MATERIAL SAFETY DATA SHEET

SECTION I – PRODUCT & COMPANY IDENTIFICATION

Product Name: Norsol Deox

Product Use: Metal Finishing/Residue Remover

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)
Sulphuric Acid	7664-93-9	7 - 13	0.2 mg/m³ (thoracic)	15 mg/m³	160 mg/m3	2140 mg/kg
Ferric Sulphate	35139-28-7	15 - 40	1 mg/m³ (as Fe)	Not available	Not available	Not available
Nitric Acid	7697-37-2	10 - 30	5 mg/m^3	25 ppm	130 mg/m^3	Not available
Hydrogen Peroxide	7722-84-1	1 - 5	1.4 mg/m^3	75 ppm	2000 mg/m^3	376 mg/kg
Ammonium Bifluoride	1341-49-7	1 - 5	2.5 mg/m³ (as F)	25 mg/m³ (as F)	319 ppm	130 mg/kg

SECTION 3 – HAZARDS

Emergency Overview: DANGER! CORROSIVE. CAUSES CHEMICAL BURNS. OXIDIZING MATERIAL. MAY CONTRIBUTE TO THE COMBUSTION OF ANOTHER MATERIAL. TOXIC. HARMFUL OR FATAL IF INHALED OR SWALLOWED. MAY CAUSE CHRONIC EFFECTS. CONTAINS A CHEMICAL WHICH MAY CAUSE CANCER.

WHMIS: E – Corrosive; C – Oxidizer; D1B – Acute Toxic Effects; D2A – Chronic Toxic Effects

HMIS & NFPA:

HEALTH	* 3
FLAMMABILITY	0
PHYSICAL HAZARD	1
PPE	X

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

TDG/DOT: CORROSIVE LIQUID, ACIDIC, INORGANIC, NOS (nitric acid; sulphuric acid); Class 8; UN3264; PG II

Target Organs: Eyes, skin, respiratory system, nervous system, teeth, bones.

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 immediately.

Skin: Immediately flush skin with plenty of water while removing contaminated clothing. Continuously flush contaminated area with lukewarm, gently flowing water for at least 20 minutes. Obtain medical attention immediately.

Inhalation: Move victim to fresh air. Obtain medical attention immediately.

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 nitrogen, ammonia, hydrogen gas, hydrogen fluoride.

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.

Fire and Explosion Hazards: Contact with metals may produce flammable hydrogen gas. Oxidizing material. May contribute to the combustion of another material.

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. Do not use combustible materials such as sawdust. 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.

SECTION 8 – PERSONAL PROTECTIVE EQUIPMENT & EXPOSURE CONTROLS

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

Hand Protection: As required by employer code. Avoid contact. Wear acid 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.

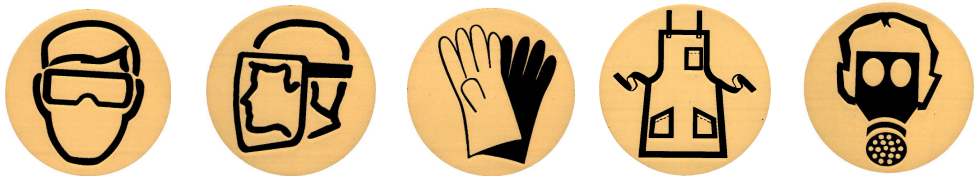
Skin Protection: As required by employer code. Avoid contact. Wear appropriate equipment as necessary to prevent exposure. Select and use protective equipment based on the results of a workplace exposure assessment. Consult ACGIH or your equipment manufacturer for selection of appropriate compatible 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. Use a corrosion-resistant ventilation system. Have a safety shower and eye-wash fountain readily available in the immediate work area.



