

3) Other hazards

○ Product NFPA Level

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

Product name	Health	Flammable	Reaction
Kixx Trans I	0	1	0

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name	Trade names and Synonyms	CAS No.	EC No.	Contain Ratio(%)
Distillates (petroleum), hydrotreated light paraffinic	Mineral oil, petroleum distillates, hydrotreated (severe) light paraffinic	64742-55-8	265-158-7	99.90 ~ 99.99
2,6-di-tert-butyl-p-cresol	2,6-Bis(1,1-dimethylethyl)-4-methylphenol ; Butylated hydroxytoluene ; Butylhydroxytoluene ; 2,6-ter	128-37-0	204-881-4	0.01 ~ 0.1

4. FIRST AID MEASURES

1) Eye contact

- In case of contact with substance, immediately flush eyes with running water for at least 20 minutes.
- If eye irritation persists: Get medical advice/attention.

2) Skin contact

- In case of contact with substance, immediately flush skin with running water for at least 20 minutes.
- If skin irritation occurs: Get medical advice/attention.

3) Inhalation

- Do not use mouth-to-mouth method if victim inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
- Administer oxygen if breathing is difficult.
- IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
- Do not induce vomiting.

4) Ingestion

- Do not use mouth-to-mouth method if victim ingested the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
- IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
- IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

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**
- Use alcohol foam, carbon dioxide, or water spray when fighting fires involving this material.
 - Use dry sand or earth to smother fire.
 - Direct water (Unsuitable extinguishing media)
- 2) Special hazards arising from the substance or mixture**
- Fire may produce irritating, corrosive and/or toxic gases.
 - Heating may cause a fire or explosion.
- 3) Special protective equipment and precautions for firefighters**
- Rescuers should put on appropriate protective gear.
 - In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion.
 - Eliminate all ignition sources if safe to do so.

6. ACCIDENTAL RELEASE MEASURES

- 1) Health considerations and protective equipment**
- Clean up spills immediately, observing precautions in Protective Equipment section.
 - ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
 - Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
 - Please note that materials and conditions to be avoided.
- 2) Environmental precautions**
- Large spill: Prevent entry into waterways, sewers, basements or confined areas.
- 3) Methods and material for containment and cleaning up**
- Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container.
 - Absorb the liquid and scrub the area with detergent and water.

7. HANDLING AND STORAGE

- 1) Precautions for safe handling**
- Follow all MSDS/label precautions even after container is emptied because they may retain product residues.
 - Avoid breathing vapors from heated material.
 - Please note that materials and conditions to be avoided.
 - Handling refer to engineering control/personal protection section.
 - Use only outdoors or in a well-ventilated area.
- 2) Conditions for safe storage (including any incompatibilities)**
- Please note that materials and conditions to be avoided.
 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
 - Store in a well-ventilated place. Keep container tightly closed.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

- 1) Control parameters**

Chemical name	Exposure limits	ACGIH TLV	OSHA PEL	Biological limit values(BLV)
Distillates (petroleum), hydrotreated light paraffinic	Not available	TWA 5 mg/m ³ , Inhalable particulate matter(Mineral oil, Pure, highly and severely refined)	Not available	Not available
2,6-di-tert-butyl-p-cresol	TWA : 2 mg/m ³	TWA, 2 mg/m ³ , Inhalable particulate and vapor	Not available	Not available

2) Appropriate engineering controls

- Install local exhaust ventilation system.
- Check legal suitability of exposure level.

3) Personal protection equipment

- **Respiratory protection** - If exposure concentration of the material is lower than 100 ppm of the permitted exposure standards, Wear a respiratory protective device, equipped with an adequate filter by considering physicochemical properties of exposed particulate material ; such
 - If exposure concentration of the paticle material is lower than 250 ppm of the permitted exposure standards, Wear a respiratory protective device, equipped with an adequate filter by considering physicochemical properties of exposed particulate material
 - If exposure concentration of the particle material is lower than 500 ppm of the permitted exposure standards, Wear a respiratory protective device, equipped with an adequate filter by considering physicochemical properties of exposed particulate materia
 - If exposure concentration of the particle material is lower than 10000 ppm of the permitted exposure standards, Wear a respiratory protective device, equipped with an adequate filter by considering physicochemical properties of exposed particulate mater
 - If exposure concentration of the material is lower than 100000 ppm of the permitted exposure standards, Wear a respiratory protective device, equipped with an adequate filter by considering physicochemical properties of exposed particulate material ; su
 - If exposure concentration of the material exceeds the permitted exposure standards, Wear European Standard EN 149 approved full or half face piece (with goggles) respireatory protective equipment.
- **Eye protection** - An eye wash unit and safety shower station should be available nearby work place.
 - Wear breathable safety goggles to protect from vapour state organic material causing eye irritation or other disorder.
- **Hand protection** - Wear appropriate protective gloves by considering physical and chemical

