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

- 1) Product identifier: HEAVY- BAB (AL- 150)
- 2) Relevant identified uses of the substance or mixture and uses advised against:
- 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. 052- 231- 5581 Fax. 052- 231- 5566

2. HAZARD IDENTIFICATION

- 1) Hazard classification: No data available
- 2) Allocation label elements including precautionary statements
 - Hazard pictograms: No data available
 - Signal word: No data available
 - Hazard statements
 - Precautionary statements
 - Prevention: No data available
 - Response: No data available
 - Storage: No data available
 - Disposal: No data available
- 3) Other hazards:
 - NFPA Grade: No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	Common name	CAS No.	Concentration(wt%)
Benzene, monoalkyl(C=10- 13) derivs., fractionation bottoms, heavy ends -	-	94094- 93- 6	100

4. FIRST AID MEASURES

- 1) Following eye contact:
 - In case of contact with material, immediately flush eyes with running water for at least 15 minutes.
 - Get medical aid immediately.
- 2) Following skin contact:

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- In case of contact with material, immediately flush skin with running water for at least 15 minutes.
 - Remove and isolate contaminated clothing and shoes.
 - Launder contaminated clothing and shoes before re- use.
 - Get medical aid immediately.
- 3) Following inhalation:
- Seek immediate medical assistance.
 - Move to fresh air.
 - Administer oxygen if breathing is difficult.
 - Give artificial respiration if victim is not breathing.
- 4) Following ingestion:
- Get medical aid immediately.
 - If unconscious but breathing, never give anything by mouth.
- 5) Advice to physician:
- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
 - Do not apply drugs of the adrenaline ephedrine group.

5. FIRE FIGHTING MEASURES

- 1) Suitable (and unsuitable) extinguishing media:
- Small fire: Dry sand, dry chemical, alcohol foam, water spray, general foam, CO2 (appropriate extinguishing agent)
 - Large fire: Water spray/fog, general foam (appropriate extinguishing agent)
 - High- pressure water (inappropriate digestive medicine)
- 2) Special hazards arising from the substance or mixture:
- Some may burn but none ignite readily.
 - Containers may explode when heated.
 - May ignite by heat, spark and flame
 - Irritable and toxic gases can be generated in case of fire
 - inhalation of substances can be harmful
 - Some liquids may cause dizziness and suffocation.
- 3) Special protective equipment for firefighters:
- Move containers from fire area if you can do it without risk.
 - Substance may be transported hot.
 - Runoff may cause pollution.
 - Dike fire- control water for later disposal; do not scatter the material.
 - Move containers from fire area if you can do it without risk.
 - Contact may cause skin and eye burns
 - Fire involving Tanks: ALWAYS stay away from tanks engulfed in fire.

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- 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.

6. ACCIDENTAL RELEASE MEASURES

- 1) Health considerations and protective equipment:
 - ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
 - Stop leak if you can do it without risk.
 - Please note that materials and conditions to be avoided.
 - Ventilate the contaminated area.
 - Do not touch or walk through spilled material.
 - Prevent dust formation.
 - Do not enter areas which have more than 23.5% oxygen in the atmosphere, without respirator or air supplied mask.
- 2) Environmental precautions:
 - Prevent entry into waterways, sewers, basements or confined areas.
- 3) For cleaning up:
 - Small Spill: Flush area with flooding quantities of water.
 - Small Spill: Absorb with earth, sand or other non- combustible material and transfer to containers for later disposal.
 - Large Spill: Dike far ahead of liquid spill for later disposal.
 - With clean shovel place material into clean, dry container and cover loosely; move containers from spill area.
 - In case of powder leakage, cover it with plastic sheet to prevent spread and keep it dry.

7. HANDLING AND STORAGE

- 1) Precautions for safe handling:
 - Pay attention to substances and conditions to avoid.
 - Wash thoroughly after handling.
 - Be careful of high temperatures.
 - Check the oxygen level before entering the site.
 - Refer to engineering management and personal protective equipment.
 - Check the oxygen level before entering the site.
- 2) Conditions for safe storage (including any incompatibilities):
 - Store in a closed container.
 - Store in a dry place. Store in a closed container.
 - Please note that materials and conditions to be avoided.

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8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

1) Chemical exposure limits, Biological exposure standard:

Components	Occupational exposure limits (Domestic)	ACGIH	Biological limit values
Benzene, monoalkyl(C=10-13) derivs., fractionation bottoms, heavy ends -	No data available	No data available	No data available

2) Appropriate engineering controls:

- Use process containment, local exhaust or other engineering controls to control air levels below exposure limits.

3) Personal protection equipment:

○ Respiratory protection:

- Wear respiratory protective equipment certified by Korea Occupational Safety & Health Agency according to the physical and chemical properties of the gas / liquid exposed.
- For gas / liquid substances the following respiratory protection is recommended: Isolated full face gas mask (for organic compounds (if acid gas, acid gas)) or Isolation type half- gas mask (for organic compound (for acid gas, acid gas)) or Direct type full face gas mask (for organic compounds (for acid gas, for acid gas)) or The half- gas mask (for organic compounds (for acid gas, for acid gas)) or Electric Gas Mask
- In case of lack of oxygen (<19.5%), wear breathing mask or self- contained breathing apparatus.

