

**Product:** **ZYCOTHERM LS**

SDS No.: Version 1.0

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Date 11.01.2023

## 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### 1.1. Identification of the product

**Identification of the mixture:** ZYCOTHERM LS

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

**Use of the Substance/Mixture:** Additive for addition to Bitumen modification and for Aggregate treatment.

### 1.3. Details of the supplier of the safety data sheet

Supplier Zydex Industries Private Limited  
61, Gotri Sevasi Road,  
Gotri, Vadodara, Gujarat,  
India -390 021  
Telephone: 91-265-3312000  
[www.zydexindustries.com](http://www.zydexindustries.com)

E-mail address [info@zydexindustries.com](mailto:info@zydexindustries.com)

### 1.4. Emergency telephone number

 Dr. Ajay Ranka (+91) 9825008145

## 2. HAZARDS IDENTIFICATION

### 2.1. Classification of the substance or mixture

**Classification (REGULATION (EC) No 1272/2008):**

Skin Irritation- Category 2, H 315

Eye irritation - Category 2, H319

Reproductive toxicity - Category 1B, H360D

Specific target organ toxicity – Single exposure – Category 3, Respiratory system, H335

### 2.2. Hazard Pictogram



Signal word:

**Danger**

**Label Elements**

**Product labelling according to Regulation (EC) 1272/2008 (CLP):**

Precautionary statements are listed according to the United Nations Globally Harmonized System of Classification and Labelling of Chemicals (GHS) - Annex III. Regulations in individual countries/regions may determine which statements are required on the product label. See product label for specifics.

**Hazard statements:**

H315 Causes skin irritation.  
H319 Causes serious eye irritation.  
H335 May cause respiratory irritation.  
H360D May damage the unborn child.

**Precautionary statements:**

**Prevention:**

P201 Obtain special instruction before use.  
P280 Wear eye protection/face protection.

**Response:**

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes.  
Remove contact lenses, if present and easy to do. Continue rinsing.  
P308 + P313: If exposed or concerned: Get medical advice/attention.

**Disposal:**

P501: Dispose of contents/container in accordance with local, regional and international regulations.

**2.3. Other hazards**

This substance /mixture contains no components considered to be either persistent, bio accumulative and toxic (PBT), or very persistent and very bio accumulative (vPvB) at levels of 0.1% or higher.

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**3. COMPOSITION/INFORMATION ON INGREDIENTS**

**3.1. Substance/Synonyms- Proprietary Organosilane compounds**

Component	CAS No.	Concentration (%)
Alkoxy-alkylsilyl compounds	-	54-56
N-Methyl-2-Pyrrolidone	872-50-4	44-46

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**4. FIRST AID MEASURES**

**4.1. Description of necessary first-aid measures:**

**General advice:**

Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

**Inhalation:**

Remove to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER/doctor/physician if you feel unwell.

**Skin contact:**

Remove/Take off immediately all contaminated clothing. Wash with plenty of soap and water. Immediately call a POISON CENTER or doctor/physician. Wash contaminated clothing before reuse.

**Eye contact:**

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if pain, blinking or redness persists.

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**Ingestion:**

Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

**4.2. Most important symptoms/effects, acute and delayed:**

Dizziness, Drowsiness, headache, irritation, nausea, pre-existing sensitization, skin and/or respiratory disorders or diseases may be aggravated.

**4.3. Indication of immediate medical attention and special treatment needed, if necessary**

**Treatment:** Treat symptomatically.

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**5. FIREFIGHTING MEASURES**

**5.1. Extinguishing media**

**Suitable extinguishing media** : Water fog or fine spray, dry chemical fire extinguisher. Carbon dioxide fire extinguisher. Foam. Alcohol Resistance foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

**Unsuitable extinguishing media** : Do not use direct water stream. May spread fire.

**5.2. Special hazards arising from the substance or mixture:**

Hazard Combustion products- During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon monoxide. Carbon dioxide.

**5.3. Advice for firefighters:**

**Firefighting procedures:**

Keep people away. Isolate fire & deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage.

**Special protective actions for fire-fighters:**

Wear positive –pressure self – contained breathing apparatus (SCBA) and protective firefighting clothing (includes firefighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

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**6. ACCIDENTAL RELEASE MEASURES**

**6.1. Personal precautions, protective equipment and emergency procedures:**

**General measures:**

Remove ignition sources. Use special care to avoid static electric charges. No naked lights. No smoking.

**For non-emergency personnel**

Emergency procedures: Evacuate unnecessary personnel. Stop leak without risks if possible. Avoid contact with skin, eyes and clothing. Avoid inhalation of vapors.

