

MATERIAL SAFETY DATA SHEET



DATE: October 7, 2009

REV:0

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME:
DE NICKELPHOS ELECTROLYTIC
NiCoP PLATING SOLUTION

PRODUCT CODE NO:PTC

MANUFACTURER ADDRESS:
Palm International, Inc.
1289 Bridgestone Pkwy
LaVergne, Tennessee 37086

EMERGENCY 24 HOUR
1-800-424-9300 (CHEMTREC)
EMERGENCY TELEPHONE:
8:00 am TO 5:00 pm CST (Mon-Fri)
615-641-1200

CHEMICAL FORMULA:
CHEMICAL NAME:
CHEMICAL FAMILY:
CAS REGISTRY NUMBER:

Proprietary Mixture
De Nickelphos Electrolytic NiCoP Plating Solution
Inorganic/Organic Mixture
N/A

HMIS: HEALTH: 2
FLAMMABILITY: 0
REACTIVITY: 0
PERSONAL PROTECTION: G

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	WEIGHT %
Nickel Sulfate	7786-81-4	10 - 20
Cobalt Sulfate	7440-48-4	< 1% Co
Citric Acid	77-92-9	< 5
Phosphorus Acid	13598-36-2	< 5
Boric Acid	100403-35-3	<5
Sodium Lactate	2836-32-0	<15

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

Solution is an odorless, green solution that is NOT flammable, combustible or explosive and it presents no unusual hazard if involved in a fire, however, in extremely high temperatures hazardous decomposition may occur and form toxic fumes and metal oxides. Solution is a suspected carcinogen and should be treated as such. Irritating to the skin, eyes and nasal passages. Consider toxic by inhalation, ingestion, or injection. TLV/PEL: 0.1 mg(Ni)/m³.

EYE CONTACT:

Avoid contact with eyes. Causes irritation to the eyes.

SKIN CONTACT:

Avoid contact with skin. Causes irritation to the skin.

INGESTION:

Do not ingest. Causes gastro-intestinal disorders.

INHALATION:

Do not inhale. Causes irritation to the membranes of the upper respiratory tract.

SECTION 4: FIRST AID MEASURES

EYES:

Immediately flush with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Call a physician.

SKIN:

Immediately flush with plenty of water for at least 15 minutes. Remove contaminated clothing.

INHALATION:

If affected, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

INGESTION:

If accidental ingestion occurs, and the victim is conscious, induce vomiting. Call a physician.

MEDICAL CONDITIONS AGGRAVATED:

Nickel "itch" and/or asthma in persons hypersensitive to nickel.

NOTE TO PHYSICIAN:

NIOSH has concluded that certain nickel compounds are suspected carcinogens. Nickel and certain nickel compounds are listed as carcinogens by NTP and IARC. OSHA regulates nickel and certain nickel compounds as carcinogens.

SECTION 5: FIRE FIGHTING MEASURES

FLASH POINT (/F)

N/A

OSHA FLAMMABILITY CLASSIFICATION:

N/A

EXTINGUISHING MEDIA:

Water spray

SPECIAL FIREFIGHTING PROCEDURES:

In the presence of sulfur or sulfates, nickel sulfate react with CO₂ to form nickel carbonyl. Fire fighters should be equipped with SCBA and personal protective clothing

EXPLOSION LIMITS IN AIR - LOWER %

N/A

EXPLOSION LIMITS IN AIR - UPPER %

N/A

AUTOIGNITION TEMP (/F)

N/A

UNUSUAL FIRE AND EXPLOSION HAZARDS:

N/A

SECTION 6: ACCIDENTAL RELEASE MEASURES

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

Wash material into suitable retaining area and collect in container. Refer to section 8 for personal protection requirements. Notification of the National Response Center (800-424-8802) may be required.

SECTION 7: HANDLING AND STORAGE

HANDLING:

Wear chemical splash goggles and rubber gloves while handling. Use adequate ventilation or suitable respirator to prevent inhalation.

