SDS(Safety Data Sheet)

Product	Kixx Turbo Comp 46		
MSDS Number	List No.	Issuing date	Last revised date
-	LB3073	2012-11-30	2026-03-27

1. IDENTIFICATION

1) Product name

Kixx Turbo Comp 46

2) Recommended use of the chemical and restriction on use

- Recommended use Lubricants
- Restrictions on use Do not use for any other purpose.

3) Details of the supplier of the safety data sheet

○ **Manufacturer**

- Company name GS Caltex Corporation
- Address GS Tower, 508, Nonhyeon-ro, Gangnam-gu, Seoul, Korea
- Emergency telephone number 1544-5151

2. HAZARDS IDENTIFICATION

1) Classification of the product

- Not applicable

2) Label elements

○ **Hazard pictograms**

- Not applicable

○ **Signal word**

- Not applicable

○ **Hazard statements**

- Not applicable

○ **Precautionary statements**

1) Prevention

- Not applicable

2) Response

- Not applicable

3) Storage

- Not applicable

4) Disposal

- Not applicable

3) Other hazards

○ **Product NFPA Level**

(※ 0-Lack, 1-Low, 2-Moderate, 3-High, 4-Very High)

Product name	Health	Flammable	Reaction
Kixx Turbo Comp 46	0	1	0

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name	Trade names and Synonyms	CAS No.	EC No.	Contain Ratio(%)
Distillates (petroleum), hydrotreated heavy paraffinic	Emulsifiable oil	64742-54-7	265-157-1	99.62 ~ 99.68
1-Naphthalenamine, N-(dodecylphenyl)-		64654-05-3	265-000-7	0.09 ~ 0.15
Solvent naphtha (petroleum), heavy arom.	(Polyethyl)benzenes ;Heavy aromatic naphtha	64742-94-5	265-198-5	0.06 ~ 0.09
Trade secret				0 ~ 0.1055
2-Methylnaphthalene	beta-Methylnaphthalene ; Naphthalene, 2-methyl- ;2-Methylnaphthalene	91-57-6	202-078-3	0.03 ~ 0.06
Alkanes, (C=11-15)-iso-	C11-15-isoalkanes	90622-58-5	292-460-6	0.0275 ~ 0.03
1-Methylnaphthalene	Naphthalene, alpha-methyl-	90-12-0	201-966-8	0.018 ~ 0.03
N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine	Reomet 39	94270-86-7		0.018 ~ 0.03
2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate				0.019 ~ 0.02
N-Phenyl-1-naphthalamine	1-(N-Phenylamino)-naphthalene ; 1-Anilinonaphthalene ; 1-Naphthylphenylamine	90-30-2	201-983-0	0.006 ~ 0.018
(Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine	N-cis-Octadecenoylsarcosine; N-Oleoylsarcosine;N-OLEOYLSARCOSINE	110-25-8	203-749-3	0.006 ~ 0.018
Naphthalene	Naphthaline	91-20-3	202-049-5	0 ~ 0.0003
2-Ethylhexyl acrylate	1-Hexanol, 2-ethyl-, acrylate ; 2-Ethyl-1-hexyl acrylate ; 2-Ethylhexanol acrylate	103-11-7	203-080-7	0 ~ 0.0005
Ethyl acrylate	Ethoxycarbonylethylene ; Ethyl 2-propenoate ; Ethyl propenoate	140-88-5	205-438-8	0 ~ 0.0005
Formaldehyde	Formalin ; Methanal ; Methyl Aldehyde	50-00-0	200-001-8	0 ~ 6E-06

※ This product has less than 3% DMSO extract as measured by the IP346 method.

4. FIRST AID MEASURES

1) Eye contact

- In case of contact with material, immediately flush eyes with running water for at least 15 minutes.
- If eye irritation persists: Get medical advice/attention.

2) Skin contact

- 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.
- If skin irritation occurs: Get medical advice/attention.

3) Inhalation

- Move victim to fresh air.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.

4) Ingestion

- If unconscious but breathing, never give anything by mouth
- If swallowed do not induce vomiting, seek medical advice immediat.
- Get immediate medical advice/attention.
- Rinse mouth.

5) Indication of any immediate medical attention and special treatment needed

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

5. FIRE FIGHTING MEASURES

1) Suitable (and unsuitable) extinguishing media

- Small fire: Dry sand, dry chemical, alcohol-resistant foam, water spray, regular foam, CO2 (Suitable extinguishing media)
- Large fire: Water spray/fog, regular foam (Suitable extinguishing media)
- High-pressure water (Unsuitable extinguishing media)

2) Special hazards arising from the substance or mixture

- May be ignited by heat, sparks or flames.
- Fire may produce irritating and/or toxic gases.
- May cause toxic effects if inhaled.

3) Special protective equipment and precautions for firefighters

- Substance may be transported hot.
- Runoff may cause pollution.
- Contact may cause burns to skin and eyes.
- Dike fire-control water for later disposal; do not scatter the material.
- Move containers from 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: Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.

- Fire involving Tanks: ALWAYS stay away from tanks engulfed in fire.

6. ACCIDENTAL RELEASE MEASURES

1) Health considerations and protective equipment

- Do not touch or walk through spilled material.
- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- Ventilate the contaminated area.
- Stop leak if you can do it without risk.
- Prevent dust cloud.
- Please note that materials and conditions to be avoided.

2) Environmental precautions

- Prevent entry into waterways, sewers, basements or confined areas.

3) Methods and material for containment and cleaning up

- Small Spill: Flush area with flooding quantities of 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.
- Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry.
- Small Spill: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.

7. HANDLING AND STORAGE

1) Precautions for safe handling

- Wash ... thoroughly after handling.
- Please note that materials and conditions to be avoided.
- Handling refer to engineering control/personal protection section.
- Cuation: High temperature

2) Conditions for safe storage (including any incompatibilities)

- Store in a dry place. Store in a closed container.
- Please note that materials and conditions to be avoided.
- Store in a closed container.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

1) Control parameters

Chemical name	Exposure limits	ACGIH TLV	OSHA PEL	Biological limit values(BLV)

Distillates (petroleum), hydrotreated heavy paraffinic	TWA : 0.8 mg/m3	TWA 5 mg/m3, Inhalable particulate matter(Mineral oil, Pure, highly and severely refined)	Not available	Not available
1-Naphthalenamine, N-(dodecylphenyl)-	Not available	Not available	Not available	Not available
Solvent naphtha (petroleum), heavy arom.	TWA : 0.8 mg/m3	Not available	Not available	Not available
Trade secret	Not available	Not available	Not available	Not available
2-Methylnaphthalene	Not available	TWA, 0.5 ppm (3 mg/m3)	Not available	Not available
Alkanes, (C=11-15)-iso-	Not available	Not available	Not available	Not available
1-Methylnaphthalene	Not available	TWA, 0.5 ppm (3 mg/m3)	Not available	Not available
N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine	Not available	Not available	Not available	Not available
2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate	Not available	Not available	Not available	Not available
N-Phenyl-1-naphthalamine	Not available	Not available	Not available	Not available
(Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine	Not available	Not available	Not available	Not available
Naphthalene	TWA : 0.2 mg/m3 STEL : 15 ppm	TWA, 10 ppm (52 mg/m3)	PEL: 10 ppm, 50 mg/m3 mg/m3	Not available
2-Ethylhexyl acrylate	Not available	Not available	Not available	Not available
Ethyl acrylate	TWA : 5 ppm	TWA, 5 ppm (21 mg/m3) STEL, 15 ppm (61 mg/m3)	PEL: 25 ppm, 100 mg/m3 mg/m3	Not available
Formaldehyde	TWA : 0.3 ppm	TWA 0.1 ppm, STEL 0.3 ppm	Not available	Not available

2) Appropriate engineering controls

- Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.
- Adjust the ventilation rate to suit the condition.

3) Personal protection equipment

○ **Respiratory protection** - Wear a adequate respiratory protection equipment with certificate by considering physicochemical properties of exposured particulate material.

- In case exposured to particulate material, the respiratory protective equipments as follow are recommended. - facepiece filtering respirator or air-putifying respirator, high-efficiency particulate air(HEPA) filter media or resporator equipped with power

- In lack of oxigan(<19.6%), wear the supplied-air respiratior or self-contained breathing apparatus.
- Consider the warning characteristics beforehand.

○ **Eye protection**

- Wear breathable safety goggles to protect from material causing eye irritation or other disorder.
- An eye wash unit and safety shower station should be available nearby work place.
- In case of direct exposure or potential exposure to the substance, wear safety glasses for chemicals approved in the country.

○ **Hand protection**

- Wear appropriate protective gloves by considering physical and chemical properties of chemicals.
- In case of direct exposure or potential exposure to the substance, wear safety gloves for chemicals approved in the country.

○ **Body protection**

- Wear appropriate protective clothing by considering physical and chemical properties of chemicals.
- In case of direct exposure or potential exposure to the substance, wear protective clothing for chemicals approved in the country.

9. PHYSICAL AND CHEMICAL PROPERTIES

Item	Input Value
Apperance	Liquid
Color	No Data
Smell	No Data
Smell Threshold	No Data
pH (Numerical value)	No Data
Melting/Freezing Point	No Data
Boilling Point	No Data
Flash Point	226 ℃
Evaporating Rate	No Data
Flammability(Solid, Gas)	No Data
Explosibility Range	No Data
Steam Pressure	No Data
Solubility	No Data
Vapor Density	No Data
Specific Gravity	0.85
Distribution Coefficient	No Data
SelfIgnition Temperature	No Data

Pyrolysis Temperature	No Data
Viscosity	46 mm2/s (at 40℃)
Molecular Weight	No Data

10. STABILITY AND REACTIVITY

1) Chemical Stability and hazardous reactivity
- Stable under normal temperatures and pressures.
- Containers may explode when heated.
- Some may burn but none ignite readily.

