

MATERIAL SAFETY DATA SHEET

SECTION I – PRODUCT & COMPANY IDENTIFICATION

Product Name: Norsol AS Liquid
Product Use: Aluminum Surface Preparation
Manufacturer: Contact supplier
Supplier: Northern Technical Solutions Inc.
Address: 7040 Wellington Rd 124 South
 Guelph, ON N1H 6J3
Telephone Number: 519-766-9899
Emergency Telephone Number: 519-766-9899

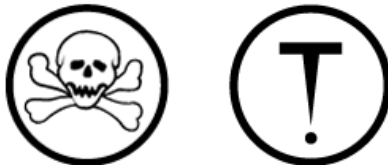
SECTION 2 – HAZARDOUS INGREDIENTS

Chemical Name	CAS#	Wt%	ACGIH-TLVs 8 hr TWA	NIOSH IDLH	LC ₅₀ (4 hr, Rat)	LD ₅₀ (Oral, Rat)
Nickel acetate tetrahydrate	6018-89-9	30 - 60	0.1 mg/m ³ (as Ni, soluble)	10 mg/m ³ (Ni compounds)	Not available	350 mg/Kg
Naphthalenesulfonic acid, polymer with formaldehyde, sodium salt	9084-06-4	10 - 30	Not available	Not available	Not available	3800 mg/Kg

SECTION 3 – HAZARDS

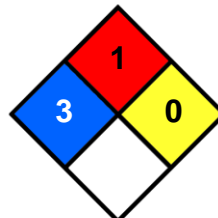
Emergency Overview: DANGER! TOXIC. HARMFUL OR FATAL IF INHALED OR SWALLOWED. SENSITIZER. MAY CAUSE AN ALLERGIC SKIN OR RESPIRATORY REACTION. IRRITANT. MAY IRRITATE EYES AND SKIN. MAY CAUSE CHRONIC EFFECTS. CONTAINS A CHEMICAL WHICH MAY CAUSE CANCER. CONTAINS A CHEMICAL WHICH MAY CAUSE ADVERSE REPRODUCTIVE EFFECTS.

WHMIS: D1B – Acute Toxic Effects; D2A – Chronic Toxic Effects;
 D2B – Other Toxic Effects



HMIS & NFPA:

HEALTH	* 3
FLAMMABILITY	1
PHYSICAL HAZARD	0
PPE	X



Legend	
Extreme Danger	4
Serious	3
Moderate	2
Slight	1
Minimal	0
Chronic	*

TDG/DOT: ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S.
 (nickel acetate); Class 9; UN3082; PG III

Target Organs: Eyes, skin, respiratory system.

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SECTION 4 - FIRST AID MEASURES

Eyes: Immediately flush eye(s) with lukewarm, gently flowing water continuously for at least 20 minutes, while holding the eyelid(s) open. Obtain medical attention if irritation persists.

Skin: Remove contaminated clothing and wash skin with soap and plenty of water for at least 20 minutes. Obtain medical attention if symptoms persist.

Inhalation: Move victim to fresh air. Obtain medical attention if symptoms persist.

Ingestion: Obtain medical attention immediately. Do not induce vomiting. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration.

SECTION 5 - FIRE FIGHTING MEASURES

Flash Point (°C - TCC): Not available.

LEL: Not available.

UEL: Not available.

Hazardous Combustion Products: Oxides of sulphur, oxides of nickel, oxides of carbon.

Autoignition Temperature (°C): Not available.

Extinguishing Media: Dry chemical, carbon dioxide.

Fire Fighting Procedures: Fire-fighters should wear full protective gear with self-contained breathing apparatus (SCBA).

Fire and Explosion Hazards: Not available.

Sensitivity to Mechanical Impact: Not available.

Sensitivity to Static Discharge: Not available.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Personal Precautions: Danger. Before attempting clean-up, refer to Section 8 personal protection. Contact emergency services and supplier for advice.

Spill Response: Evacuate unprotected and untrained personnel from the area. The spill should be handled by qualified personnel only. Ventilate the area. Contain spill. For larger spills, cover drains and build dikes to prevent entry into sewer systems or bodies of water. Cover spill with a non-combustible material such as vermiculite or other commercially available inorganic absorbent. Cover spill with absorbent until it appears dry. Collect the spilled material and clean up the area. Place waste materials in a closed container suitable for disposal. Refer to Section 13 for disposal considerations.

SECTION 7 – HANDLING & STORAGE

Handling: For industrial or professional use only. As required by employer code. Handle with care. Avoid contact with incompatible materials. Do not get in eyes or on skin or clothing. Do not breathe mists or fumes. Use only in a well-ventilated area or with respiratory protection. Do not swallow. Do not eat, drink, or smoke in work areas. Remove contaminated clothing and discard or wash before reuse. Maintain good industrial hygiene practices.