properties of chemicals.

○ **Body protection**

- Wear appropriate protective clothing by considering physical and chemical properties of chemicals.

9. PHYSICAL AND CHEMICAL PROPERTIES

Item	Input Value
Appearance	Liquid
Color	Light yellow
Smell	a specific smell of Hydrocarbon
Smell Threshold	No Data
pH (Numerical value)	No Data
Melting/Freezing Point	No Data
Boiling Point (Numerical value)	No Data
Flash Point (Numerical value)	162 °C
Evaporating Rate	No Data
Flammability(Solid, Gas)	Not applicable
Explosibility Range	No Data
Steam Pressure	No Data
Solubility (Numerical value)	No Data
Vapor Density	No Data
Specific Gravity	No Data
Distribution Coefficient	No Data
Self-ignition Temperature	No Data
Pyrolysis Temperature	No Data
Viscosity (Numerical value)	2.2 mm ² /s (at 100°C)
Molecular Weight	No Data

10. STABILITY AND REACTIVITY

- 1) Chemical Stability and hazardous reactivity** - Can form explosive mixtures at temperatures at or above the flashpoint.
- Fire may produce irritating, corrosive and/or toxic gases.
- 2) Conditions to avoid** - Ignition source(heat, spark, flame, friction, shock, contamination)
- 3) Incompatible materials** - Combustibles
- 4) Hazardous decomposition products** - During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

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

- May be fatal if swallowed and enters airways.

- Absorbable through the inhalation

2) Health hazard information

Acute toxicity

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

- Distillates (petroleum), hydrotreated light paraffinic : rat(male/female); LD50 > 5000 mg/kg bw, no deaths (OECD TG 401, GLP) (read across: 64742-56-9) (ECHA)

- 2,6-di-tert-butyl-p-cresol : rat; LD50 > 6000 mg/kg bw, no deaths (OECD TG 401, GLP) (ECHA)

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

- Distillates (petroleum), hydrotreated light paraffinic : rabbit(male/female); LD50 > 5000 mg/kg bw, no deaths (OECD TG 402, GLP) (read across: 64742-56-9) (ECHA)

- 2,6-di-tert-butyl-p-cresol : rat; LD50 > 2000 mg/kg bw, no deaths (OECD TG 402, GLP) (ECHA)

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

- Distillates (petroleum), hydrotreated light paraffinic : Not applicable

- 2,6-di-tert-butyl-p-cresol : Not applicable

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

- Distillates (petroleum), hydrotreated light paraffinic : Not available

- 2,6-di-tert-butyl-p-cresol : Not available

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

- Distillates (petroleum), hydrotreated light paraffinic : rat(male/female); inhalation: aerosol; LC50 > 5.53 mg/L air /4h, no deaths (OECD TG 403) (read across: MRD-87-102) (ECHA)

- 2,6-di-tert-butyl-p-cresol : rat; inhalation : dust; LC50 > 2 mg/L 4 hr (산업안전보건연구원)

Skin corrosion/Irritation : Not classified

- Distillates (petroleum), hydrotreated light paraffinic : rabbit; not irritating (GLP) (read across: 64742-56-9) (ECHA)

- 2,6-di-tert-butyl-p-cresol : rabbit; very mild irritating (Total stimulus index : 0.3 - 0.7/8) (ECHA)

Serious eye damage/irritation : Not classified

- Distillates (petroleum), hydrotreated light paraffinic : rabbit; not irritating (OECD TG 405, GLP) (read across: 64742-56-9) (ECHA)