2) Conditions to avoid
- Ignition source(heat, spark, flame)

3) Incompatible materials
- Combustibles
- Irritating and/or toxic gas

4) Hazardous decomposition products
- Not available

11. TOXICOLOGICAL INFORMATION

1) Information on the likely routes of exposures

○ **Inhalation**

- No inhalation effects through respiratory system.

○ **Skin contact**

- No effect on skin contact.

○ **Eye contact**

- No effect on eye contact.

○ **Ingestion**

- No ingestion effect through mouth.

2) Health hazard information

○ **Acute toxicity**

*** Oral - Not classified (ATEmix > 2000 mg/kg)**

- Distillates (petroleum), hydrotreated heavy paraffinic : rat(male/female), LD50 > 5,000 mg/kg bw, no deaths (read-across: 64742-56-9) (OECD TG 401, GLP) (ECHA)
- 1-Naphthalenamine, N-(dodecylphenyl)- : rat; LD50 > 2000 mg/kg bw, no deaths (OECD TG 420, GLP) (ECHA)
- Solvent naphtha (petroleum), heavy arom. : rat(male/female); LD50 > 5000 mg/kg bw, no deaths (OECD TG 420, GLP) (read across: 68333-23-3) (ECHA)
- Trade secret : Not available
- 2-Methylnaphthalene : rat; LD50 = 1630 mg/kg bw (HSDB)
- Alkanes, (C=11-15)-iso- : rat; LD50 > 5000 mg/kg (OECD TG 401) (SIDS)
- 1-Methylnaphthalene : Rat; LD50 = 1840 mg/kg (HSDB)
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : Not available
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not available
- N-Phenyl-1-naphthalamine : rat(male); LD50 = 1625 mg/kg (OECD TG 401) (ECHA)

- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : Not available
- Naphthalene : Mouse(Female); LD50 = 710 mg/kg (OECD TG 401)(ECHA)
- 2-Ethylhexyl acrylate : rat; LD50 = ca. 4435 mg/kg (equivalent or similar to guideline OECD TG 401) (ECHA)
- Ethyl acrylate : rat(male); LD50 = 1120 ㎎/㎏ bw (ECHA)
- Formaldehyde : rat; LD50 = 100 mg/kg bw (HSDB)

*** Dermal - Not classified (ATEmix > 2000 mg/kg)**

- Distillates (petroleum), hydrotreated heavy paraffinic : rabbit(male/female), LD50 > 5,000 mg/kg bw, no deaths (read-across: 64742-56-9) (OECD TG 402, GLP) (ECHA)
- 1-Naphthalenamine, N-(dodecylphenyl)- : rat; LD50 > 2000 mg/kg bw, no deaths (OECD TG 402, GLP) (ECHA)
- Solvent naphtha (petroleum), heavy arom. : rabbit(male/female); LD50 > 2000 ㎎/㎏ bw, no deaths (OECD TG 402, GLP) (read across: 68333-23-3) (ECHA)
- Trade secret : Not available
- 2-Methylnaphthalene : rat; LD50 > 2000 ㎎/㎏ bw (OECD TG 402) (OECD SIDS)
- Alkanes, (C=11-15)-iso- : rabbit or rat; LD50 > 2000 mg/kg (OECD TG 402) (SIDS)
- 1-Methylnaphthalene : Not available
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : Not available
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not available
- N-Phenyl-1-naphthalamine : rabbit(male); LD50 > 5000 mg/kg (OECD TG 402) (ECHA)
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : Not available
- Naphthalene : Rat(Female/Male); LD50 > 2500 mg/kg; No deaths (ECHA)
- 2-Ethylhexyl acrylate : rabbit; LD50 = 7522 mg/kg (ECHA)
- Ethyl acrylate : rat(male); LD50 = 3049 ㎎/㎏ bw (GLP) (ECHA)
- Formaldehyde : rabbit; LD50 = 270 mg/kg bw (EHC)

*** Inhalation(Gas) - Not applicable**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Naphthalenamine, N-(dodecylphenyl)- : Not applicable
- Solvent naphtha (petroleum), heavy arom. : Not applicable
- Trade secret : Not available
- 2-Methylnaphthalene : Not applicable
- Alkanes, (C=11-15)-iso- : Not applicable
- 1-Methylnaphthalene : Not applicable
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : Not applicable
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not available
- N-Phenyl-1-naphthalamine : Not applicable
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : Not applicable
- Naphthalene : Not applicable
- 2-Ethylhexyl acrylate : Not applicable
- Ethyl acrylate : Not applicable
- Formaldehyde : rat; inhalation: vapour; LC50 < 463 ppm/4h, All animals died on study day 1 or 2. (OECD TG 403, GLP) (ECHA)

*** Inhalation(Vapour) - Not classified (ATEmix > 20 mg/L)**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not available
- 1-Naphthalenamine, N-(dodecylphenyl)- : Not available
- Solvent naphtha (petroleum), heavy arom. : rat(male/female); inhalation: vapour; LC50 > 5.28 mg/L air /4h,

no deaths (OECD TG 403, GLP) (read across: 8008-20-6) (ECHA)

- Trade secret : Not available
- 2-Methylnaphthalene : Not available
- Alkanes, (C=11-15)-iso- : LC50 = 23.775 mg/L air /4h (OECD TG 403) (SIDS)
- 1-Methylnaphthalene : Not available
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : Not available
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not available
- N-Phenyl-1-naphthalamine : Not available
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : Not available
- Naphthalene : Rat(Female/Male); inhalation: Vapours, LC50 > 0.4 mg/L 4h; No deaths (OECD TG 403, GLP) (ECHA)
- 2-Ethylhexyl acrylate : rat(male/female); inhalation: vapour; 8h-LC50 > 1.19 mg/L, no deaths (equivalent or similar to guideline OECD TG 403) (ECHA)
- Ethyl acrylate : rat(male/female); inhalation: vapour; LC50 < 9.137 mg/L air/4h (OECD TG 403, GLP) (ECHA)
- Formaldehyde : Not applicable

*** Inhalation(Dust, mist) - Not classified (ATEmix > 5 mg/L)**

- Distillates (petroleum), hydrotreated heavy paraffinic : inhalation: aerosol; rat(male/female); 4h-LC50 > 5.53 mg/L. No deaths (read-across: MRD-87-102) (OECD TG 403)(ECHA)
- 1-Naphthalenamine, N-(dodecylphenyl)- : Not available
- Solvent naphtha (petroleum), heavy arom. : Not available
- Trade secret : Not available
- 2-Methylnaphthalene : Not available
- Alkanes, (C=11-15)-iso- : Not available
- 1-Methylnaphthalene : Not available
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : Not available
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not available
- N-Phenyl-1-naphthalamine : Not available
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : Not available
- Naphthalene : Not available
- 2-Ethylhexyl acrylate : Not available
- Ethyl acrylate : Not available
- Formaldehyde : Not applicable

○ **Skin corrosion/Irritation : Not classified**

- Distillates (petroleum), hydrotreated heavy paraffinic	:	Solvent dewaxed light paraffinic oil is not considered to be irritating to the skin of rabbits. (read across : 64742-56-9) (GLP) (ECHA)
- 1-Naphthalenamine, N-(dodecylphenyl)-	:	rabbit; not irritating (OECD TG 404, GLP) (ECHA)
- Solvent naphtha (petroleum), heavy arom.	:	rabbit; not irritating (EPA OTS 798.4470, GLP) (read across: low viscosity liquid hydrocarbon) (ECHA)
- Trade secret	:	Not available
- 2-Methylnaphthalene	:	The only reported effects of methylated naphthalene in man are skin irritation. (HSDB)
- Alkanes, (C=11-15)-iso-	:	Not available

- 1-Methylnaphthalene : A skin irritant (HSDB)
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : Not available
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not available
- N-Phenyl-1-naphthalamine : rabbit; not irritating (OECD TG 404) (ECHA)
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : Not available
- Naphthalene : Rabbit; not irritating (Code of Federal Regulation, Title 16, Section 1500.41) (ECHA)
- 2-Ethylhexyl acrylate : rabbit; irritating (ECHA)
- Ethyl acrylate : rabbit; irritating (OECD TG 404, GLP) (ECHA)
- Formaldehyde : rabbit; A solution of 40% formalin induced full thickness necrosis in 2 rabbits after 20 h occlusive exposure. (OECD TG 404) (ECHA)

○ **Serious eye damage/irritation : Not classified**

- Distillates (petroleum), hydrotreated heavy paraffinic : Solvent dewaxed light paraffinic oil is not considered to be an ocular irritant. (read-aross: 64742-56-9) (equivalent or similar to guideline OECD TG 405, GLP) (ECHA)
- 1-Naphthalenamine, N-(dodecylphenyl)- : rabbit; not irritating (OECD TG 405, GLP) (ECHA)
- Solvent naphtha (petroleum), heavy arom. : rabbit; not irritating (EPA OTS 798.4500, GLP) (read across: 68333-23-3) (ECHA)
- Trade secret : Not available
- 2-Methylnaphthalene : Not available
- Alkanes, (C=11-15)-iso- : The members of the C9-C14 aliphatic (<2% aromatics) category produced minimal to slight eye irritation when tested in rabbits. (SIDS)
- 1-Methylnaphthalene : Liquid causes irritation of the eyes. (HSDB)
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : Not available
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not available
- N-Phenyl-1-naphthalamine : rabbit; not irritating (OECD TG 405) (ECHA)
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : Not available
- Naphthalene : Rabbit; not irritating (Code of Federal Regulations, Title 16, Section 1500.42) (ECHA)
- 2-Ethylhexyl acrylate : rabbit; non irritating (OECD TG 405, GLP) (ECHA)
- Ethyl acrylate : rabbit; irritating (ECHA)

- Formaldehyde : rabbit; corrosive (ECHA)