**For emergency responders:**

Protective equipment Equip clean-up crew with proper protection. Avoid inhalation of vapors. Avoid contact with skin and eyes.

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**For emergency procedures:**  
Ventilate area.

**6.2. Environmental precautions:**

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

**6.3. Methods and materials for containment and cleaning up:**

Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

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**7. HANDLING AND STORAGE**

**7.1. Precaution for Safer handling:**

- Use Hand gloves and Safety glass for handling spill.
- Ensure thorough ventilation of stores and work areas.
- Keep away from heat and ignition source, Keep away from sparks.
- Product reacts with moisture and generates polymeric material and alcohols.
- Wash thoroughly after handling. Use only in a well-ventilated area. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapour), and can be dangerous. Keep container tightly closed. Keep away from heat, sparks and flame. Avoid ingestion and inhalation. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.

**Conditions for safe storage, including any incompatibilities:**

Keep away from heat, sparks, and flame. Keep away from sources of ignition. Store in a tightly closed container. Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible substances. Flammables - area. Do not store near perchlorates, peroxides, chromic acid or nitric acid.

**Storage Stability:** Keep away from moisture.

**Shelf life:** 48 months

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**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**8.1. Control parameters:**

Components with workplace control parameters

**Derived No Effect Level (DNEL)**

Application Area	Exposure routes	Health effect	Value
Workers	Skin Contact	Acute systematic effects	208 mg/kg. BW/d
Workers	Inhalation	Acute systematic effects	80 mg/m <sup>3</sup>
Workers	Skin Contact	Long-term systematic effects	19.8 mg/kg. BW/d
Workers	Inhalation	Long-term systematic effects	40 mg/m <sup>3</sup>

**Predicted No Effect Concentration (PNEC)**

Component	Value
Water	5 mg/l
Soil	0.138 mg./kg.
Marine Water	0.025 mg./kg.
Fresh Water	0.25 mg./ l
Fresh Water sediment	0.805 mg./kg.
Onsite sewage treatment plant	10 mg/l

**Exposure controls:**

Personal Protective equipment	:	Avoid all unnecessary exposure.
Hand Protection	:	Wear Protective gloves.
Eye Protection	:	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR1910.133 or European Standard EN166.
Skin and body protection	:	Wear appropriate protective gloves to prevent skin exposure. Wear appropriate protective clothing to prevent skin exposure.
Respiratory protection	:	A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.
Thermal Hazard Protection	:	Not required for normal conditions of use.
Environmental exposure controls	:	Avoid release to the environment.
Other Information	:	Do not eat, drink or smoke during use.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

<b>Physical state</b>	Liquid
<b>Colour</b>	Pale Yellow to brownish Yellow
<b>Odour</b>	Slight Aromatic
<b>Odour Threshold</b>	No data available
<b>Melting point</b>	< -8°C
<b>Freezing point</b>	< -8°C
<b>Boiling point</b>	>200°C
<b>Flash point</b>	>75°C and > 250 °C [2 wt. % in Bitumen] (closed cup method)
<b>Evaporation rate</b>	No data available
<b>Partition coefficient</b>	No data available
<b>Auto ignition temperature</b>	No data available
<b>Decomposition temperature</b>	No data available
<b>Viscosity</b>	< 200 CPS (at 30±2°C)
<b>Kinematic viscosity</b>	No data available
<b>Viscosity, dynamic</b>	No data available
<b>Explosive properties</b>	Not Explosive
<b>Oxidizing properties</b>	Not Oxidizing
<b>Molecular weight</b>	N/A
<b>Flammability</b>	No data available
<b>Vapor pressure</b>	No data available
<b>Density</b>	1.035 ± 0.015 grams/cc (at 30±2°C)
<b>Relative vapor density</b>	(Air =1) >1 calculated
<b>Water solubility</b>	Water dispersible
<b>Lower explosion limit</b>	No test data available
<b>Upper explosion limit</b>	No test data available

[Note: Physical data presented above are typical values and should not be construed as a specification]

## 10. STABILITY AND REACTIVITY

**10.1. Reactivity:** It can react with Silanol and Hydroxyl group containing molecules.

**10.2. Chemical stability:** Stable under normal conditions.

**10.3. Possibility of hazardous reactions:** Under fire conditions closed containers may rupture or explode. Can form explosive mixture with air.

