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Produktinformation



Forschungsprodukte & Biochemikalien



Zellkultur & Verbrauchsmaterial



Diagnostik & molekulare Diagnostik



Laborgeräte & Service

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Lieferung & Zahlungsart

siehe unsere [Liefer- und Versandbedingungen](#)

Zuschläge

- Mindermengenzuschlag
- Trockeneiszuschlag
- Gefahrgutzuschlag
- Expressversand

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Bis(triphenylphosphine)dicarbonylnickel

sc-227404



The Power is Question

Material Safety Data Sheet

Hazard Alert Code Key:

EXTREME

HIGH

MODERATE

LOW

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

Bis(triphenylphosphine)dicarbonylnickel

STATEMENT OF HAZARDOUS NATURE

CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

NFPA



SUPPLIER

Santa Cruz Biotechnology, Inc.
2145 Delaware Avenue
Santa Cruz, California 95060
800.457.3801 or 831.457.3800

EMERGENCY:

ChemWatch

Within the US & Canada: 877-715-9305

Outside the US & Canada: +800 2436 2255

(1-800-CHEMCALL) or call +613 9573 3112

SYNONYMS

C38-H30-Ni-O2-P2, [(C6H5)3P]3Ni(CO)2, dicarbonylbis(triphenylphosphine)nickel, dicarbonyldi(triphenylphosphino)nickel, nickel-bis(triphenylphosphine)dicarbonyl

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

	Min	Max
Flammability:	0	
Toxicity:	3	
Body Contact:	3	
Reactivity:	2	
Chronic:	4	

Min/Nil=0
Low=1
Moderate=2
High=3
Extreme=4



CANADIAN WHMIS SYMBOLS



EMERGENCY OVERVIEW

RISK

May cause SENSITISATION by inhalation and skin contact.

Toxic by inhalation, in contact with skin and if swallowed.

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

■ Toxic effects may result from the accidental ingestion of the material; animal experiments indicate that ingestion of less than 40 gram may be fatal or may produce serious damage to the health of the individual.

EYE

■ Although the material is not thought to be an irritant, direct contact with the eye may cause transient discomfort characterized by tearing or conjunctival redness (as with windburn). Slight abrasive damage may also result.

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■ Manifestations of severe visual disturbance can occur in cases of acute carbon monoxide poisoning associated with a period of unconsciousness. The types of disturbances that occur may be placed into three categories: (a.) amaurosis or hemianopsia, (b.) constriction of the visual fields, and (c.) visual abnormalities associated with optic nerve disturbances. Retinal venous engorgement and peripupillary hemorrhage have also been reported. All patients diagnosed with CO poisoning and exposed to CO for over 12 hours manifested retinal hemorrhages.

SKIN

■ Skin contact with the material may produce toxic effects; systemic effects may result following absorption.

■ The material is not thought to be a skin irritant (as classified using animal models). Abrasive damage however, may result from prolonged exposures.

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■ Open cuts, abraded or irritated skin should not be exposed to this material.

■ Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

INHALED

■ Inhalation of dusts, generated by the material, during the course of normal handling, may produce toxic effects.

■ The material is not thought to produce respiratory irritation (as classified using animal models). Nevertheless inhalation of dusts, or fume, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress.

■ Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.

■ The inhalation of small particles of metal oxide results in sudden thirst, a sweet, metallic or foul taste, throat irritation, cough, dry mucous membranes, tiredness and general unwellness. Headache, nausea and vomiting, fever or chills, restlessness, sweating, diarrhea, excessive urination and prostration may also occur.

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■ Carbon monoxide poisoning results in breathing problems, diarrhea and shock. It combines with hemoglobin, the carrier of oxygen in the blood, much more easily than oxygen; the complex formed can disturb muscle function, especially the heart.

CHRONIC HEALTH EFFECTS

■ Inhaling this product is more likely to cause a sensitization reaction in some persons compared to the general population.

Skin contact with the material is more likely to cause a sensitization reaction in some persons compared to the general population.

