

SAFETY DATA SHEET

According to OSHA Hazcom Standard 29 CFR 1910.1200

XTeer COMP-P ISO VG 68 (ENG)

Date of issue: 2016-06-22 Revision date: Not applicable Version: 2.0

1. IDENTIFICATION

A. Product name

- XTeer COMP-P ISO VG 68 (ENG)

B. Recommended use and restriction on use

- General use : Compressor Oil

- Restriction on use : Do not use for purposes other than recommended.

C. Manufacturer / Supplier / Distributor information

• Manufacturer information

- Company name : HD HYUNDAI OILBANK

- Address : 17-10, Mabuk-ro 240beon-gil, Giheung-gu, Yongin-si, Gyeonggi-do, Republic of Korea

- Emergency telephone

: 02-500-4500

number

$\circ \ Supplier/Distributer \ information$

- Company name : HD HYUNDAI OILBANK

- Address : 17-10, Mabuk-ro 240beon-gil, Giheung-gu, Yongin-si, Gyeonggi-do, Republic of Korea

- Emergency telephone

number

: 02-500-4500

2. HAZARD IDENTIFICATION

A. GHS Classification

- Acute aquatic toxicity: Category3

B. GHS label elements

• Hazard symbols

Not applicable

o Signal words

- Not applicable

o Hazard statements

- H402 Harmful to aquatic organisms.

o Precautionary statements

1) Prevention

- P273 Avoid release to the environment.

2) Response

- Not applicable

3) Storage

- Not applicable

4) Disposal

- P501 Dispose of contents/container in accordance with local/regional/national/international regulation

C. Other hazards which do not result in classification

- Not available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Trade names and Synonyms	CAS No.	Content(%)
Distillates (petroleum), hydrotreated heavy paraffinic	Emulsifiable oil	64742-54-7	99.39

Solvent naphtha (petroleum), heavy	Heavy aromatic naphtha; (Polyethyl)benzenes;	64742-94-5	0.21
arom.			V
ar-Nonyl-N- (nonylphenyl)benzenamine	DINONYL DIPHENYLAMINE	36878-20-3	0.06
2-Methylnaphthalene	2-Methylnaphthalene ; beta-Methylnaphthalene ; Naphthalene, 2-methyl- ;	91-57-6	0.06
N-Phenyl-1-naphthalamine	I-Naphthalenamine, N-phenyl-; N-1-Naphthylaniline; I-(N-Phenylamino)-naphthalene; I-Anilinonaphthalene; N-Phenyl-1-naphthalenamine; I-Naphthylphenylamine; N-(1-Naphthyl)-N-phenylamine; N-Phenyl-a-naphthylamine; N-Phenyl-1-aminonaphthalene; Phenyl-1-naphthylamine; N-Phenyl-1-naphthylamine; N-(1-Naphthyl)aniline;	90-30-2	0.05
1-Methylnaphthalene	Naphthalene, alpha-methyl-	90-12-0	0.04
(Z)-9-Octadecenoic acid reaction products with dihydro-3-(dodecenyl)- 2,5-furandione and triethylenetetramine	9-Octadecenoic acid (Z)-, reaction products with 3- (dodecenyl)dihydro-2,5-furandione and triethylenetetramine	68478-81-9	0.04
Lubricating oils (petroleum), (C=20-50) hydrotreated neutral oil-based	Not available	72623-87-1	0.04
Distillates (petroleum), solvent- dewaxed light paraffinic	Solventdewaxed light paraffinic distillate (petroleum)	64742-56-9	0.04
3-(Diisobutoxy- thiophosphorylsulfanyl)-2- methylpropionic acid	Propanoicacid, 3-[[bis(2-methylpropoxy)phosphinothioyl]thio]-2-methyl-	268567-32-4	0.02
Lubricating oils (petroleum), (C=15-30), hydrotreated neutral oil-based	Factory Supply Lubricating oils (petroleum), C15-30, hydrotreated neutral oil-based	72623-86-0	0.02
Methylbenzotriazole	1H-Benzotriazole, 6(or 7)-methyl-; 1H-Benzotriazole, 4(or 5)-methyl-; 1H-Benzotriazole, methyl-; Benzotriazole, methyl; 1H-Benzotriazole, 4(5)-methyl-; 4(or 5)-Methylbenzotriazole;	29385-43-1	0.01
Naphtha (petroleum), hydrotreated heavy	Naphtha	64742-48-9	0.01
Distillates (petroleum), hydrotreated light paraffinic	Mineral oil, petroleum distillates, hydrotreated (severe) light paraffinic	64742-55-8	0.01

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

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

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

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

B. Specific hazards arising from the chemical

- Harmful to aquatic organisms.