EXPOSURE LIMITS:

Chemical Name	ACGIH TLV – 15 min STEL	ACGIH TLV – 8 hr TWA	OSHA PEL - 8 hr TWA
Sulphuric acid	3 mg/m³	0.2 mg/m³ (thoracic)	1 mg/m³
Ferric sulphate	Not available	1 mg/m³ (as Fe)	1 mg/m³ (as Fe)
Nitric acid	10 mg/m^3	5 mg/m^3	5 mg/m^3
Hydrogen peroxide	Not available	1.4 mg/m^3	1.4 mg/m^3
Ammonium bifluoride	5 mg/m^3 (as F)	2.5 mg/m³ (as F)	2.5 mg/m³ (as F)

SECTION 9 – PHYSICAL & CHEMICAL PROPERTIES

Physical State: Liquid
pH: <1
Vapour Density (Air = 1): >1
Volatiles (Wt%): Not available
Viscosity: Not available
Solubility in Water: Miscible
Vapour Pressure: Not available
Boiling Point (°C): Not available
Odour Threshold (ppm): Not available

Appearance; Odour: Reddish brown; acidic
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: Not available
Specific Gravity (water =1): Not available
Coefficient of water/oil: Not available

SECTION 10 – STABILITY & REACTIVITY

Chemical stability: Stable. Hazardous polymerization will not occur.

Incompatible Materials: Oxidizing agents, reducing agents, bases, water, heat, organic and combustible materials. Contact with metals may produce flammable hydrogen gas.

Conditions to Avoid: Avoid water and heat. Never add water to a corrosive. Always add corrosives to water. When mixing with water, stir small amounts in slowly. Use cold water to prevent excessive heat generation.

Hazardous Decomposition Products: Oxides of sulphur, oxides of nitrogen, ammonia, hydrogen gas, hydrogen fluoride.

SECTION 11 - TOXICOLOGICAL INFORMATION

Routes of Entry: Eyes, Skin, Inhalation, Ingestion

HEALTH EFFECTS FROM ACUTE EXPOSURE:

Eyes: Corrosive. Causes severe burns. Symptoms include severe pain, tearing, ulcerations, significantly impaired vision or complete loss of vision.

Skin: Corrosive. Causes severe burns. Symptoms include localized redness, swelling, itching, intense pain, blistering, ulceration, and tissue destruction.

Inhalation: Harmful or fatal. Corrosive. Causes severe burns. Symptoms may be delayed. May cause inflammation, edema of the larynx and bronchi, chemical pneumonitis, pulmonary edema, convulsions, and asphyxia.

Ingestion: Harmful or fatal. Corrosive. Causes severe burns. May cause severe and permanent damage to the digestive tract.

ACUTE TOXICITY DATA:

Chemical & CAS#	RTECS #	Rat - Inhalation 4 hours LC_{50}	Rat - Ingestion LD_{50}
Sulphuric Acid (7664-93-9)	WS5600000	160 mg/m^3	2140 mg/kg
Nitric Acid (7697-37-2)	QU5775000	130 mg/m^3	Not available
Hydrogen Peroxide (7722-84-1)	MX0900000	2000 mg/m^3	376 mg/kg
Ammonium Bifluoride (1341-49-7)	MW7875000	319 ppm (as HF)	130 mg/kg

HEALTH EFFECTS FROM CHRONIC EXPOSURE:
Prolonged exposure to high levels of fluoride may lead to skeletal fluorosis. Symptoms may include mottling of teeth, brittle bones, weight loss, anemia, calcified ligaments, pain and stiff joints. Prolonged exposure to acid fumes may erode teeth and cause permanent damage to the respiratory system.

Aggravation of Pre-existing Conditions: People with diabetes or kidney impairment appear to be at an increased risk from the effects of fluoride.

Sensitization: Insufficient data available.

Reproductive Effects: Insufficient data available.

Teratogenicity: Insufficient data available.

Mutagenicity: Insufficient data available.

Carcinogenicity: Hazardous by WHMIS/OSHA criteria.

Chemical & CAS#	IARC	OSHA	Prop 65	ACGIH
Sulphuric Acid (7664-93-9) (as inorganic acid mists)	Group 1 Carcinogen	Carcinogen	Known to Cause Cancer	A2 - Suspected Human Carcinogen
Hydrogen Peroxide (7722-84-1)	Not listed	Not listed	Not listed	A3 - Confirmed Animal Carcinogen

Toxicologically Synergistic Materials: Not available.

SECTION 12 - ECOLOGICAL INFORMATION

Environmental Effects: Harmful to the environment or its biological diversity.