There is some evidence to suggest that this material directly causes cancer in humans.

Long term exposure to high dust concentrations may cause changes in lung function i.e. pneumoconiosis; caused by particles less than 0.5 micron penetrating and remaining in the lung.

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Long-term (chronic) exposure to low levels of carbon monoxide may produce heart disease and damage to the nervous system. Exposure of pregnant animals to carbon monoxide may cause low birthweight, increased foetal mortality and nervous system damage to the offspring.

Carbon monoxide is a common cause of fatal poisoning in industry and homes. Non fatal poisoning may result in permanent nervous system damage. Carbon monoxide reduces the oxygen carrying capacity of the blood. Effects on the body are considered to be reversible as long as brain cell damage or heart failure has not occurred. Avoid prolonged exposure, even to small concentrations. A well-established and probably causal relationship exists between maternal smoking (resulting in carboxyhaemoglobin levels of 2-7% in the foetus) and low birth weight. There also appears to be a dose-related increase in perinatal deaths and a retardation of mental ability in infants born to smoking mothers.

The foetus and newborn infant are considered to be very susceptible to CO exposure for several reasons:

· Foetal hemoglobin has a greater affinity for CO than maternal hemoglobin.

· Due to differences in uptake and elimination of CO, the fetal circulation is likely to have COHb levels higher (up to 2.5 times) than seen in the maternal circulation.

· The half-life of COHb in fetal blood is 3 times longer than that of maternal blood.

· Since the fetus has a comparatively high rate of O₂ consumption, and a lower O₂ tension in the blood than adults, a compromised O₂ transport has the potential to produce a serious hypoxia.

Carbon monoxide gas readily crosses the placenta and CO exposure during pregnancy can be teratogenic.

Carbon dioxide at low levels may initiate or enhance deleterious myocardial alterations in individuals with restricted coronary artery blood flow and decreased myocardial lactate production. - Linde.

Nickel causes a skin sensitization which may produce a chronic eczema. At first an itch appears followed one week later by a red skin

eruption with ulcers which discharge and become crusted.
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Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
bis(triphenylphosphine)dicarbonylnickel	13007-90-4	>98
may decompose in use to produce		
carbon monoxide	630-08-0	

Section 4 - FIRST AID MEASURES

SWALLOWED

· Give a slurry of activated charcoal in water to drink. NEVER GIVE AN UNCONSCIOUS PATIENT WATER TO DRINK. · At least 3 tablespoons in a glass of water should be given.

EYE

■ If this product comes in contact with the eyes: · Immediately hold eyelids apart and flush the eye continuously with running water. · Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. · DO NOT attempt to remove particles attached to or embedded in eye. · Lay victim down, on stretcher if available and pad BOTH eyes, make sure dressing does not press on the injured eye by placing thick pads under dressing, above and below the eye. · Seek urgent medical assistance, or transport to hospital.

SKIN

■ If skin or hair contact occurs: · Quickly but gently, wipe material off skin with a dry, clean cloth. · Immediately remove all contaminated clothing, including footwear.

INHALED

· If fumes or combustion products are inhaled remove from contaminated area. · Lay patient down. Keep warm and rested.

NOTES TO PHYSICIAN

■ Copper, magnesium, aluminum, antimony, iron, manganese, nickel, zinc (and their compounds) in welding, galvanizing or smelting operations all give rise to thermally produced particulates of smaller dimension than might be produced if the metals are divided mechanically. Where insufficient ventilation or respiratory protection is available these particulates may produce "metal fume fever" in workers from an acute or long term exposure.

For carbon monoxide intoxications:

· Administer pure oxygen by the best means possible. An oro-nasal mask is usually best. Artificial respiration is necessary wherever breathing is inadequate. Apneic patients have often been saved by persistent and efficient artificial ventilation. A patent airway must be carefully maintained. Patients with 40% carboxyhemoglobin or more and an uncompensated metabolic acidosis (arterial pH less than 7.4) should be managed aggressively with ventilatory support/ hyperbaric oxygenation.