○ Eye protection:

- Wear safety goggles or breathable goggles to protect eyes from vaporous organic substances that cause eye irritation or other health hazards.
- Install an emergency washing facility (shower type) and a cleansing facility in a location easily accessible to workers.

○ Hand protection:

- Wear appropriate protective gloves by considering physical and chemical properties of chemicals.

○ Body protection:

- Wear appropriate protective gloves by considering physical and chemical properties of chemicals.

9. PHYSICAL AND CHEMICAL PROPERTIES

1) Appearance(Physical state, color, etc): Light brown liquid

2) Odor: No data available

3) Odor threshold: No data available

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- 4) pH: Not applicable
- 5) Melting point/freezing point: No data available
- 6) Initial boiling point and boiling range: 336 °C
- 7) Flash point: 172- 184 °C
- 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: 0.00062 Pa ((25°C))
- 12) Solubility(ies): 0.000202 mg/L (Calculated)
- 13) Vapour density: No data available
- 14) Relative density: 0.86 – 0.89 @ 15 °C
- 15) n- octanol/water partition coefficient: No data available
- 16) Auto ignition temperature: No data available
- 17) Decomposition temperature: No data available
- 18) Viscosity: 48 – 55 cSt at 40 °C
- 19) Molecular weight(mass): 358~ 360

10. STABILITY AND REACTIVITY

- 1) Stability and hazardous reactivity:
 - Stable under normal temperatures and pressures.
 - Containers may explode when heated.
 - Some may burn but none ignite readily.
 - Irritable and toxic gases can be generated in case of fire
 - inhalation of substances can be harmful
 - Some liquids may cause dizziness and suffocation.
- 2) Conditions to avoid:
 - Ignition source(heat, spark, flame)
- 3) Incompatible materials:
 - combustible material
 - Stimulus, toxic gas.
- 4) Hazardous decomposition products:
 - No data available

11. TOXICOLOGICAL INFORMATION

- 1) Exposure route information
 - Ability to absorb body by inhalation
 - Inhalation and absorption of the body by the fire extinguisher
 - The body can be absorbed by inhalation of aerosols through the skin and fire

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<p>extinguisher</p> <ul style="list-style-type: none"> <input type="radio"/> Ability to absorb the body by inhalation of steam <input type="radio"/> Absorbable body by inhalation, skin, and fire extinguisher <p>2) Health hazard information (Read across)</p> <ul style="list-style-type: none"> <input type="radio"/> Acute toxicity: <ul style="list-style-type: none"> - Oral: No data available - Dermal: No data available - Inhalation: No data available <input type="radio"/> Skin corrosion/Irritation: <ul style="list-style-type: none"> - No data available <input type="radio"/> Serious eye damage/irritation: <ul style="list-style-type: none"> - No data available <input type="radio"/> Respiratory sensitization: <ul style="list-style-type: none"> - No data available <input type="radio"/> Skin sensitization: <ul style="list-style-type: none"> - No data available <input type="radio"/> Carcinogenicity: <ul style="list-style-type: none"> - No data available <input type="radio"/> Germ cell mutagenicity: <ul style="list-style-type: none"> - No data available <input type="radio"/> Reproductive toxicity: <ul style="list-style-type: none"> - No data available <input type="radio"/> Specific target organ toxicity (single exposure): <ul style="list-style-type: none"> - No data available <input type="radio"/> Specific target organ toxicity (repeated exposure): <ul style="list-style-type: none"> - No data available <input type="radio"/> Aspiration hazard: <ul style="list-style-type: none"> - No data available <input type="radio"/> Other harmful effects: <ul style="list-style-type: none"> - No data available
<p>12. ECOLOGICAL INFORMATION</p>
<p>1) Aquatic toxicity:</p> <ul style="list-style-type: none"> - Fish: No data available - Crustacean: No data available - Aquatic algae: No data available <p>2) Persistence and degradation:</p> <ul style="list-style-type: none"> - Residue : No data available - Degradable : No data available

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- 3) Bioaccumulative potential:
- 4) - Concentration : No data available
- Biodegradable : No data available
- 5) Mobility in soil: 132800000
- 6) Other adverse effects: No data available

13. DISPOSAL CONSIDERATIONS

- 1) Disposal methods:
- No data available
- 2) Precautions (including disposal of contaminated container of package):
- No data available

14. TRANSPORT INFORMATION

- 1) UN No.: Not regulated
- 2) Proper shipping name: Not regulated
- 3) Class or division: Not regulated
- 4) Packing group: Not regulated
- 5) Marine pollutant: Not regulated
- 6) Special safety response for transportation or transportation measure: Not regulated

15. REGULATORY INFORMATION

- 1) Occupational Safety and Health Act in Korea: Not applicable
- 2) Chemicals Control Act in Korea: Not applicable
- 3) Safety Control of Dangerous Substances Act in Korea: Class 4 Third Petroleum liquids
- 4) Wastes Control Act in Korea: Not applicable
- 5) 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
 - 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

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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
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16. OTHER INFORMATION

<p>1) Reference:</p> <ul style="list-style-type: none"> • Korea Occupational Safety & Health Agency MSDS 2018 • OECD SIDS • ChemWATCH • IUCLID • HSDB • IARC • ECOTOX • NITE <ul style="list-style-type: none"> • 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 <p>2) Print date: 1996. 06. 29</p> <p>3) Number of revised/Date of last revision: 10 / 2021. 06. 21</p> <p>4) Other: No data available</p>
