

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 ³)
Nickel Chloride	CAS# 7718-54-9	20-30	.1 mg/M ³
Sodium Hypophosphite	7681-53-0	20-30	N/E
Sodium Succinate	150-90-3	20-30	N/A
Hydrofluoric Acid	7764-39-3	< 1	3ppm OSHA
Water		Balance	

HMIS Ratings

Health : 3	Reactivity : 0	Flammability : 0
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SECTION III. PHYSICAL DATA

Boiling point at 1 atm, deg C	>200F	Specific gravity, 20 / 4 ^o C	1:1
Vapor pressure at 15 ^o C, mm Hg	N / A	Evap. Rate (BuAc= 1)	N / A
Vapor density (Air= 1)	N / A	Volatiles, %	N / A
Water solubility at 20 ^o 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 Unstable Conditions to avoid: Excess heat, reducing agents

Incompatible with: Strong reducing agents, formic acid

Hazardous decomposition products: Toxic oxides of nickel

Hazardous polymerization: May occur

Will not Occur

Conditions to avoid: Excess heat, damp.

SECTION VI. HEALTH HAZARD INFORMATION

Effects of overexposure: Highly irritating 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 80 °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 LD₅₀ 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.

ADDENDUM TO MATERIAL SAFETY DATA SHEET REGULATORY STATUS

THIS ADDENDUM MUST NOT BE
DETACHED FROM THE MSDS
IDENTIFIES SARA 313 SUBSTANCE(S)
Any copying or redistribution of the MSDS
must include a copy of this addendum
(Chem.Key: PHACD)

HAZARD CATEGORIES FOR SARA Section 311/312 Reporting

Acute Chronic Fire Pressure Reactive

Product or Components Of Products	SARA EHS Sect. 302		SARA Section 313 Chemicals		CERCLA Sec. 103	RCRA
	RQ (lbs.)	TPQ (lbs.)	Name List	Chemical Category	RQ (lbs.)	Section 261.33
Nickel Chloride (Nickel Chloride) (7718-54-9)	No	No	No	Yes	5000	No

Applicable Products:

Nickelex, Electroless Nickel Plating Ammonia Type,
Electroless Nickel Plating Strike

SARA Section 302 EHS RQ: Reportable Quantity of Extremely Hazardous Substance, listed at 40 CFR 355.

SARA Section 302 EHS TPQ: Threshold Planning Quantity of Extremely Hazardous Substance. An asterisk (*) following a threshold Planning Quantity signifies that if the material is a solid and has a particle size equal to or larger than 100 micrometers, the Threshold Planning Quantity + 10,000 LBS.

SARA Section 313 Chemicals: Toxic Substances subject to annual release reporting requirements listed at 40 CFR 372.65.

CERCLA Sec 103: Comprehensive Environmental Response, Compensation and Liability Act (Superfund). Releases to air, land or water of these hazardous substances which exceed the Reportable Quantity (RQ) must be reported to the National Response Center (800-424-8802); Listed at 40 CFR 302.4

RCRA: Resource Conservation and Reclamation Act. Commercial chemical product wastes designated as acute hazards and toxic under 40 CFR 261.33

Effective Date 02-17-87 Supersedes 04-30-86