

Material Safety Data Sheet

Lithium isopropoxide, 2M solution in THF

ACC# 10810

Section 1 - Chemical Product and Company Identification

MSDS Name: Lithium isopropoxide, 2M solution in THF

Catalog Numbers: AC380190000, AC380191000, AC380198000

Synonyms: None Known.

Company Identification:

Acros Organics N.V.

One Reagent Lane

Fair Lawn, NJ 07410

For information in North America, call: 800-ACROS-01

For emergencies in the US, call CHEMTREC: 800-424-9300

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
109-99-9	Tetrahydrofuran	85%	203-726-8
2388-10-5	Lithium isopropoxide	15%	unlisted

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: Not available. Flash Point: -19 deg C.

Danger! Extremely flammable liquid and vapor. Vapor may cause flash fire. Water-reactive. Reacts violently with water. Causes burns by all exposure routes. Uninhibited material, or material from which the inhibitor has been removed or reacted, may form explosive peroxides. May be absorbed through intact skin. May be harmful if swallowed. May cause central nervous system depression. May cause lung damage. May cause liver and kidney damage.

Target Organs: Kidneys, central nervous system, liver, lungs, respiratory system, gastrointestinal system, eyes, skin.

Potential Health Effects

Eye: Causes eye burns. Contact with eyes may cause severe irritation, and possible eye burns. Vapors may cause eye irritation. Damage may be permanent.

Skin: Causes skin burns. May be absorbed through the skin. If absorbed, causes symptoms similar to those of inhalation. May be harmful if absorbed through the skin. THF is not a skin sensitizer in animals.

Ingestion: Causes gastrointestinal tract burns. May be harmful if swallowed. May cause central nervous system depression.

Inhalation: Inhalation of high concentrations may cause central nervous system effects characterized by nausea, headache, dizziness, unconsciousness and coma. Causes chemical burns to the respiratory tract. May be harmful if inhaled. Vapors may cause dizziness or suffocation. Inhalation may cause coughing, difficulty breathing and loss of consciousness. Inhalation of tetrahydrofuran vapors may cause abnormal liver function as detected by laboratory tests. (Dupont)

Chronic: Prolonged or repeated eye contact may cause conjunctivitis. Prolonged or repeated skin contact may cause defatting and dermatitis. May cause liver and kidney damage. May cause lung damage. Narcotic in high concentrations. Data show carcinogenic activity in the liver and kidneys of laboratory animals. The kidney tumors were by a mechanism that has no relevance in humans.

Section 4 - First Aid Measures

Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid immediately.

Skin: In case of contact, flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical aid if irritation develops and persists. Wash clothing before reuse.

Ingestion: If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical aid.

Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

Notes to Physician: Treat symptomatically and supportively. Persons with skin problems or liver, kidney, lung, or blood diseases may be at increased risk from exposure to this substance.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Water reactive. Material will react with water and may release a flammable and/or toxic gas. Forms peroxides of unknown stability. Extremely flammable liquid and vapor. Vapor may cause flash fire. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas.

Extinguishing Media: Use foam, dry chemical, or carbon dioxide. DO NOT USE WATER! Contact professional fire-fighters immediately.

Flash Point: -19 deg C (-2.20 deg F)

Autoignition Temperature: Not available.

Explosion Limits, Lower: Not available.

Upper: Not available.

NFPA Rating: (estimated) Health: 3; Flammability: 3; Instability: 2; Special Hazard: -W-

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Remove all sources of ignition. Use a spark-proof tool. Isolate area and deny entry. Provide ventilation. Do not expose spill to water. A vapor suppressing foam may be used to reduce vapors. Do not let this chemical enter the environment.

Section 7 - Handling and Storage

Handling: Remove contaminated clothing and wash before reuse. Do not allow water to get into the container because of violent reaction. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Do not breathe dust, vapor, mist, or gas. Do not get in eyes, on skin, or on clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Take precautionary measures against static discharges. Do not ingest or inhale. Use and store under nitrogen. Use only in a chemical fume hood. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Keep away from heat, sparks and flame.

Storage: Keep away from sources of ignition. Store in a cool, dry place. Store in a tightly closed container. Flammables-area. Regularly check inhibitor levels to maintain peroxide levels below 1%. Store protected from moisture. Containers should be dated when opened and tested periodically for the presence of peroxides. Should crystals form in a peroxidizable liquid, peroxidation may have occurred and the product should be considered extremely dangerous. In this instance, the container should only be opened remotely by professionals. All peroxidizable substances should be stored away from heat and light and be protected from ignition sources.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Tetrahydrofuran	50 ppm TWA; 100 ppm STEL; Skin - potential significant contribution to overall exposure by the cutaneous route	200 ppm TWA; 590 mg/m ³ TWA 2000 ppm IDLH	200 ppm TWA; 590 mg/m ³ TWA
Lithium isopropoxide	none listed	none listed	none listed

OSHA Vacated PELs: Tetrahydrofuran: 200 ppm TWA; 590 mg/m³ TWA Lithium isopropoxide: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: Wear chemical splash goggles and face shield.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Liquid

Appearance: Not available.