STORAGE:

Material is temperature sensitive. Store above 50°F (10°C) to avoid crystallization.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE CONTROLS:

Provide adequate ventilation.

RESPIRATORY PROTECTION EQUIPMENT:

Use of OSHA approved respirator is recommended in areas where adequate ventilation is not present.

PROTECTIVE GLOVES:

Use nitrile or neoprene gloves.

EYE AND FACE PROTECTION:

Use chemical splash goggles or face shield.

OTHER PROTECTIVE EQUIPMENT:

Use chemically resistant apron or clothing.

EXPOSURE GUIDELINES:

Nickel compounds are listed/regulated by OSHA, Cal OSHA, and ACGIN. The Permissible Exposure Limit (PEL) is 1 mg/m³. The Time Weighted Average (TWA) is 0.1 mg/m³.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

BOILING RANGE/POINT:	Approximately 215°F (101°C)
VAPOR PRESSURE:	N/A
VAPOR DENSITY (AIR=1):	N/A
FREEZING POINT:	Approximately 32°F (0°C)
MELTING POINT:	N/A
PHYSICAL STATE:	Liquid
COLOR:	Clear, green liquid
% VOLATILE BY WEIGHT:	N/A
% VOLATILE BY VOLUME:	N/A
EVAPORATION RATE (BUTYL ACETATE = 1)	<< butyl acetate
SPECIFIC GRAVITY @ 25/C	1.1
WEIGHT PER GALLON	9.2 lb/gal

SECTION 10: STABILITY AND REACTIVITY

STABILITY:	Stable
HAZARDOUS POLYMERIZATION:	Not expected to occur
HAZARDOUS THERMAL DECOMPOSITION OR COMBUSTION PRODUCTS:	Sulfur oxides and nickel oxides may form under fire conditions
INCOMPATIBILITY (MATERIALS TO AVOID):	Strong oxidizers
CONDITIONS TO AVOID:	Excess heat

SECTION 11: TOXICOLOGICAL INFORMATION

ACUTE EFFECTS/ROUTES OF ABSORPTION:

Harmful if swallowed, inhaled, absorbed through skin or eyes.

Ingestion: Nickel Sulfate is harmful and can cause gastro-intestinal disorders.

Inhalation: Inhalation of nickel sulfate solutions can cause irritation of the mucous membrane of the upper respiratory tract. Individuals hypersensitive to nickel may develop asthma, bronchitis, shortness of breath or wheezing.

Skin: Causes irritation, sensitization or allergic reactions resulting in "Nickel Itch" or chronic eczema. This is accentuated by heat and humidity. Nickel sulfate solutions may aggravate existing medical conditions such as allergies, dermatitis, asthma, bronchitis or any other respiratory ailment.

Primary Skin Irritation Index: Not known.

Eye: Will cause redness and irritation of the eye.

CHRONIC EFFECTS:

Carcinogenicity: According to OSHA CFR 29 Part 1910. 1200, nickel and certain nickel compounds are deemed to be possible cancer hazards. This is based on assessment by the U.S. National Toxicology Program that they may reasonably be anticipated to be carcinogens and an assessment of International Agency for Research on Cancer which concluded that there was limited evidence of carcinogenicity to humans. There have been no studies demonstrating any excess cancer risk in workers exposed to nickel metal powder, nickel oxide powder, nickel carbonate, and nickel hydroxide in their use. Studies by Godbold & Cragle did not demonstrate any excess respirable cancer risk among workers exposed to nickel powder of respirable size. Other studies involving exposure to nickel dust and fumes in refining, stainless steel and alloy production have not shown any increased risk of respiratory cancer. There has been no evidence that workers exposed to soluble nickel salts in their use have demonstrated any increased risk of respiratory cancer.

Toxicity Data: Oral-Rat LD 50: 264 mg/kg for nickel sulfate.