· Gastric aspiration and lavage early in the course of therapy may prevent aspiration pneumonitis and reveal the presence of ingested intoxicants.

Section 5 - FIRE FIGHTING MEASURES

Vapour Pressure (mmHG):	Negligible
Upper Explosive Limit (%):	Not available.
Specific Gravity (water=1):	Not available
Lower Explosive Limit (%):	Not available

EXTINGUISHING MEDIA

■ Metal dust fires need to be smothered with sand, inert dry powders.

DO NOT USE WATER, CO2 or FOAM.

· DO NOT use halogenated fire extinguishing agents.

FIRE FIGHTING

· Alert Emergency Responders and tell them location and nature of hazard.

· Wear full body protective clothing with breathing apparatus.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

■ With the exception of the metals that burn in contact with air or water (for example, sodium), masses of combustible metals do not represent unusual fire risks because they have the ability to conduct heat away from hot spots so efficiently that the heat of combustion cannot be maintained - this means that it will require a lot of heat to ignite a mass of combustible metal. Generally, metal fire risks exist when sawdust, machine shavings and other metal 'fines' are present.

· Metal powders, while generally regarded as non-combustible, may burn when metal is finely divided and energy input is high.

· May react explosively with water.

· May be ignited by friction, heat, sparks or flame.

· Metal dust fires are slow moving but intense and difficult to extinguish.

· Will burn with intense heat.

· DO NOT disturb burning dust. Explosion may result if dust is stirred into a cloud, by providing oxygen to a large surface of hot metal.

- Containers may explode on heating.
- Dusts or fumes may form explosive mixtures with air.
- May REIGNITE after fire is extinguished.
- Gases generated in fire may be poisonous, corrosive or irritating.
- DO NOT use water or foam as generation of explosive hydrogen may result.

Combustion products include: carbon monoxide (CO), carbon dioxide (CO₂), phosphorus oxides (PO_x), metal oxides, other pyrolysis products typical of burning organic material.

May emit poisonous fumes.

FIRE INCOMPATIBILITY

- Reacts with acids producing flammable / explosive hydrogen (H₂) gas.
- Avoid contamination with oxidizing agents i.e. nitrates, oxidizing acids, chlorine bleaches, pool chlorine etc. as ignition may result.

PERSONAL PROTECTION

- Glasses:
- Chemical goggles.
- Gloves:
- Respirator:
- Particulate

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

- Clean up waste regularly and abnormal spills immediately.
- Avoid breathing dust and contact with skin and eyes.
- Wear protective clothing, gloves, safety glasses and dust respirator.
- Use dry clean up procedures and avoid generating dust.
- Vacuum up or sweep up. NOTE: Vacuum cleaner must be fitted with an exhaust micro filter (HEPA type) (consider explosion-proof machines designed to be grounded during storage and use).
- Dampen with water to prevent dusting before sweeping.
- Place in suitable containers for disposal.

MAJOR SPILLS

- Clear area of personnel and move upwind.
- Alert Emergency Responders and tell them location and nature of hazard.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Avoid all personal contact, including inhalation.
 - Wear protective clothing when risk of exposure occurs.
- Empty containers may contain residual dust which has the potential to accumulate following settling. Such dusts may explode in the presence of an appropriate ignition source.
- Do NOT cut, drill, grind or weld such containers.
 - In addition ensure such activity is not performed near full, partially empty or empty containers without appropriate workplace safety authorisation or permit.

RECOMMENDED STORAGE METHODS

- Lined metal can, Lined metal pail/drum
- Plastic pail.

For low viscosity materials

- Drums and jerricans must be of the non-removable head type.
- Where a can is to be used as an inner package, the can must have a screwed enclosure.

All inner and sole packagings for substances that have been assigned to Packaging Groups I or II on the basis of inhalation toxicity criteria, must be hermetically sealed.

STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³	Peak ppm	Peak mg/m ³	Notes
Canada - Northwest Territories Occupational	bis(triphenylphosphine)dicarbonylnickel (Nickel sulfide roasting, fume and dust (as Ni))		1		3			

Exposure Limits (English)				
US NIOSH Recommended Exposure Limits (RELs)	bis(triphenylphosphine)dicarbonylnickel (Nickel metal and other compounds (as Ni))	0.015		See Appendix A [*Note: The REL and PEL do not apply to Nickel carbonyl.]; Ca
Canada - Alberta Occupational Exposure Limits	bis(triphenylphosphine)dicarbonylnickel (Nickel - Soluble compounds, as Ni)	0.1		
US - California Permissible Exposure Limits for Chemical Contaminants	bis(triphenylphosphine)dicarbonylnickel (Nickel, soluble compounds, as Ni)	0.05		
Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	bis(triphenylphosphine)dicarbonylnickel (Nickel: Soluble compounds (as Ni))	0.1		
US - Oregon Permissible Exposure Limits (Z-1)	bis(triphenylphosphine)dicarbonylnickel (Nickel, soluble compounds, (as Ni))	1		
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants	bis(triphenylphosphine)dicarbonylnickel (Nickel, soluble compounds (as Ni))	1		
US - Idaho - Limits for Air Contaminants	bis(triphenylphosphine)dicarbonylnickel (Nickel, soluble compounds (as Ni))	1		
US - Minnesota Permissible Exposure Limits (PELs)	bis(triphenylphosphine)dicarbonylnickel (Nickel, soluble compounds (as Ni))	0.1		
Canada - Ontario Occupational Exposure Limits	bis(triphenylphosphine)dicarbonylnickel (Nickel, soluble compounds, as Ni, inhalable)	0.1		
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	bis(triphenylphosphine)dicarbonylnickel (Nickel, metal and insoluble compounds (as Ni))	1		
US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants	bis(triphenylphosphine)dicarbonylnickel (Nickel, soluble compounds (as Ni))	1		

US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	bis(triphenylphosphine)dicarbonylnickel (Nickel, soluble compounds (as Ni))		0.1				
US OSHA Permissible Exposure Levels (PELs) - Table Z1	bis(triphenylphosphine)dicarbonylnickel (Nickel, soluble compounds (as Ni))		1				
US - Hawaii Air Contaminant Limits	bis(triphenylphosphine)dicarbonylnickel (Nickel, soluble compounds (as Ni))		0.1		0.3		
US - Washington Permissible exposure limits of air contaminants	bis(triphenylphosphine)dicarbonylnickel (Nickel (as Ni) -áSoluble compounds)		0.1		0.3		
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	bis(triphenylphosphine)dicarbonylnickel (Nickel, soluble compounds (as Ni))		0.1		0.3		
Canada - Northwest Territories Occupational Exposure Limits (English)	bis(triphenylphosphine)dicarbonylnickel (Nickel, soluble compounds (as Ni))		0.1		0.3		
US - Michigan Exposure Limits for Air Contaminants	bis(triphenylphosphine)dicarbonylnickel (Nickel, Soluble compounds (as Ni))		0.1				
US - Alaska Limits for Air Contaminants	bis(triphenylphosphine)dicarbonylnickel (Nickel Soluble compounds (as Ni))		0.1				
Canada - Alberta Occupational Exposure Limits	carbon monoxide (Carbon monoxide)	25	29				
Canada - British Columbia Occupational Exposure Limits	carbon monoxide (Carbon monoxide)	25		100			R
Canada - Ontario Occupational Exposure Limits	carbon monoxide (Carbon monoxide)	25	29	100	115		
US ACGIH Threshold Limit Values (TLV)	carbon monoxide (Carbon monoxide)	25					TLV Basis: carboxyhemoglobinemia
US NIOSH Recommended Exposure Limits (RELs)	carbon monoxide (Carbon monoxide)	35	40		200	229	

