



Safety Data Sheet

ZIC DEXRON® HP

1. PRODUCT AND COMPANY IDENTIFICATION

A. Product name:

ZIC DEXRON® HP

B. Recommended use of the chemical and restrictions on use:

Automatic Transmission Fluid

C. Information of manufacturer, supplier:

Company:

SK Lubricants Co.,Ltd.

Address:

SK building, 26 Jongro, Jongrogu, Seoul, Korea

Emergency Telephone No:

+82-1899-1147
+82-2-2121-6605/6514

2. HAZARD IDENTIFICATION

A. GHS Classification:

This material is not considered hazardous under the OSHA Hazard Communication Standard (HazCom 2012).

B. Label element, including precautionary statements:

Symbols:

This material is not considered hazardous under the OSHA Hazard Communication Standard (HazCom 2012).

Signal word(s):

None

Hazard statement(s):

None

Precautionary statement(s):

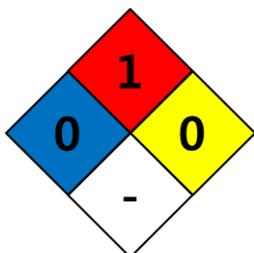
Prevention
- None

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- ☉ Response
- None
- ☉ Storage
- None
- ☉ Disposal
- None

C. Other hazards which do not result in classification;

o NFPA Code : Health:0, Flammability: 1, Reactivity: 0



0 = not significant, 1 =Slight, 2 = Moderate, 3 = High 4 = Extreme, * = Chronic

3. COMPOSITION/INFORMATION ON INGREDIENTS

<u>INGREDIENT</u>	<u>CAS No</u>	<u>CONC.(wt%)</u>	<u>EU Classification</u>
1-Decene, Dimer, Hydrogenated	68649-11-6	8.5 ~ 10.0	Acute Tox. 4, Inhalation; H332 Asp. Tox. 1; H304
1-Decene Homopolymer Hydrogenated	68037-01-4	60.0 ~ 75.0	Aquatic Chronic 4; H413
Methacrylate copolymer	Proprietary 1	3.5 ~ 5.0	Eye Irritation. 2B; H320
Long-Chain Akyl Amine	Proprietary 2	< 0.2	Acute Tox. 4, Oral; H302 Skin Corrosion. 1B; H314 Aquatic Acute 3; H402
Alkyl alkoxy amine	Proprietary 3	< 0.2	Skin Corrosion. 1B; H314 Aquatic Chronic 1; H410
Alkoxyated long-chain alkyl amine	Proprietary 4	< 0.2	Acute Tox. 4, Oral; H302 Skin Corrosion. 1B; H314 Skin Sensitation. 1; H317
Alkyl methacrylate	Proprietary 5	< 0.2	Eye Irritation. 2B; H320 Skin Corrosion. 2; H315 Skin Sensitation. 1; H317 Aquatic Chronic 1; H410

4. FIRST AID MEASURES



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A. Eye contact:

Thoroughly flush the eyes with large amounts of clean low-pressure water for at least 15 minutes, occasionally lifting the upper and lower eyelids. If irritation persists, seek medical attention.

B. Skin contact:

Remove contaminated clothing and wash skin with plenty of soap and water. Flush with plenty of water for 15 minutes. If sticky, use waterless cleaner first. Seek medical attention if ill effect or irritation develops.

C. Inhalation:

If overcome by exposure, remove person to fresh air immediately.
Give oxygen or artificial respiration as needed.
Obtain emergency medical attention. Prompt action is essential.

D. Ingestion:

Do not induce vomiting. Obtain emergency medical attention. Prompt action is essential.

E. Most important symptoms/effect, acute and delayed:

May cause slight eye and skin irritation. Not expected to be a sensitizer.

F. Indication of immediate medical attention and special treatment needed, if necessary:

Treat symptomatically. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIRE-FIGHTING MEASURES

A. Suitable extinguishing media:

SMALL FIRE: Use dry chemicals, CO₂, water spray or alcohol-resistant foam.
LARGE FIRE: Use water spray, water fog or alcohol-resistant foam

B. Specific hazards arising from the chemical:

Thermal decomposition may produce carbon monoxide and other toxic vapors.

C. Special protective equipment and precautions for firefighters:

Wear an approved positive pressure self-contained breathing apparatus and firefighter turnout gear. Heat from fire can generate flammable vapor. When mixed with air and exposed to ignition source, vapors can burn in open or explode if confined. Vapors may be heavier than air. May travel long distances along the ground before igniting and flashing back to vapor source. Fine sprays/mists may be combustible at temperatures below normal flash point. Fight fire from a safe distance/protected location. Heat may build enough pressure to rupture closed containers/spreading fire/increasing risk of burns/injuries. Use water spray/fog for cooling. Avoid frothing/steam explosion. Burning liquid may float on water. Although water soluble, may not be practical to extinguish fire by water dilution. Notify authorities immediately if liquid enters sewer/public waters.