SECTION 12: ECOLOGICAL INFORMATION

WATER POLLUTION RESPONSE: Dangerous to aquatic life in high concentrations. May be dangerous if it enters water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes.

Aquatic Toxicity: 160 ppm/48hr/rainbow trout/TLM/fresh water
13.9 ppm/48 hr/prawn/LC50/salt water

Persistency PER: Nickel can remain in natural waters indefinitely.

Potential for Accumulation PFA: Positive, concentration factors for NI – Marine Plants and Invertebrates – 250; Fish – 100; Freshwater plants and Invertebrates – 100; Fish 40 (R1700). Half-life in total human body – 667 days (R172).

Chronic Aquatic Toxicity Limits (ppm) CAT: 38
Chronic Animal Toxicity Limits (ppm) ATL: 500
Chronic Livestock Toxicity Limits (ppm) LVN: 1000
Irrigable Plant Toxicity (ppm) IRN: 2

DEGREE OF HAZARD TO PUBLIC HEALTH: Systemic poisoning of humans by Nickel or its salts is almost unknown. It is a moderate threat as a chronic inhalation toxin, slightly toxic with acute inhalation or ingestion, and a mild irritant and allergen.

SECTION 13: DISPOSAL CONSIDERATIONS

SPILL CONTROL AND RECOVERY:

Never allow spills to enter sewers or waterways. Soak up spills into absorbent material; do not use sawdust. Collect material for disposal in plastic recovery drum. Flush residue with plenty of water into a chemical drain.

DISPOSAL METHOD:

Dispose of by an approved method at an approved secure facility.

SECTION 14: TRANSPORT INFORMATION

DOT SHIPPING NAME: RQ, Environmental Hazardous Substance,
Liquid, NOS (Nickel Sulfate)
DOT HAZARD CLASS: 9
UN/NA NUMBER: UN 3082
DOT PACKING GROUP: III

REPORTABLE QUANTITY (RQ):

49 CFR Appendix to 172.101 table lists the reportable quantity for nickel sulfate to be 100 lbs / 45.4 kg as dry nickel sulfate crystals. The equivalent RQ for this product is 500 lbs / 227 kg or 54 gallons.

SECTION 15: REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS:

OSHA CLASSIFICATION: Nickel Sulfate is considered a carcinogen under the OSHA Hazard Communication Standard 29 CFR 1910.1200 Appendix A (1) (a,b,c) & Appendix B (1).

COMPONENTS:	CAS NUMBER	%	OSHA PEL	ACGIH TLV
Nickel Sulfate	7786-81-4	<20	1.0 mg/m ³ as Ni	0.1 mg/m ³ as Ni

TSCA STATUS: The ingredients of this product are on the Toxic Substances Control Act (TSCA) inventory.

CERCLA NOTIFICATION: Comprehensive Environmental Response Compensation and Liability Act of 1980 (CERCLA) requires notification of the National Response Center (NRC) of release quantities of hazardous substances equal to or greater than the reportable quantities (RQs) in 40 CFR 302.4.

SARA (TITLE III) REPORTING: Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires submission of annual reports of release of toxic chemicals that appear in 40 CFR 372 (for SARA 313). This information must be included in all material safety data sheets that are copied and distributed for this material. Components present in this product at a level which could require reporting under the statute are:

CHEMICAL	CAS NUMBER	PERCENT NICKEL BY WEIGHT
Nickel Sulfate	7786-81-4	4.5%

SECTION 16: OTHER INFORMATION

To the best of our knowledge the information contained herein is correct. All chemicals may present unknown health hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist. Final determination of suitability of the chemical is the sole responsibility of the user. Users of any chemical should satisfy themselves that the conditions and methods of use assure that the chemical is used safely. No representations or warranties, either expressed or implied, of merchantability, fitness for a particular purpose or any other nature are made here under with respect to the information contained herein or the chemical to which the information refers.