Storage: As required by employer code. Keep container closed when not in use. Store in a cool, dry, well-ventilated area. Store away from incompatible materials. Store away from heat. Keep out of direct sunlight. Maintain good industrial hygiene practices.

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SECTION 8 – PERSONAL PROTECTIVE EQUIPMENT & EXPOSURE CONTROLS

Eye/Face Protection: As required by employer code. Avoid contact. Wear chemical safety goggles.

Hand Protection: As required by employer code. Avoid contact. Wear chemical resistant gloves. Select and use gloves based on the results of a workplace exposure assessment. Consult ACGIH or your glove manufacturer for selection of appropriate compatible materials.

Skin Protection: As required by employer code. Avoid contact. Wear appropriate equipment as necessary to prevent exposure. Select and use protective equipment based on the results of a workplace exposure assessment. Consult ACGIH or your equipment manufacturer for selection of appropriate compatible materials.

Respiratory Protection: As required by employer code. Do not breathe fumes. Wear appropriate respiratory protection if ventilation is not adequate. Select and use NIOSH approved respiratory equipment based on the results of a workplace exposure assessment.

Ingestion: Do not swallow. Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water.

Ventilation: Use only in a well-ventilated area or with respiratory protection.

Engineering Controls: Use process enclosures, local exhaust ventilation or other engineering controls to keep airborne levels below exposure limits. Have a safety shower and eye-wash fountain readily available in the immediate work area.



EXPOSURE LIMITS:

<u>Chemical Name</u>	<u>ACGIH TLV – 15 min STEL</u>	<u>ACGIH TLV – 8 hr TWA</u>	<u>OSHA PEL - 8 hr TWA</u>
Nickel acetate tetrahydrate	Not available	0.1 mg/m ³ (as Ni, soluble)	1 mg/m ³ (Ni compounds)
Naphthalenesulfonic acid, polymer with formaldehyde, sodium salt	Not available	Not available	Not available

SECTION 9 – PHYSICAL & CHEMICAL PROPERTIES

Physical State: Liquid

pH: ~ 5

Vapour Density (Air = 1): Not available

Volatiles (Wt%): Not available

Viscosity: Not available

Solubility in Water: Miscible

Vapour Pressure: Not available

Boiling Point (°C/°F): ~100/212

Odour Threshold (ppm): Not available

Appearance; Odour: Green; not available

Flash Point (°C - TCC): Not available

Autoignition Temperature (°C): Not available

Evaporation Rate (Ether =1): Not available

Upper Explosive Limit (UEL): Not available

Lower Explosive Limit (LEL): Not available

Freezing/Melting Point (°C): Not available

Specific Gravity (water =1): 1.096

Coefficient of water/oil: Not available

SECTION 10 – STABILITY & REACTIVITY

Chemical stability: Stable. Hazardous polymerization will not occur.

Incompatible Materials: Oxidizing agents, acids.

Conditions to Avoid: None known.

Hazardous Decomposition Products: Oxides of sulphur, oxides of nickel, oxides of carbon.

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SECTION 11 - TOXICOLOGICAL INFORMATION

Routes of Entry: Eyes, Skin, Inhalation, Ingestion

HEALTH EFFECTS FROM ACUTE EXPOSURE:

Eyes: May cause irritation. Symptoms may include redness, pain, and tearing.

Skin: May cause irritation. Symptoms may include localized redness, swelling, itching and pain. May cause an allergic reaction with symptoms including rashes, hives, redness and itching.

Inhalation: Harmful. May cause respiratory tract irritation. May cause an allergic reaction with asthma like symptoms including wheezing, chest tightness, shortness of breath, difficulty breathing, and coughing.

Ingestion: Harmful or fatal. May cause gastrointestinal distress with nausea, vomiting, or diarrhea. Aspiration in the lungs can cause chemical pneumonitis.

ACUTE TOXICITY DATA:

<u>Chemical Name</u>	<u>RTECS #</u>	<u>Rat - Inhalation 4 hours LC₅₀</u>	<u>Rat - Ingestion LD₅₀</u>
Nickel acetate (373-02-4)	QR6125000	Not available	350 mg/Kg
Nickel compounds (except nickel carbonyl)	QR5950000	Not available	Not available
Naphthalenesulfonic acid, polymer with formaldehyde, sodium salt	Not available	Not available	3800 mg/Kg

HEALTH EFFECTS FROM CHRONIC EXPOSURE: Prolonged or repeated exposure may cause nickel dermatitis with itching of the fingers, hands, and arms.

Aggravation of Pre-existing Conditions: Insufficient data available.

Skin: Prolonged or repeated exposure may cause drying, defatting and dermatitis.

Irritancy: Hazardous by WHMIS/OSHA criteria.

Sensitization: Hazardous by WHMIS/OSHA criteria. May cause an allergic reaction in sensitized individuals.

