

SAFETY DATA SHEET

According to OSHA Hazcom Standard 29 CFR 1910.1200

KUMANOX-3111F

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Version: R0004.0001

1. IDENTIFICATION

A. Product name

- KUMANOX-3111F

B. Recommended use and restriction on use

- General use : Additive for paint, polymer additive, antioxidant
- Restriction on use : Not available

C. Manufacturer / Supplier / Distributor information

o Manufacturer information

- Company name : Kumho Petrochemical Co., Ltd.
- Address : 227 Yeosusandan 2-ro Yeosu-si Jeollanam-do, Korea
- Dept. : Production Technology Team
- Telephone number : +82-61-688-3920
- Emergency telephone number : +82-61-688-3931~4
- Fax number : +82-61-688-3939

o Supplier/Distributor information

- Company name :
- Address :
- Emergency telephone number :

2. HAZARD IDENTIFICATION

A. GHS Classification

- Acute toxicity (oral) : Category5
- Acute aquatic toxicity : Category2
- Chronic aquatic toxicity : Category2

B. GHS label elements

o Hazard symbols



o Signal words

- Warning

o Hazard statements

- H303 May harmful if swallowed.
- H401 Toxic to aquatic organisms.
- H411 Toxic to aquatic life with long lasting effects

o Precautionary statements

1) Prevention

- P273 Avoid release to the environment.

2) Response

- P312 Call a POISON CENTER or doctor/physician if you feel unwell.
- P391 Collect spillage.

3) Storage

- Not applicable

4) Disposal

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

C. Other hazards which do not result in classification

- Not available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Trade names and Synonyms	CAS No.	Content(%)
Styrenated phenol	Phenol, styrenated	61788-44-1	>99 - 100
Stabilizer	Not applicable	Trade secret	0.1- <1

4. FIRST AID MEASURES**A. Eye contact**

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

B. Skin contact

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

C. Inhalation contact

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

D. Ingestion contact

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

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

- Not available

F. Notes to physician

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

5. FIREFIGHTING MEASURES**A. Suitable (Unsuitable) extinguishing media**

- Use alcohol foam, carbon dioxide or water spray for extinguishing involving this material. Use dry sand or soil when suffocating
- Avoid use of water jet for extinguishing

B. Specific hazards arising from the chemical

- During burning, irritating and toxic gases may be generated by pyrolysis or combustion.
- Container may explode when heated
- Some can burn but do not ignite easily

C. Special protective actions for firefighters

- Move containers from fire area, if you can do without the risk.
- Cool containers with water until well after fire is out.
- Keep unauthorized personnel out.
- Use appropriate extinguishing measure suitable for surrounding fire.
- Wear appropriate protective equipment.
- Keep containers cool with water spray.
- Vapor or gas is burned at distant ignition sources can be spread quickly.

6. ACCIDENTAL RELEASE MEASURES**A. Personal precautions, protective equipment and emergency procedures**

- Wear proper personal protective apparatus as indicated in Section 8 and avoid skin contact and inhalation.

- Ventilate closed spaces before entering.
- Must work against the wind, let the upwind people to evacuate.
- Do not direct water at spill or source of leak.

B. Environmental precautions

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

C. Methods and materials for containment and cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notify the central and local government if the emission reach the standard threshold.
- Disposal of waste shall be in compliance with the Wastes Control?Act
- Appropriate container for disposal of spilled material collected.
- Small leak: sand or other non-combustible material, please let use absorption.
- Wipe off the solvent.
- Dike for later disposal.
- Prevent the influx to waterways, sewers, basements or confined spaces.

7. HANDLING AND STORAGE

A. Precautions for safe handling

- Wash thoroughly after handling.
- Obtain the instruction manual before use.
- Follow all MSDS and label precautions as product residue (vapour, liquid, solid) may remain even after the container is empty.
- Do not handle until all safety precautions have been read and understood.
- Use work clothes and shoes that can prevent static electricity.
- Do not inhale the steam prolonged or repeated.

B. Conditions for safe storage, including any incompatibilities

- Check regularly for leaks.
- Do not use damaged containers.
- Do not apply direct heat.
- Do not apply physical shock to the container.
- Prevent static electricity and keep away from combustible materials or heat sources.
- Collect them in sealed containers.
- Store away from water and sewer.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

A. Exposure limits

- o **ACGIH TLV**
 - [Stabilizer] : TWA, 2 ppm (7.3 mg/m3)
- o **OSHA PEL**
 - Not available

B. Engineering controls

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

C. Individual protection measures, such as personal protective equipment

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

- Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.
- Provide an emergency eye wash station and quick drench shower in the immediate work area.
- **Hand protection**
 - Wear appropriate glove.
- **Skin protection**
 - Wear appropriate clothing.
- **Others**
 - Not available

9. PHYSICAL AND CHEMICAL PROPERTIES

A. Appearance	
- Appearance	Liquid
- Color	Not available
B. Odor	Not available
C. Odor threshold	Not available
D. pH	7
E. Melting point/Freezing point	Not available
F. Initial Boiling Point/Boiling Ranges	310 °C ~ 313 °C
G. Flash point	182 °C
H. Evaporation rate	Not available
I. Flammability(solid, gas)	Not applicable
J. Upper/Lower Flammability or explosive limits	Not available
K. Vapour pressure	Not available
L. Solubility	59 mg/L (20°C)
M. Vapour density	Not available
N. Specific gravity(Relative density)	1.0816
O. Partition coefficient of n-octanol/water	log Pow > 4 (22 °C)
P. Autoignition temperature	Not available
Q. Decomposition temperature	Not available
R. Viscosity	400 ~ 800 cps (25 °C)
S. Molecular weight	220

10. STABILITY AND REACTIVITY

A. Chemical Stability

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

B. Possibility of hazardous reactions

- Hazardous Polymerization will not occur.

