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

- 1) Product identifier: TAB
- 2) Relevant identified uses of the substance or mixture and uses advised against:
Other (intermediate raw materials in the pigment production process)
- 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: Skin corrosion/irritation Cat.2
germ cell mutagenicity Cat.2
Aspiration hazard Cat.1
Hazards to the aquatic environment, chronic toxicity Cat.2
Flammable liquid Cat.4
- 2) Allocation label elements including precautionary statements
 - Hazard pictograms




 - Signal word
 - Danger
 - Hazard statements
 - H227: Combustible liquid
 - H304: May be fatal if swallowed and enters airways
 - H315: Causes severe skin damage
 - H361: May cause genetic defects
 - H411 : Very toxic aquatic life with long lasting effects.
 - Precautionary statements
 - Prevention
 - P201 : Obtain special instructions before use.
 - P202 : Do not handle until all safety precautions have been read and understood.
 - P210 : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 - P264 : Wash thoroughly after handling.
 - P273 : Avoid release to the environment.
 - P280 : Wear protective gloves/protective clothing and eye/face protection.
 - Response

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- P301+P310 : IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
 - P302+P352: Wash with plenty of soap and water if it gets on your skin.
 - P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing.
Rinse skin with water/ shower.
 - P308+P313 : IF exposed or concerned: Get medical advice/attention.
 - P332+P313: If skin irritation occurs, seek medical action and advice.
 - P321 : Specific treatment (see on this label).
 - P331 : Do not induce vomiting.
 - P362+P364: Take off your contaminated clothing. Wash it before using it again.
 - P370+P378: In case of fire: Use appropriate fire extinguishing agent to extinguish.
 - P391 : Collect spillage.
 - Storage
 - P403: Store in a well ventilated place.
 - P405 : Store locked up.
 - Disposal :
 - P501 : Dispose of contents/container to[in accordance with local/regional/ national/ international regulation (to be specified)].
- 3) Other hazards:
- NFPA Grade: Health 2, Flammability 3, Reactivity 0

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	Common name	CAS No.	Concentration(wt%)
Naphtha (petroleum), full-range alkylate	Naphtha (petroleum), full-range alkylate	64741-64-6	100

4. FIRST AID MEASURES

- 1) Following eye contact:
 - Get emergency medical treatment
 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- 2) Following skin contact:
 - Take off contaminated clothing and wash before reuse.
 - Remove or remove all contaminated clothing if it gets on the skin (or hair). Wash/shower your skin with water.
 - For hot product, immediately immerse in or flush the affected area with large amounts of cold water to dissipate heat.
 - Call 911 or emergency medical service.
 - Remove and isolate contaminated clothing and shoes.
- 3) Following inhalation:

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- Do NOT induce vomiting.
 - Give artificial respiration if victim is not breathing
 - Administer oxygen if breathing is difficult
 - See a medical institution (doctor) immediately.
- 4) Following ingestion:
- If this chemical has been swallowed, get medical attention immediately.
 - Wash your mouth if you swallowed it. Don't try to throw up.
- 5) Advice to physician:
- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
 - Exposures require specialized first aid with contact and medical follow-up.

5. FIRE FIGHTING MEASURES

- 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.
 - Unsuitable extinguishing media: High-pressure injection
- 2) Special hazards arising from the substance or mixture:
- During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.
 - Containers may explode when heated.
 - Some may burn but none ignite readily.
 - Contact may cause severe burns to skin and eyes.
 - Fire may produce irritating and/or toxic gases.
 - May cause toxic effects if inhaled.
 - Some liquids produce vapors that may cause dizziness or suffocation.
- 3) Special protective equipment for fire fighters:
- Rescuers should put on appropriate protective gear.
 - 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 form 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: ALWAYS stay away from tanks engulfed in fire.
 - Fire involving Tanks: Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
 - In case of tank fire, extinguish fire at maximum distance or use unmanned fire extinguishing equipment.
 - In case of a large-scale fire in a tank fire, use unmanned fire extinguishing equipment,

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and if impossible, back off and let it burn.

6. ACCIDENTAL RELEASE MEASURES

- 1) Health considerations and protective equipment:
 - Clean up spills immediately, observing precautions in Protective Equipment section.
 - Isolate hazard area.
 - Keep unnecessary and unprotected personnel from entering.
 - Do not touch or walk through spilled material.
 - Stop leak if you can do it without risk.
 - Prevent dust cloud.
 - Please note that materials and conditions to be avoided.
- 2) Environmental precautions:
 - Avoid release to the environment.
 - Runoff may cause pollution.
 - 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.
 - Absorb the liquid and scrub the area with detergent and water.
 - 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.
 - Small Spill: Absorb with earth, sand or other non-combustible material.
 - In case of powder leakage, cover it with plastic sheet to prevent spread and keep it dry.
 - Collect spillage.