US - Minnesota Permissible Exposure Limits (PELs)	carbon monoxide (Carbon monoxide)	35	40		200	229
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	carbon monoxide (Carbon monoxide (STEL - 5 minutes))	35	40	200	229	1500
US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants	carbon monoxide (Carbon monoxide)	50	55			
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	carbon monoxide (Carbon monoxide)	35	40		200	229
US - California Permissible Exposure Limits for Chemical Contaminants	carbon monoxide (Carbon monoxide)	25	29		200	
US - Idaho - Limits for Air Contaminants	carbon monoxide (Carbon monoxide)	50	55			
US - Hawaii Air Contaminant Limits	carbon monoxide (Carbon monoxide)	35	40		200	229
US - Alaska Limits for Air Contaminants	carbon monoxide (Carbon monoxide)	35	40		200	229
US - Michigan Exposure Limits for Air Contaminants	carbon monoxide (Carbon monoxide)	35	40		200	229
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	carbon monoxide (Carbon monoxide)	50	55	400	440	
US - Washington Permissible exposure limits of air contaminants	carbon monoxide (Carbon monoxide)	35		200	1,500	(STEL (5 min.))
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination	carbon monoxide (Carbon monoxide)	25		190		

Limits					
US - Oregon Permissible Exposure Limits (Z-1)	carbon monoxide (Carbon monoxide)	50	55		
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants	carbon monoxide (Carbon monoxide)	50	55		
Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	carbon monoxide (Carbon monoxide)	35	40	200	230
US OSHA Permissible Exposure Levels (PELs) - Table Z1	carbon monoxide (Carbon monoxide)	50	55		
Canada - Northwest Territories Occupational Exposure Limits (English)	carbon monoxide (Carbon monoxide)	50	57	400	460
Canada - Nova Scotia Occupational Exposure Limits	carbon monoxide (Carbon monoxide)	25			TLV Basis: carboxyhemoglobinemia
Canada - Prince Edward Island Occupational Exposure Limits	carbon monoxide (Carbon monoxide)	25			TLV Basis: carboxyhemoglobinemia

ENDOELTABLE

PERSONAL PROTECTION



RESPIRATOR

Particulate
Consult your EHS staff for recommendations

EYE

- Safety glasses with side shields.
- Chemical goggles.

HANDS/FEET

■ Wear chemical protective gloves, eg. PVC.

NOTE: The material may produce skin sensitization in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact.

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: such as:

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739).

- When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374) is recommended.
- When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended.
- Contaminated gloves should be replaced.

Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

- Protective gloves eg. Leather gloves or gloves with Leather facing.

OTHER

- Overalls.
- Eyewash unit.

ENGINEERING CONTROLS

- Metal dusts must be collected at the source of generation as they are potentially explosive.
- Vacuum cleaners, of flame-proof design, should be used to minimize dust accumulation.
- Metal spraying and blasting should, where possible, be conducted in separate rooms. This minimizes the risk of supplying oxygen, in the form of metal oxides, to potentially reactive finely divided metals such as aluminum, zinc, magnesium or titanium.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Solid.

Does not mix with water.

State	Divided solid	Molecular Weight	639.32
Melting Range (°F)	402.8- 408.2	Viscosity	Not Applicable
Boiling Range (°F)	Not available	Solubility in water (g/L)	Partly miscible
Flash Point (°F)	Not available	pH (1% solution)	Not applicable
Decomposition Temp (°F)	Not Available	pH (as supplied)	Not applicable
Autoignition Temp (°F)	Not available	Vapour Pressure (mmHG)	Negligible
Upper Explosive Limit (%)	Not available.	Specific Gravity (water=1)	Not available
Lower Explosive Limit (%)	Not available	Relative Vapor Density (air=1)	Not Applicable
Volatile Component (%vol)	Negligible	Evaporation Rate	Not applicable

APPEARANCE

Cream to yellow crystalline powder; does not mix well with water.

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.

