

MATERIAL SAFETY DATA SHEET

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SECTION I. MATERIAL IDENTIFICATION

MATERIAL NAME: **ELECTROLESS NICKEL PLATING AMMONIA TYPE (ENPAT)**
Chemical family: Nickel salt solutions
Reviewed: January 2006

SECTION II. INGREDIENTS AND HAZARDS

		%	Toxicity (mg/M ³)
AMMONIUM CITRATE	CAS# 3012-65-5	5-10	N/E
AMMONIUM CHLORIDE	CAS# 12125-02-9	5-10	10mg fume/M ³
NICKEL CHLORIDE HEXAHYDRATE	CAS# 7718-54-9	1-5	0.1mg/M ³ as Ni
SODIUM HYPOPHOSPHITE	CAS# 10039-56-2	1-5	N/E
ETHYLENE DIAMINE TETRACETATE	CAS# 64-02-8	<1	N/E
AMMONIUM HYDROXIDE	CAS# 1336-21-6	5-10	50 ppm
DISTILLED WATER (NON HAZARDOUS)		BALANCE	

SECTION III. HEALTH HAZARD INFORMATION

Health : 3 HMIS Ratings
Reactivity : 0 Flammability : 0

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 and 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.

SECTION IV. EFFECTS OF OVEREXPOSURE

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 and humidity.

SECTION V. FIRE AND EXPLOSION DATA

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

No data found for this product.

SECTION XIII. DISPOSAL

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

SECTION XIV. TRANSPORTATION INFORMATION

DOT Class: Non-restricted.
Nickel Chloride Solution.

SECTION XV. REGULATORY INFORMATION

HMIS Ratings
Health : 3 Reactivity : 0 Flammability : 0

SECTION XVI. OTHER INFORMATION

ELECTROLESS NICKEL PLATING - AMMONIA TYPE ATTACHMENT

HEALTH HAZARDS:

POSSIBLE 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 on workers exposed to nickel powder and to dust and fume 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 pneumoconiosis 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 prosthesis do not suggest a significant risk for humans.

Ingestion:

Nickel metal 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 Compound) (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

Nickel Chloride