

SAFETY DATA SHEET

Revision date: 2021-12-20

Version: LP2004.2

1. IDENTIFICATION

- A. Product name** : ZIC X7 10W-40 (XZIC X7 10W-40)
- B. Recommended use and restriction on use**
- General use : Lubricating Oil
 - Restriction on use : Use only for lubricating oil
- C. Manufacturer / Supplier / Distributor information**
- Manufacturer information**
- **Company name**
SK Enmove Co., Ltd.
 - **Address**
26, Jong-ro, Jongno-gu, Seoul, Korea
 - **Dept.**
SK Lubricants Business
 - **Telephone number** : +82-1899-1147
 - **Emergency telephone number**
+82-1899-1147
 - **Fax number** : +82-2-2121-2601
 - **E-mail address** : jonghun.lee@sk.com
- Supplier/Distributor information**
- **Company name**
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2. HAZARD IDENTIFICATION

- A. GHS Classification**
- Not applicable
- B. GHS label elements**
- Hazard symbols**
- Not applicable
- Signal words**
- Not applicable
- Hazard statements**
- Not applicable
- Precautionary statements**
- 1) **Prevention**
 - Not applicable
 - 2) **Response**
 - Not applicable
 - 3) **Storage**
 - Not applicable
 - 4) **Disposal**
 - Not applicable

C. Other hazards which do not result in classification : (NFPA Classification)

○ NFPA grade (0 ~ 4 level)

- Health : 1, Flammability : 1, Reactivity : 0

3. COMPOSITION/INFORMATION ON INGREDIENTS

Name	Trade names and Synonyms	CAS No.	%[weight]
4-Methyl-2-pentanol hydrogen phosphorodithioate zinc salt		2215-35-2	$\geq 0.1, < 1.0$
ar-Nonyl-N-(nonylphenyl)benzenamine		36878-20-3	$\geq 1.0, < 5$
Distillates (petroleum), hydrotreated heavy paraffinic	Emulsifiable oil	64742-54-7	$\geq 89, < 99$

4. FIRST AID MEASURES

A. Eye contact

- Do not rub your eyes.
- Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.

B. Skin contact

- Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Wash contaminated clothing thoroughly before re-using.

C. Inhalation contact

- When exposed to large amounts of steam and mist, move to fresh air.
- Take specific treatment if needed.

D. Ingestion contact

- Please be advised by doctor whether induction of vomit is demanded or not.
- Rinse your mouth with water immediately.

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

- Not available

F. Notes to physician

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.

5. FIREFIGHTING MEASURES

A. Suitable (Unsuitable) extinguishing media

- Dry chemical, carbon dioxide, regular foam extinguishing agent, spray
- Avoid use of water jet for extinguishing

B. Specific hazards arising from the chemical

- Not available

C. Special protective actions for firefighters

- Cool containers with water until well after fire is out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Notify your local fire station and inform the location of the fire and characteristics hazard.
- In case of conflagration, use automatic fire sprinkler. Major fire may require withdrawal, allowing the object itself to burn.
- Avoid inhalation of materials or combustion by-products.
- Keep containers cool with water spray.
- Vapor or gas is burned at distant ignition sources can be spread quickly.

6. ACCIDENTAL RELEASE MEASURES

A. Personal precautions, protective equipment and emergency procedures

- Must work against the wind, let the upwind people to evacuate.
- Remove all sources of ignition.
- Handle the damaged containers or spilled material after wearing appropriate protective equipment
- Do not direct water at spill or source of leak.

B. Environmental precautions

- Prevent runoff and contact with waterways, drains or sewers.
- If large amounts have been spilled, inform the relevant authorities.

C. Methods and materials for containment and cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard amount
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Small leak: sand or other non-combustible material, please let use absorption.
- Wipe off the solvent.
- Dike for later disposal.

7. HANDLING AND STORAGE

A. Precautions for safe handling

- Since emptied containers retain product residue(vapor, liquid, solid) follow all MSDS and label warnings even after container is emptied.
- Do not handle until all safety precautions have been read and understood.
- Operators should wear antistatic footwear and clothing.
- Do not inhale the steam prolonged or repeated.

B. Conditions for safe storage, including any incompatibilities

- Check regularly for leaks.
- Do not use damaged containers.
- Do not apply direct heat.
- Do not apply any physical shock to container.
- Avoid direct sunlight.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

A. Exposure limits

ACGIH TLV

- [Distillates (petroleum), hydrotreated heavy paraffinic] : TWA 5 mg/m3, Inhalable particulate matter(Mineral oil, Pure, highly and severely refined)

OSHA PEL

- Not available

B. Engineering controls

- Business owner is recommended to maintain below recommended exposure limits for the working place with general exhaust of gas/vapour/mist/fume.

C. Individual protection measures, such as personal protective equipment

Respiratory protection

- Respiratory protection is ranked in order from minimum to maximum.
- Consider warning properties before use.
- Any chemical cartridge respirator with organic vapor cartridge(s).
- Any chemical cartridge respirator with a full facepiece and organic vapor cartridge(s).
- Any air-purifying respirator with a full facepiece and an organic vapor canister.
- For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full facepiece.
- Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.