- 2,6-di-tert-butyl-p-cresol : rabbit; very mild irritating; all effects disappearing within 72 hours (conjunctiva)

○ **Respiratory sensitization : Not classified**

- Distillates (petroleum), hydrotreated light paraffinic : Not available
- 2,6-di-tert-butyl-p-cresol : Not available

○ **Skin sensitization : Not classified**

- Distillates (petroleum), hydrotreated light paraffinic : guinea pig; not sensitising (OECD TG 406, GLP) (ECHA)
- 2,6-di-tert-butyl-p-cresol : human; BHT was assessed as negative in the patch test with 11454 patients. (ECHA)

○ **Carcinogenicity : Not classified**

- Distillates (petroleum), hydrotreated light 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)
- 2,6-di-tert-butyl-p-cresol : IARC : Group 3 (Not Classifiable)
ACGIH : A4 (Not Classifiable as a Human Carcinogen)

○ **Germ cell mutagenicity : Not classified**

- Distillates (petroleum), hydrotreated light paraffinic : In vitro Bacterial Reverse Mutation Assay : positive (OECD TG 471) (read across: 64741-50-0) (ECHA), In Vitro Mammalian Chromosome Aberration Test : negative (OECD TG 473) (read across: L-06 Light Hydrotreated Feedstock) (ECHA)
In vivo Mammalian Erythrocyte Micronucleus Test : negative (OECD TG 474) (read across: solvent-extracted, dewaxed paraffin oil) (ECHA)
- 2,6-di-tert-butyl-p-cresol : in vitro Bacterial reverse mutation assay, with/without metabolic activation : Negative (OECD TG 471).
in vitro Mammalian Chromosome Aberration Test, with/without metabolic activation : Negative (OECD TG 473, GLP).
in vitro Mammalian reverse mutation assay, with/without metabolic activation : Negative (OECD TG 476).
in vivo Mammalian Hepatocyte Unscheduled DNA Synthesis(UDS) : Negative (OECD TG 486, GLP).
in vivo mouse bone marrow micronucleus test : Negative (OECD TG 474, GLP) (ECHA)

○ **Reproductive toxicity : Not classified**

- Distillates (petroleum), hydrotreated light paraffinic : rat(male/female); 1000 mg/kg/day; Reproduction / Developmental Toxicity Screening Test; 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. (OECD TG 421, GLP) (read across: Chevron 100 Neutral) (ECHA)
rat; Dermal administration of the base oil did not adversely affect maternal reproductive performance, nor did it affect offspring survival or development. (OECD TG 414) (read across: 100 SUS solvent refined base oil) (ECHA)

- 2,6-di-tert-butyl-p-cresol : rat; 25, 100, 500 mg/kg; two-generation carcinogenic test : No side effects to reproductive ability (ECHA)

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

- Distillates (petroleum), hydrotreated light paraffinic : oral; rat(male/female); No clinical signs of toxicity observed in either male or female rats. LD50 > 5000 mg/kg bw, no deaths (OECD TG 401, GLP) (read across: 64742-56-9) (ECHA)
dermal; rabbit(male/female); No visible signs of clinical toxicity were observed in male and female rabbits dosed with API 78-9 at 5000 mg/kg. LD50 > 5000 mg/kg bw, no deaths (OECD TG 402, GLP) (read across: 64742-56-9) (ECHA)
inhalation: aerosol; rat(male/female); The test material which was deposited on the animal fur during exposure diminished by observation Day 10. No mortality in either the control or exposed group was reported. There were no statistically significant differences in mean body weight between groups. LC50 > 5.53 mg/L air /4h, no deaths (OECD TG 403) (read across: MRD-87-102) (ECHA)
- 2,6-di-tert-butyl-p-cresol : oral; rat; The substance did not cause any remarkable symptoms which were due to the applicated compound. LD50 > 6000 mg/kg bw, no deaths (OECD TG 401, GLP) (ECHA)
dermal; rat; There were no clinical signs observed. LD50 > 2000 mg/kg bw, no deaths (OECD TG 402, GLP) (ECHA)