C. Special protective actions for firefighters

- Avoid inhalation of materials or combustion by-products.
- Cool containers with water until well after fire is out.
- Do not approach the tank surrounded by fire until it is extinguished.
- In case of conflagration, use automatic fire sprinkler. Major fire may require withdrawal, allowing the object itself to burn.
- Keep unauthorized personnel out.

6. ACCIDENTAL RELEASE MEASURES

A. Personal precautions, protective equipment and emergency procedures

- Do not touch spilled material. Stop leak if you can do it without risk.
- Handle the damaged containers or spilled material after wearing appropriate protective equipment
- Move container to safe area from the leak area.
- Must work against the wind, let the upwind people to evacuate.
- Remove all sources of ignition.

B. Environmental precautions

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

C. Methods and materials for containment and cleaning up

- Appropriate container for disposal of spilled material collected.
- Dike for later disposal.
- Disposal of waste shall be in compliance with the Wastes Control Act
- Large spill: Stay upwind and keep out of low areas. Dike for later disposal.
- Notify the central and local government if the emission reach the standard threshold.

7. HANDLING AND STORAGE

A. Precautions for safe handling

- Avoid contact with incompatible materials.
- Avoid direct physical contact.
- Comply with all applicable laws and regulations for handling
- Dealing only with a well-ventilated place.
- Do not handle until all safety precautions have been read and understood.

B. Conditions for safe storage, including any incompatibilities

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

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

A. Exposure limits

o ACGIH TLV

- [Distillates (petroleum), hydrotreated heavy paraffinic]: TWA 5 mg/m3, Inhalable particulate matter(Mineral oil, Pure, highly and severely refined)
- [2-Methylnaphthalene]: TWA, 0.5 ppm (3 mg/m3)
- [1-Methylnaphthalene]: TWA, 0.5 ppm (3 mg/m3)
- [Distillates (petroleum), solvent-dewaxed light paraffinic]: TWA 5 mg/m3, Inhalable particulate matter(Mineral oil, Pure, highly and severely refined)
- [Lubricating oils (petroleum), (C=15-30), hydrotreated neutral oil-based]: TWA 5 mg/m3, Inhalable particulate matter(Mineral oil, Pure, highly and severely refined)
- [Distillates (petroleum), hydrotreated light paraffinic]: TWA 5 mg/m3, Inhalable particulate matter(Mineral oil, Pure, highly and severely refined)

OSHA PEL

- Not applicable

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

o Respiratory protection

- Any air-purifying respirator with a full facepiece and an organic vapor canister.
- Any chemical cartridge respirator with a full facepiece and organic vaporcartridge(s).
- Any chemical cartridge respirator with organic vapor cartridge(s).
- Consider warning properties before use.
- 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.
- Respiratory protection is ranked in order from minimum to maximum.
- Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.

o Eye protection

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

o Hand protection

- Wear appropriate chemical resistant glove.

O Skin protection

- Wear appropriate chemical resistant protective clothing.

o Others

- Not available

9. PHYSICAL AND CHEMICAL PROPERTIES

A. Appearance	
- Appearance	Liquid
- Color	Amber
B. Odor	mild
C. Odor threshold	Not Available
D. pH	자료없음
E. Melting point/Freezing point	Not Available
F. Initial Boiling Point/Boiling Ranges	Not available
G. Flash point	> 200°C
H. Evaporation rate	Not Available
I. Flammability(solid, gas)	Not Available
J. Upper/Lower Flammability or explosive limits	Not Available
K. Vapour pressure	Not Available
L. Solubility	Not Available
M. Vapour density	Not Available
N. Specific gravity(Relative density)	0.864
O. Partition coefficient of n-octanol/water	Not Available
P. Autoignition temperature	Not Available
Q. Decomposition temperature	Not Available
R. Viscosity	63.13 cSt at 40°C, 8.64 cSt at 100°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: Accumulation of electrostatic charges, Heating, Flames and hot surfaces
- Avoid contact with incompatible materials and condition.