Eye protection

- Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.
- Provide an emergency eye wash station and quick drench shower in the immediate work area.

Hand protection

- Wear appropriate glove.

Skin protection

- Wear appropriate clothing.

Others

- Not available

9. PHYSICAL AND CHEMICAL PROPERTIES

A. Appearance

- Appearance : Liquid
- Color : Transparent Brown

B. Odor

: Mild petroleum odor

C. Odor threshold

: Not available

D. pH	: Not available
E. Melting point/Freezing point	: Not available
F. Initial Boiling Point/Boiling Ranges	: $\geq 300^{\circ}\text{C}$
G. Flash point	: 236°C (COC)
H. Evaporation rate	: Not available
I. Flammability(solid, gas)	: Not available
J. Upper/Lower Flammability or explosive limits	: Not available
K. Vapour pressure	: ≤ 0.1 kPa (20°C)
L. Solubility	: Not available
M. Vapour density	: ≥ 5 (Air = 1)
N. Specific gravity(Relative density)	: 0.87
O. Partition coefficient of n-octanol/water	: Not available
P. Autoignition temperature	: Not available
Q. Decomposition temperature	: Not available
R. Viscosity	: 99 mm ² /s (@ 40°C)
S. Molecular weight	: Not available

10. STABILITY AND REACTIVITY

A. Chemical Stability

- This material is stable under recommended storage and handling conditions.

B. Possibility of hazardous reactions

- Hazardous Polymerization will not occur.

C. Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces

D. Incompatible materials

- Not available

E. Hazardous decomposition products

- May emit flammable vapour if involved in fire.

11. TOXICOLOGICAL INFORMATION

A. Information on the likely routes of exposure

(Respiratory tracts)

- Not available

(Oral)

- Not available

(Eye · Skin)

- Not available

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

Acute toxicity

* Oral

- Product (ATEmix) : >5000 mg/kg
- [Distillates (petroleum), hydrotreated heavy paraffinic] : LD50 > 5000 mg/kg Rat (ECHA)
- [ar-Nonyl-N-(nonylphenyl)benzenamine] : LD50 > 5000 mg/kg Rat
- [4-Methyl-2-pentanol hydrogen phosphorodithioate zinc salt] : LD50 5000 mg/kg Rat, (LD50 $2000 \sim 5000$ mg/kg Rat (male/female, GLP)(ECHA))

* Dermal

- Product (ATEmix) : 2000 mg/kg $<$ ATEmix \leq 5000 mg/kg
- [Distillates (petroleum), hydrotreated heavy paraffinic] : LD50 >5000 mg/kg Rabbit (ECHA)
- [4-Methyl-2-pentanol hydrogen phosphorodithioate zinc salt] : LD50 >3160 mg/kg Rabbit(ECHA)

* Inhalation

- Product (ATEmix) : Not available
- [Distillates (petroleum), hydrotreated heavy paraffinic] : LC50 >5.53 mg/ℓ 4 hr Rat (ECHA)
- [4-Methyl-2-pentanol hydrogen phosphorodithioate zinc salt] : dust LC50 >0.5 mg/ℓ 4 hr Rat (ECHA)

Skin corrosion/irritation

- Not available

Serious eye damage/irritation

- Not available

- Respiratory sensitization**
 - Not available
- Skin sensitization**
 - Not available
- Carcinogenicity**
 - * **IARC**
 - Not available
 - * **OSHA**
 - Not available
 - * **ACGIH**
 - Not available
 - * **NTP**
 - Not available
 - * **EU CLP**
 - [Distillates (petroleum), hydrotreated heavy paraffinic] : Carc. 1B (Note L)
 - It is not considered carcinogenic. It has been demonstrated to contain less than 3% extractables by the IP 346 test (EU CLP Note L)
- Germ cell mutagenicity**
 - Not available
- Reproductive toxicity**
 - Not available
- STOT-single exposure**
 - Not available
- STOT-repeated exposure**
 - Not available
- Aspiration hazard**
 - Not available

