



Material Safety Data Sheet

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Theolum
SYNONYMS: Acid Cleaner
PRODUCT CODES: 100970

MANUFACTURER: Theochem Laboratories Inc
ADDRESS: 7373 Rowlett Park Drive
Tampa, FL 33610-1141

EMERGENCY PHONE: ChemTel: North America: 1-800-255-3924
International: +01-813-248-0585

CHEMICAL NAME: Hydrofluoric & Phosphoric Acid
CHEMICAL FAMILY: Mixture
CHEMICAL FORMULA: NA
PRODUCT USE: Cleaning
PREPARED BY: TGD
REVISION NUMBER: 1.2
MSDS REVISION DATE: 04/05/2011

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Components listed in this section may contribute to the potential hazards associated with exposure to the concentrate. The product may contain additional non-hazardous or trade-secret components.

INGREDIENT:

	<u>CAS NO.</u>	<u>% WT</u>	<u>% VOL</u>	<u>SARA 313 REPORTABLE</u>
Hydrofluoric Acid	7664-39-3	< 6 %	NA	No
Phosphoric Acid	7664-38-2	< 20 %	NA	No
2-Butoxyethanol	111-76-2	< 5 %	NA	No

Hydrofluoric Acid

	<u>ppm</u>	<u>mg/m3</u>
OSHA PEL-TWA:	3 ppm	NA
OSHA PEL STEL:	NA	NA
OSHA PEL CEILING:	NA	NA

ACGIH TLV-TWA:	NA	NA
ACGIH TLV STEL:	NA	NA
ACGIH TLV CEILING:	NA	NA

Phosphoric Acid

	<u>ppm</u>	<u>mg/m3</u>
OSHA PEL-TWA:	NA	1 mg/m ³
OSHA PEL STEL:	NA	NA
OSHA PEL CEILING:	NA	NA

ACGIH TLV-TWA:	NA	1 mg/m ³
ACGIH TLV STEL:	NA	NA
ACGIH TLV CEILING:	NA	NA

2-Butoxyethanol

	<u>ppm</u>	<u>mg/m3</u>
OSHA PEL-TWA:	50 ppm	NA
OSHA PEL STEL:	NA	NA
OSHA PEL CEILING:	NA	NA
ACGIH TLV-TWA:	25 ppm (skin)	NA
ACGIH TLV STEL:	NA	NA
ACGIH TLV CEILING:	NA	NA

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

POISON! DANGER! CORROSIVE. EXTREMELY HAZARDOUS LIQUID AND VAPOR. CAUSES SEVERE BURNS WHICH MAY NOT BE IMMEDIATELY PAINFUL OR VISIBLE. MAY BE FATAL IF SWALLOWED OR INHALED. LIQUID AND VAPOR CAN BURN SKIN, EYES AND RESPIRATORY TRACT. CAUSES BONE DAMAGE. REACTION WITH CERTAIN METALS GENERATES FLAMMABLE AND POTENTIALLY EXPLOSIVE HYDROGEN GAS.

ROUTE(S) OF ENTRY:

POTENTIAL HEALTH EFFECTS SHORT TERM/ACUTE EXPOSURE:

Exposure to hydrofluoric acid can produce harmful health effects that may not be immediately apparent.

Eyes: Yes **Inhalation:** Yes **Skin:** Yes **Ingestion:** Yes

EYES: Corrosive to the eyes. Symptoms of redness, pain, blurred vision, and permanent eye damage may occur.

SKIN: Corrosive to the skin. Skin contact causes serious skin burns which may not be immediately apparent or painful. Symptoms may be delayed 8 hours or longer. The fluoride ion readily penetrates the skin causing destruction of deep tissue layers and even bone.

INHALATION: Severely corrosive to the respiratory tract. May cause sore throat, coughing, labored breathing and lung congestion/inflammation.

INGESTION: Corrosive. May cause sore throat, abdominal pain, diarrhea, vomiting, severe burns of the digestive tract, and kidney dysfunction.

CHRONIC HEALTH HAZARDS: Intake of more than 6 mg of fluorine per day may result in fluorosis, bone and joint damage. Hypocalcemia and hypomagnesemia can occur from absorption of fluoride ion into blood stream.

CARCINOGENICITY: NTP: NO ARC Monographs: NO OSHA Regulated: NO

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: Persons with pre-existing skin disorders, eye problems, or impaired kidney or respiratory function may be more susceptible to the effects of this substance.

SECTION 4: FIRST AID MEASURES

EYES: Irrigate eyes for at least 30 minutes with copious quantities of water, keeping the eyelids apart and away from eyeballs during irrigation. 2) Get competent medical attention immediately, preferably an eye specialist. 3) If a physician is not immediately available, apply one or two drops of ophthalmic anesthetic, (e.g., 0.5% Pontocaine Hydrochloride solution). 4) Do not use oily drops, ointment or HF skin burn treatments. Place ice pack on eyes until reaching emergency room.