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

- Distillates (petroleum), hydrotreated light paraffinic : rabbit(male/female); 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. (OECD TG 410, GLP) (ECHA)
- 2,6-di-tert-butyl-p-cresol : rat; 2nd generation carcinogenicity test; Increased F1 generation liver enzymes, weight gain, hepatocellular lesions, hyperthyroidism, hepatomegaly; NOAEL(F1,male) = 25 mg/kg bw/day (GLP)
mouse, rat, hamster; dermal; Liver damage observed (ECHA)

○ **Aspiration hazard : Category 1**

- Distillates (petroleum), hydrotreated light paraffinic : 17.0 mm²/s (40 °C) (ECHA) & hydrocarbons
- 2,6-di-tert-butyl-p-cresol : 3.47 centistokes at 0 °C and 1.54 centistokes at 120 °C (ECHA) & not hydrocarbons

12. ECOLOGICAL INFORMATION

1) Ecotoxicity

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

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

Fish

- 2,6-di-tert-butyl-p-cresol : 96h-LC50(Oryzias latipes) = 1.1 mg/L (OECD TG 203, GLP) (ECHA)
- Distillates (petroleum), hydrotreated light paraffinic : 96h-LL50(Pimephales promelas) > 100 mg/L (OECD TG 203, GLP) (ECHA)

Invertebrates

- 2,6-di-tert-butyl-p-cresol : 48h-EC50(Daphnia magna) = 0.48 mg/L (OECD TG 202, GLP) (ECHA)
- Distillates (petroleum), hydrotreated light paraffinic : 48h-EL50(Daphnia magna) > 10000 mg/L (OECD TG 202) (ECHA)

Aquatic algae

- 2,6-di-tert-butyl-p-cresol : 72h-ErC50(Pseudokirchneriella subcapitata) > 0.24 mg/L (OECD TG 201, GLP) (ECHA)
- Distillates (petroleum), hydrotreated light paraffinic : Not available

○ Chronic (Long-term) aquatic hazard:

Fish

- 2,6-di-tert-butyl-p-cresol : 30d-NOEC(Oryzias latipes) = 0.053 mg/L (OECD TG 210, GLP) (ECHA)
- Distillates (petroleum), hydrotreated light paraffinic : Not available

Invertebrates

- 2,6-di-tert-butyl-p-cresol : 21d-NOEC(Daphnia magna) = 0.069 mg/L (OECD TG 211, GLP) (ECHA)
- Distillates (petroleum), hydrotreated light paraffinic : 21d-NOEL(Daphnia magna) = 10 mg/L (OECD TG 211, GLP) (ECHA)

Aquatic algae

- 2,6-di-tert-butyl-p-cresol : 72h-NOErC(Pseudokirchneriella subcapitata) = 0.24 mg/L (OECD TG 201, GLP) (ECHA)
- Distillates (petroleum), hydrotreated light paraffinic : 72h-NOErL(Pseudokirchneriella subcapitata) >=100 mg/L (OECD TG 201) (ECHA)

2) Persistence and degradability

○ Persistence

- 2,6-di-tert-butyl-p-cresol : log Kow = 5.2 (ECHA)
- Distillates (petroleum), hydrotreated light paraffinic : Not available

○ Degradability

- 2,6-di-tert-butyl-p-cresol : Not available
- Distillates (petroleum), hydrotreated light paraffinic : Not available

3) Bioaccumulative potential

○ Bioaccumulation

- 2,6-di-tert-butyl-p-cresol : BCF = 598.4 L/kg ww (ECHA)
- Distillates (petroleum), hydrotreated light paraffinic : Not available

○ Biodegradation

- 2,6-di-tert-butyl-p-cresol : 4.5% degradation after 28 days; not readily biodegradable (OECD TG 301 C) (ECHA)
- Distillates (petroleum), hydrotreated light paraffinic : 31 % degradation after 28d; not readily biodegradable (OECD TG 301F, GLP) (ECHA)

4) Mobility in soil

- 2,6-di-tert-butyl-p-cresol : Koc = 23030 (ECHA)
- Distillates (petroleum), hydrotreated light paraffinic : Not available

5) Hazard to the ozone layer

- 2,6-di-tert-butyl-p-cresol : Not applicable
- Distillates (petroleum), hydrotreated light paraffinic : Not applicable

6) Other adverse effects

- 2,6-di-tert-butyl-p-cresol : Not available

- Distillates (petroleum), hydrotreated light paraffinic : Not available

13. DISPOSAL CONSIDERATIONS

1) Disposal methods

- Waste must be disposed of in accordance with federal, state and local environmental control regulation.