6. ACCIDENTAL RELEASE MEASURES



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A. Personal precautions, protective equipment and emergency procedures:

Wear chemical resistant gloves such as: Butyl rubber.
Depending on the conditions of use, protective gloves, apron, boots, head and face protection should be worn.
The equipment must be cleaned thoroughly after each use.

B. Environmental precautions:

May contaminate water supplies/pollute public waters. Evacuate/limit access.
Equip responders with proper protection.
Prevent flow to sewer/public waters. Stop release. Notify fire and environmental authorities.
Restrict water use for cleanup.

C. Methods and materials for containment and cleaning up:

Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do it without risk. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material. Prevent entry into waterways, sewer, basements or confined areas. A vapor suppressing foam may be used to reduce vapors. Use clean non-sparking tools to collect absorbed material. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Large Spills: Water spray may reduce vapor but may not prevent ignition in closed spaces. Recover by pumping or with suitable absorbent

7. HANDLING AND STORAGE

A. Precautions for safe handling:

Avoid contact with skin. Use proper bonding and/or grounding procedures. Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source).

B. Conditions for safe storage. including incompatibilities:

Keep container closed. Handle containers with care. Open slowly in order to control possible pressure release. Store in a cool, well-ventilated area. Storage containers should be grounded and bonded. Drums must be grounded and bonded and equipped with self-closing valves, pressure vacuum bungs and flame arresters.

Storage Temperature: [Ambient]

Storage Pressure: [Ambient]

Suitable Containers/Packing: Barges Drums Tank Cars Tank Trucks

Suitable Materials and Coatings: Carbon Steel Stainless Steel Polyethylene Polypropylene Teflon

Unsuitable Materials and Coatings: Natural Rubber Butyl Rubber Ethylene-propylene-diene monomer (EPDM) Polystyrene

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

A. Exposure limits in the air of the workplace, biological limit values:

- <Mineral oil mist>
- o OSHA TWA: 5 mg/m³
- o ACGIH TWA: 5 mg/m³, STEL: 10 mg/m³
- o NIOSH TWA (10hr): 5mg/m³,STEL 10mg/m³

B. Appropriate engineering controls:



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The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:
Adequate ventilation should be provided so that exposure limits are not exceeded. Use explosion-proof ventilation equipment.

C. Individual protection measures:

Respiratory protection:

If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include: Half-face filter respirator

Eye protection:

Eye protection such as chemical splash goggles and/or face shield must be worn when possibility exists for eye contact due to splashing or spraying liquid, airborne particles, or vapor.

Hand protection:

Wear chemical resistant gloves such as: Butyl rubber.

Body protection:

Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:
If prolonged or repeated contact is likely, chemical, and oil resistant clothing is recommended

9. PHYSICAL AND CHEMICAL PROPERTIES

A. Appearance (physical state, colour etc):

Clear red liquid

B. Odour:

Mild petroleum odour

C. Odour threshold:

No data available.

D. pH:

Not applicable.

E. Melting point/freezing point:

No data available.

F. Initial boiling point and boiling range:

> 300°C (572°F)



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220°C (428°F) (ASTM D 92, Cleveland Open Cup)

H. Evaporation rate:

No data available.

I. Flammability(solid, gas) :

Not applicable

J. Upper/lower flammability or explosive limits:

No data available.

K. Vapour pressure:

Less than 0.1kPa at 20°C

L. Solubility(ies):

Negligible @20°C

M. Vapour density:

More than 5 (Air =1)

N. Specific gravity:

0.844 approx. @15/4°C

O. Partition coefficient: n-octanol/water:

No data available.

P. Auto-ignition temperature:

No data available.

Q. Decomposition temperature:

No data available.

R. Viscosity:

6.16 cSt @100°C, 28.85 @ 40 °C

10. STABILITY AND REACTIVITY**A. Chemical stability:**

Material is stable under normal conditions.



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B. Possibility of hazardous reactivity:

No data available.

C. Conditions to avoid:

Heat, sparks, open flame, other ignition sources, and oxidizing conditions.

D. Incompatible materials:

Strong oxidizers, Amine.

E. Hazardous decomposition products:

Carbon oxides (CO, CO₂) , Hydrogen sulfide.

11. TOXICOLOGICAL INFORMATION

A. Information on the likely routes of exposures:

Inhalation exposure:

May cause slight irritation.

Ingestion exposure:

May cause vomit, diarrhea

Skin exposure:

May cause slight skin irritation.

Eye exposure:

May cause slight eye irritation.

B. Delayed and immediate effects and also chronic effects from short and long term exposure:

Acute toxicity:

<1-DECENE, DIMER, HYDROGENATED>

Acute oral toxicity

LD 50 (Rat): > 5,000 mg/kg

Acute inhalation toxicity

LC 50 (Rat): > 1.81 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist

Method: OECD Test Guideline 403

GLP: yes

Assessment: The component/mixture is classified as acute inhalation toxicity, category 4.



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Acute dermal toxicity

LD 50 (Rabbit): > 3,000 mg/kg

Method: OECD Test Guideline 402

Assessment: No adverse effect has been observed in acute dermal toxicity tests.