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

- o Respiratory tracts
 - Not available
- o Oral
 - Not available
- o Eye·Skin
 - Not available

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

o Acute toxicity

* Oral

- Product (ATEmix): >5000mg/kg
- [Distillates (petroleum), hydrotreated heavy paraffinic]: LD50 > 5000 mg/kg Rat (ECHA)
- [Solvent naphtha (petroleum), heavy arom.]: LD50 >5000 mg/kg Rat (Read-across 68333-23-3) (OECD TG 420, GLP) (ECHA)
- [ar-Nonyl-N-(nonylphenyl)benzenamine]: LD50 > 5000 mg/kg Rat
- [2-Methylnaphthalene]: LD50 1630 mg/kg Rat (SIDS)
- [N-Phenyl-1-naphthalamine]: LD50 1625 mg/kg Rat (NLM)
- [1-Methylnaphthalene] : LD50 1840 mg/kg Rat (NLM, HSDB)
- [Lubricating oils (petroleum), (C=20-50) hydrotreated neutral oil-based] : LD50>5000 $\,\mathrm{mg/kg}$ Rat (ECHA)
- [Distillates (petroleum), solvent-dewaxed light paraffinic] : LD50 > 5000 mg/kg Rat (ECHA)
- [3-(Diisobutoxy-thiophosphorylsulfanyl)-2-methylpropionic acid]: LD50 > 2000 mg/kg Rat (OECD Guideline 423, GLP, ECHA)
- [Lubricating oils (petroleum), (C=15-30), hydrotreated neutral oil-based]: LD50>5000 mg/kq Rat (ECHA)
- [Methylbenzotriazole]: LD50 675 mg/kg Rat (TOMES), LD50 ca. 720 mg/kg b.w Rat (OECD 401) (ECHA)
- [Naphtha (petroleum), hydrotreated heavy]: LD50 > 15000 mg/kg Rat (IUCLID)
- [Distillates (petroleum), hydrotreated light paraffinic]: LD50 > 5000 mg/kg Rat (GLP, ECHA)

* Dermal

- Product (ATEmix): >5000mg/kg
- [Distillates (petroleum), hydrotreated heavy paraffinic] : LD50 >5000 mg/kg Rabbit (ECHA)
- [Solvent naphtha (petroleum), heavy arom.] : LD50 > 2000 $\,\mathrm{mg/kg}$ Rabbit (RTECS)
- [2-Methylnaphthalene] : LD50 > 2000 mg/kg Rat (SIDS)
- [Lubricating oils (petroleum), (C=20-50) hydrotreated neutral oil-based]: LD50 >2000 mg/kg Rabbit (IUCLID)
- $[Distillates (petroleum), solvent-dewaxed light paraffinic]: \ LD50 > 2000 \ {\tt mg/kg} \ Rabbit (OECD \ Guideline \ 402 \ (Acute \ Dermal \ Toxicity), GLP) \ (EHCA)$
- $-\left[3\text{-}(\text{Diisobutoxy-thiophosphorylsulfanyl})\text{-}2\text{-methylpropionic acid}\right]: \ LD50>2000\ \text{mg/kg Rat (OECD Guideline 402, GLP, ECHA)}$
- [Lubricating oils (petroleum), (C=15-30), hydrotreated neutral oil-based] : LD50 >2000 mg/kg Rabbit (IUCLID)
- [Naphtha (petroleum), hydrotreated heavy] : LD50 > 3160 mg/kg Rabbit (IUCLID)
- [Distillates (petroleum), hydrotreated light paraffinic] : LD50 > 5000 mg/kg Rabbit (GLP, ECHA)

* Inhalation

- Product (ATEmix): Not available
- [Distillates (petroleum), nydrotreated neavy parattinic]: Aerosol LC50 > 5.55 mg/L 4 nr, Kat, Kead-across: CAS No. 64/41-88-4 (ECHA)
- [Solvent naphtha (petroleum), heavy arom.]: Vapor >5.28 mg/L 4 hr Rat No death Not classified (Read-across 8008-20-6) (OECD TG 403, GLP) (ECHA)
- [Lubricating oils (petroleum), (C=20-50) hydrotreated neutral oil-based] : Rat aerosol 4hr LC50 $2.18 \text{ mg/}\ell$ (ECHA)
- [Distillates (petroleum), solvent-dewaxed light paraffinic] : Aerosol LC50 2.18 mg/ℓ 4 hr Rat (OECD TG 403, GLP) (ECHA)
- [Lubricating oils (petroleum), (C=15-30), hydrotreated neutral oil-based] : Aerosol LC50 2.18 $\,\mathrm{mg}/\ell$ 4hr (OECD Guideline 403)
- [Distillates (petroleum), hydrotreated light paraffinic] : LC50 >5.53 $\,\text{mg}/\ell$ 4 hr Rat (ECHA)