Odor: Not available.

pH: Not available.

Vapor Pressure: Not available.

Vapor Density: Not available.

Evaporation Rate: Not available.

Viscosity: Not available.

Boiling Point: Not available.

Freezing/Melting Point: Not available.

Decomposition Temperature: Not available.

Solubility: Reacts.

Specific Gravity/Density: 0.897

Molecular Formula: CH₃H₇LiO

Molecular Weight: 66.03

Section 10 - Stability and Reactivity

Chemical Stability: Reacts violently with water. Under normal storage conditions, peroxidizable compounds can form and accumulate peroxides which may explode when subjected to heat or shock. This material is most hazardous when peroxide levels are concentrated by distillation or evaporation. THF should never be distilled to dryness. Prolonged exposure to air, even from extended storage time, can deplete BHT inhibitor and rapidly accelerate THF-peroxide formation.

Conditions to Avoid: Incompatible materials, light, ignition sources, excess heat, exposure to moist air or water, evaporating to near dryness, confined spaces.

Incompatibilities with Other Materials: Strong oxidizing agents, strong acids, oxygen, bromine, metal halides, lithium tetrahydroaluminate, borane, sodium aluminum hydride, sodium tetrahydroaluminate, caustic alkalis.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, lithium oxide.

Hazardous Polymerization: Has not been reported

Section 11 - Toxicological Information

RTECS#:**CAS#** 109-99-9: LU5950000**CAS#** 2388-10-5 unlisted.**LD50/LC50:****CAS#** 109-99-9:

Inhalation, rat: LC50 = 21000 ppm/3H;

Oral, rat: LD50 = 1650 mg/kg;

CAS# 2388-10-5:**Carcinogenicity:****CAS#** 109-99-9:

- **ACGIH:** A3 - Confirmed animal carcinogen with unknown relevance to humans
- **California:** Not listed.
- **NTP:** Not listed.
- **IARC:** Not listed.

CAS# 2388-10-5: Not listed by ACGIH, IARC, NTP, or CA Prop 65.**Epidemiology:** No information found**Teratogenicity:** Animal data show developmental effects only at exposure levels producing other toxic effects in the adult animal.**Reproductive Effects:** Animal testing for reproductive effects shows no change in reproductive performance.**Mutagenicity:** THF has not produced genetic damage in mammalian cell cultures or in animals. It has not been tested for its ability to cause permanent genetic damage in reproductive cells of mammals (not tested for heritable genetic damage).**Neurotoxicity:** No information found**Other Studies:**

Section 12 - Ecological Information

Ecotoxicity: Fish: Fathead Minnow: LC50 = 2160 mg/L; 96 Hr; Flow through bioassay (pH 7.5) Water flea Daphnia: EC50 = 5930 mg/L; 24 Hr; Tetrahydrofuran is not expected to adsorb to suspended matter in the water based on its measured Koc values. This compound should volatilize from water surfaces. An estimated BCF value of 1 suggests that tetrahydrofuran will not bioconcentrate in aquatic organisms.**Environmental:** If released to the atmosphere, tetrahydrofuran will exist solely in the vapor phase and is degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals and nitrate radicals with half-lives of about 1 and 3 days, respectively. Measured Koc values of 23 and 18 indicate that tetrahydrofuran will have very high mobility in soil.**Physical:** No information available.**Other:** No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.**RCRA U-Series:****CAS#** 109-99-9: waste number U213 (Ignitable waste).

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	FLAMMABLE LIQUID, CORROSIVE, N.O.S.*	FLAMMABLE LIQUID, CORROSIVE, N.O.S.*
Hazard Class:	3	3
UN Number:	UN2924	UN2924
Packing Group:	II	II

Section 15 - Regulatory Information

US FEDERAL**TSCA****CAS#** 109-99-9 is listed on the TSCA inventory.**CAS#** 2388-10-5 is not listed on the TSCA inventory. It is for research and development use only.**Health & Safety Reporting List**

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules**CAS#** 109-99-9: 40 CFR 799.5000; 40 CFR 799.5115**Section 12b**

CAS# 109-99-9: Section 4

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

CAS# 109-99-9: 1000 lb final RQ; 454 kg final RQ

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 109-99-9: immediate, fire, reactive.

Section 313 No chemicals are reportable under Section 313.

Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depleters.

This material does not contain any Class 2 Ozone depleters.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances 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.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 109-99-9 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

CAS# 2388-10-5 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

F C

Risk Phrases:

R 11 Highly flammable.

R 14 Reacts violently with water.

R 19 May form explosive peroxides.

R 34 Causes burns.

Safety Phrases:

S 16 Keep away from sources of ignition - No smoking.

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

WGK (Water Danger/Protection)

CAS# 109-99-9: 1

CAS# 2388-10-5: No information available.

Canada - DSL/NDSL

CAS# 109-99-9 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of B2, F.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 109-99-9 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 8/04/2005

Revision #1 Date: 5/02/2006

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.