Central Pollution Control Board
Ministry of Environment & Forests, Govt of India, Parivesh Bhawan, East Arjun Nagar, Delhi - 110032

MATERIAL SAFETY DATA SHEETS

419 **Nickel tetracarbonyl**

1. CHEMICAL IDENTITY

Chemical Name : Nickel tetracarbonyl

Chemical Classification: Toxic, Flammable **Trade Name :**

Synonyms: Nickel carbonyl, Tetracarbonyl nickel

Formula : C4NiO4 **CAS No:** 13463-39-3 **UN No:** 1259

Regulated Identification

Shipping Name : Nickel Carbonyl **Hazchem Code :** 2WE

Codes / Label : Class 6.1, Toxic, Flammable **Hazardous Waste ID No :** 17

HAZARDOUS INGREDIENTS	C.A.S. No.	HAZARDOUS INGREDIENTS	C.A.S. No.
1 Nickel tetracarbonyl	13463-39-3	3	
2		4	

2. PHYSICAL / CHEMICAL DATA

Boiling Pt. °C: 43 **Physical State:** Liquid **Appearance:** Colourless to Yellow

Melting Pt °C: -19.3 **Vapour Pressure @ 35°C mmHg:** 400 mmHg at 25.8 C **Odour:** Musty odour.

Vapour Density(Air =1): 5.9 **Solubility in water at 30°C g/100ml:** 0.05 g/100ml **Others:** Soluble in alcohol CCl4, benzene, acetone, CHCl3.

Specific Gravity (Water =1): 1.318 @ 17 deg C **pH :** Neutral

3. FIRE / EXPLOSION HAZARD DATA

Flammability : Yes **LEL:** 2% **Flash Point °C in OC:**

TDG Flammability: 3 **UEL:** **Flash Point °C in CC:** <-20C

Autoignition Temperature °C : < 93.3 (Vapour)

Explosion sensitivity to impact: Stable

Explosion sensitivity to static Electricity: Stable

Hazardous Combustion Products : Emits toxic fumes of CO.

Hazardous Polymerization : Will not occur.

Combustible Liquid: Yes **Explosive Material:** No **Corrosive Material** No

Flammable Material: Yes **Oxidiser :** No **Others:**

Pyrophoric Material: No **Organic Peroxide :** No

4. REACTIVITY DATA

Chemical Stability : Stable below 100 deg C.

Incompatibility with other material : Nitric acid, bromine, chlorine & other oxidizers; flammable materials.

Reactivity : Reacts explosively with bromine (liquid), oxygen in the presence of mercury, or hydrocarbons (butane) mixed with oxygen Reacts with tetrachloropropadiene to form an extremely explosive dinickel chloride dimer. Explodes when heated to about 60 deg C.

Hazardous Reaction Products : Reacts with tetrachloropropadiene to form the extremely sensitive explosive dicarbonyl trichloropropenyl dinickel chloride vapour

5. HEALTH HAZARD DATA

Routes of entry: Inhalation, Ingestion, Skin & Eyes.

Effects of Exposure / Symptoms:

Inhalation, ingestion, skin: Giddiness, headache, shortness ofbreatli, vomiting. Ifvictun is removed ffom exposure, symptoms may disappear but recur 12-36 hrs. later, ahngwith blue pallor of skin, fever and cough; death may occur. Abnormal Nickel content oftlie urine and blood is a measure of severity of exposure. Eyes: Causes severe irritation.

Emergency Treatment :

Inhalation: Move victim to fresh air. Apply artificial respiration if victim is not breathing. Do not use mouth-to-mouth method. Oral administration of Dithiocarb, complete bed rest is suggested.

Skin: Remove and isolate contaminated clothing and shoes. In case of contact with substance, immediately flush with running water for at least 20 minutes. Wash skin with soap and water.

Eyes: In case of contact with substance, immediately flush with running water for at least 20 minutes.

Ingestion: Do not induce vomiting. Seek medical assistance.

LD50 (oral-rat) mg/kg:		**STEL:**	
LC50 (rat) mg/kg:	0.067 mg/liter/30 minutes (Mouse)	**Odour Threshold:**	1-3 ppm
Permissible Exposure Limit:	0.001 ppm (0.007 mg/m3)	**TLV (ACGIH) :**	0.35 mg/m3 (0.05 ppm)

NFPA Hazard	Health	Flammability	Reactivity	Special
Signals	3	4	3	

6. PREVENTIVE MEASURES

Personal Protective Equipment : Avoid contact with liquid or vapour. Provide self-contained breathing apparatus, protective overclothing, side covered safety goggles I face shield, hand gloves, shoes.

Handling : All chemicals should be considered hazardous. Avoid direct physical contact. Use appropriate, approved safety equipment. Untrained individuals should not handle this chemical or its container. Handling should occur in a chemical fume hood.

Storage : Keep in cool, dry, well ventilated area, away from heat, flame or oxidisers.

Precautions :

7. EMERGENCY / FIRST AID MEASURES

FIRE:

Fire Extinguishing Media : Water, foam, CO2, dry chemical powder.

Special Procedure : Keep the containers cool by spraying water if exposed to heat or flame.

Unusual Hazards : Flashback along vapour trail may occur.

EXPOSURE: First Aid Measures:

Inhalation: Move victim to fresh air. Apply artificial respiration if victim is not breathing. Do not use mouth-to-mouth method. Oral administration of Dithiocarb, complete bed rest is suggested.

Skin: Remove and isolate contaminated clothing and shoes. In case of contact with substance, immediately flush with running water for at least 20 minutes. Wash skin with soap and water.

Eyes: In case of contact with substance, immediately flush with running water for at least 20 minutes.

Ingestion: Do not induce vomiting. Seek medical assistance.

Antidotes / Dosages: Dithiocarb for inhalation.

SPILLS :

Steps To Be Taken : Shut off leaks if without risk. Contain the leakage on earth or sand.

Waste Disposal Method: Seal all the waste in vapour tight plastic bags for eventual disposal.

8. ADDITIONAL INFORMATION / REFERENCES

A suspected carcinogen. A very dangerous fire hazard when exposed to heat, flame or oxidisers. It is lipid soluble and crosses biological membranes (eg. lung alveolus, blood-brain barrier, placental barrier).

9. MANUFACTURERS / SUPPLIERS DATA

NAME OF FIRM :
MAILING ADDRESS :
TELEPHONE / TELEX NOS :
TELEGRAPHIC ADDRESS :
OTHERS :

Contact person in Emergency :
Local Bodies involved :
Standard Packing :
Trem Card Details / Ref :

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