Lian Chemical Development Co.	Revision Date: 22/04/2023 In 6 pages	**Safety Data Sheet**	Soduim Methoxide 30% Solution in Methanol

Section 1. Identification of the Mixture and of the Company/Undertaking

Product Identifier

Product Name	Sodium Methoxide Solution
Product State	Liquid Mixture
Product Form	Sodium Methoxide Solution
Product Number	Li.SMO.01

Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

Use of the Substance or Mixture: Organic synthesis

Sodium methoxide is a routinely used base in organic chemistry, applicable to the synthesis of numerous compounds ranging from pharmaceuticals to agrichemicals. As a base, it is employed in dehydrohalogenations and various condensations. It is also a nucleophile for the production of methyl ethers.

Industrial applications

Sodium methoxide is used as an initiator of anionic addition polymerization with ethylene oxide, forming a polyether with high molecular weight. Biodiesel is prepared from vegetable oils and animal fats, that is, fatty acid triglycerides, by transesterification with methanol to give fatty acid methyl esters (FAMEs). This transformation is catalyzed by sodium methoxide

Details of the supplier of the safety data sheet

Company	Lian Chemical Development Co.
Emergency Telephone	+98 21 40882781
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Address	Bushehr Special Economic Zone , IR IRAN

Section 2. Hazards Identification

Classification (GHS-US)[1]

Flammable Liquid (Category 3), H225
Self-heating Substance and Mixture (Category 2), H251
Acute Toxicity, Oral (Category 3), H301
Acute Toxicity, Inhalation (Category 3), H331
Acute Toxicity, Dermal (Category 3), H311 Skin
Corrosion (Category 1B), H314
Specific Target Organ Toxicity-Single Exposure (Category 1),
For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS-US labeling

Hazard Pictogram (GHS-US):

Signal Word (GHS-US): Danger

Hazard Statement (GHS-US):
H226 Flammable Liquid and Vapor
H301 + H311 + H331 Toxic if Swallowed, in Contact with Skin or if Inhaled. H314 Causes Severe Skin Burns and Eye Damage
H370 Causes Damage to Organs (Eyes).

Precautionary Statements(GHS-US):
P210 Keep Away From Heat
P280 Wear Protective Gloves/ Protective Clothing/ Eye Protection/ Face Protection
P301 +P330 + P331 if Swallowed: Rinse Mouth. DO NOT Induce Vomting
P302 + P352 if ON SKIN: Wash with Plenty of Soap and Water
P304 + P340 if INHALED: Remove Victim to Fresh Air and Keep at Rest in a Position Comftable for Breathing.
P305 + P351 + P338 if IN EYES: Rinse Cautiously with Water for Several Minutes. Remove Contact Lenses, if Present and Easy to DO. Continue Rising.

1 Globally Harmonized System in USA

	P309 + P310 if Exposed or if you feel unwell: Immediately Call a Poison Center or Doctor/ Physician
Other Hazard:	Water Reactive
OSHA Hazard:	This Material is Considered Hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Section 3. Composition/ Information on Ingredient

Hazardous Ingredients

Chemical Name	Methanol	Sodium Methylate
Concentration	>=70% - <90%	>=30% - <50%
Cas-No.	57-56-1	124-41-4

Section 4. First Aid Measures

In case of doubt or when symptoms of feeling unwell persist, get medical attention. Never administer anything orally to persons who are unconscious

Eye Contact	If wearing contact lenses, remove them. Wash eyes with plenty of clean and cool water for at least 10 minutes while pulling eyelids up, and seek medical assistance
Skin Contact	Remove contaminated clothing. Wash skin vigorously with water and soap or a suitable skin cleaner. NEVER use solvents or thinners
Ingestion	If accidentally ingested, seek immediate medical attention. Keep calm. NEVER induce vomiting
Most important symptoms and effects, both acute and delayed	Corrosive Product, contact with eyes or skin can cause burns; ingestion or inhalation. can cause internal damage, if this occurs immediate medical assistance is required.
Indication of any immediate medical attention and special treatment needed	In case of doubt or when symptoms of feeling unwell persist, get medical attention. Never administer anything orally to persons who are unconscious.

Section 5. Fire Fighting Measures

Extinguishing Media

Suitable Extinguishing Media	CO_2, Dry Chemical, Foam and In case of spillage absorb with inert material (e.g. vermiculite, sand or earth).
Unsuitable Extinguishing Media	Water
Special Hazard Arising from the Substance or Mixture	Combustible. Vapors are Heavier than Air and may Spread Along Floor. Forms Explosive Mixture with Air at Elevated Temperatures. Development of Hazardous Combustion Gases or Vapors Possible in the Event of Fire. May not Get in Touch with: Water The Product Reacts with Water and Generates Heat.
Advice for FireFighting	Stay in Danger Area Only with Self-Contained Apparatus. Pevent Skin Contact by Keeping a Safe Distance or by Wearing Suitable Protective Clothing.
Further Information	Cool Closed Container Exposed to Fire With Spray. Suppress (Knock Down) Gases/ Vapors/ Mists with a Water Spray Jet. Prevent Fire Extinguishing Water from Contaminating Surface Water or Ground Water System.

