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

- 1) Product identifier: LAB(Linear Alkylbenzene)
- 2) Relevant identified uses of the substance or mixture and uses advised against:
  - Relevant identified uses: Intermediate, viscosity adjusters, laboratory materials
  - Uses advised against: Nothing significant to report
- 3) Manufacture/Supplier/Distributor information:
  - Manufacture information:
    - Company name: ISU CHEMICAL CO., LTD
    - Address: 108-224, Sapyeongro, Nam-gu, Ulsan, Korea
    - Emergency telephone number: Tel. +82 52 231 5587 Fax. +82 52 231 5699

## 2. HAZARD IDENTIFICATION

- 1) Hazard classification:
  - Aspiration hazard Cat.1
  - Skin corrosion / irritation Cat.2
  - Serious eye damage or eye irritants Cat.2B
- 2) Allocation label elements including precautionary statements
  - Hazard pictograms
    - 
    - 
  - Signal word
    - Danger
  - Hazard statements
    - H304: May be fatal if swallowed and enters airways
    - H315: Causes skin irritation
    - H320: Causes eye irritation
  - Precautionary statements
    - Prevention:
      - P264: Wash thoroughly after handling.
      - P280: Wear protective gloves / protective clothing / eye protection / face protection.
    - Response
      - P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
      - P302+P352: IF ON SKIN: Wash with plenty of water.
      - P305+P351+P338 : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing.
      - P321: Give first aid.
      - P331: Do NOT induce vomiting.
      - P332+P313: If skin irritation occurs: Get medical advice / attention.
      - P337+P313 : If eye irritation persists get medical advice/attention.

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- P362+P364: Take off contaminated clothing and wash before reuse.
- Storage
- P405: Store locked up.
- Disposal
- P501: Dispose of contents container according to applicable regulations.

3) Other hazards:

- NFPA Grade: Health 2, Flammability 1, Reactivity 0


### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	Common name	CAS No.	Concentration(wt%)
Benzene, alkyl(C=10-13) derivs.	C10-C13 alkylbenzene	67774-74-7	100

### 4. FIRST AID MEASURES

- 1) Following eye contact:
  - Call 911 or emergency medical service.
  - In case of contact with substance, immediately flush eyes with running water for at least 20 minutes.
- 2) Following skin contact:
  - Call a POISON CENTER or doctor/physician you feel unwell.
  - Call 911 or emergency medical service.
  - Remove and isolate contaminated clothing and shoes.
  - In case of contact with substance, immediately flush skin with running water for at least 20 minutes.
  - For minor skin contact, avoid spreading material on unaffected skin.
- 3) Following inhalation:
  - If exposed to excessive levels of dusts or fumes, remove to fresh air and get medical attention if cough or other symptoms develop.
- 4) Following ingestion:
  - Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
  - Call 911 or emergency medical service.
- 5) Advice to physician:
  - Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

### 5. FIRE FIGHTING MEASURES


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- 1) Suitable (and unsuitable) extinguishing media:
  - Use alcohol foam, carbon dioxide, or water spray when fighting fires involving this material.
  - Use dry sand or earth to smother fire.
- 2) Special hazards arising from the substance or mixture:
  - Fire may produce irritating, corrosive and/or toxic gases.
  - Containers may explode when heated.
  - Some may burn but none ignite readily.
  - Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.
- 3) Special protective equipment for firefighters:
  - Rescuers must use appropriate protective equipment.
  - Evacuate area and fight fire from a safe distance.
  - Substance may be transported hot.
  - Dike fire-control water for later disposal; do not scatter the material.
  - Move containers from fire area if you can do it without risk.
  - Fire involving Tanks: Cool containers with flooding quantities of water until well after fire is out.
  - Fire involving Tanks: Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
  - Fire involving Tanks: ALWAYS stay away from tanks engulfed in fire.