○ **Respiratory sensitization : Not classified**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not available
- 1-Naphthalenamine, N-(dodecylphenyl)- : Not available
- Solvent naphtha (petroleum), heavy arom. : Not available
- Trade secret : Not available
- 2-Methylnaphthalene : Not available
- Alkanes, (C=11-15)-iso- : Not available
- 1-Methylnaphthalene : Not available
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : Not available
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not available
- N-Phenyl-1-naphthalamine : Not available
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : Not available
- Naphthalene : Not available
- 2-Ethylhexyl acrylate : Not available
- Ethyl acrylate : Not available
- Formaldehyde : Specialized studies with experimental animals did not provide evidence for a formaldehyde-induced respiratory allergy. In general, the results in human studies did not provide clear evidence for a formaldehyde-induced respiratory allergy. Reported symptoms in case reports might also be related to irritant effects. (ECHA)

○ **Skin sensitization : Not classified**

- Distillates (petroleum), hydrotreated heavy paraffinic : Under the conditions of the test, Solvent dewaxed light paraffinic oil is considered non-sensitizing for guinea-pigs. (read-aross: 64742-56-9) (OECD TG 406, GLP) (ECHA)
- 1-Naphthalenamine, N-(dodecylphenyl)- : The test material produced a 25% (5/20) sensitisation rate to guinea pig skin. (OECD TG 406, GLP) (ECHA)
- Solvent naphtha (petroleum), heavy arom. : guinea pig; not sensitising (OECD TG 406, GLP) (read across: 68333-23-3) (ECHA)
- Trade secret : Not available
- 2-Methylnaphthalene : Not available
- Alkanes, (C=11-15)-iso- : The C9-C14 aliphatic (≤2% aromatics) Category members do not cause skin sensitization. (SIDS)

- 1-Methylnaphthalene : Not available
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : Not available
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not available
- N-Phenyl-1-naphthalamine : guinea pig; sensitising (90 % of the animals were sensitized under the experimental conditions employed.) (OECD TG 406) (ECHA)
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : Not available
- Naphthalene : guinea pig; Not sensitizing (OECD TG 406) (ECHA)
- 2-Ethylhexyl acrylate : mouse; sensitising (EC3 value of 9.7 %w/v) (OECD TG 429, GLP) (ECHA)
- Ethyl acrylate : mouse; sensitising (OECD TG 429, GLP) (ECHA)
- Formaldehyde : mouse; sensitising (OECD TG 429) (ECHA)

○ **Carcinogenicity : Not classified**

- Distillates (petroleum), hydrotreated heavy paraffinic : EU CLP 1272/2008 : Carc. 1B (Note L : The classification as a carcinogen need not apply if it can be shown that the substance contains less than 3% DMSO extract as measured by IP 346)
- 1-Naphthalenamine, N-(dodecylphenyl)- : IARC, EU CLP 1272/2008, OSHA, ACGIH, US EPA IRIS, NTP : not listed
- Solvent naphtha (petroleum), heavy arom. : IARC, EU CLP 1272/2008, OSHA, ACGIH, US EPA IRIS, NTP : not listed
- Trade secret : Not available
- 2-Methylnaphthalene : ACGIH : A4 (Not Classifiable as a Human Carcinogen)
- Alkanes, (C=11-15)-iso- : IARC, EU CLP 1272/2008, OSHA, ACGIH, US EPA IRIS, NTP : not listed
- 1-Methylnaphthalene : IARC, EU CLP 1272/2008, OSHA, ACGIH, US EPA IRIS, NTP : not listed
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : IARC, EU CLP 1272/2008, OSHA, ACGIH, US EPA IRIS, NTP : not listed
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not available
- N-Phenyl-1-naphthalamine : IARC, EU CLP 1272/2008, OSHA, ACGIH, US EPA IRIS, NTP : not listed
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : IARC, EU CLP 1272/2008, OSHA, ACGIH, US EPA IRIS, NTP : not listed
- Naphthalene : IARC : Group 2B
  ACGIH: A3
  EU CLP 1272/2008 : Car. 2
  Under the conditions of this 2-year inhalation study, there was clear evidence of carcinogenic activity of naphthalene in male and female F344/N rats based on increased incidences of respiratory epithelial adenoma and olfactory epithelial

neuroblastoma of the nose. In male and female rats, exposure to naphthalene caused significant increases in the incidences of non-neoplastic lesions of the nose. (ECHA)

- 2-Ethylhexyl acrylate : IARC : Group 2B (Possibly Carcinogenic to Humans)
- Ethyl acrylate : IARC : Group 2B (Possibly Carcinogenic to Humans)
  ACGIH : A4 (Not Classifiable as a Human Carcinogen)
- Formaldehyde : IARC : Group 1 (Carcinogenic to Humans)
  ACGIH : A1 (Confirmed Human Carcinogen)
  NTP : Known Human Carcinogen
  US EPA IRIS : B1 (Probable human carcinogen)
  EU CLP : Carc. 1B
  Formaldehyde has local carcinogenic activity in experimental animals; there is evidence for a threshold effect for tumors involving cytotoxicity and regenerative cell proliferation as the mode of action.
  There is no evidence for systemic or local carcinogenic effects after oral exposure in rats. In dermal initiation/promotion studies formaldehyde did not initiate or promote skin tumorigenesis in mice. There is clear evidence from chronic inhalation studies in rats that formaldehyde causes tumors in the nasal cavity.
  The results from epidemiological studies are highly contested but may suggest an increased risk of cancer only at two tumor sites: nasopharyngeal cancers (NPCs) and leukaemias. (ECHA)

○ **Germ cell mutagenicity : Not classified**

- Distillates (petroleum), hydrotreated heavy paraffinic : In vitro bacterial reverse mutation assay: negative (equivalent or similar to guideline OECD TG 471) (ECHA)
  In vitro mammalian chromosome aberration test: negative (read-aross : 64742-53-6) (equivalent or similar to guideline OECD TG 473, GLP) (ECHA)
  In vivo micronucleus assay : negative (read-across : 64741-62-4, 64741-53-3) (equivalent or similar to guideline OECD TG 474) (ECHA)
- 1-Naphthalenamine, N-(dodecylphenyl)- : In vitro bacterial reverse mutation assay : negative (OECD TG 471, GLP) (ECHA)
  In vitro Mammalian Chromosome Aberration Test : negative (OECD TG 473, GLP) (ECHA)
  in vitro mammalian cell gene mutation tests using the thymidine kinase gene : positive with metabolic activation, ambiguous without metabolic activation (OECD TG 490, GLP) (ECHA)
  In vivo micronucleus assay : negative (OECD TG 474, GLP) (ECHA)
- Solvent naphtha (petroleum), heavy arom. : In vitro Bacterial Reverse Mutation Assay : negative (OECD TG 471) (read across: 8008-20-6) (ECHA), In Vitro Sister Chromatid Exchange Assay in Mammalian Cells : negative (OECD TG 479, GLP) (read across: 64742-81-0) (ECHA)
  In vivo sister chromatid exchange assay : negative (female) / positive (male) (OECD TG 479, GLP) (ECHA), In vivo Mammalian Bone Marrow Chromosome Aberration Test : negative (OECD TG 475, GLP) (read across: 64742-81-0) (ECHA)
- Trade secret : Not available
- 2-Methylnaphthalene : in vitro bacterial reverse mutation assay : negative (OECD SIDS)
  In Vitro Mammalian Chromosome Aberration Test : negative (OECD SIDS)

In vivo : not available

- Alkanes, (C=11-15)-iso- : Members of the C9-C14 Aliphatic [< 2% Aromatic] Hydrocarbon Solvents Category have shown no mutagenic activity in a number of in vitro bacterial, mammalian cell mutagenicity tests and were not active when tested in in vitro tests for chromosome aberration and sister chromatic exchange. These substances were not genotoxic when tested under in vivo conditions in bone marrow assays for chromosome damage and in dominant lethal tests. (SIDS)
- 1-Methylnaphthalene : Not available
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : Not available
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not available
- N-Phenyl-1-naphthalamine : In vitro bacterial reverse mutation assay : negative (OECD TG 471) (ECHA), In Vitro Mammalian Chromosome Aberration Test : negative (OECD TG 473) (ECHA), In Vitro Mammalian Cell Gene Mutation Test : negative (OECD TG 476) (ECHA)
  In vivo rodent dominant lethal assay : negative (OECD TG 478) (ECHA)
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : Not available
- Naphthalene : In vitro bacterial reverse mutation assay: negative (OECD TG 471) (ECHA); in vitro Mammalian Cell Chromosome Aberration Test: positive (with metabolic activation) and negative (without metabolic activation) (OECD TG 473, GLP) (ECHA); in vitro Human lymphoblastoid cell eukaryotic gene mutation assay: negative (ECHA)
  In vivo mouse Micronucleus test: negative (EPA OPP 84-2, GLP) (ECHA); in vivo Rat Liver cells Unscheduled DNA Synthesis (UDS) test: negative (OECD TG 486, GLP) (ECHA)
- 2-Ethylhexyl acrylate : In vitro bacterial reverse mutation assay : negative (ECHA)
  In vivo unscheduled DNA synthesis : negative (OECD TG 486, GLP) (ECHA)
- Ethyl acrylate : In vitro bacterial reverse mutation assay; negative (OECD TG 471) (ECHA)
  In vivo Mammalian Erythrocyte Micronucleus Test : negative (OECD TG 474) (ECHA)
- Formaldehyde : EU CLP : Muta. 2
  In vitro comet assay : positive (ECHA), sister chromatid exchange assay in mammalian cells : positive (ECHA)
  In vivo DNA damage and/or repair : positive (ECHA), In vivo chromosome aberration assay : negative (ECHA)

○ **Reproductive toxicity : Not classified**

- Distillates (petroleum), hydrotreated heavy paraffinic : rat; screening for reproductive / developmental toxicity; Reproductive performance was not adversely affected at any dose level evaluated. There were no neonatal toxicity observed at any dose level. There were no differences in terms of systemic toxicity between either of the dose formulations. (read-aross :

Chevron 100 Neutral) (OECD TG 421, GLP) (ECHA)