○ Skin corrosion/irritation

- Not available
- o Serious eye damage/irritation
 - Not available
- o Respiratory sensitization
 - Not available
- o Skin sensitization
 - Not available
- o Carcinogenicity
 - * IARC
 - Not available
 - * OSHA
 - Not available
 - * ACGIH
 - [2-Methylnaphthalene]: A4[1-Methylnaphthalene]: A4
 - * NTP
 - Not available
 - * EU CLP
 - [Distillates (petroleum), hydrotreated heavy paraffinic]: Carc. 1B (Note L)
 - [Lubricating oils (petroleum), (C=20-50) hydrotreated neutral oil-based]: Carc. 1B (Note L)
 - [Distillates (petroleum), solvent-dewaxed light paraffinic]: Carc. 1B (Note L)
 - [Lubricating oils (petroleum), (C=15-30), hydrotreated neutral oil-based]: Carc. 1B (Note L)
 - [Naphtha (petroleum), hydrotreated heavy] : Carc. 1B (Note P)
 - [Distillates (petroleum), hydrotreated light paraffinic]: Carc. 1B (Note L)
- o Germ cell mutagenicity
 - Not available
- o Reproductive toxicity
 - Not available
- $\circ \ STOT\text{-single exposure}$
 - Not available
- $\circ \ \textbf{STOT-repeated exposure} \\$
 - Not available
- O Aspiration hazard
 - Not available