Irrigation may be facilitated by use of Morgan lens or similar ocular irrigator, using 1% aqueous calcium gluconate solution [50ml of calcium gluconate 10% in 500 ml normal saline].

SKIN: For deep skin burns or contact with concentrated HF (over 50%) solution, consider infiltration about the affected area with 5% calcium gluconate [equal parts of 10% calcium gluconate and sterile saline for injection].

Burns beneath the nail may require splitting the nail and application of calcium gluconate to the exposed nail bed. For certain burns, especially of the digits, use of intra-arterial calcium gluconate may be indicated.

INGESTION: If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

INHALATION: Get medical help immediately. If patient is unconscious, give artificial respiration or use inhalator. Keep patient warm and resting, and send to hospital after first aid is complete.

NOTES TO PHYSICIANS OR FIRST AID PROVIDERS: General: For burns of moderate areas, (greater than 8 square inches), ingestion and significant inhalation exposure, severe systemic effects may occur, and admission to a critical care unit should be considered. Monitor and correct for hypocalcemia, cardiac arrhythmias, hypomagnesemia and hyperkalemia. In some cases renal dialysis may be indicated.

AN ALTERNATIVE FIRST AID PROCEDURE: The effect of HF, i.e. onset of pain, particularly in dilute solutions, may not be felt for up to 24 hours. It is important, therefore, that persons using HF have immediate access to an effective antidote even when they are away from their work place in order that first aid treatment can be commenced immediately.

We recommend that any person in contact with HF should carry, or have access to a tube of HF Antidote Gel at all times; ideally with one tube at the work place, one on the person and one at home.

It is imperative that any person who has been contaminated by HF should seek medical advice when the treatment by HF Antidote Gel has been applied.

REFERENCES: 1. Brown, T.D. Treatment of Hydrofluoric Acid Burns 2. Sprout, W.L. et al Treatment of Severe Hydrofluoric Acid Exposures (Journal of American Occupational Medicine 25:12, 1993) 3. Bracken, W.M. et al Comparative Effectiveness of Topical Treatments for Hydrofluoric Acid Burns, University of Kansas (Journal of Occupational Medicine 27:10:1985) 4. Burke, W.J. , et al Systemic Fluoride Poisoning Resulting from A Fluoride Skin Burn (Journal of Occupational Medicine (5,39:1973)

SECTION 5: FIRE-FIGHTING MEASURES

FIRE AND EXPLOSIVE PROPERTIES:

FLAMMABLE LIMITS IN AIR, UPPER: None
(% BY VOLUME) **LOWER:** None

FLASH POINT:Closed Cup): None
FLAMMABLE LIMITS: None

AUTOIGNITION TEMPERATURE: None Known

NFPA HAZARD CLASSIFICATION

HEALTH: 4 **FLAMMABILITY:** 0 **REACTIVITY:** 1 **OTHER:** NA

HMIS HAZARD CLASSIFICATION

HEALTH: 4 **FLAMMABILITY:** 0 **REACTIVITY:** 1 **PROTECTION:** NA

EXTINGUISHING MEDIA: Use appropriate methods for combating surrounding fire.

SPECIAL FIRE FIGHTING PROCEDURES: Self contained breathing apparatus (SCBA) should be worn. Vapors are irritating.

UNUSUAL FIRE AND EXPLOSION HAZARDS: None

HAZARDOUS DECOMPOSITION PRODUCTS: Explosive hydrogen gas may be liberated from contact with some metals.

SECTION 6: ACCIDENTAL RELEASE MEASURES

CLEAN-UP MEASURES: Stop spill or leak if it can be done safely. Contain spill to smallest possible area. Large spills should be recovered for disposal. Neutralize spill with soda ash, lime or caustic soda. Then absorbed on sand or other absorbent. Transfer contaminated absorbent, soil and other materials to containers for disposal. Waste materials should be disposed of in accordance with all local, state and federal regulations.

SECTION 7: HANDLING AND STORAGE

HANDLING: As with any chemical, handle the product in a manner that minimizes exposure to practicable levels. Prior to handling, consult Section 8 of this MSDS to evaluate personal protective equipment needs.

Empty containers may contain product residue. All safety precautions taken when handling this product should also be taken when handling empty drums and containers. Keep containers closed when not in use.

STORAGE: Store in a cool, dry area away from combustibles and reactive chemicals. Store away from sources of ignition. Do not store at temperatures above 120 °F.

OTHER PRECAUTIONS: For Industrial & Institutional use only.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

RESPIRATORY PROTECTION: If the exposure limit is exceeded and engineering controls are not feasible, a full facepiece respirator with an acid gas cartridge may be worn up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. **WARNING:** Air purifying respirators do not protect workers in oxygen-deficient atmospheres. Since the IDLH is low (30 ppm), the above cartridge system is not specifically approved for HF. (3M Respirator Selection Guide)

EYE PROTECTION: Use chemical safety goggles and/or full face shield where splashing is possible. Maintain eye wash fountain and quick drench facilities in work area.