- 1-Naphthalenamine, N-(dodecylphenyl)- : rat; screening for reproductive / developmental toxicity; Reproductive effects observed:no (OECD TG 421, GLP) (ECHA)
- Solvent naphtha (petroleum), heavy arom. : rat(male/female); One-Generation Reproduction Toxicity Study; The study LOAEL for systemic effects is 1500 mg/kg/day and the NOAEL for systemic effects is 750 mg/kg/day, based on reduced body weight in dams and in pups. The LOAEL for adult males rats exposed to JP-8 orally was 750 mg/kg/day due to changes in clinical pathology, body weight, organ weights and the same irritation seen in female rats. The reproduction NOAEL was 3000 and 1500 mg/kg/day in males and females, respectively. (OECD TG 415, GLP) (read across: JP-8 jet fuel) (ECHA)
  rat; It can be concluded that the test substance is not toxic to development. (OECD TG 414) (read across: JP-8 jet fuel) (ECHA)
- Trade secret : Not available
- 2-Methylnaphthalene : There is no standard study for reproductive toxicity. The only available information comes from histopathological
  investigations of reproductive tissues in repeated dose toxicity. No adverse histopathological changes in gonads were
  observed in repeated dose dietary study (81 weeks) at the highest dose tested (113.8 mg/kg/day and 107.6 mg/kg/day in
  male and female mice, respectively) in mice. (OECD SIDS)
  rat and rabbit; developmental toxicity; Based on the studies conducted with naphthalene, 2-methyl naphthalene is not predicted to be a developmental toxicant. Additional studies on the developmental toxicity are not considered to be necessary due to low exposure. (read across : naphthalene) (OECD SIDS)
- Alkanes, (C=11-15)-iso- : Not available
- 1-Methylnaphthalene : Oral; rat; 0, 10, 50, 250 mg/kg/day; NOAEL(P, F1)=250 mg/kg/day (NO adverse effect.) (OECD TG 422, GLP) (J-CHECK)
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : Not available
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not available
- N-Phenyl-1-naphthalamine : rat(male/female); 15, 50, 150 mg/kg bw/day; NOAEL = 150 mg/kg bw/day (no adverse effects, highest dose tested) (OECD TG 414, GLP) (ECHA)
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : Not available
- Naphthalene : rat(male/female); reproduction toxicity study; 13weeks; 11, 52, and 304 mg/m3; NOAEC = 306 mg/m³ air (analytical); Regardless of the route of exposure, no effect in the rat on reproductive organs was found in sub-chronic studies. (OECD TG 413, GLP)(ECHA)
  rat; developmental toxicity/teratogenicity study; 20days; 0, 50, 150 and 450 mg/kg bw/day; Reduced food consumption, reduced water consumption, weight loss; NOAEL = 50 mg/kg bw/day; Carcinogenically distinguished

substance not applicable for classification in this section (OECD TG 414, GLP) (ECHA)

- 2-Ethylhexyl acrylate : rat(male/female); 0, 5, 25, and 75 ppm; two-generation reproductive toxicity; In summary, the no-observed-effect concentration (NOEC) for parental systemic toxicity was determined to be 5 ppm and was based on histologic changes in the nasal tissues seen at higher concentrations. The NOEC for developmental toxicity was 25 ppm, based on decreases in pup body weight at 75 ppm which were secondary to parental toxicity. The NOEC for reproductive toxicity was 75 ppm, the highest concentration tested. (OECD TG 416, GLP) (ECHA)
  rabbit; 0, 5, 15, 45 ppm; No adverse fetal findings of toxicological relevance were evident at any dose. (OECD TG 414, GLP) (ECHA)
- Ethyl acrylate : rat(male/female); 0, 5, 25, and 75 ppm; two-generation reproductive toxicity; nThe no-observed-effect concentration (NOEC) for parental systemic toxicity was determined to be 5 ppm and was based on histologic changes in the nasal tissues seen at higher concentrations. The NOEC for developmental toxicity was 25 ppm, based on decreases in pup body weight at 75 ppm which were secondary to parental toxicity. The NOEC for reproductive toxicity was 75 ppm, the highest concentration tested. (OECD TG 416, GLP) (ECHA)
- Formaldehyde : reproductive toxicity; No treatment-related adverse signs were observed. (ECHA)
  Rat; developmental toxicity; No embryo- or fetotoxic effects in rats at concentrations inducing maternal toxicity. (OECD TG 414, GLP) (ECHA)

○ **Specific target organ toxicity (single exposure) : Not classified**

- Distillates (petroleum), hydrotreated heavy paraffinic : Hydronephrosis of the right kidney was observed in one rat but was not considered treatment-related by the study authors. No other abnormalities were observed in any male or female rats. (read-across: 64742-56-9) (OECD TG 401, GLP)(ECHA)
  Dermal administration of API 78-9 at 5000 mg/kg did not result in any dermal irritation or signs of clinical toxicity. Gross necroscopy did not reveal any signs of systemic toxicity at the 5000 mg/kg dose level. (read-across: 64742-56-9) (OECD TG 402, GLP)(ECHA)
- 1-Naphthalenamine, N-(dodecylphenyl)- : dermal; rat; No signs of systemic toxicity were noted during the study. LD50 > 2000 mg/kg bw, no deaths (OECD TG 402, GLP) (ECHA)
- Solvent naphtha (petroleum), heavy arom. : oral; rat(male/female); Based on lack of mortality and systemic effects, LD50 > 5000 ㎎/kg bw, no deaths (OECD TG 420, GLP) (read across: 68333-23-3) (ECHA)
  dermal; rabbit(male/female); At necropsy, dermal irritation at the test site was the only abnormal observation. LD50 > 2000 ㎎/kg bw, no deaths (OECD TG 402, GLP) (read across: 68333-23-3) (ECHA)
  inhalation: vapour; rat(male/female); During gross pathology observations, four sections of the lung were examined. The pathology report indicated that no significant histological alternations were seen. LC50 > 5.28 mg/L air /4h, no deaths (OECD TG 403, GLP) (read across: 8008-20-6) (ECHA)
- Trade secret : Not available
- 2-Methylnaphthalene : Not available
- Alkanes, (C=11-15)-iso- : Not available

- 1-Methylnaphthalene : This substance is irritating to the respiratory tract (ACGIH, HSDB)
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : Not available
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not available
- N-Phenyl-1-naphthalamine : dermal; rabbit(male); Livers congested and mottled; spleens dark; kidneys khaki brown in colour. LD50 > 5000 mg/kg (OECD TG 401) (ECHA)
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : Not available
- Naphthalene : Vapors and aerosols of the material are irritating to the airways. Inhalation of vapors may cause asthma and may cause chemical bronchitis, pneumonia and pulmonary edema. Insufficient evidence to classify as unsubscribed, such as dose-dependent effects or test concentrations (IPCS)
- 2-Ethylhexyl acrylate : There exists no standard test method for the assessment of respiratory irritation. Thus, the labelling of 2-EHA with "H335, Irritating to respiratory tract" according to current EU regulations is not based on results of a specific respiratory irritation test, but on considerations on the general irritation potential of 2-EHA (nasal and ocular irritation noted in a test on acute inhalation toxicity with rats, severe local irritation potential detected on the skin and slight irritation potential detected on the conjunctivae of rabbits; serious lesions as seen after repeated inhalation of 2-EHA may well be initiated i.a. by primary respiratory irritation). (ECHA)
- Ethyl acrylate : rat(male/female); inhalation: vapour; labored respiration, abdominal respiration, gasping, respiration sounds, red encrusted eye and noses, nose discharge, salivation, skin pale, piloerection, hyperexcitability, abdominal and lateral position, hunched posture, tremor, no defecation, hypothermia and poor general state. LC50 < 9.137 mg/L air/4h (OECD TG 403, GLP) (ECHA)
- Formaldehyde : Not available

○ **Specific target organ toxicity (repeated exposure) : Not classified**

- Distillates (petroleum), hydrotreated heavy paraffinic : Dermal; The systemic toxicity NOAEL for this 28-day dermal toxicity study in the rabbit is 1,000 mg/kg, based on the lack of adverse systemic effects observed at this dose level. (read-aross : 64742-53-6) (OECD TG 410, GLP) (ECHA)
  Inhalation; rat; 4 weeks; 0, 50, 220 or 1000 mg/m3; No systemic effects were observed. The NOAEL for lung changes associated with oil deposition in the lungs was 220 mg/m3. As no systemic toxicity was observed, the overall NOAEL for systemic effects was > 980 mg/m3. (equivalent or similar to guideline OECD TG 412) (ECHA)
- 1-Naphthalenamine, N-(dodecylphenyl)- : Under the conditions of a 28 -day oral repeated dose study, the test substance was seen to increase bilirubin at 15 mg/kg/bw day. (OECD TG 407, GLP) (ECHA)
- Solvent naphtha (petroleum), heavy arom. : oral; rat(male/female); 90 days; The study LOAEL for systemic effects is 1500 mg/kg/day and the NOAEL for systemic effects is 750 mg/kg/day, based on reduced body weight in dams and in pups. The LOAEL for adult males rats exposed to JP-8 orally was 750 mg/kg/day due to changes in clinical pathology,

body weight, organ weights and the same irritation seen in female rats. The reproduction NOAEL was 3000 and 1500 mg/kg/day in males and females, respectively. (OECD TG 408, GLP) (read across: JP-8 jet fuel) (ECHA)
inhalation; rat(male/female); 90 days; 0, 500, or 1000 mg/m3; Male rats developed hydrocarbon-induced nephropathy and decreased body weight. Therefore, the LOAEL in male rats is 500 mg/m3. There were no significant treatment-related effects in female rats; therefore, the NOAEL in female rats is greater than or equal to 1000 mg/m3. However, effects seen in male rats were due to alpha-2u globulin-mediated nephropathy, and, as such, are not relevant to human exposure. (OECD TG 413) (read across: JP-8 jet fuel) (ECHA)