12. ECOLOGICAL INFORMATION

A. Ecotoxicity

- o Fish
 - $\left[Distillates \left(petroleum \right)\!, hydrotreated \ heavy \ paraffinic \right] : \ LL50 \ > 100 \ mg/L, 96 hr, Pimephales \ promelas \left(ECHA \right) \ + 100 \ mg/L, 96 hr, Pimephales \ promelas \left(ECHA \right) \ + 100 \ mg/L, 96 hr, Pimephales \ promelas \left(ECHA \right) \ + 100 \ mg/L, 96 hr, Pimephales \ promelas \left(ECHA \right) \ + 100 \ mg/L, 96 hr, Pimephales \ promelas \left(ECHA \right) \ + 100 \ mg/L, 96 hr, Pimephales \ promelas \left(ECHA \right) \ + 100 \ mg/L, 96 hr, Pimephales \ promelas \left(ECHA \right) \ + 100 \ mg/L, 96 hr, Pimephales \ promelas \left(ECHA \right) \ + 100 \ mg/L, 96 hr, Pimephales \ promelas \left(ECHA \right) \ + 100 \ mg/L, 96 hr, Pimephales \ promelas \left(ECHA \right) \ + 100 \ mg/L, 96 hr, Pimephales \ promelas \left(ECHA \right) \ + 100 \ mg/L, 96 hr, Pimephales \ promelas \left(ECHA \right) \ + 100 \ mg/L, 96 hr, Pimephales \ promelas \left(ECHA \right) \ + 100 \ mg/L, 96 hr, Pimephales \ promelas \left(ECHA \right) \ + 100 \ mg/L, 96 hr, Pimephales \ promelas \left(ECHA \right) \ + 100 \ mg/L, 96 hr, Pimephales \ promelas \left(ECHA \right) \ + 100 \ mg/L, 96 hr, Pimephales \ promelas \left(ECHA \right) \ + 100 \ mg/L, 96 hr, Pimephales \ promelas \left(ECHA \right) \ + 100 \ mg/L, 96 hr, Pimephales \ promelas \left(ECHA \right) \ + 100 \ mg/L, 96 hr, Pimephales \ promelas \left(ECHA \right) \ + 100 \ mg/L, 96 hr, Pimephales \ promelas \left(ECHA \right) \ + 100 \ mg/L, 96 hr, Pimephales \ promelas \left(ECHA \right) \ + 100 \ mg/L, 96 hr, Pimephales \ promelas \left(ECHA \right) \ + 100 \ mg/L, 96 hr, Pimephales \ promelas \left(ECHA \right) \ + 100 \ mg/L, 96 hr, Pimephales \ promelas \left(ECHA \right) \ + 100 \ mg/L, 96 hr, Pimephales \ promelas \left(ECHA \right) \ + 100 \ mg/L, 96 hr, Pimephales \ promelas \left(ECHA \right) \ + 100 \ mg/L, 96 hr, Pimephales \ promelas \left(ECHA \right) \ + 100 \ mg/L, 96 hr, Pimephales \ promelas \left(ECHA \right) \ + 100 \ mg/L, 96 hr, Pimephales \ promelas \left(ECHA \right) \ + 100 \ mg/L, 96 hr, Pimephales \ promelas \left(ECHA \right) \ + 100 \ mg/L, 96 hr, Pimephales \ promelas \left(ECHA \right) \ + 100 \ mg/L, 96 hr, Pimephales \ promelas \left(ECHA \right) \ + 100 \ mg/L, 96 hr, Pimephales \ promelas \left(ECHA \right) \ + 100 \ mg/L, 96 hr, Pimephales \ promelas \left(ECHA \right) \ +$
 - [Solvent naphtha (petroleum), heavy arom.] : LL50 2 ~ 5 mg/L 96 hr Oncorhynchus mykiss (OECD TG 203, GLP) (ECHA)
 - [2-Methylnaphthalene]: LC50 1.46 mg/ ℓ 96 hr Oncorhynchus mykiss (ECOTOX)
 - [N-Phenyl-1-naphthalamine]: LC50 0.44 mg/l 96 hr Oncorhynchus mykiss (ECHA)
 - [1-Methylnaphthalene]: LC50 9 mg/L 96 hr Pimephales promelas (ECOTOX)
 - [Lubricating oils (petroleum), (C=20-50) hydrotreated neutral oil-based]: LC50>5000 mg/l 96 hr Oncorhynchus mykiss (IUCLID)
 - [Distillates (petroleum), solvent-dewaxed light paraffinic] : LC50 5000 $\text{mg/}\ell$ 96 hr Oncorhynchus mykiss (IUCLID)
 - [3-(Dissobutoxy-thiophosphoryisultanyl)-2-methylpropionic acid]: LC50 9.6 mg/ ℓ 96 hr Other(Danio rerio) (OECD Guideline 203, GLP, FCHA)
 - [Lubricating oils (petroleum), (C=15-30), hydrotreated neutral oil-based]: LC50>5000 mg/l 96 hr Oncorhynchus mykiss (IUCLID)
 - [Methylbenzotriazole] : LC50 36.756 mg/ ℓ 96 hr (Estimate)(EPISUITE)
 - [Naphtha (petroleum), hydrotreated heavy] : $LC50 = 2200 \text{ mg/} \ell 96 \text{ hr Pimephales promelas (IUCLID)}$
 - [Distillates (petroleum), hydrotreated light paraffinic] : LC50 5000 $\,\mathrm{mg}/\ell$ 96 hr Oncorhynchus mykiss (IUCLID)

o Crustaceans

- [Distillates (petroleum), hydrotreated heavy paraffinic]: EL50 > 10000 mg/L, 48hr, Daphnia magna (ECHA)
- [Solvent naphtha (petroleum), heavy arom.]: EC50 0.95 mg/ ℓ 48 hr Daphnia magna (IUCLID)
- [2-Methylnaphthalene]: EC50 1.49 mg/ ℓ 48 hr Daphnia magna (ECOTOX)
- [N-Phenyl-1-naphthalamine]: EC50 0.58 mg/L 48hr Daphnia magna (NIER)
- [Lubricating oils (petroleum), (C=20-50) hydrotreated neutral oil-based]: EC50 > 1000 mg/ℓ 48 hr Daphnia magna (IUCLID)