12. ECOLOGICAL INFORMATION

A. Ecotoxicity

- Fish**
 - [Distillates (petroleum), hydrotreated heavy paraffinic] : LC50 5000 mg/ℓ 96 hr Oncorhynchus mykiss (IUCLID)
 - [4-Methyl-2-pentanol hydrogen phosphorodithioate zinc salt] : LC50 25 mg/ℓ 96 hr Pimephales promelas (IUCLID), LC50 46 mg/ℓ 96 hr (Cyprinodon variegatus, OECD Guideline 203, GLP, read-across: 68457-79-4) (ECHA))
- Crustaceans**
 - [Distillates (petroleum), hydrotreated heavy paraffinic] : EC50 1000 mg/ℓ 48 hr Daphnia magna (IUCLID)
 - [4-Methyl-2-pentanol hydrogen phosphorodithioate zinc salt] : EC50 6 mg/ℓ 48 hr Daphnia magna (IUCLID) EL50 23mg/L, 48hr, OECD Guideline 202, GLP, read-across: 84605-29-8, ECHA)
- Algae**
 - [Distillates (petroleum), hydrotreated heavy paraffinic] : EC50 1000 mg/ℓ 96 hr Scenedesmus subspicatus (IUCLID)
 - [4-Methyl-2-pentanol hydrogen phosphorodithioate zinc salt] : EC50 5 mg/ℓ 72 hr Selenastrum capricornutum(OECD Guideline 201, GLP, read-across:84605-29-8) (IUCLID), ErC50 24 mg/ℓ 72 hr Scenedesmus subspicatus (ECHA)

B. Persistence and degradability

- Persistence**
 - [Distillates (petroleum), hydrotreated heavy paraffinic] : log Kow = 3.9 ~ 6 (Estimate)
 - [ar-Nonyl-N-(nonylphenyl)benzenamine] : log Kow 12.24 (Estimate)
 - [4-Methyl-2-pentanol hydrogen phosphorodithioate zinc salt] : log Kow 2.21 (ECHA)
- Degradability**
 - Not available

C. Bioaccumulative potential

- Bioaccumulative potential**
 - [ar-Nonyl-N-(nonylphenyl)benzenamine] : BCF 27400 (Has the potential bioaccumulation) (e-ChemPortal;CESAR)
 - [4-Methyl-2-pentanol hydrogen phosphorodithioate zinc salt] : BCF 27600 (Estimate)
- Biodegradation**

- [Distillates (petroleum), hydrotreated heavy paraffinic] : Biodegradability = 6 (%) 28 day (Aerobic, Domestic wastewater, does not decompose easily)
- [ar-Nonyl-N-(nonylphenyl)benzenamine] : 15 (%) 28 day (e-ChemPortal;CESAR)
- [4-Methyl-2-pentanol hydrogen phosphorodithioate zinc salt] : 1.5 %, 28 day (Non-degradable, OECD TG 301B, GLP, read-across: 84605-29-8) (ECHA)

D. Mobility in soil

- [ar-Nonyl-N-(nonylphenyl)benzenamine] : Koc 35900000
(Can be adsorbed in the soil, Estimates)

E. Other adverse effects

- Not available

13. DISPOSAL CONSIDERATIONS

A. Disposal methods

- Since more than two kinds of designaed waste is mixed, it is difficult to treat seperatly, then can be reduction or stabilization by incineration or similar process.
- If water separation is possible, pre-process with Water separation process.
- Dispose by incineration.

B. Special precautions for disposal

- The user of this product must dispose by oneself or entrust it to a waste disposer, a person who recycles other's waste or establishes and operates waste disposal facilities.
- Dispose of waste in accordance with all applicable laws and regulations.

14. TRANSPORT INFORMATION

A. UN No. (IMDG CODE/IATA DGR)

- Not applicable

B. Proper shipping name

- Not applicable

C. Hazard Class

- Not applicable

D. IMDG CODE/IATA DGR Packing group

- Not applicable

E. Marine pollutant

- Not applicable

F. Special precautions for user related to transport or transportation measures

- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency requirements.
- EmS FIRE SCHEDULE : Not Available
- EmS SPILLAGE SCHEDULE : Not Available
- Air transport(IATA): Not subject to IATA regulations.

15. REGULATORY INFORMATION

A. National and/or international regulatory information

POPs Management Law

- Not applicable

Information of EU Classification

* Classification

- [Distillates (petroleum), hydrotreated heavy paraffinic] : H350
It is not considered carcinogenic. it has been demonstrated to contain less than 3% extractables by the IP 346 test (EU CLP Note L)

U.S. Federal regulations

* OSHA PROCESS SAFETY (29CFR1910.119)

- Not applicable

* CERCLA Section 103 (40CFR302.4)

- Not applicable

* EPCRA Section 302 (40CFR355.30)

- Not applicable

* EPCRA Section 304 (40CFR355.40)

- Not applicable

*** EPCRA Section 313 (40CFR372.65)**

- Not applicable

Rotterdam Convention listed ingredients

- Not applicable

Stockholm Convention listed ingredients

- Not applicable

Montreal Protocol listed ingredients

- Not applicable

16. OTHER INFORMATION

A. Reference

- The information contained herein is believed to be accurate. It is provided independently of any sale of the product for purpose of hazard communication. It is not intended to constitute performance information concerning the product. No express warranty, or implied warranty of merchantability or fitness for a particular purpose is made with respect to the product or the information contained herein.

- This Safety Data Sheet was compiled with data and information from the following sources: KOSHA, NITE, ESIS, NLM, SIDS, IPCS

B. Issue date

2016-04-19

C. Revision number and Last date revised

Last date revised : 2

Revision number : 2021-12-20

D. Other

- This SDS is prepared according to the Globally Harmonized System (GHS).