- Trade secret : Not available
- 2-Methylnaphthalene : oral; mouse; In the chronic oral dietary study in mice, mortality was observed in males and females at all dose groups. Body weight gains were decreased in males of 113.8 mg/kg/day group. 2-methylnaphthalene revealed systemic effects at all dose levels on kidney and brain weights in males. The most sensitive effects were neutral fat level and pulmonary alveolar proteinosis at all treated groups. A LOAEL of 54.3 and 50.3 mg/kg/day 2-methylnaphthalene (0.075% in diet) was noted in males and females respectively. In sub-chronic dermal examinations in B6C3F1 mice (50-week), methylnaphthalene (1-methyl and 2-methylnaphthalene mixture) revealed some pulmonary toxicity at all dose levels (118.8 or 237.6 mg/kg/day) with proteinnosis and increased cholesterol and dipalmitoylglycerophosphocholine contents in the lung. The LOAEL of methylnaphthalene was estimated to be 29.7 mg/kg bw/day in female mice based on the increase in lipid pneumonia. (OECD SIDS)
- Alkanes, (C=11-15)-iso- : The members of the C9-C14 Aliphatic [< 2% aromatics] Hydrocarbon Solvents Category did not appear to produce significant systemic toxicity. (SIDS)
- 1-Methylnaphthalene : Oral; rat; 0, 10, 50, 250 mg/kg/day; NOAEL=250 mg/kg/day (NO adverse effect.) (OECD TG 422, GLP) (J-CHECK)
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : Not available
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not available
- N-Phenyl-1-naphthalamine : oral; rat(male/female); 5, 25, 125 mg/kg bw/day; The oral administration of the test item to Wistar rats over a period of 3 months revealed signs of systemic toxicity in male animals at a dose level of 25 mg/kg bw/d and above as well as in female animals at a dose level of 125 mg/kg bw/d taking pathology and hematology findings into account. However, no adverse neurobehavioral effects in male and female Wistar rats were observed at any dose level. In addition, no test substance related effects were observed during the neurohistopathology investigation at any dose level. Under the conditions of this study, the no observed adverse effect level (NOAEL) for systemic toxicity was 5 mg/kg bw/d in male and 25 mg/kg bw/d in female animals. The NOAEL for neurotoxicity was 125 mg/kg bw/d in male and female animals (highest dose tested). (OECD TG 409, GLP) (ECHA)

Affected organs: kidney, blood system

- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : Not available
- Naphthalene : rat(male/female); oral; 13weeks; 25, 50, 100, 200, 400 mg/kg bw; NOAEL = 200 mg/kg bw/day, LOAEL = 400 mg/kg bw/day; After 13 weeks of oral exposure by gavage, unspecific adverse effects, predominantly loss in body-weight gain, considered to be substance-related were noted from 200 mg/kg bw/d onwards; Substances classified as carcinogenic and do not apply to classifications in this section (OECD TG 408)(ECHA)
- 2-Ethylhexyl acrylate : inhalation: vapour; rat(male/female); 10; 30; 100 ppm (corresponding to approx. 0.075; 0.226; 0.753 mg/L); 90 days; NOAEC=0.226 mg/L air (Systemic effects: Clinical chemistry: elevated activities of transaminase and alkaline phosphatase) (OECD TG 413, GLP) (ECHA)
- Ethyl acrylate : inhalation; rat(male/female); 25; 75; 225 ppm (corresponding to 0.10; 0.31; 0.92 mg/L); 3 or 6 months; The presented data indicate that histopathological changes of the nasal mucosa may be the most sensitive index for long-term exposure to EA vapours. These lesions of the nasal mucosa were not observed in animals of the low dose group after 3 months exposure. The retardation of body weight gains was considered slight-to-negligible by the authours in this dose group. Thus, the NOAEC for a 90 -days vapour exposure to Ethyl acrylate was set at 25 ppm (corresponding to 0.1 mg/L). (OECD TG 413, GLP) (ECHA)
- Formaldehyde : oral; rat; Oral exposure via the drinking water induced local effects in the stomach of rats at a concentration of 0.19% corresponding to 82 mg/kg bw/d in males and 109 mg/kg bw/d in females; the NOAEC is 0.026% corresponding to 15 mg/kg bw/d in males and 21 mg/kg bw/d in females. (OECD TG 453, GLP) (ECHA)

○ **Aspiration hazard : Not classified**

- Distillates (petroleum), hydrotreated heavy paraffinic : Viscosity: 73.9 mm2/s (40°C)(ECHA) & hydrocarbons
- 1-Naphthalenamine, N-(dodecylphenyl)- : Not available
- Solvent naphtha (petroleum), heavy arom. : 1 to 2.4 cSt at 40°C (ECHA) & hydrocarbons
- Trade secret : Not available
- 2-Methylnaphthalene : Not available
- Alkanes, (C=11-15)-iso- : These C9-C14 Aliphatic Hydrocarbon Solvents [≤ 2% Aromatics] substances present aspiration hazards if taken into the lung in the liquid state due to their physical and chemical properties, particularly viscosity. (SIDS)
- 1-Methylnaphthalene : Not available
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : Not applicable
- 2-Propenoic acid ethyl ester polymer with : Not available

alkyl(C=1~7) alkyl(C=1~11) alkenoate

- N-Phenyl-1-naphthalamine : Not applicable
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : Not applicable
- Naphthalene : Not applicable
- 2-Ethylhexyl acrylate : 1.19 mPa.s (40°C; OECD TG 114) (ECHA) & not hydrocarbons
- Ethyl acrylate : 0.5351 mPa_s (25 °C) (ECHA) & not hydrocarbons
- Formaldehyde : dynamic viscosity; >= 2.083 - <= 2.835 mPa s (20°C) (DIN 51 562) (ECHA) & not hydrocarbons

12. ECOLOGICAL INFORMATION

1) Ecotoxicity

- Acute toxicity : Not classfied (ATEmix>1mg/L)
- Chronic toxicity : Not classfied

○ **Acute (short-term) aquatic hazard:**

Fish

- Distillates (petroleum), hydrotreated heavy paraffinic : 96h-LL50(Pimephales promelas) > 100 mg/L (OECD TG 203, GLP) (ECHA)
- 1-Naphthalenamine, N-(dodecylphenyl)- : 96h-LC50 (Oncorhynchus mykiss) > 1 mg/L (OECD TG 203, GLP) (ECHA)
- Solvent naphtha (petroleum), heavy arom. : 96h-LL50(Oncorhynchus mykiss) = 2 - 5 mg/L (OECD TG 203, GLP) (read across: 64742-94-5) (ECHA)
- Trade secret : Not available
- 2-Methylnaphthalene : 96h-LC50(Oncorhynchus mykiss) = 1.46 mg/L (OECD SIDS)
- Alkanes, (C=11-15)-iso- : No toxic effects up to the limit of water solubility. (SIDS)
- 1-Methylnaphthalene : 96h-LC50(Oryzias latipes) = 5.66 mg/L (OECD TG 203) (J-CHECK)
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : 96h-LC50 = 0.003 mg/L (estimated) (Neutral Organic SAR) (ECOSAR)
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not available
- N-Phenyl-1-naphthalamine : 96h-LC50(Oncorhynchus mykiss) = 0.44 mg/l (ECHA)
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : No toxic effects occur within the range of water solubility. (ECOSAR)
- Naphthalene : 96h-LC50(Oncorhynchus mykiss) = 1.6 mg/L (OECD TG 203)(ECHA)
- 2-Ethylhexyl acrylate : 96h-LC50(Oncorhynchus mykiss) = 1.81 mg/L (OECD TG 203, GLP) (ECHA)
- Ethyl acrylate : 96h-LC50(Oncorhynchus mykiss) = 4.6 mg/L (EPA OTS 797.1400, GLP) (ECHA)
- Formaldehyde : 96h-LC50(Morone saxatilis) = 6.7 mg/L (ECHA)

Invertebrates

- Distillates (petroleum), hydrotreated heavy paraffinic : 48h-EL50(Daphnia magna) > 10,000 mg/L (read across : 64742-53-6 or 64741-97-5) (equivalent or similar to guideline OECD TG 202) (ECHA)
- 1-Naphthalenamine, N-(dodecylphenyl)- : 48h-EC50 (Daphnia magna) > 1 mg/L (OECD TG 202, GLP) (ECHA)
- Solvent naphtha (petroleum), heavy arom. : 48h-EL50(Daphnia magna) = 1.4 mg/L (OECD TG 202, GLP) (ECHA)

- Trade secret : Not available
- 2-Methylnaphthalene : 48h-EC50(Daphnia magna) = 1.42-2.99 mg/L (OECD SIDS)
- Alkanes, (C=11-15)-iso- : No toxic effects up to the limit of water solubility. (SIDS)
- 1-Methylnaphthalene : 48h-EC50(Daphnia magna) = 2.24 mg/L (OECD TG 202) (J-CHECK)
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : 48h-LC50(Daphnid) = 0.003 mg/L (estimated) (Neutral Organic SAR) (ECOSAR)
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not available
- N-Phenyl-1-naphthalamine : 48h-EC50(Daphnia magna) = 0.3 mg/l (ECHA)
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : No toxic effects occur within the range of water solubility. (ECOSAR)
- Naphthalene : 48h-EC50(Daphnia magna) = 2.16 mg/L (OECD TG 202)(ECHA)
- 2-Ethylhexyl acrylate : 48h-EC50(Daphnia magna) = 1.3 mg/L (OECD TG 202, GLP) (ECHA)
- Ethyl acrylate : 48h-EC50(Daphnia magna) = 7.9 mg/L (EPA OTS 797.1300, GLP) (ECHA)
- Formaldehyde : 48h-EC50(Daphnia pulex) = 5.8 mg/L (OECD TG 202) (ECHA)