- [Distillates (petroleum), solvent-dewaxed light paraffinic]: EC50 1000 mg/l 48 hr Daphnia magna (IUCLID)
- [Lubricating oils (petroleum), (C=15-30), hydrotreated neutral oil-based]: EC50 > 1000 mg/l 48 hr Daphnia magna (IUCLID)
- [Methylbenzotriazole]: LC50 158.021 mg/ ℓ 48 hr (Estimate)(EPISUITE)
- [Naphtha (petroleum), hydrotreated heavy]: LC50 = 2.6 mg/l 96 hr (Species: Chaetogammarus marinus) (IUCLID)
- [Distillates (petroleum), hydrotreated light paraffinic]: EC50 1000 mg/l 48 hr Daphnia magna (IUCLID)

O Algae

- [Distillates (petroleum), hydrotreated heavy paraffinic]: EC25 1152.9 mg/L, 96hr, Pseudokirchneriella subcapitata, NOEL >= 100 mg/L, 72hr (ECHA)
- [Solvent naphtha (petroleum), heavy arom.]: EL50 1~3 mg/L 72 hr Raphidocelis subcapitata (OECD TG 201, GLP) (ECHA)
- [N-Phenyl-1-naphthalamine]: LC50 0.93 mg/L 96hr (NIER)
- [Methylbenzotriazole]: EC50 13.795 mg/ ℓ 96 hr (Estimate)(EPISUITE)

B. Persistence and degradability

o Persistence

- [Distillates (petroleum), hydrotreated heavy paraffinic]: log Pow = 1.99 ~ 18.02 (20°C) (ECHA)
- [Solvent naphtha (petroleum), heavy arom.] : log Kow 2.9 ~ 6.1 (IUCLID)
- [ar-Nonyl-N-(nonylphenyl)benzenamine] : log Kow 12.24 (Estimate)
- [2-Methylnaphthalene]: log Kow 3.86 (UAKRON)
- [N-Phenyl-1-naphthalamine]: log Kow 4.2 (NLM)
- [1-Methylnaphthalene]: log Kow 3.87 (HSDB)
- [Lubricating oils (petroleum), (C=20-50) hydrotreated neutral oil-based]: log Kow 3.9-6 (IUCLID)
- [Distillates (petroleum), solvent-dewaxed light paraffinic] : log Kow 3.9 ~ 6 (Estimate)
- [3-(Diisobutoxy-thiophosphorylsulfanyl)-2-methylpropionic acid]: log Kow = 1.66 (ECHA)
- [Lubricating oils (petroleum), (C=15-30), hydrotreated neutral oil-based]: log Kow 3.9-6 (IUCLID)
- [Methylbenzotriazole]: log Kow 1.71 (estimate)(EPISUITE)
- [Naphtha (petroleum), hydrotreated heavy] : log Kow = $2.1 \sim 6$ (Estimate)
- [Distillates (petroleum), hydrotreated light paraffinic]: log Kow 3.9 ~ 6 (Estimate)

o Degradability

- [Distillates (petroleum), solvent-dewaxed light paraffinic]: (non-degradable, BIOWIN 1,2,5,6,7) (Estimate)

C. Bioaccumulative potential

o Bioaccumulative potential

- [Solvent naphtha (petroleum), heavy arom.]: BCF 130 ~ 159 (IUCLID)
- [ar-Nonyl-N-(nonylphenyl)benzenamine]: BCF 27400 (Has the potential bioaccumulation) (e-ChemPortal;CESAR)
- [2-Methylnaphthalene] : BCF 100 ~ 895 (OECD Screening Information Data Set)
- [N-Phenyl-1-naphthalamine]: BCF 60 (Estimate)
- [Distillates (petroleum), solvent-dewaxed light paraffinic] : BCF 5151 (L/kg wet-wt) (Estimate)
- [Methylbenzotriazole]: BCF 4.168 (Estimate)(EPISUITE)

o Biodegradation

- [Solvent naphtha (petroleum), heavy arom.] : 39 % 28 d (Aerobic, Activated Sludge, Domestic wastewater, Not readily biodegradable) (IUCLID)
- [ar-Nonyl-N-(nonylphenyl)benzenamine]: 15 (%) 28 day (e-ChemPortal;CESAR)
- [1-Methylnaphthalene]: 2 (%) 28 day (Non-biodegradability) (NITE)
- [Lubricating oils (petroleum), (C=20-50) hydrotreated neutral oil-based] : $6 \, (\%) \, 28 \, day \, (IUCLID)$
- [3-(Diisobutoxy-thiophosphoryl
sulfanyl)-2-methylpropionic acid] : 0 (%), 28 day (ECHA)
- [Lubricating oils (petroleum), (C=15-30), hydrotreated neutral oil-based]: 6 (%) 28 day (IUCLID)
- [Naphtha (petroleum), hydrotreated heavy] : Biodegradability = 10 (%) 28 day (Aerobic, Activated Sludge, Domestic wastewater, Does not decompose easily)
- [Distillates (petroleum), hydrotreated light paraffinic]: 6 (%) 28 day (Aerobic, Domestic wastewater, does not decompose easily)