STORAGE INCOMPATIBILITY

■ Metal carbonyls:

- are unstable in air, react vigorously with oxygen and may ignite spontaneously.
- react with water and steam releasing carbon monoxide
- decompose, when heated, to carbon monoxide and finely divided metal powder which is readily ignited.
- Many metals may incandesce, react violently, ignite or react explosively upon addition of concentrated nitric acid.
- Some metals can react exothermically with oxidizing acids to form noxious gases.
- Very reactive metals have been known to react with halogenated hydrocarbons, sometimes forming explosive compounds (for example, copper dissolves when heated in carbon tetrachloride).
- Many metals in elemental form react exothermically with compounds having active hydrogen atoms (such as acids and water) to form flammable hydrogen gas and caustic products.
- Elemental metals may react with azo/diazo compounds to form explosive products.
- Some elemental metals form explosive products with halogenated hydrocarbons.
- Reacts with acids producing flammable / explosive hydrogen (H₂) gas.
- Finely divided metal powders develop pyrophoricity when a critical specific surface area is exceeded; this is ascribed to high heat of oxide formation on exposure to air.
- Safe handling is possible in relatively low concentrations of oxygen in an inert gas
- Several pyrophoric metals, stored in glass bottles have ignited when the container is broken on impact. Storage of these materials moist and in metal containers is recommended.
- The reaction residues from various metal syntheses (involving vacuum evaporation and co-deposition with a ligand) are often pyrophoric.

Carbon monoxide:

- forms an extremely explosive mixture with air
- is a strong reducing agent
- reacts violently or explosively with strong oxidisers, oxygen, bromine pentafluoride, bromine trifluoride, chlorine dioxide, chlorine trifluoride,

halogens, iron oxide, nitrogen trifluoride, peroxydisulfuryl difluoride, silver oxide

· forms explosive compounds with caesium monoxide, copper perchlorate, potassium, oxygen difluoride, sodium - these are heat-, spark-, or water sensitive.

· Incidents involving interaction of active oxidants and reducing agents, either by design or accident, are usually very energetic and examples of so-called redox reactions.

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

BIS(TRIPHENYLPHOSPHINE)DICARBONYLNICKEL

TOXICITY AND IRRITATION

■ unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

BIS(TRIPHENYLPHOSPHINE)DICARBONYLNICKEL:

■ Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's edema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type.

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Allergic reactions involving the respiratory tract are usually due to interactions between IgE antibodies and allergens and occur rapidly. Allergic potential of the allergen and period of exposure often determine the severity of symptoms.

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Attention should be paid to atopic diathesis, characterized by increased susceptibility to nasal inflammation, asthma and eczema.

Exogenous allergic alveolitis is induced essentially by allergen specific immune-complexes of the IgG type; cell-mediated reactions (T lymphocytes) may be involved. Such allergy is of the delayed type with onset up to four hours following exposure.

No significant acute toxicological data identified in literature search.

TOXICITY	IRRITATION
CARBON MONOXIDE:	
Inhalation (man) TCLo: 150 ppm/24h	Nil Reported
Inhalation (man) LCLo: 4000 ppm/30m	
Inhalation (man) TCLo: 650 ppm/45m	
Inhalation (rat) LC50: 1807 ppm/4h	

- central nervous system effects

CARCINOGEN

NICKEL COMPOUNDS	US Environmental Defense Scorecard Recognized Carcinogens	Reference(s)	P65
SOLUBLE NICKEL COMPOUNDS	US Environmental Defense Scorecard Recognized Carcinogens	Reference(s)	P65-MC
NICKEL COMPOUNDS	US Environmental Defense Scorecard Suspected Carcinogens	Reference(s)	P65
SOLUBLE NICKEL COMPOUNDS	US Environmental Defense Scorecard Suspected Carcinogens	Reference(s)	P65-MC
Nickel (and compounds)	US Air Toxics Hot Spots TSD for Describing Available Cancer Potency Factors	IARC Class	1,2B(N2)

REPROTOXIN

carbon monoxide	ILO Chemicals in the electronics industry that have toxic effects on reproduction	Reduced fertility or sterility	H si
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Section 12 - ECOLOGICAL INFORMATION

This material and its container must be disposed of as hazardous waste.