2) Special precaution for disposal

- Consider the required attentions in accordance with waste treatment management regulation.

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)

- 2,6-di-tert-butyl-p-cresol : European EINECS phase-in substance
- Distillates (petroleum), hydrotreated light paraffinic : European EINECS phase-in substance

EU CLP (CLASSIFICATION) - PRODUCT : Not applicable

- 2,6-di-tert-butyl-p-cresol : Not applicable
- Distillates (petroleum), hydrotreated light paraffinic : Not applicable

Substances restricted under REACH

- 2,6-di-tert-butyl-p-cresol : Not applicable
- Distillates (petroleum), hydrotreated light paraffinic : Substances restricted under REACH

Substances subject to authorization under REACH - PRODUCT : Designated waste

REACH SVHC List

Korea

○ Occupational Safety and Health Act

- 2,6-di-tert-butyl-p-cresol : Substance subject to occupational exposure limits
- Distillates (petroleum), hydrotreated light paraffinic : Not applicable

○ **K-REACH**

- 2,6-di-tert-butyl-p-cresol : Phase-in Substances
- Distillates (petroleum), hydrotreated light paraffinic : Phase-in Substances

○ **Chemical Control Act in Korea**

- 2,6-di-tert-butyl-p-cresol : List of substance subjected to the PRTR
- Distillates (petroleum), hydrotreated light paraffinic : Not applicable

○ **Safety Control of Dangerous Substances Act**

- 2,6-di-tert-butyl-p-cresol : Not applicable
- Distillates (petroleum), hydrotreated light paraffinic : Dangerous substance

U.S.A

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

- 2,6-di-tert-butyl-p-cresol : Not applicable
- Distillates (petroleum), hydrotreated light paraffinic : Not applicable

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

- 2,6-di-tert-butyl-p-cresol : Not applicable
- Distillates (petroleum), hydrotreated light paraffinic : Not applicable

○ **CERCLA Section 302 regulation**

- 2,6-di-tert-butyl-p-cresol : Not applicable
- Distillates (petroleum), hydrotreated light paraffinic : Not applicable

○ **CERCLA Section 304 regulation**

- 2,6-di-tert-butyl-p-cresol : Not applicable
- Distillates (petroleum), hydrotreated light paraffinic : Not applicable

○ **CERCLA Section 313 regulation**

- 2,6-di-tert-butyl-p-cresol : Not applicable
- Distillates (petroleum), hydrotreated light paraffinic : Not applicable

Interntional Convention on Environment

○ **Rotterdam Convention list**

- 2,6-di-tert-butyl-p-cresol : Not applicable
- Distillates (petroleum), hydrotreated light paraffinic : Not applicable

○ **Stockholm Convention list**

- 2,6-di-tert-butyl-p-cresol : Not applicable
- Distillates (petroleum), hydrotreated light paraffinic : Not applicable

○ **Montreal Protocol list**

- 2,6-di-tert-butyl-p-cresol : Not applicable
- Distillates (petroleum), hydrotreated light paraffinic : Not applicable

National Inventory

○ **Korea**

- 2,6-di-tert-butyl-p-cresol : Phase-in Substances
- Distillates (petroleum), hydrotreated light paraffinic : Phase-in Substances

○ **U.S.A**

- 2,6-di-tert-butyl-p-cresol : US TSCA phase-in substance
- Distillates (petroleum), hydrotreated light paraffinic : US TSCA phase-in substance

○ **China**

- 2,6-di-tert-butyl-p-cresol : China phase-in substance

- Distillates (petroleum), hydrotreated light paraffinic : China phase-in substance

○ **Japan**

- 2,6-di-tert-butyl-p-cresol : Japan ENCS phase-in substance

- Distillates (petroleum), hydrotreated light paraffinic : Not applicable

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

- 2013-11-01

3) Revision number and Last date revised

○ **Number of revised**

- 1

○ **Date of last revision**

- 2019-12-02

○ **Last Revision History**

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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.