7. HANDLING AND STORAGE

- 1) Precautions for safe handling:
 - Do not handle until all safety precautions have been read and understood.
 - Wash thoroughly after handling.
 - Follow all MSDS/label precautions even after container is emptied because they may retain product residues.
 - Use care in handling/storage.
 - Loosen closure cautiously before opening.
 - Avoid prolonged or repeated contact with skin.
 - Avoid breathing vapors from heated material.
 - Do not enter storage area unless adequately ventilated..
 - Please note that materials and conditions to be avoided.
 - Caution: High temperature.
- 2) Conditions for safe storage (including any incompatibilities):

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- Empty drums should be completely drained, properly bunged, and promptly returned to the drum reconditioners or properly placed.
- Store locked up.
- Please note that materials and conditions to be avoided.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

1) Chemical exposure limits, Biological exposure standard:

Components	Occupational exposure limits (Domestic)	ACGIH	Biological limit values
Naphtha (petroleum), full-range alkylate	No data available	No data available	No data available

2) Appropriate engineering controls:

- Use process isolation, local exhaust, or Do other engineering management that adjusts the air level below the exposure standard.
- Install washout and safety shower for facilities that store or use this substance.

3) Personal protection equipment

○ Respiratory protection:

- Wear respiratory protective equipment certified by the Occupational Safety and Health Agency according to the physical and chemical properties of the gas / liquid exposed [For gas / liquid substances the following respiratory protection is recommended Gas masks (for organic compounds (if acid gases are acid gases)) or sequestered Gas masks (for organic compounds (for acid gases, for acid gases)) or direct type front face type Gas masks (for organic compounds (for acid gases, acid gases)) or other masks(For organic compounds (for acid gases, for acid gases)) 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 ventilated goggles to protect your eyes from vaporized organic materials that cause eye irritation or other health problems.

○ Hand protection:

- Wear protective gloves of appropriate materials considering the physical and chemical characteristics of chemicals.

○ Body protection:

- Wear protective clothing of appropriate materials considering the physical and chemical characteristics of chemicals.

9. PHYSICAL AND CHEMICAL PROPERTIES

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- 1) Appearance(Physical state, color, etc.): Colorless, liquid.
- 2) Odor: characteristic odor
- 3) Odor threshold: No data available
- 4) pH: No data available
- 5) Melting point/freezing point: <-60℃
- 6) Initial boiling point and boiling range: 202 ~ 227℃
- 7) Flash point: 75℃
- 8) Evaporation rate: No data available
- 9) Flammability(solid, gas): Not applicable
- 10) Upper/lower flammability or explosive limits: 1.4% / 7.6%
- 11) Vapour pressure: 0.017 psia at 37.8℃(100°F)
- 12) Solubility(ies): 1-30 mg/L in water
- 13) Vapour density: > 1
- 14) Relative density: 0.8453 @ 15/4℃
- 15) n-octanol/water partition coefficient: log Pow = 1.99 ~ 18.02 (20 ℃, pH 7)
- 16) Auto ignition temperature: 280-470℃
- 17) Decomposition temperature: No data available
- 18) Viscosity: 1.46 cSt at 40℃
- 19) Molecular weight(mass): No data available

10. STABILITY AND REACTIVITY

- 1) Stability and hazardous reactivity:
 - Can decompose at high temperatures forming toxic gases.
 - Containers may explode when heated.
 - Some may burn but none ignite readily.
 - Contact may cause severe burns to skin and eyes.
 - Fire may produce irritating and/or toxic gases.
 - May cause toxic effects if inhaled.
 - Some liquids produce vapors that may cause dizziness or suffocation.
- 2) Conditions to avoid:
 - Heat, Spark, Sources of ignition
- 3) Incompatible materials:
 - Combustible substances, Reducing substance
- 4) Hazardous decomposition products:
 - Pungent and toxic gas can be formed by thermal decomposition and combustion while burning.
 - Irritating and/or toxic gas.