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
carbon monoxide			LOW	

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Instructions

All waste must be handled in accordance with local, state and federal regulations.

! Puncture containers to prevent re-use and bury at an authorized landfill.

Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.

DO NOT allow wash water from cleaning equipment to enter drains. Collect all wash water for treatment before disposal.

· Recycle wherever possible.

· Consult manufacturer for recycling options or consult Waste Management Authority for disposal if no suitable treatment or disposal facility can be identified.

Section 14 - TRANSPORTATION INFORMATION

DOT:

Symbols: None Hazard class or Division: 6.1

Identification Numbers: UN3466 PG: II

Label Codes: 6.1 Special provisions: IB8, IP2,

IP4, T3,

TP33

Packaging: Exceptions: 153 Packaging: Non- bulk: 212

Packaging: Exceptions: 153 Quantity limitations: 25 kg

Passenger aircraft/rail:

Quantity Limitations: Cargo 100 kg Vessel stowage: Location: B aircraft only:

Vessel stowage: Other: 40

Hazardous materials descriptions and proper shipping names:

Metal carbonyls, solid, n.o.s.

Air Transport IATA:

ICAO/IATA Class: 6.1 ICAO/IATA Subrisk: None

UN/ID Number: 3466 Packing Group: II

Special provisions: A3

Cargo Only

Packing Instructions: 615 Maximum Qty/Pack: 100 kg

Passenger and Cargo Passenger and Cargo

Packing Instructions: 613 Maximum Qty/Pack: 25 kg

Passenger and Cargo Limited Quantity Passenger and Cargo Limited Quantity

Packing Instructions: Y613 Maximum Qty/Pack: 1 kg

Shipping Name: METAL CARBONYLS, SOLID, N.O.S. *(CONTAINS

BIS(TRIPHENYLPHOSPHINE)DICARBONYLNICKEL)

Maritime Transport IMDG:

IMDG Class: 6.1 IMDG Subrisk: None

UN Number: 3466 Packing Group: II

EMS Number: F-A, S-A Special provisions: 274

Limited Quantities: 500 g

Shipping Name: METAL CARBONYLS, SOLID, N.O.S.(contains bis(triphenylphosphine)dicarbonylnickel)

Section 15 - REGULATORY INFORMATION

bis(triphenylphosphine)dicarbonylnickel (CAS: 13007-90-4) is found on the following regulatory lists;

"Canada - Northwest Territories Occupational Exposure Limits (English)", "Canada - Saskatchewan Occupational Health and Safety Regulations - Designated Chemical Substances", "Canada National Pollutant Release Inventory (NPRI)", "International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs", "US - California Air Toxics ""Hot Spots"" List (Assembly Bill 2588) Substances for which emissions must be quantified", "US - California Environmental Health Standards for the Management of Hazardous Waste - List of Inorganic Persistent and Bioaccumulative Toxic Substances and Their STLC & TTLC Values", "US - California Occupational Safety and Health Regulations (CAL/OSHA) - Hazardous Substances List", "US - California OEHHA/ARB - Acute Reference Exposure Levels and Target Organs (RELs)", "US - California OEHHA/ARB - Chronic Reference Exposure Levels and Target Organs (CRELs)", "US - California Proposition 65 - No Significant Risk Levels (NSRLs) for Carcinogens", "US - California Proposition 65 - Priority List for the Development of NSRLs for Carcinogens", "US - Massachusetts Oil & Hazardous Material List", "US - Minnesota Hazardous Substance List", "US - Rhode Island Hazardous Substance List", "US - Vermont Hazardous Constituents", "US - Washington Class A toxic air pollutants: Known and Probable Carcinogens", "US - Washington Dangerous waste constituents list", "US Clean Air Act - Hazardous Air Pollutants", "US CWA (Clean Water Act) - Priority Pollutants", "US CWA (Clean Water Act) - Toxic Pollutants", "US NIOSH Recommended Exposure Limits (RELs)", "US RCRA (Resource Conservation & Recovery Act) - Appendix IX to Part 264 Ground-Water Monitoring List 1", "US RCRA (Resource Conservation & Recovery Act) - Hazardous Constituents - Appendix VIII to 40 CFR 261", "US RCRA (Resource Conservation & Recovery Act) - List of Hazardous Inorganic and Organic Constituents 1"

