.

Evaporation rate Not determined.

Solubility in / Miscibility with

Water at 20 °C (68 °F): 0.18 g/l

Partition coefficient (n-octanol/water): Not determined.

Viscosity:

Dynamic: Not determined.

Kinematic: Not determined.

Solvent content:

Organic solvents: 0.0 %

VOC content: 0.0 g/l / 0.00 lb/gl

Other information No further relevant information available.

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## **SECTION 10. STABILITY AND REACTIVITY**

Reactivity No further relevant information available.

Chemical stability

Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.

Possibility of hazardous reactions No dangerous reactions known.

Conditions to avoid No further relevant information available.

Incompatible materials: No further relevant information available.

Hazardous decomposition products: No dangerous decomposition products known.

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## **SECTION 11. TOXICOLOGICAL INFORMATION**

Information on toxicological effects

Acute toxicity:

LD/LC50 values that are relevant for classification:

Inhalative LC50/4 h 67 mg/l (mouse) Primary irritant effect:



on the skin: No irritant effect.

on the eye: No irritating effect.

Sensitization: No sensitizing effects known.

Additional toxicological information:

Carcinogenic categories

IARC (International Agency for Research on Cancer)

13463-39-3 tetracarbonylnickel 1

NTP (National Toxicology Program)

13463-39-3 tetracarbonylnickel K

OSHA-Ca (Occupational Safety & Health Administration)

Substance is not listed.

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## **SECTION 12. ECOLOGICAL INFORMATION**

Toxicity

Aquatic toxicity: No further relevant information available.

Persistence and degradability No further relevant information available.

Behavior in environmental systems:

Bioaccumulative potential No further relevant information available.

Mobility in soil No further relevant information available.

Additional ecological information:

General notes: Not known to be hazardous to water.

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

Other adverse effects No further relevant information available.

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## **SECTION 13. DISPOSAL CONSIDERATIONS**

Waste treatment methods

Recommendation:

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations.

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## SECTION 14. TRANSPORT INFORMATION

UN-Number

DOT, IMDG, IATA UN1259

UN proper shipping name

DOT, IATA Nickel carbonyl

IMDG NICKEL CARBONYL, MARINE POLLUTANT

Transport hazard class(es)

DOT

Class 6.1 Toxic substances

Label 6.1, 3

IMDG

Class 6.1 Toxic substances Label 6.1/3

IATA

Class 6.1 Toxic substances

Label 6.1 (3)

Packing group

DOT, IMDG, IATA I

Environmental hazards:

Marine pollutant: Yes

Symbol (fish and tree)

Special precautions for user Not applicable.

Poison inhalation hazard: Yes

Danger code (Kemler): 663

EMS Number: F-E,S-D

Stowage Category D

Stowage Code SW2 Clear of living quarters.

Segregation Code SG63 Stow "separated longitudinally by an intervening complete compartment or hold from" Class 1.

Transport in bulk according to Annex II of

MARPOL73/78 and the IBC Code Not applicable.

Transport/Additional information:

DOT

Quantity limitations On passenger aircraft/rail: Forbidden

On cargo aircraft only: Forbidden

Hazardous substance: 10 lbs, 4.54 kg

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

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## **SECTION 15. REGULATORY INFORMATION**

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

Sara

Section 355 (extremely hazardous substances):

Substance is listed.

Section 313 (Specific toxic chemical listings):

Substance is listed.

TSCA (Toxic Substances Control Act):

Substance is listed.

Proposition 65

Chemicals known to cause cancer:

Substance is listed.

Chemicals known to cause reproductive toxicity for females:

Substance is not listed.

Chemicals known to cause reproductive toxicity for males:

Substance is not listed.

Chemicals known to cause developmental toxicity:

Substance is listed.

Carcinogenic categories

EPA (Environmental Protection Agency)

13463-39-3 tetracarbonylnickel B2TLV (Threshold Limit Value established by ACGIH)

Substance is not listed.

NIOSH-Ca (National Institute for Occupational Safety and Health)

Substance is listed.

GHS label elements

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Hazard pictograms

GHS02 GHS06 GHS08

Signal word Danger

Hazard-determining components of labeling:

tetracarbonylnickel

Hazard statements

H224 Extremely flammable liquid and vapor.

H330 Fatal if inhaled.

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H360 May damage fertility or the unborn child.

Precautionary statements

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P260 Do not breathe dust/fume/gas/mist/vapors/spray.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

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.

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

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## **SECTION 16. OTHER INFORMATION**

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH). The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.