<ALKOXYLATED LONG-CHAIN ALKY AMINE>

Acute oral toxicity

Assessment: The component/mixture is classified as acute oral toxicity, category 4.

Remarks: see user defined free text

Skin corrosion/irritation:

Non-irritating to the skin. Repeated or prolonged contact with the preparation may cause removal of natural fat from the skin, resulting in non-allergic contact dermatitis and absorption through the skin.

Serious eye damage/irritation:

Not expect to cause eye irritation.

Respiratory sensitization:

If the materials is misted or if vapors are generated from heating, exposure may cause irritation of mucous membranes and the upper respiratory tract.
Based on data from components or similar materials.

Skin sensitization:

Not expected to be a sensitizer.

Carcinogenicity:

IARC

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Germ cell mutagenicity:

Not classified based on available information.

Reproductive toxicity:

Not classified based on available information.

Specific target organ systemic toxicity-single exposure:

Not classified based on available information.

Specific target organ systemic toxicity-repeated exposure:

Not classified based on available information.



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○ **Aspiration hazard:**

Not classified based on available information..

C. Numerical measures of toxicity(such as acute toxicity estimate):

No data available.

12. ECOLOGICAL INFORMATION

A. Aquatic, terrestrial organisms toxicity:

<1-DECENE, DIMER, HYDROGENATED>

Toxicity to fish:

LL50 (Oncorhynchus mykiss (rainbow trout)): > 1,000 mg/l

Exposure time: 96 h

Test Type: semi-static test

Test substance: WAF

Method: OECD Test Guideline 203

GLP: yes

Toxicity to daphnia and other aquatic invertebrates

EL50 (Daphnia magna (Water flea)): > 1,000 mg/l

Exposure time: 48 h

Test Type: static test

Test substance: WAF

Method: OECD Test Guideline 202

GLP: yes

Toxicity to algae

EL50 (Scenedesmus capricornutum (fresh water algae)): > 1,000 mg/l

Exposure time: 72 h

Test Type: static test

Test substance: WAF

Method: OECD Test Guideline 201

GLP: yes

B. Persistence and degradability:

<1-DECENE, DIMER, HYDROGENATED>

Biodegradability

Result: Inherently biodegradable

Biodegradation: 15 %

Exposure time: 28 d

Method: OECD

C. Bioaccumulative potential:

Long term adverse effects to aquatic organisms are possible if continuous exposure is maintained.

D. Mobility in soil:

No data available.



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E. Other adverse effects:

No data available.

13. DISPOSAL CONSIDERATIONS**A. Disposal methods:**

Use only licensed transporters and permitted facilities for waste disposal.

B. Disposal considerations(Specify disposal container and methods):

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrosivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

14. TRANSPORT INFORMATION

Regulatory Information	UN Number	Proper shipping name	Class	Packing group	Label	Additional information
DOT Classification	Not regulated	-	-	-	-	-
TDG Classification	Not regulated	-	-	-	-	-
ADR/RID Class	Not regulated	-	-	-	-	-
IMDG Class	Not regulated	-	-	-	-	-
IATA-DGR Class	Not regulated	-	-	-	-	-
ADG Class	Not regulated	-	-	-	-	-

15. REGULATORY INFORMATION**EU REGULATIONS**

RISK PHRASES : This product is not classified according to the EU regulations.

SAFETY PHRASES : Not applicable.

ADDITIONAL WARNING PHRASES : Not applicable.

US REGULATIONS :

•No SARA 313 chemicals are present above the reporting threshold.

•SARA 311/312 No SARA Hazards

•STATE : California prop. 65 warnings are not required for this product based on the results of a risk assessment.

CANADIAN REGULATIONS

WHMIS (Classification) : Not determined.



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INTERNATIONAL INVENTORY STATUS

UNITE STATES : All components on TSCA Inventory

CANADA : All components on DSL

EUROPE : One or more components not found on EINECS

JAPAN : One or more components not found on METI

AUSTRALIA : One or more components not found on NICNAS

KOREA : All components on ECL

CHINA : All components on IECSC

PHILIPPINES : All components on PICCSA.

16. OTHER INFORMATION

A. References and sources for data:

- 1) SK Innovation R&D Center
- 2) Globally Harmonized System of classification and labelling of chemicals(GHS), First revised edition, United Nations.
- 3) United States National Library of Medicine.
- 4) EINECS (European Inventory of Existing Commercial chemical Substances)
- 5) IARC(International Agency for Research on Cancer.)
- 6) NIOSH (The National Institute for Occupational Safety and Health)
- 7) ACGIH (American Conference of Governmental Industrial Hygienists.)
- 8) IUCLID Data
- 9) ICSC (International Chemical Safety Cards)- ILO
- 10) Transport of Dangerous Goods-UN
- 11) Korea Occupational Safety & Health Agency
- 12) U.S Department of Health and Human Services.
- 13) MSDS of raw material from supplier

B. Originated date:

2014. 06. 09

C. Revision number and date:

Revision number: 1

Final revision data: 2015. 05. 04.