## 6. ACCIDENTAL RELEASE MEASURES

- 1) Health considerations and protective equipment:
  - Clean up spills immediately, observing precautions in Protective Equipment section.
  - Remove all ignition source
  - Stop leak if you can do it without risk.
  - Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
  - Cover with plastic sheet to prevent spreading.
  - Please note that materials and conditions to be avoided.
- 2) Environmental precautions:
  - Avoid release to the environment.
  - Prevent entry into waterways, sewers, basements or confined areas.
- 3) For cleaning up:
  - Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container.
  - Reduce airborne dust and prevent scattering by moistening with water.
  - Absorb with liquid, wash spill area with detergent and water.
  - When leaks substantially, make a ditch far away from the liquid leakage.
  - Move the leakage to a clean and dry container with a clean shovel. close the container

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- loosely and transfer it from the contaminated area.
- Small Spill: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.
- Collect spillage.

## 7. HANDLING AND STORAGE


- 1) Precautions for safe handling:
  - Follow all MSDS/label precautions even after container is emptied because they may retain product residues.
  - Please note that materials and conditions to be avoided.
  - Avoid breathing dust/fume/gas/mist/vapours/spray.
  - Use only outdoors or in a well-ventilated area.
  - Handling refer to engineering control/personal protection section.
- 2) Conditions for safe storage (including any incompatibilities):
  - Empty drums should be completely drained, properly bunged, and promptly returned to the drum reconditioners or properly placed.

## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

- 1) Chemical exposure limits, Biological exposure standard:

Components	Occupational exposure limits (Domestic)	ACGIH	Biological limit values
Benzene, alkyl (C=10-13) derivs.	No data available	No data available	No data available

- 2) Appropriate engineering controls:
  - Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.
  - If user operations generate dust, fume, or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
- 3) Personal protection equipment
  - Respiratory protection:
    - Under conditions of frequent use or heavy exposure, respiratory protection may be needed.
    - Wear breathing protection, which needs a confirmation from the Korea Occupational Safety and Health Agency.
  - Eye protection:
    - Wear suitable protective goggles and face shields.
    - Provide emergency showers and eyewash.
  - Hand protection:

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- Wear suitable protective gloves.
- Body protection:
  - Wear suitable protective clothing.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

- 1) Appearance(Physical state, color, etc): Liquid
- 2) Odor: No data available
- 3) Odor threshold: No data available
- 4) pH: No data available
- 5) Melting point/freezing point: <-39℃
- 6) Initial boiling point and boiling range: 283~ 308℃
- 7) Flash point: 145℃
- 8) Evaporation rate: No data available
- 9) Flammability(solid, gas): Not applicable
- 10) Upper/lower flammability or explosive limits: No data available
- 11) Vapour pressure: 0.013 hPa at 25℃
- 12) Solubility(ies): 0.041 mg/L in water
- 13) Vapour density: No data available
- 14) Relative density: : 0.80 – 0.90 @ 20℃
- 15) n-octanol/water partition coefficient: 7.5–9.12 at 25℃
- 16) Auto ignition temperature: 229 ℃
- 17) Decomposition temperature: No data available
- 18) Viscosity: 4.26 cSt at 40℃
- 19) Molecular weight(mass): 238–248

## 10. STABILITY AND REACTIVITY


- 1) Stability and hazardous reactivity:
  - Containers may explode when heated.
  - Some may burn but none ignite readily.
  - May cause toxic effects if inhaled.
  - Some liquids produce vapors that may cause dizziness or suffocation.
- 2) Conditions to avoid:
  - All ignition sources (heat, sparks, flames)
  - Do not expose to sunlight.
- 3) Incompatible materials:
  - Strong oxide
- 4) Hazardous decomposition products:
  - Irritating, toxic gases.

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## 11. TOXICOLOGICAL INFORMATION