Aquatic algae

- Distillates (petroleum), hydrotreated heavy paraffinic : Not available
- 1-Naphthalenamine, N-(dodecylphenyl)- : 72h-ErC50 (Pseudokirchneriella subcapitata) > 1 mg/L (OECD TG 201, GLP) (ECHA)
- Solvent naphtha (petroleum), heavy arom. : 72h-ErL50(Pseudokirchneriella subcapitata) = 1-3 mg/L (OECD TG 201, GLP) (ECHA)
- Trade secret : Not available
- 2-Methylnaphthalene : 72h-ErC50(Pseudokirchneriella subcapitata) = 2.3 mg/L (OECD SIDS)
- Alkanes, (C=11-15)-iso- : No toxic effects up to the limit of water solubility. (SIDS)
- 1-Methylnaphthalene : 72h-ErC50 = 2.8 mg/L (J-CHECK)
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : No toxicity effects observed within the limit of water solubility(0.01175 mg/L). (ECOSAR)
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not available
- N-Phenyl-1-naphthalamine : 96h-ErC50(Pseudokirchneriella subcapitata) = 0.93 mg/L (ECHA)
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : No toxic effects occur within the range of water solubility. (ECOSAR)
- Naphthalene : 72h-EbC50(Skeletonema costatum) = 0.4 ~ 0.5 mg/L (ECHA)
- 2-Ethylhexyl acrylate : 72h-ErC50(Desmodesmus subspicatus) = 1.71 mg/L (OECD TG 201, GLP) (ECHA)
- Ethyl acrylate : 72h-ErC50(Desmodesmus subspicatus) = 1.71 mg/L (OECD TG 201, GLP) (ECHA)
- Formaldehyde : 72h-ErC50(Desmodesmus subspicatus) = 4.89 mg/L (OECD TG 201) (ECHA)

○ **Chronic (Long-term) aquatic hazard:**

Fish

- Distillates (petroleum), hydrotreated heavy paraffinic : Not available
- 1-Naphthalenamine, N-(dodecylphenyl)- : Not available
- Solvent naphtha (petroleum), heavy arom. : Not available
- Trade secret : Not available
- 2-Methylnaphthalene : Not available
- Alkanes, (C=11-15)-iso- : No toxic effects up to the limit of water solubility. (SIDS)
- 1-Methylnaphthalene : Not available
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : Not available
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not available

- N-Phenyl-1-naphthalamine : Not available
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : Not available
- Naphthalene : 40d-NOEC(Oncorhynchus kisutch) = 0.37 mg/L (ECHA)
- 2-Ethylhexyl acrylate : Not available
- Ethyl acrylate : Not available
- Formaldehyde : 28d-NOEC(Oryzias latipes) >= 48 mg/L (OECD TG 215) (ECHA)

Invertebrates

- Distillates (petroleum), hydrotreated heavy paraffinic : 21d-NOEL(Daphnia magna)=10 mg/L (read across: 64742-53-6) (equivalent or similar to guideline OECD TG 211, GLP) (ECHA)
- 1-Naphthalenamine, N-(dodecylphenyl)- : Not available
- Solvent naphtha (petroleum), heavy arom. : 21d-NOEL(Daphnia magna) = 0.48 mg/L (OECD TG 211, GLP) (ECHA)
- Trade secret : Not available
- 2-Methylnaphthalene : Not available
- Alkanes, (C=11-15)-iso- : No toxic effects up to the limit of water solubility. (SIDS)
- 1-Methylnaphthalene : 21d-NOEC(Daphnia magna) = 0.223 mg/L (OECD TG 211) (J-CHECK)
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : Not available
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not available
- N-Phenyl-1-naphthalamine : 21d-NOEC(Daphnia magna) = 0.02 mg/L (US EPA) (ECHA)
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : Not available
- Naphthalene : 125d-NOEC(Daphnia pulex) = 0.59 mg/L (ECHA)
- 2-Ethylhexyl acrylate : 21d-EC10(Daphnia magna) = 0.91 mg/L (OECD TG 211, GLP) (ECHA)
- Ethyl acrylate : 21d-NOEC(Daphnia magna) = 0.19 mg/L (EPA OTS 797.1330, GLP) (ECHA)
- Formaldehyde : 21d-NOEC(Daphnia magna) >= 6.4 mg/L (OECD TG 211, GLP) (ECHA)

Aquatic algae

- Distillates (petroleum), hydrotreated heavy paraffinic : 72h-NOErL(Pseudokirchnerella subcapitata) >= 100 mg/L (read across: 72623-87-1) (OECD TG 201) (ECHA)
- 1-Naphthalenamine, N-(dodecylphenyl)- : 72h-NOECr (Pseudokirchneriella subcapitata) =1 mg/L (OECD TG 201, GLP) (ECHA)
- Solvent naphtha (petroleum), heavy arom. : Not available
- Trade secret : Not available
- 2-Methylnaphthalene : Not available
- Alkanes, (C=11-15)-iso- : No toxic effects up to the limit of water solubility. (SIDS)
- 1-Methylnaphthalene : 72h-NOECr = 0.54 mg/L (J-CHECK)
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : Not available
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not available
- N-Phenyl-1-naphthalamine : Not available
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : Not available
- Naphthalene : Not available
- 2-Ethylhexyl acrylate : 72h-NOErC(Desmodesmus subspicatus) = 0.45 mg/L (OECD TG 201, GLP) (ECHA)
- Ethyl acrylate : 72h-NOErC(Desmodesmus subspicatus) = 0.45 mg/L (OECD TG 201, GLP) (ECHA)
- Formaldehyde : Not available

2) Persistence and degradability

○ **Persistence**

- Distillates (petroleum), hydrotreated heavy paraffinic : This substance is UVCB, so it is not applicable. (ECHA)

- 1-Naphthalenamine, N-(dodecylphenyl)- : log Kow = 4.11 (OECD TG 117, GLP) (ECHA)
- Solvent naphtha (petroleum), heavy arom. : log Kow = 3.30 (experimental) (EPISUITE)
- Trade secret : Not available
- 2-Methylnaphthalene : log Kow = 3.86 (25℃) (OECD SIDS)
- Alkanes, (C=11-15)-iso- : The measured log Pow values for category member constituents range from 5.0 ? 7.2 (at 25℃). (SIDS)
- 1-Methylnaphthalene : log Kow = 3.87 (HSDB)
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : log Kow = 7.62 (estimated) (EPISUITE)
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not available
- N-Phenyl-1-naphthalamine : log Kow = 4.28 (ECHA)
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : log Kow = 6.83 (estimated) (EPISUITE)
- Naphthalene : log Kow = 3.7 (25 ℃)(ECHA)
- 2-Ethylhexyl acrylate : log Kow = 4.64 (25 °C; equivalent or similar to guideline OECD TG 107) (ECHA)
- Ethyl acrylate : log Kow = 1.18 (25 °C) (ECHA)
- Formaldehyde : log Kow = 0.35 (25 °C) (ECHA)

○ **Degradability**

- Distillates (petroleum), hydrotreated heavy paraffinic : The chemical constituents that comprise the other lubricant base oils category consist entirely of carbon and hydrogen and do not contain hydrolyzable groups. As such, they have a very low potential to hydrolyze. Therefore, this degradative process will not contribute to their removal from the environment. (ECHA)
- 1-Naphthalenamine, N-(dodecylphenyl)- : The results for all pH levels tested, 4, 7 and 9, was less than 10% hydrolysis after 5 days at 50 °C equivalent to a half-life of greater than 1 year at 25 °C. (OECD TG 111, GLP) (ECHA)
- Solvent naphtha (petroleum), heavy arom. : Not available
- Trade secret : Not available
- 2-Methylnaphthalene : Not available
- Alkanes, (C=11-15)-iso- : Not available
- 1-Methylnaphthalene : Not available
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : Not available
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not available
- N-Phenyl-1-naphthalamine : Not available
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : Not available
- Naphthalene : Not available
- 2-Ethylhexyl acrylate : Half-life in air: 19.2 hr (ECHA) Half-life for hydrolysis: 210 d (ECHA)
- Ethyl acrylate : In contact with water Ethyl acrylate will hydrolyse slowly. Half-life at pH 7 and 25 °C: 1500 d. (ECHA) After evaporation or exposure to the air, Ethyl acrylate will be slowly degraded by photochemical processes. Calculated half-life for a 24-hr day and 0.5E+06 OH/cm3: 35.4 hr (ECHA)
- Formaldehyde : According to structural properties, hydrolysis is not expected/probable. (ECHA) The atmospheric halflife of formaldehyde, based on hydroxyl radical reaction rate constants, is calculated to be between 7.1 and 71.3 hours. (ECHA)

3) Bioaccumulative potential

○ **Bioaccumulation**

- Distillates (petroleum), hydrotreated heavy paraffinic : This substance is UVCB, so it is not applicable. (ECHA)
- 1-Naphthalenamine, N-(dodecylphenyl)- : Not available
- Solvent naphtha (petroleum), heavy arom. : BCF = 69.88 (estimated) (EPISUITE)

- Trade secret : Not available
- 2-Methylnaphthalene : BCF = 100-895 (OECD SIDS)
- Alkanes, (C=11-15)-iso- : Not available
- 1-Methylnaphthalene : BCF = 360~810 L/kg (Conc. 1 ug/L) (OECD TG 305) (J-CHECK)
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : BCF = 1676 (estimated) (EPISUITE)
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not available
- N-Phenyl-1-naphthalamine : BCF = 274.3 (estimated) (EPISUITE)
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : BCF = 56.23 (estimated) (EPISUITE)
- Naphthalene : BCF = 36.5 ~ 168 (OECD TG 305)(ECHA)
- 2-Ethylhexyl acrylate : BCF=232.8 L/kg ww (ECHA)
- Ethyl acrylate : BCF=2 (ECHA)
- Formaldehyde : BCF=0.396 (ECHA)