Reproductive Effects: Hazardous by WHMIS/OSHA criteria. Nickel compounds are known to the state of California to cause reproductive/developmental effects. Adverse effects to the fetus have occurred in laboratory animals exposed to nickel.

Teratogenicity: Insufficient data available.

Mutagenicity: Insufficient data available.

Carcinogenicity: Hazardous by WHMIS/OSHA criteria. Human and animal studies report an increased risk of respiratory tract cancers from exposure to nickel.

<u>Chemical & CAS#</u>	<u>IARC</u>	<u>OSHA</u>	<u>Prop 65</u>	<u>ACGIH</u>
Nickel compounds, insoluble	Group 2B Carcinogen	Carcinogen	Known to Cause Cancer	A1 - Confirmed Human Carcinogen
Nickel compounds, soluble	Group 1 Carcinogen	Carcinogen	Known to Cause Cancer	A4 – Not Classifiable as a Human Carcinogen

Toxicologically Synergistic Materials: Not available.

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SECTION 12 - ECOLOGICAL INFORMATION

Environmental Effects: Contains a substance considered harmful to the environment or its biological diversity.

Ecotoxicity data:

Nickel: Mussel (*Anodonta imbecilis*) - 96 hour LC50: 0.190 mg/L
 Snail (*Juga plicifera*) - 96 hour LC50: 0.102 mg/L

Ecofate Data: Contains substances considered persistent and bioaccumulative

SECTION 13 – DISPOSAL CONSIDERATIONS

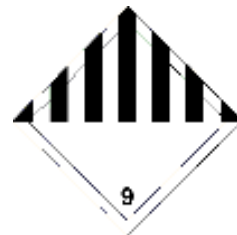
Disposal: Hazardous waste. Consult applicable regulations including municipal sewer-use bylaws prior to disposal.

SECTION 14 - TRANSPORTATION

Transportation of Dangerous Goods (TDG) Applicable for ground shipments only. ERGO2008 #171
 Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S. (nickel acetate)
 Class: 9
 UN Number: UN3082
 Packing Group: III



US Department of Transportation (DOT) Applicable for ground shipments only. ERGO2008 #171
 Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S. (nickel acetate)
 Class: 9
 UN Number: UN3082
 Packing Group: III



SECTION 15 - REGULATORY INFORMATION

CANADA: The components in this product are listed on the Domestic Substances List (DSL) or are exempt.

This controlled product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and this MSDS contains all the information required by the CPR.

WHMIS Classification: D1B, D2A, D2B

Hazardous Products Act - Ingredient Disclosure List (IDL):

<u>Chemical</u>	<u>CAS#</u>	<u>Cut-Off</u>
Nickel acetate	373-02-4	0.1%

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CEPA (1999)

Priority Substances List (PSL1) & Schedule 1 List of Toxic Substances: Dissolved and soluble forms of inorganic nickel. May have a harmful effect on the environment. May constitute a danger in Canada to human life or health. Full life cycle management substance -Track 2.

Environmental Emergency Regulations: An environmental emergency plan is recommended for nickel compounds above the threshold quantity of 0.22 tonnes.

National Pollutant Release Inventory (NPRI): Nickel compounds are subject to reporting requirements.

Review applicable regulatory requirements and consult authorities for additional information.

UNITED STATES: The components of this product are listed on the Toxic Substances Control Act (TSCA) inventory list or are exempt.

OSHA: This product is considered Hazardous as defined by the OSHA Hazard Communication Standard Code of Federal Regulations, 29 CFR 1910.1200.

Title III SARA/EPCRA Sections 311 & 312 - Hazard Categories:

<u>Chemical</u>	<u>CAS#</u>	<u>Fire</u>	<u>Pressure</u>	<u>Reactivity</u>	<u>Acute</u>	<u>Chronic</u>
Nickel acetate	373-02-4	Yes	No	Yes	Yes	Yes

Title III SARA/EPCRA Section 313 - Toxic Chemicals – Toxic Release Inventory:

CAS# 373-02-4 nickel acetate - de minimis level 0.1%

Title III SARA/EPCRA Sections 302 & 304 - Extremely Hazardous Substances - Threshold Planning Quantities:

No specific TPQs.

CERCLA - Hazardous Substances – Reportable Quantities:

Nickel compounds: 100 lb/45.4 Kg final RQ

RCRA: Hazardous Waste.

Clean Air Act (CAA):

Nickel compounds are listed as a Hazardous Air Pollutant (HAP).

Does not contain any Class 1 Ozone depletors.

Does not contain any Class 2 Ozone depletors.

Clean Water Act (CWA):

CAS# 7440-02-0 is listed as a Priority Pollutant under the Act.

CAS# 7440-02-0 is listed as a Toxic Pollutant under the Act.

SECTION 16 - OTHER INFORMATION

MSDS Prepared by: Technical Service. Contact supplier for information.

Review Date: June 1, 2013