

## MATERIAL SAFETY DATA SHEET

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### SECTION I. MATERIAL IDENTIFICATION

MATERIAL NAME: **NICKELEX**  
CHEMICAL FAMILY Nickel salt solution

### SECTION II. INGREDIENTS AND HAZARDS

		%	Hazard Data Toxicity (mg/M <sup>3</sup> )
Nickel Chloride	CAS# 7718-54-9	3	.1 mg/M <sup>3</sup>
Sodium Hypophosphite	7681-53-0	2	N/E
Sodium Succinate	150-90-3	1	N/A
Water		Balance	

### SECTION III. PHYSICAL DATA

Boiling point at 1 atm, deg C	>200F	Specific gravity, 20 / 4° C	1:1
Vapor pressure at 15° C, mm Hg	N / A	Evap. Rate (BuAc= 1)	N / A
Vapor density (Air= 1)	N / A	Volatiles, %	N / A
Water solubility at 20 °C	miscible	Molecular weight	N / A

Appearance & Odor: Clear green solution

### SECTION IV. FIRE AND EXPLOSION DATA

<u>Flash Point and Method</u>	<u>Auto-ignition Temp.</u>	<u>Flammability Limits In Air</u>	<u>LOWER</u>	<u>UPPER</u>
non—flammable	N / A	N / A	N / A	N / A

Extinguishing media: Water spray or fog, carbon dioxide, and dry chemical

Special fire fighting procedures: Water may cause frothing. Wear chemically retardant gear and NIOSH approved self-contained breathing apparatus. Thermal decomposition produces toxic fumes.

### SECTION V. REACTIVITY DATA

Stability: Stable X                      Conditions to avoid: Excess heat, reducing agents  
Unstable

Incompatible with: Strong reducing agents, formic acid

Hazardous decomposition products: Toxic oxides of nickel

Hazardous polymerization: May occur  
Will not Occur X

Conditions to avoid: Excess heat, damp.

### SECTION VI. HEALTH HAZARD INFORMATION

Effects of overexposure: Highly irritant to the mucous membranes of the eyes, respiratory tract and the skin. Individuals hypersensitive to nickel may develop asthma, bronchitis, shortness of breath or wheezing. Causes irritation and sensitization or allergic reactions which may be accentuated by heat & humidity.

#### FIRST AID:

EYE CONTACT: Irritant to naked eye. In case of contact flush eyes well for 15 minutes. Obtain medical attention.

SKIN CONTACT: Irritant to exposed skin. Flush skin well with water for 15 minutes. Remove

affected clothing, get medical attention.

**INHALATION:** If inhaled, remove to fresh air. If not breathing give artificial respiration. Seek medical attention.

The National Toxicology Program has listed Ni and NiO as possible cancer hazards. Although these forms of nickel are not active ingredients of this mixture, they may be products of reactions, or formed when the mixture is heated. Please see the attached sheet for more information.

#### **SECTION VII. SPILL, LEAK, AND DISPOSAL PROCEDURES**

**SPILLS, LEAKS:** Cover the contaminated areas with absorbent material. Scoop up gross quantities.

Place in DOT approved container.

**DISPOSAL:** Dispose of in accordance with all federal state and local regulations. Aqueous waste treatment if allowed; if not contact professional disposal agency.

#### **SECTION VIII. SPECIAL PROTECTION INFORMATION**

**Respiratory protection:** NIOSH approved organic vapor respirators where adequate ventilation is not present.

**Ventilation:** Where adequate ventilation is not available use NIOSH approved vapor respirator with dust, fume and mist filters. Local ventilation through fume hoods or laminar flow station is also preferred. Keep fumes away from strong bases or reducing agents.

**Protective gloves:** Skin contact should be minimized through use of rubber gloves.

**Other protective equipment:** Steel-tipped shoes

**Eye protection:** Safety goggles eye wash station / chemical safety shower / chemical retardant clothing. face Shield.

#### **SECTION IX. SPECIAL PRECAUTIONS AND COMMENTS**

**Storage & Handling Information:** Store below 60°F. Store in a cool, dry place. Do not store near incompatible products or open flame. Store away from direct sunlight.

DOT Class: Non-restricted Nickel Chloride Solution

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**HEALTH HAZARDS:** Possible cancer hazard if inhaled and may cause allergic reaction.

**Inhalation:** The National Toxicology Program has listed nickel and nickel oxide as possible cancer hazards. The International Agency for Research on Cancer concluded there was sufficient evidence that nickel refining was carcinogenic to humans and limited evidence that nickel and certain nickel compounds were carcinogenic to humans. IARC could not state with certainty which forms of nickel are human carcinogens but said "metallic nickel seems less likely to be so than nickel subsulphide or nickel oxides". The inhalation of nickel oxide, even at high concentrations, and of nickel powder has not resulted in an increased incidence of malignant tumors in rodents. Studies of workers exposed to nickel powder and to dust and fumes generated in the production of nickel alloys and of stainless steel have not indicated a

respiratory cancer hazard.

Inhalation of airborne nickel powder at concentrations fifteen times the PEL irritated the respiratory tract in rodents. Inhalation of nickel oxide impaired long term lung clearance in rats and, at concentrations fifty times the PEL, produced pneumonconlosis in hamsters.

**Skin contact:** Repeated contact with metallic nickel can cause nickel sensitivity resulting in allergic skin rashes.

**Wounds:** Nickel powder and nickel oxide have caused tumors at the site of injection in rodents.

however, studies of nickel-containing prostheses do not suggest a significant risk for humans.

**Ingestion:** Nickel metals and nickel oxide have low oral toxicities; their oral rat LD<sub>50</sub> are > 9000 mg/kg

and > 5000 mg/kg respectively. The U.S. Food and Drug Administration concluded that nickel and its inorganic compounds are not carcinogenic when ingested.

**Pre-existing Conditions:** Sensitized individuals may experience an allergic skin rash.