Ecotoxicity data:

Sulphuric Acid (7664-93-9):	Bluegill/Sunfish - 48 hour TLm (tap water @ 20°C): 49 mg/L Bluegill/Sunfish - 48 hour TLm (fresh water): 24.5 ppm
Hydrogen Peroxide (7722-84-1):	Channel catfish - 96 hour LC50: 37.4 mg/L Fathead minnow - 96 hour LC50: 16.4 mg/L Daphnia magna - 24 hour EC50: 7.7 mg/L Daphnia pulex - 48 hour LC50: 2.4 mg/L Freshwater snail - 96 hour LC50: 17.7 mg/L
Nitric Acid (7697-37-2):	Cockle - 48 hour LC50 (salt water): 330-1000 mg/L
Ammonium Bifluoride (1341-49-7):	Fish - 96 hour LC50: >100 mg/L

Ecofate Data: Not determined.

SECTION 13 – DISPOSAL CONSIDERATIONS

Disposal: Hazardous waste. Consult applicable regulations and authorities prior to disposal.

SECTION 14 - TRANSPORTATION

Transportation of Dangerous Goods (TDG)

Applicable for ground shipments only. ERGO2008 #154

Proper Shipping Name:	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (nitric acid; sulphuric acid)
Class:	8
UN Number:	UN3264
Packing Group:	II

US Department of Transportation (DOT)

Applicable for ground shipments only. ERGO2008 #154

Proper Shipping Name:	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (nitric acid; sulphuric acid)
Class:	8
UN Number:	UN3264
Packing Group:	II

SECTION 15 - REGULATORY INFORMATION

CANADA: The components of 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: E, C, D1B, D2A

Hazardous Products Act - Ingredient Disclosure List (IDL):

Chemical	CAS#	Cut-Off
Sulphuric acid	7664-93-9	1%
Ferric sulfate	as Iron, water-soluble salts, n.o.s	1%
Nitric acid	7697-37-2	1%
Hydrogen peroxide	7722-84-1	1%
Ammonium bifluoride	as Fluoride compounds, inorganic, n.o.s.	1%

CEPA (1999) - Priority Substances List (PSL1) & Schedule 1 List of Toxic Substances:
Inorganic Fluorides: Harmful to the environment or its biological diversity. 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:

Chemical	CAS#	Fire	Pressure	Reactivity	Acute	Chronic
Sulphuric acid	7664-93-9	No	No	Yes	Yes	Yes
Ferric sulfate	35139-28-7	No	No	No	Yes	No
Nitric acid	7697-37-2	Yes	No	Yes	Yes	Yes
Hydrogen peroxide	7722-84-1	Yes	No	Yes	Yes	Yes
Ammonium bifluoride	1341-49-7	No	No	Yes	Yes	Yes

Title III SARA/EPCRA Section 313 - Toxic Chemicals – Toxic Release Inventory:
CAS# 7697-37-2 - de minimis level 1.0%
CAS# 7664-93-9 - de minimis level 1.0%

Title III SARA/EPCRA Sections 302 & 304 - Extremely Hazardous Substances - Threshold Planning Quantities:
CAS# 7697-37-2: 1000 lb/454 Kg TPQ
CAS# 7664-93-9: 1000 lb/454 Kg TPQ

CERCLA - Hazardous Substances – Reportable Quantities:
CAS# 1341-49-7: 100 lb/45.4 Kg final RQ
CAS# 7697-37-2: 1000 lb/454 Kg final RQ
CAS# 7664-93-9: 1000 lb/454 Kg final RQ

RCRA: Hazardous Waste.

Clean Air Act (CAA):
Does not contain any hazardous air pollutants.
Does not contain any Class 1 Ozone depletors.
Does not contain any Class 2 Ozone depletors.

Clean Water Act (CWA):
CAS# 7697-37-2 is listed as a Hazardous Substance under the CWA.
CAS# 7664-93-9 is listed as a Hazardous Substance under the CWA.
CAS# 1341-49-7 is listed as a Hazardous Substance under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

SECTION 16 - OTHER INFORMATION

MSDS Prepared by: Technical Service. Contact supplier for information.
Review Date: May 4, 2011