○ **Biodegradation**

- Distillates (petroleum), hydrotreated heavy paraffinic : Another lubricant base oil, Solvent Neutral 600 Base Oil (MRD-94 -981), was determined to be inherently biodegradable but not readily biodegradable with a mean degradation of 31.13% by day 28. (read across: Solvent Neutral 600 Base Oil (MRD-94-981)) (OECD TG 301F, GLP) (ECHA)
- 1-Naphthalenamine, N-(dodecylphenyl)- : 3% degradation after 28d; not readily biodegradable (OECD TG 301B, GLP) (ECHA)
- Solvent naphtha (petroleum), heavy arom. : 58.6 % degradation after 28d; not readily biodegradable (OECD TG 301F) (ECHA)
- Trade secret : Not available
- 2-Methylnaphthalene : 61.9% degradation after 28d; readily biodegradable (OECD TG 301C) (OECD SIDS)
- Alkanes, (C=11-15)-iso- : 80-100 % degradation after 28 days; readily biodegradable (SIDS)
- 1-Methylnaphthalene : BOD = 2 (%) after 28 day (Non-biodegradability) (J-CHECK)
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : Not available
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not available
- N-Phenyl-1-naphthalamine : 0 % degradation after 28 days; under test conditions no biodegradation observed (OECD TG 301C, GLP) (ECHA)
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : Not available
- Naphthalene : 74% degradation after 28days; readily biodegradable (OECD TG 301 C)(ECHA)
- 2-Ethylhexyl acrylate : 70-80 % degradation after 15 days; readily biodegradable (EU Method C.4-D) (ECHA)
- Ethyl acrylate : 80 - 90 % degradation after 28d; readily biodegradable (OECD TG 310, GLP) (ECHA)
- Formaldehyde : 99% degradation after 28days; readily biodegradable (ECHA)

4) Mobility in soil

- Distillates (petroleum), hydrotreated heavy paraffinic : Not available
- 1-Naphthalenamine, N-(dodecylphenyl)- : Koc = 4240 (OECD TG 121, GLP) (ECHA)
- Solvent naphtha (petroleum), heavy arom. : Koc = 730.6 (EPISUITE)
- Trade secret : Not available
- 2-Methylnaphthalene : Koc = 4400 ~ 8500 (OECD SIDS)
- Alkanes, (C=11-15)-iso- : Not available
- 1-Methylnaphthalene : Koc = 2290 (HSDB)
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : Koc = 140400 (estimated) (EPISUITE)
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not available
- N-Phenyl-1-naphthalamine : Koc = 1685 (EPISUITE)

- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : Koc = 7696 (EPISUITE)
- Naphthalene : Koc = 378 (ECHA)
- 2-Ethylhexyl acrylate : Koc=1324 (estimated) (EPISUITE)
- Ethyl acrylate : Koc=38.87 (EPISUITE)
- Formaldehyde : Koc = 15.9 (ECHA)

5) Hazard to the ozone layer

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Naphthalenamine, N-(dodecylphenyl)- : Not applicable
- Solvent naphtha (petroleum), heavy arom. : Not applicable
- Trade secret : Not available
- 2-Methylnaphthalene : Not applicable
- Alkanes, (C=11-15)-iso- : Not applicable
- 1-Methylnaphthalene : Not applicable
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : Not applicable
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not available
- N-Phenyl-1-naphthalamine : Not applicable
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : Not applicable
- Naphthalene : Not applicable
- 2-Ethylhexyl acrylate : Not applicable
- Ethyl acrylate : Not applicable
- Formaldehyde : Not applicable

6) Other adverse effects

- Distillates (petroleum), hydrotreated heavy paraffinic : Not available
- 1-Naphthalenamine, N-(dodecylphenyl)- : Not available
- Solvent naphtha (petroleum), heavy arom. : Not available
- Trade secret : Not available
- 2-Methylnaphthalene : Not available
- Alkanes, (C=11-15)-iso- : Not available
- 1-Methylnaphthalene : Not available
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : Not available
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not available
- N-Phenyl-1-naphthalamine : Not available
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : Not available
- Naphthalene : Not available
- 2-Ethylhexyl acrylate : Not available
- Ethyl acrylate : Not available
- Formaldehyde : Not available

13. DISPOSAL CONSIDERATIONS

1) Disposal methods

- Not available

2) Special precaution for disposal

- The user of this product must disposal by oneself or entrust to waste disposer or person who other's waste

recycle and dispose, person who establish and operate waste disposal facilities.

- Dispose of waste in accordance with all applicable laws and regulations.

14. TRANSPORT INFORMATION

1) UN No.

- Not applicable

2) Proper shipping name

- Not applicable

3) Transport hazard class(es)

- Not applicable

4) Packing group

- Not applicable

5) Marine pollutant

- Not applicable

6) Special safety response for transportation or transportation measure

- Types of Emergency Measures in Case of Fire : Not applicable
- Types of Emergency Measures in Leakage : Not applicable
- Transport regulations according to ADR/RID, AND, IMDG and ICAO/IATA : Not applicable

15. REGULATORY INFORMATION

EINECS(or ELINCS)

- Distillates (petroleum), hydrotreated heavy paraffinic : European EINECS phase-in substance
- 1-Naphthalenamine, N-(dodecylphenyl)- : European EINECS phase-in substance
- Solvent naphtha (petroleum), heavy arom. : European EINECS phase-in substance
- Trade secret : Not applicable
- 2-Methylnaphthalene : European EINECS phase-in substance
- Alkanes, (C=11-15)-iso- : European EINECS phase-in substance
- 1-Methylnaphthalene : European EINECS phase-in substance
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : Not applicable
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not applicable
- N-Phenyl-1-naphthalamine : European EINECS phase-in substance
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : European EINECS phase-in substance
- Naphthalene : European EINECS phase-in substance
- 2-Ethylhexyl acrylate : European EINECS phase-in substance
- Ethyl acrylate : European EINECS phase-in substance
- Formaldehyde : European EINECS phase-in substance

EU CLP (CLASSIFICATION) - PRODUCT : Not applicable

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Naphthalenamine, N-(dodecylphenyl)- : Not applicable
- Solvent naphtha (petroleum), heavy arom. : Not applicable
- Trade secret : Not applicable
- 2-Methylnaphthalene : Not applicable
- Alkanes, (C=11-15)-iso- : Not applicable

- 1-Methylnaphthalene : Not applicable
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : Not applicable
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not applicable
- N-Phenyl-1-naphthalamine : Not applicable
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : Not applicable
- Naphthalene : Not applicable
- 2-Ethylhexyl acrylate : Not applicable
- Ethyl acrylate : Not applicable
- Formaldehyde : Not applicable

Substances restricted under REACH

- Distillates (petroleum), hydrotreated heavy paraffinic : Substances restricted under REACH
- 1-Naphthalenamine, N-(dodecylphenyl)- : Not applicable
- Solvent naphtha (petroleum), heavy arom. : Not applicable
- Trade secret : Not applicable
- 2-Methylnaphthalene : Not applicable
- Alkanes, (C=11-15)-iso- : Not applicable
- 1-Methylnaphthalene : Not applicable
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : Not applicable
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not applicable
- N-Phenyl-1-naphthalamine : Not applicable
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : Not applicable
- Naphthalene : Substances restricted under REACH
- 2-Ethylhexyl acrylate : Not applicable
- Ethyl acrylate : Not applicable
- Formaldehyde : Substances restricted under REACH

Substances subject to authorization under REACH

REACH SVHC List

Korea

○ **Occupational Safety and Health Act**

- Distillates (petroleum), hydrotreated heavy paraffinic : Substance subject to occupational exposure limits, Harmful agents subject to work environment monitoring, Harmful agents subject to workers requiring health examination
- 1-Naphthalenamine, N-(dodecylphenyl)- : Not applicable
- Solvent naphtha (petroleum), heavy arom. : Substance subject to occupational exposure limits, Harmful agents subject to work environment monitoring, Harmful agents subject to workers requiring health examination
- Trade secret : Not applicable
- 2-Methylnaphthalene : Not applicable
- Alkanes, (C=11-15)-iso- : Not applicable
- 1-Methylnaphthalene : Not applicable
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : Not applicable
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not applicable
- N-Phenyl-1-naphthalamine : Not applicable
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : Not applicable
- Naphthalene : Substance subject to occupational exposure limits

- 2-Ethylhexyl acrylate : Not applicable
- Ethyl acrylate : Substance subject to occupational exposure limits, Hazardous substance subject to control, Harmful agents subject to work environment monitoring, Harmful agents subject to workers requiring health examination, Substance subject to submission of process safety reports
- Formaldehyde : Substance subject to occupational exposure limits, Substance subject to permissible exposure limits, Hazardous substance subject to control, Special management substance, Harmful agents subject to work environment monitoring, Harmful agents subject to workers requiring health examination, Substance subject to submission of process safety reports

○ **K-REACH**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Naphthalenamine, N-(dodecylphenyl)- : Not applicable
- Solvent naphtha (petroleum), heavy arom. : Not applicable
- Trade secret : Not applicable
- 2-Methylnaphthalene : Not applicable
- Alkanes, (C=11-15)-iso- : Not applicable
- 1-Methylnaphthalene : Not applicable
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : Not applicable
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not applicable
- N-Phenyl-1-naphthalamine : Phase-in Substances subject to Registration
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : Not applicable
- Naphthalene : Phase-in Substances subject to Registration
- 2-Ethylhexyl acrylate : Not applicable
- Ethyl acrylate : Not applicable
- Formaldehyde : Phase-in Substances subject to Registration, Substance subject to intensive control

○ **Chemical Control Act in Korea**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Naphthalenamine, N-(dodecylphenyl)- : Not applicable
- Solvent naphtha (petroleum), heavy arom. : Not applicable
- Trade secret : Not applicable
- 2-Methylnaphthalene : Not applicable
- Alkanes, (C=11-15)-iso- : Not applicable
- 1-Methylnaphthalene : Not applicable
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : Not applicable
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not applicable
- N-Phenyl-1-naphthalamine : Ecologically hazardous substances
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : Not applicable
- Naphthalene : List of substance subjected to the PRTR, Ecologically hazardous substances
- 2-Ethylhexyl acrylate : Not applicable
- Ethyl acrylate : List of substance subjected to the PRTR, Acutely hazardous substances to humans
- Formaldehyde : Substance requiring preparation for accidents, List of substance subjected to the PRTR, Restriced substance, Acutely hazardous substances to humans, Substances chronically hazardous to humans

○ **Safety Control of Dangerous Substances Act**

- Distillates (petroleum), hydrotreated heavy paraffinic : Dangerous substance
- 1-Naphthalenamine, N-(dodecylphenyl)- : Not applicable
- Solvent naphtha (petroleum), heavy arom. : Not applicable