**10.4. Conditions to avoid:** Direct sunlight. Extremely high or low temperatures and moisture.

**10.5. Incompatible materials to avoid:** Water, Acids, oxidizing agents.

**10.6. Hazardous decomposition products:** Carbon monoxide, Carbon dioxide.

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## 11. TOXICOLOGICAL INFORMATION

### **Acute toxicity:**

#### **Oral:**

Toxicity if swallowed- LD50 >2000 mg/kg.

#### **Inhalation:**

At 150°C, the silane component is solid and has no vapor pressure, exposure to vapor is minimal due to low volatility of associated solvents.

#### **Dermal:**

Prolonged skin contact is likely to result in mild irritation. Testing was done with mice bare skin - PSI Value is 0.33 (PSI Range- 0 for no irritation and 0-2 for mild irritation).

### **Skin Irritation:**

Brief contact is essentially none irritating to skin.

### **Serious Eye damage/Eye irritation:**

May cause slight temporary eye irritation. Corneal injury is unlikely.

### **Respiratory or Skin Sensitization:**

For skin sensitization- No relevant data available

For respiratory sensitization- No relevant data available

### **Mutagenicity:**

No data available.

### **Carcinogenicity:**

Not classified

### **Reproductive Toxicity:**

No data available.

### **Specific target organ toxicity:**

#### **Single exposure**

: Based on available data, the classification criteria are not met.

#### **Repeated exposure**

: Based on available data, the classification criteria are not met.

#### **Aspiration hazard**

: Not relevant

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**12. ECOLOGICAL INFORMATION**

Chemical Name	Fish 96hr LC50	Species	Fish 96hr LC50	Species Fish
N-Methyl-2-Pyrrolidone	4000 mg/l	Other fish	>500 mg/l	Leuciscus idus (Golden Orfe)

Chemical Name	Invertebrates 24 hr EC50	Species
N-Methyl-2-Pyrrolidone	>1000 mg./l	Daphnia magna

**12.1. Persistence and degradability:** Not established.

**12.2. Bio accumulative potential:** Not established.

**12.3. Mobility in soil – Distribution among environmental compartments:** No additional information available.

**12.4. Other adverse effects:** No data available.

**13. DISPOSAL CONSIDERATIONS**

**13.1. Waste treatment methods:**

- **Waste disposal recommendations-** Dispose in a safe manner in accordance with local/national regulations. Dispose of this material and its container to hazardous or special waste collection point.
- **Additional information-** Handle empty containers with care because residual vapours are flammable.
- **Ecology-waste materials-** Hazardous waste due to toxicity. Avoid release to the environment.

**14. TRANSPORT INFORMATION**

Regulation	14.1. UN number	14.2. UN proper shipping name	14.3. Class*	Label	14.4. PG*	14.5. Environmental hazards	14.6. Special precautions for user
ADR	Not Regulated	Not dangerous goods	NA	NA	NA	Not Classified	Ensure there is adequate ventilation
ADN	Not Regulated	Not dangerous goods	NA	NA	NA	Not Classified	
RID	Not Regulated	Not dangerous goods	NA	NA	NA	Not Classified	
IATA Cargo	Not Regulated	Not dangerous goods	NA	NA	NA	Not Classified	
IATA Passenger	Not Regulated	Not dangerous goods	NA	NA	NA	Not Classified	
IMDG	Not Regulated	Not dangerous goods	NA	NA	NA	Not Classified	

**Description:**

- 14.3. Transport hazard class (es)
- 14.4. Packing group

**15. REGULATORY INFORMATION :**

- EU authorization and/or restrictions on use-** Not Applicable  
**Other EU Information – REACH Registration No.** 01-2120249977-36-0000  
**National Regulation:** No additional information  
CA Prop. 65-

Component	CAS No.	California Proposition 65	Proposition 65 NSRL	Category
N-Methyl-2 Pyrrolidone	872-50-4	Developmental	-	Developmental

- INVENTORIES:**

- EINECS** : Compliant
- TSCA** : Compliant
- ELINCS** : -
- DSL** : Compliant
- REACH EC 1907/2006 Registration** : Compliant

**16. OTHER INFORMATION**

**Full text of H, EUH-phrases referred to under sections 2 and 3**

- H315 Causes skin irritation
- H319 Causes serious eye irritation.
- H335 May cause respiratory irritation.
- H360D May damage the unborn child.

**Update:**

Safety datasheet sections which have been updated:		Type
1		
2		
3		
4		
5		

**Thesaurus:**

- vPvB : very Persistent and very Bio accumulative
- PBT : Persistent, Bio accumulative and Toxic

Zydex Industries Private Limited urges each customer or recipient of this (M) SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However no warranty express or implied is given. Regulatory requirements are subject to change and may differ between various locations.