Regulations for ingredients

carbon monoxide (CAS: 630-08-0) is found on the following regulatory lists;

"Canada - Alberta Ambient Air Quality Objectives","Canada - Alberta Occupational Exposure Limits","Canada - British Columbia Occupational Exposure Limits","Canada - Northwest Territories Occupational Exposure Limits (English)","Canada - Nova Scotia Occupational Exposure Limits","Canada - Ontario Occupational Exposure Limits","Canada - Prince Edward Island Occupational Exposure Limits","Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)","Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits","Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances","Canada Domestic Substances List (DSL)","Canada Environmental Quality Guidelines (EQGs) Air","Canada Ingredient Disclosure List (SOR/88-64)","Canada National Pollutant Release Inventory (NPRI)","Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)","Canada Transport Dangerous Goods - Schedule 3","International Chemical Secretariat (ChemSec) REACH SIN* List (*Substitute It Now!) 1.0","International Council of Chemical Associations (ICCA) - High Production Volume List","OECD Representative List of High Production Volume (HPV) Chemicals","US - Alaska Limits for Air Contaminants","US - California Air Toxics ""Hot Spots"" List (Assembly Bill 2588) Substances for which production, use or other presence must be reported","US - California Occupational Safety and Health Regulations (CAL/OSHA) - Hazardous Substances List","US - California OEHHA/ARB - Acute Reference Exposure Levels and Target Organs (RELs)","US - California Permissible Exposure Limits for Chemical Contaminants","US - California Proposition 65 - Priority List for the Development of MADLs for Chemicals Causing Reproductive Toxicity","US - California Proposition 65 - Reproductive Toxicity","US - Hawaii Air Contaminant Limits","US - Idaho - Limits for Air Contaminants","US - Maine Chemicals of High Concern List","US - Massachusetts Oil & Hazardous Material List","US - Michigan Exposure Limits for Air Contaminants","US - Minnesota Hazardous Substance List","US - Minnesota Permissible Exposure Limits (PELs)","US - New Jersey Right to Know Hazardous Substances","US - Oregon Permissible Exposure Limits (Z-1)","US - Pennsylvania - Hazardous Substance List","US - Rhode Island Hazardous Substance List","US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants","US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants","US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants","US - Washington Permissible exposure limits of air contaminants","US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants","US ACGIH Threshold Limit Values (TLV)","US CERCLA Priority List of Hazardous Substances","US Department of Homeland Security Chemical Facility Anti-Terrorism Standards - Chemicals of Interest","US Department of Transportation (DOT), Hazardous Material Table","US DOE Temporary Emergency Exposure Limits (TEELs)","US EPA Acute Exposure Guideline Levels (AEGLs) - Interim","US EPA High Production Volume Program Chemical List","US NFPA 45 Fire Protection for Laboratories Using Chemicals - Flammability Characteristics of Common Compressed and Liquefied Gases","US NIOSH Recommended Exposure Limits (RELs)","US OSHA Permissible Exposure Levels (PELs) - Table Z1","US Postal Service (USPS) Hazardous Materials Table: Postal Service Mailability Guide","US Postal Service (USPS) Numerical Listing of Proper Shipping Names by Identification (ID) Number","US Spacecraft Maximum Allowable Concentrations (SMACs) for Airborne Contaminants","US Toxic Substances Control Act (TSCA) - Inventory","USA: Chemical Facility Anti-Terrorism Standards - List Appendix A - 6CFR 27"

Section 16 - OTHER INFORMATION

LIMITED EVIDENCE

- Possible cancer-causing agent*.

* (limited evidence).

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- Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:

www.chemwatch.net/references.

- The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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