D. Mobility in soil

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

E. Other adverse effects

- [Lubricating oils (petroleum), (C=20-50) hydrotreated neutral oil-based]: Fish (Pimephales promelas): 7day NOEC>5000 mg/L/ (IUCLID)
- [3-(Diisobutoxy-thiophosphorylsulfanyl)-2-methylpropionic acid]: Algae(Scenedesmus subspicatus): 72h NOEC=28 mg/L (ECHA)
- $[Lubricating \ oils \ (petroleum), \ (C=15-30), \ hydrotreated \ neutral \ oil-based]: \ Fish \ (Pimephales \ promelas): \ 7 day \ NOEC>5000 \ mg/L/ \ (IUCLID)$

- [Distillates (petroleum), hydrotreated light paraffinic]: fish: NOEC(Fathead Minnow) >5000 mg/L/7days (IUCLID)

13. DISPOSAL CONSIDERATIONS

A. Disposal methods

- It shall be treated by incineration
- Oil water separation technology shall be applied as pre-waste treatment if it is applicable
- Stabilization and minimization treatment by incineration or similar method can be applied, if more than two kinds of designated wastes are in mixture state and it is impractical to separate them

B. Special precautions for disposal

- Anyone with business license number who generates industrial wastes shall treat the waste by him/herself or by entrusting to the legal entities who treat the wastes, recycle the wastes of others or install and operate the waste treatment facilities according to the Wastes Control Act
- 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

- Air transport(IATA): Not subject to IATA regulations.
- 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

15. REGULATORY INFORMATION

A. National and/or international regulatory information

o POPs Management Law

- [Distillates (petroleum), hydrotreated heavy paraffinic]: Not applicable
- [Solvent naphtha (petroleum), heavy arom.]: Not applicable
- [ar-Nonyl-N-(nonylphenyl)benzenamine]: Not applicable
- $\hbox{-} \hbox{ $[2$-Methylnaphthalene]: Not applicable}\\$
- [N-Phenyl-1-naphthalamine] : Not applicable
- [1-Methylnaphthalene]: Not applicable
- [(Z)-9-Octadecenoic acid reaction products with dihydro-3-(dodecenyl)-2,5-furandione and triethylenetetramine]: Not applicable
- [Lubricating oils (petroleum), (C=20-50) hydrotreated neutral oil-based]: Not applicable
- [Distillates (petroleum), solvent-dewaxed light paraffinic]: Not applicable
- [3-(Diisobutoxy-thiophosphorylsulfanyl)-2-methylpropionic acid] : Not applicable
- [Lubricating oils (petroleum), (C=15-30), hydrotreated neutral oil-based]: Not applicable
- [Methylbenzotriazole] : Not applicable
- [Naphtha (petroleum), hydrotreated heavy]: Not applicable
- [Distillates (petroleum), hydrotreated light paraffinic]: Not applicable

$\circ \ Information \ of \ EU \ Classification$

* Classification

- [Distillates (petroleum), hydrotreated heavy paraffinic] : $\,H350\,$

- [Solvent naphtha (petroleum), heavy arom.]: H304
- [Lubricating oils (petroleum), (C=20-50) hydrotreated neutral oil-based]: H350
- [Distillates (petroleum), solvent-dewaxed light paraffinic]: H350
- [Lubricating oils (petroleum), (C=15-30), hydrotreated neutral oil-based]: H350
- [Naphtha (petroleum), hydrotreated heavy]: H304,H340,H350
- [Distillates (petroleum), hydrotreated light paraffinic]: H350

Output 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
- $\circ \ Rotterdam \ Convention \ listed \ ingredients$
 - Not applicable
- o Stockholm Convention listed ingredients
 - Not applicable
- o 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

- 2016-06-22

C. Revision number and Last date revised

- Not applicable

D. Other

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