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11. TOXICOLOGICAL INFORMATION

- 1) Exposure route information
 - No data available
- 2) Health hazard information
 - Acute toxicity:
 - Oral: LD50 > 5,000 mg/kg (Rat, OECD TG 401, GLP)
 - Dermal: LD50 > 2,000 mg/kg (Rabbit, OECD TG 402, GLP)
 - Inhalation(mist): LC50 > 5,250 mg/m³ (OECD TG 403)
 - Skin corrosion/Irritation:
 - Irritating in rabbit (OECD TG 404)
 - Serious eye damage/irritation:
 - Not irritating in rabbit (OECD TG 405)
 - Respiratory sensitization:
 - No data available
 - Skin sensitization:
 - Not sensitising (Mouse, OECD TG 406, GLP)
 - Carcinogenicity:
 - Non-cancerous(Mouse, OECD TG 451)
 - Germ cell mutagenicity:
 - In vitro, in vivo variable origin test result negative ** EU CLP: 1B
 - Reproductive toxicity:
 - Generation 2 Reproductive Toxicity: Not observed (Rat, OECD TG 416, GLP) (NOAEC >= 20,000 mg/m³ air)
 - Developmental toxicity screen: No adverse effects observed(Rat, OECD TG 416, GLP)(NOAEL= 500 mg/kg bw/day)
 - Specific target organ toxicity (single exposure):
 - No data available
 - Specific target organ toxicity (repeated exposure):
 - No data available
 - Aspiration hazard: Cat.1
 - Kinematic viscosity: 1.46 mm²/s (at 40°C)
 - Other harmful effects: No data available

12. ECOLOGICAL INFORMATION

- 1) Aquatic toxicity:
 - Fish : LL50 = LL 50 = 8.2 ~ 10 mg/L (Pimephales promelas, 96hr, GLP)
 NOEL (96 hr) = 5.2 mg/L (mortality)
 LL50 (14 day) = 5.2 mg/L (Pimephales promelas, OECD TG 204, GLP)
 NOELR (14 day) = 2.6 mg/L

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- Invertebrate : EL 50 = 4.5 mg/L (Daphnia magna, 48hr, OECD TG 202, GLP)
NOEL (48 hr) = 0.5 mg/L (mobility)
NOELR (21 day) : 2.6 mg/L (Daphnia magna, OECD TG 202, GLP)
EL50 (21 day) : 10 mg/L (reproduction)
NOELR (21 day) : 16 mg/L (mortality)
EL50 (21 day) : > 40 mg/L (mortality)
- Algae : EL50= 3.1 mg/L (Selenastrum capricornutum, 96hr, OECD TG 201, GLP)
NOELR (72 hr) = 0.5 mg/L (growth rate)
EL50 (96 hr) = 3.7 mg/L (growth rate)
- 2) Persistence and degradation:
 - Residue : log Pow = 1.99 ~ 18.02 (20 °C, pH 7)
 - Degradable : 77.05%(28d)
- 3) Bioaccumulative potential:
 - Concentration : BCF = 0.4 ~ 71100 L / kg
 - Biodegradable : BOD= No data available
- 4) Mobility in soil: Koc = 1.71~14.70
- 5) Other adverse effects: No data available

13. DISPOSAL CONSIDERATIONS

- 1) Disposal methods:
 - After separating oil and water, incinerate the separated oil components and dispose of the remaining water at the water pollution prevention facility.
 - After treatment with evaporation and enrichment method, incinerate or stabilize the residues.
 - Refine by separating, distillation, extraction, margin, and thermal decomposition.
 - Incinerate or stabilize it.
 - Agglomeration, precipitation After treating it by means, incinerate the residues.
- 2) Precautions (including disposal of contaminated container of package):
 - Dispose of contents/container to the waste control act.

14. TRANSPORT INFORMATION

- 1) UN No : 1268
- 2) Proper shipping name : PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S.
- 3) Class or division : 3
- 4) Packing group: II
- 5) Marine pollutant: Applicable
- 6) Special safety response for transportation or transportation measure:
 - Emergency measure on fire: F-E

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- Emergency measure for leaking: S-E

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: Dangerous goods, 4th class 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): 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
 - U.S.A. management information(Mont- real Protocol on Substances): Not applicable
 - EU Classification (Classification): Asp. Tox. 1, Muta. 1B, Carc. 1B
 - EU Classification (Risk Phrases): H304, H340, H350
 - 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

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<ul style="list-style-type: none"> • ECOSAR • QSAR • EU RAR • The Chemical Database • ICSC • RTECS • NIOSH Pocket guide • ESIS • ECHA CHEM • HPVIS <p>2) Print date : 1996. 06. 25</p> <p>3) Number of revised/Date of last revision : 10 / 2022. 02. 22</p> <p>4) Other : No data available</p>
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