SKIN PROTECTION: Wear protective clothing, including boots or safety shoes with polyvinyl chloride (PVC) or neoprene. Use chemical goggles and/or a full face shield. Wear coveralls with long sleeves, gauntlets and gloves of PVC or neoprene.

OTHER PERSONAL PROTECTIVE EQUIPMENT: Selection of personal protective equipment should be based upon the anticipated exposure and made in accordance with OSHA's Personal Protective Equipment Standard found in 29 CFR 1910 Subpart I.

HYGIENIC PRACTICES: Wash hands after use. Keep containers closed when not in use.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	Colorless Liquid
ODOR:	Odorless
PHYSICAL STATE:	Liquid
pH AS SUPPLIED:	2.9 ± 3
BOILING POINT:	212 °F
MELTING POINT:	NA
FREEZING POINT:	NA
VAPOR PRESSURE (mmHg):	Same as water
VAPOR DENSITY (AIR = 1):	Same as water
SPECIFIC GRAVITY:	1.0 – 1.10
EVAPORATION RATE:	< 1.0 (Butyl Acetate = 1)

SOLUBILITY IN WATER: 100 %
PERCENT SOLIDS BY WEIGHT: NA
PERCENT VOLATILE NA
MOLECULAR WEIGHT: Mixture
VISCOSITY: NA

SECTION 10: STABILITY AND REACTIVITY

STABILITY: Product is Stable
CONDITIONS TO AVOID (STABILITY): NA
INCOMPATIBILITY (MATERIAL TO AVOID): Oxidizers and alkalis.
HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: None
HAZARDOUS POLYMERIZATION: Will not occur
CONDITIONS TO AVOID (POLYMERIZATION): Will not polymerize

SECTION 11: TOXICOLOGICAL INFORMATION

EYE EFFECTS: No further toxicological data known.
SKIN EFFECTS: No further toxicological data known.
ORAL EFFECTS: No further toxicological data known.
INHALATION EFFECTS: No further toxicological data known.
OTHER: No further data known.

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION: This product has not been evaluated for ecotoxicity. As with any industrial chemical, exposure to the environment should be prevented and minimized wherever possible.
ENVIRONMENTAL FATE: Not Known.

SECTION 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Ensure that collection, transport, treatment, and disposal of waste product, containers and rinsate complies with all applicable laws and regulations. Note that use, mixture, processing, or contamination of the product may cause the material to be classified as a hazardous waste. It is the responsibility of the product user or owner to determine at the time of disposal, whether the product is regulated as a hazardous waste.

RCRA HAZARD CLASS: U134, U154

SECTION 14: TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION

PROPER SHIPPING NAME:

Corrosive Liquids, Toxic, n.o.s. (Contains less than 6% Hydrofluoric Acid & Phosphoric Acid).

HAZARD CLASS:

Class 8, 6.1

ID NUMBER:

UN2922

PACKING GROUP:

II

EXCEPTIONS: None
LABEL STATEMENT: Poison
WATER TRANSPORTATION Location B
AIR TRANSPORTATION Passenger: < 1 Liters Cargo: < 30 Liters
OTHER AGENCIES: Not Regulated

SECTION 15: REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS

SARA 313: This product contains two of the substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

CLEAN WATER ACT / OIL POLLUTION ACT: This product contains none of the chemicals subject to regulation by Section 311 of the Clean Water Act and the Oil Pollution Act. Releases of the product into or leading to surface waters must be reported to the National Response Center at 1-800-424-8802.

CERCLA REPORTABLE QUANTITY: Any components listed below have been assigned a reportable quantity (RQ) by the Federal EPA. Release of the product into the environment that exceed the RQ for a particular component must be reported to the National Response Center at 1-800-424-8802.

COMPONENT:	Hydrofluoric Acid	100 lbs
	Phosphoric Acid	5000 lbs

TOXIC SUBSTANCES CONTROL ACT: The components of this product are listed on the TSCA Inventory.

OZONE DEPLETING SUBSTANCES: This product contains no ozone depleting substances as defined by the Clean Air Act.

HAZARDOUS AIR POLLUTANTS: Any components listed below are defined by the Federal EPA as hazardous air pollutants.

COMPONENT:	None
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STATE REGULATIONS: Check with the appropriate state agency to determine whether regulations exists.

INTERNATIONAL REGULATIONS: NA

SECTION 16: OTHER INFORMATION

PREPARED BY: Department of Regulatory Compliance

DATE OF ISSUE: 3/28/06 **DATE OF LAST REVISION:** 04/05/2011

We believe the information given is accurate. It is offered in good faith, but without guarantee. Since conditions are beyond our control, user assumes all responsibility and risk.