- Trade secret : Not applicable
- 2-Methylnaphthalene : Not applicable
- Alkanes, (C=11-15)-iso- : Not applicable
- 1-Methylnaphthalene : Not applicable
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : Not applicable
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not applicable
- N-Phenyl-1-naphthalamine : Not applicable
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : Not applicable
- Naphthalene : Not applicable
- 2-Ethylhexyl acrylate : Dangerous substance
- Ethyl acrylate : Dangerous substance
- Formaldehyde : Not applicable

U.S.A

○ **US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Naphthalenamine, N-(dodecylphenyl)- : Not applicable
- Solvent naphtha (petroleum), heavy arom. : Not applicable
- Trade secret : Not applicable
- 2-Methylnaphthalene : Not applicable
- Alkanes, (C=11-15)-iso- : Not applicable
- 1-Methylnaphthalene : Not applicable
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : Not applicable
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not applicable
- N-Phenyl-1-naphthalamine : Not applicable
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : Not applicable
- Naphthalene : Not applicable
- 2-Ethylhexyl acrylate : Not applicable
- Ethyl acrylate : Not applicable
- Formaldehyde : US management information(OSHA regulation)

○ **CERCLA Designation of hazardous substances (40 CFR 302.4)**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Naphthalenamine, N-(dodecylphenyl)- : Not applicable
- Solvent naphtha (petroleum), heavy arom. : Not applicable
- Trade secret : Not applicable
- 2-Methylnaphthalene : Not applicable
- Alkanes, (C=11-15)-iso- : Not applicable
- 1-Methylnaphthalene : Not applicable
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : Not applicable
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not applicable
- N-Phenyl-1-naphthalamine : Not applicable
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : Not applicable
- Naphthalene : US management information(CERCLA regulation)
- 2-Ethylhexyl acrylate : Not applicable
- Ethyl acrylate : US management information(CERCLA regulation)
- Formaldehyde : US management information(CERCLA regulation)

○ **CERCLA Section 302 regulation**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Naphthalenamine, N-(dodecylphenyl)- : Not applicable
- Solvent naphtha (petroleum), heavy arom. : Not applicable
- Trade secret : Not applicable
- 2-Methylnaphthalene : Not applicable
- Alkanes, (C=11-15)-iso- : Not applicable
- 1-Methylnaphthalene : Not applicable
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : Not applicable
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not applicable
- N-Phenyl-1-naphthalamine : Not applicable
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : Not applicable
- Naphthalene : Not applicable
- 2-Ethylhexyl acrylate : Not applicable
- Ethyl acrylate : Not applicable
- Formaldehyde : US management information(CERCLA Section 302 regulation)

○ **CERCLA Section 304 regulation**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Naphthalenamine, N-(dodecylphenyl)- : Not applicable
- Solvent naphtha (petroleum), heavy arom. : Not applicable
- Trade secret : Not applicable
- 2-Methylnaphthalene : Not applicable
- Alkanes, (C=11-15)-iso- : Not applicable
- 1-Methylnaphthalene : Not applicable
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : Not applicable
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not applicable
- N-Phenyl-1-naphthalamine : Not applicable
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : Not applicable
- Naphthalene : Not applicable
- 2-Ethylhexyl acrylate : Not applicable
- Ethyl acrylate : Not applicable
- Formaldehyde : US management information(CERCLA Section 304 regulation)

○ **CERCLA Section 313 regulation**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Naphthalenamine, N-(dodecylphenyl)- : Not applicable
- Solvent naphtha (petroleum), heavy arom. : Not applicable
- Trade secret : Not applicable
- 2-Methylnaphthalene : Not applicable
- Alkanes, (C=11-15)-iso- : Not applicable
- 1-Methylnaphthalene : Not applicable
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : Not applicable
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not applicable
- N-Phenyl-1-naphthalamine : Not applicable
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : Not applicable
- Naphthalene : US management information(CERCLA Section 313 regulation)

- 2-Ethylhexyl acrylate : Not applicable
- Ethyl acrylate : US management information(CERCLA Section 313 regulation)
- Formaldehyde : US management information(CERCLA Section 313 regulation)

Interntional Convention on Environment

○ **Rotterdam Convention list**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Naphthalenamine, N-(dodecylphenyl)- : Not applicable
- Solvent naphtha (petroleum), heavy arom. : Not applicable
- Trade secret : Not applicable
- 2-Methylnaphthalene : Not applicable
- Alkanes, (C=11-15)-iso- : Not applicable
- 1-Methylnaphthalene : Not applicable
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : Not applicable
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not applicable
- N-Phenyl-1-naphthalamine : Not applicable
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : Not applicable
- Naphthalene : Not applicable
- 2-Ethylhexyl acrylate : Not applicable
- Ethyl acrylate : Not applicable
- Formaldehyde : Not applicable

○ **Stockholm Convention list**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Naphthalenamine, N-(dodecylphenyl)- : Not applicable
- Solvent naphtha (petroleum), heavy arom. : Not applicable
- Trade secret : Not applicable
- 2-Methylnaphthalene : Not applicable
- Alkanes, (C=11-15)-iso- : Not applicable
- 1-Methylnaphthalene : Not applicable
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : Not applicable
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not applicable
- N-Phenyl-1-naphthalamine : Not applicable
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : Not applicable
- Naphthalene : Not applicable
- 2-Ethylhexyl acrylate : Not applicable
- Ethyl acrylate : Not applicable
- Formaldehyde : Not applicable

○ **Montreal Protocol list**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Naphthalenamine, N-(dodecylphenyl)- : Not applicable
- Solvent naphtha (petroleum), heavy arom. : Not applicable
- Trade secret : Not applicable
- 2-Methylnaphthalene : Not applicable
- Alkanes, (C=11-15)-iso- : Not applicable
- 1-Methylnaphthalene : Not applicable
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : Not applicable

- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not applicable
- N-Phenyl-1-naphthalamine : Not applicable
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : Not applicable
- Naphthalene : Not applicable
- 2-Ethylhexyl acrylate : Not applicable
- Ethyl acrylate : Not applicable
- Formaldehyde : Not applicable

National Inventory

○ **Korea**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Naphthalenamine, N-(dodecylphenyl)- : Not applicable
- Solvent naphtha (petroleum), heavy arom. : Not applicable
- Trade secret : Not applicable
- 2-Methylnaphthalene : Not applicable
- Alkanes, (C=11-15)-iso- : Not applicable
- 1-Methylnaphthalene : Not applicable
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : Not applicable
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not applicable
- N-Phenyl-1-naphthalamine : Not applicable
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : Not applicable
- Naphthalene : Not applicable
- 2-Ethylhexyl acrylate : Not applicable
- Ethyl acrylate : Not applicable
- Formaldehyde : Not applicable

○ **U.S.A**

- Distillates (petroleum), hydrotreated heavy paraffinic : US TSCA phase-in substance
- 1-Naphthalenamine, N-(dodecylphenyl)- : US TSCA phase-in substance
- Solvent naphtha (petroleum), heavy arom. : US TSCA phase-in substance
- Trade secret : Not applicable
- 2-Methylnaphthalene : US TSCA phase-in substance
- Alkanes, (C=11-15)-iso- : Not applicable
- 1-Methylnaphthalene : US TSCA phase-in substance
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : US TSCA phase-in substance
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not applicable
- N-Phenyl-1-naphthalamine : US TSCA phase-in substance
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : US TSCA phase-in substance
- Naphthalene : US TSCA phase-in substance
- 2-Ethylhexyl acrylate : US TSCA phase-in substance
- Ethyl acrylate : US TSCA phase-in substance
- Formaldehyde : US TSCA phase-in substance

○ **China**

- Distillates (petroleum), hydrotreated heavy paraffinic : China phase-in substance
- 1-Naphthalenamine, N-(dodecylphenyl)- : China phase-in substance
- Solvent naphtha (petroleum), heavy arom. : China phase-in substance
- Trade secret : Not applicable

- 2-Methylnaphthalene : China phase-in substance
- Alkanes, (C=11-15)-iso- : China phase-in substance
- 1-Methylnaphthalene : China phase-in substance
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : China phase-in substance
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not applicable
- N-Phenyl-1-naphthalamine : China phase-in substance
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : China phase-in substance
- Naphthalene : China phase-in substance
- 2-Ethylhexyl acrylate : China phase-in substance
- Ethyl acrylate : China phase-in substance
- Formaldehyde : China phase-in substance

○ **Japan**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Naphthalenamine, N-(dodecylphenyl)- : Japan ENCS phase-in substance
- Solvent naphtha (petroleum), heavy arom. : Not applicable
- Trade secret : Not applicable
- 2-Methylnaphthalene : Japan ENCS phase-in substance
- Alkanes, (C=11-15)-iso- : Not applicable
- 1-Methylnaphthalene : Japan ENCS phase-in substance
- N,N-Bis(2-ethylhexyl)-ar-methyl-1H-benzotriazole-1-methanamine : Not applicable
- 2-Propenoic acid ethyl ester polymer with alkyl(C=1~7) alkyl(C=1~11) alkenoate : Not applicable
- N-Phenyl-1-naphthalamine : Japan ENCS phase-in substance
- (Z)-N-Methyl-N-(1-oxo-9-octadecenyl)glycine : Japan ENCS phase-in substance
- Naphthalene : Japan ENCS phase-in substance
- 2-Ethylhexyl acrylate : Japan ENCS phase-in substance
- Ethyl acrylate : Japan ENCS phase-in substance
- Formaldehyde : Japan ENCS phase-in substance

16. OTHER INFORMATION

1) Reference

- Sources of information used in preparing this SDS included one or more of the following: Internal technical data, data from OECD eChemPortal, ECHA, NITE, TOXNET, IPCS and KOSHA search results.

2) Issue Date

- 2012-11-30

3) Revision number and Last date revised

○ **Number of revised**

- 4

○ **Date of last revision**

- 2026-01-05

○ **Last Revision History**

- 영문 개정

4) Other

- The information contained in the Safety Data Sheet is at the date of its issuance to the best of our knowledge

correct according to the data available to us. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.