Section 6. Accidental Release Measure

Personal precautions, protective equipment and emergency procedures	Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. For personal protection see section 8.
Environmental precautions	Prevent further leakage or spillage if safe to do so. Do not let product enter drains.
Methods and materials for containment and cleaning up	Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Do not flush with water.
Reference to other sections	For disposal see section 13

Section 7. Handling and Storage

Precautions for safe handling

The fumes are heavier than air and can spread across the ground. They can form explosive mixtures with air. Prevent the creation of flammable or explosive fume concentrations in the air; prevent fume concentrations above work exposure limits. The product must only be used in areas where all unprotected flames and other ignition points have been eliminated. Electrical equipment has to be protected according to applicable standards. The product can be electrostatically charged: always use earth grounds when transferring the product. Operators must use antistatic footwear and clothing, and floors must be conductors. Keep the container tightly closed and isolated from heat sources, sparks, and fire. Do not use tools that can cause sparks, material of tolls must be bronze to prevent sparking. For personal protection, see section 8. Never use pressure to empty the containers. They are not pressure-resistant containers. In the application area, smoking, eating, and drinking must be prohibited.
Follow legislation on occupational health and safety. Keep the product in containers made of a material identical to the original.

Conditions for safe storage, including any incompatibilities

Dry Keep Locked Up or in an Area Accessible Only to Qualified or Authorized Persons. Keep Away from Heat and Sources of Ignition. Keep Container Tightly Closed in a Dry and Well-Vented Place. Store at +15 °C to + 25°C (+59 °F to +77 °F).

Section 8. Exposure Controls/ Personal Protection

Control Parameter

Exposure Controls

Appropriate engineering controls

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product

Personal protective equipment

Eye/face protection

Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices.
Wash and dry hands.
The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Full contact:
Material: butyl-rubber
Minimum layer thickness: 0.3 mm
Break through time: 480 min
Material tested:Butoject® (KCL 897 / Aldrich Z677647, Size M)

Splash contact:
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 30 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

Body Protection

Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use (US) or type ABEK[1] (EN 14387) respirator cartridges as a backup to enginee protection, use a full-

1 ABEK

	face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH[1] (US) or CEN (EU).
Control of environmental exposure	Prevent further leakage or spillage if safe to do so. Do not let product enter drains

Section 9. Physical and Chemical Properties

Physical State	Liquid
Color	Colorless to Light Yellow
Odor	of Methanol
Odor Threshold	No Information Available
pH	ca. 11 at 20 g/l, 68 ˚F
Melting Point	35.6-42.8 ˚F (2-6˚C)
Boiling Point/ Boiling Range	198 ˚F (92 ˚C) at 1,013 hPa
Flash Point	91 ˚F (33 ˚C), Method: DIN 51755 Part 1
Evaporation Rate	No Information Available
Flammability (Solid, Gas)	Highly Flammable Liquid and Vapor
Molecular Weight of Sodium Methoxide	54.03 g/mol
Lower Explosion Limit	5.50-6%
Upper Explosion Limit	36.5%
Vapor Pressure	34 hPa at 68 ˚F (20 ˚C)
Relative Vapor Density	5.9 at 20 ˚C
Relative Density	94.50%
Water Solubility	at 68˚F (20˚C) (Reaction)
Partition Coefficient:n-Octanol/Water	no Information Available
Autoignition Temperature	315 ˚C
Decomposition Temperature	no Information Available
Viscosity, Dynamic	64 mPa.s at 68 ˚F (20 ˚C)
Explosive Properties	Not Classified as Explosive
Ignition Temperature	851 °F (455 °C) , Method: DIN 51794 Methanol

Section 10. Stability and Reactivity

Reactivity	Reacts Violently with Water.
Chemical Stability	Stable under nitrogen or argon in sealed containers.
Possibility of Hazardous Reaction	Neutralization can occur on contact with acids. In certain conditions this may cause a polymerization reaction. Material decomposes slowly in contact with moist air and rapidly in contact with water.
Conditions to Avoid	Heat, Sparks, Open Flame.
Incompatible Material	Acids. Alcohols. Carbon dioxide. Esters. Halogens. Ketones. Moist air. Water.
Hazardous Decomposition Products	Caustic organic vapors. Methanol. Sodium hydroxide.