- 1) Exposure route information
  - No data available
- 2) Health hazard information
  - Acute toxicity:
    - Oral: LD50 > 17,000 mg/kg (Rat, Sprague-Dawley)
    - Dermal: LD50 > 10,200 mg/kg (Rabbit, New Zealand)
    - Inhalation(Gas): No data available
    - Inhalation(Vapor): No data available
    - Inhalation(Dust, mist): LC50> 71 mg/L (Rat, Holtzman)
  - Skin corrosion/Irritation:
    - Moderate irritation (Rabbit, 3.8/8.0)
  - Serious eye damage/irritation:
    - Mild irritability (Rabbit, 20.8/110)
  - Respiratory sensitization:
    - No data available
  - Skin sensitization:
    - Not sensitising (Guinea pig, OECD TG 406)
  - Carcinogenicity:
    - Not observed(Mouse, 80 Weeks, Dodecylbenzene)
  - Germ cell mutagenicity:
    - In vivo : Negative (Chromosomal abnormality using mammalian bone marrow cells, Rat/Sprague-Dawley)
    - In vitro - Negative (Return mutation, S. typhimurium TA98, 100, 1535, 1537, metabolic activity system with or without), Negative (regardless of chromosomal abnormality, CHO cell, or metabolic activity system using mammalian culture cells)
  - Reproductive toxicity:
    - Rat, 2nd generation reproductive toxicity test results showed no reproductive / developmental toxicity due to exposure
  - Specific target organ toxicity (single exposure):
    - No significant toxic effects of the target organ due to the exposure of the substance are observed.
  - Specific target organ toxicity (repeated exposure):
    - Increased irritation and decontamination are observed, but systemic or histopathological changes caused by exposure are Not observed (Rat)
  - Aspiration hazard:
    - It may cause aspiration hazards(Viscosity is 4.26 mm<sup>2</sup>/s at 40 °C, hydrocarbon). (GLP)

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## 12. ECOLOGICAL INFORMATION

- Aquatic toxicity:
  - Fish: No toxicity observed due to exposure to the limit of acceptance(Fatead minnow, 96h)
  - Crustaceans: No toxicity observed due to exposure to the limit of acceptance(Daphnia magna, 48h)
  - Algae: No toxicity observed due to exposure to the limit of acceptance(Selenastrum capricornutum, 96h)
- Persistence and degradation: log Kow= 5.72~5.75
- Bioaccumulative potential: BCF= 35
- Mobility in soil: Koc= 22000
- Other adverse effects: No data available

## 13. DISPOSAL CONSIDERATIONS


- Disposal methods:
  - If possible, pretreated by oil/water isolation.
- Precautions (including disposal of contaminated container of package):
  - Dispose of contents/container to the waste control act.

## 14. TRANSPORT INFORMATION

- UN No.: No information on classification of hazardous materials transportation
- Proper shipping name: Not applicable
- Class or division: Not applicable
- Packing group: Not applicable
- Marine pollutant: Not applicable
- Special safety response for transportation or transportation measure: Not applicable

## 15. REGULATORY INFORMATION

- Occupational Safety and Health Act in Korea: Not applicable
- Chemicals Control Act in Korea: Not applicable
- Safety Control of Dangerous Substances Act in Korea: Class 4 Third Petroleum liquids
- Wastes Control Act in Korea: Designated waste (2000L)
- Other regulations in KOREA and Abroad regulations:
  - Other regulation (Domestic):
    - Persistent Organic Pollutants (POPs) Control Act: Not applicable
  - National regulations:
    - U.S.A. management information(OSHA regulation): Not applicable

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- U.S.A. management information(CERCLA regulation): Not applicable
- U.S.A. management information(EPCRA 302 regulation): Not applicable
- U.S.A. management information(EPCRA 304 regulation): Not applicable
- U.S.A. management information(EPCRA 313 regulation): Not applicable
- U.S.A. management information(Rotterdam Convention on Substances): Not applicable
- U.S.A. management information(Stockholm Convention on Substances): Not applicable
- U.S.A. management information(Mont- real Protocol on Substances): Not applicable
- EU Classification (Classification): Not applicable
- EU Classification (Risk Phrases): Not applicable
- EU Classification (Safety Phrases): Not applicable

## 16. OTHER INFORMATION

1) Reference:


- Korea Occupational Safety & Health Agency MSDS
- OECD SIDS
- ChemWATCH
- IUCLID
- HSDB
- IARC
- ECOTOX
- NITE
- Recommendations on the transport of dangerous goods
- NCIS
- Emergency response guide book
- ECOSAR
- QSAR
- EU RAR
- The Chemical Database
- ICSC
- RTECS
- NIOSH Pocket guide
- ESIS
- ECHA CHEM
- HPVIS

2) Print date: 1996. 07. 26

3) Number of revised/Date of last revision: 12 /2022. 01. 21

4) Other: No data available



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