Section 11. Toxicological Information

Information on toxicological effects	Repeated or prolonged contact with the product can cause the elimination of oil from the skin, giving rise to non-allergic contact dermatitis and absorption of the product through the skin. a) acute toxicity; Not conclusive data for classification b) skin corrosion/irritation; Product classified: Skin Corrosive, Category 1B: Causes severe skin burns and eye damage. c) serious eye damage/irritation;

A (Brown) Organic vappours and gases with boiling point >65C
B (Gray) Inorganic gases excluding carbon monoxide
E (Yellow) Sulphur dioxide and acidic gases
K (Green) Ammonia and organic ammonia derivatives

1 National Institute for Occuptional Safety and Health in USA

Not conclusive data for classification.
d) respiratory or skin sensitisation;
Not conclusive data for classification.
e) germ cell mutagenicity;
Not conclusive data for classification
f) carcinogenicity;
Not conclusive data for classification
g) reproductive toxicity;
Not conclusive data for classification
h) STOT-single exposure;
Based on available data, the classification criteria are not met.
i) STOT-repeated exposure;
Not conclusive data for classification
j) aspiration hazard;
Not conclusive data for classification.

Ingredients

Methanol

Acute Oral Toxicity
LDLO Human: 143 mg/kg (RTECS)
LD50 Rat: 5,628 mg/kg (IUCLID)
Acute Inhalation Toxicity
LC50 Rabbit: ca. 17,100 mg/kg (External MSDS)
Sensitization
Sensitization Test: Guinea pig
IUCLID
Germ Cell Mutagenicity
Genotoxicity in Vivo
Mutagenicity (Mammal Cell Test): Micronucleus
Result: Negative
(IUCLID)
Genotoxicity in Vivo
Ames Test
Result: Negative
(IUCLID)

Sodium Methylate

Acute Oral Toxicity
LD50 Rat: 2,037 mg/kg (RTECS)
Acute Dermal Toxicity
LD50 Rat: >2000 mg/kg (IUCILD)

Section 12. Ecological Information

Ecotoxicity No Information Vailable
Persistence and Degradability No Information Vailable
Bioaccumulative Potential No Information Vailable
Mobility in Soil No Information Vailable

Section 13. Disposal Considerations

Waste disposal recommendations Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to licensed waste disposal facility.

Additional information Handle empty containers with care because residual vapors are flammable.

Ecology - waste materials Avoid release to the environment.

Section 14. Transport Information

Transport following ADR[1] rules for road transport, RID[2] rules for railway, ADN[3] for inner waterways, IMDG[4] for sea, and ICAO/IATA[5] for air transport.

Land	Transport by road: ADR Transport by rail: RID Transport documentation: Consignment note and written instructions
Sea	Transport by ship: IMDG Transport documentation: Bill of lading
Air	Transport by plane: ICAO/IATA. Transport document: Airway bill
UN Number	UN No: UN1289
UN proper shipping name	Description: UN 1289, SODIUM METHYLATE SOLUTION, 3 (8), PG III, (D/E)
Transport hazard class(es)	Class(es): 3
Packing group	Packing group: III
Environmental hazards	Marine pollutant: No
Special precautions for user	Labels: 3, 8 Hazard number: 38ADR LQ: 5 L

Transport in bulk according to Annex II of MARPOL 73/78	The product is not transported in bulk

Section 15. Regulatory Information

Safety, health and environmental regulations/legislation specific for the mixture	The product is not affected by the Regulation (EC) No 1005/2009 of the European Parliament and of the Council of 16 September 2009 on substances that deplete the ozone layer. See annex I of the Directive 96/82/EC of 9 December 1996 on the control of major-accident hazards involving dangerous substances and the Regulation (EC) No 689/2008 of the european parliament and of the council of 17 June 2008 concerning the export and import of dangerous chemicals and its subsequent updates. Product classification according to Annex I of Directive 2012/18/EU (SEVESO III): P5b. The product is not affected by Regulation (EU) No 528/2012 concerning the making available on the market and use of biocidal products. The product is not affected by the procedure established Regulation (EU) No 649/2012, concerning the export and import of dangerous chemicals.
Chemical safety assessment	There has been no evaluation a chemical safety assessment of the product.

Section 16. Other Information

Full Text of H-Statements Referd to Under Section 2 and 3

H226	Flammable Liquid and Vapor.
H301	Toxic if Swallowed.
H311	Toxic in Contact with Skin.
H314	Causes Severe Skin Burns and Eye Damage.
H331	Toxic if Inhaled.
H370	Cause Damage to Organs.

1 European Agreement concerning the International Carriage of Dangerous Goods by Road
2 The Regulation concerning the International Carriage of Dangerous Goods by Rail
3 The European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
4 International Maritime Dangerous Goods
5 the International Civil Aviation Organization/the International Air Transport Association