C. Conditions to avoid

- Avoid contact with incompatible materials and condition.

D. Incompatible materials

- Not available

E. Hazardous decomposition products

- May emit flammable vapour if involved in fire.

11. TOXICOLOGICAL INFORMATION

A. Information on the likely routes of exposure

- **(Respiratory tracts)**
 - Not available
- **(Oral)**
 - May harmful if swallowed.
- **(Eye·Skin)**
 - Not available

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

- **Acute toxicity**
 - * **Oral**
 - Product (ATEmix) : 2000mg/kg < ATEmix <= 5000mg/kg
 - [Styrenated phenol] : LD50 >2500 mg/kg Rat
 - [Stabilizer] : LD50 2190 mg/kg Rat (female)(NLM/HSDB)
 - * **Dermal**
 - Product (ATEmix) : >5000mg/kg
 - [Styrenated phenol] : LD50 > 7940 mg/kg Rabbit
 - [Stabilizer] : LD50 1300 mg/kg Rabbit (NLM/HSDB)
 - * **Inhalation**
 - Product (ATEmix) : >50.0mg/L
 - [Styrenated phenol] : LC50 158.31 mg/L/4hr (ECHA, predicted)
- **Skin corrosion/irritation**
 - [Styrenated phenol] : Rabbit skin irritation test result : Not irritating (OECD Guideline 405) (ECHA)
 - [Stabilizer] : Irritating to rabbit skin is observed (ECHA)
- **Serious eye damage/irritation**
 - [Styrenated phenol] : Rabbit eye irritation test result : Not irritating (OECD Guideline 405), human eye irritation test result : Not irritating (OECD Guideline 492) (ECHA)
 - [Stabilizer] : slightly irritating on eyes (ECHA)
- **Respiratory sensitization**
 - Not available
- **Skin sensitization**
 - Not available
- **Carcinogenicity**
 - * **IARC**
 - Not available
 - * **OSHA**
 - Not available
 - * **ACGIH**
 - Not available
 - * **NTP**
 - Not available
 - * **EU CLP**
 - Not available
- **Germ cell mutagenicity**
 - Not available
- **Reproductive toxicity**
 - Not available
- **STOT-single exposure**
 - [Stabilizer] : Stimulates airways when inhaled (KOSHA)
- **STOT-repeated exposure**
 - [Styrenated phenol] : Results of repeated administration oral toxicity test for 36 weeks using rats, NOAEL=150mg/kg, no side effects were observed in histopathology and biochemical tests. (ECHA)
- **Aspiration hazard**
 - Not available

12. ECOLOGICAL INFORMATION

A. Ecotoxicity

- **Fish**
 - [Styrenated phenol] : LC50 = 1 ~ 10 mg/L 96 hr (KOSHA), LC50 5.6 mg/L 96hr (ECHA)
 - [Stabilizer] : LC50 248.236 mg/l 96 hr (Estimate)
- **Crustaceans**
 - [Styrenated phenol] : EC50 4.6 mg/L 48 hr (NITE, ECHA)
 - [Stabilizer] : LC50 14.960 mg/l 48 hr (Estimate)
- **Algae**
 - [Styrenated phenol] : EC50 = 1.35 mg/L 72 hr (ECHA)
 - [Stabilizer] : EC50 16.423 mg/l 96 hr (Estimate)

B. Persistence and degradability

- **Persistence**
 - [Styrenated phenol] : > log Kow 4 (IUCLID)
 - [Stabilizer] : log Kow 0.43 (Estimate)
- **Degradability**
 - Not available

C. Bioaccumulative potential

- **Bioaccumulative potential**
 - [Styrenated phenol] : BCF = 18.21 (Estimate)
 - [Stabilizer] : BCF 3.162 (Estimate)
- **Biodegradation**
 - [Styrenated phenol] : Non-biodegradability, 7% (28days) (OECD 301, GLP) (KOSHA)
 - [Stabilizer] : 1 %, 28 day (Non-degradable) (NITE)

D. Mobility in soil

- Not available

E. Other adverse effects

- Not available

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

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

B. Special precautions for disposal

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

14. TRANSPORT INFORMATION**A. UN No. (IMDG CODE/IATA DGR)**

- 3082

B. Proper shipping name

- ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S.

C. Hazard Class

- 9

D. IMDG CODE/IATA DGR Packing group

- III

E. Marine pollutant

- Applicable

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

- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency requirements.
- EmS FIRE SCHEDULE : F-A (General fire schedule)
- EmS SPILLAGE SCHEDULE : S-F (Water-soluble marine pollutants)

15. REGULATORY INFORMATION**A. National and/or international regulatory information**

- **POPs Management Law**
 - [Stabilizer] : Not applicable
 - [Styrenated phenol] : Not applicable
- **Information of EU Classification**
 - * **Classification**
 - Not applicable
- **U.S. Federal regulations**
 - * **OSHA PROCESS SAFETY (29CFR1910.119)**
 - Not applicable
 - * **CERCLA Section 103 (40CFR302.4)**
 - Not applicable
 - * **EPCRA Section 302 (40CFR355.30)**
 - Not applicable
 - * **EPCRA Section 304 (40CFR355.40)**
 - Not applicable
 - * **EPCRA Section 313 (40CFR372.65)**
 - Not applicable
- **Rotterdam Convention listed ingredients**
 - Not applicable
- **Stockholm Convention listed ingredients**
 - Not applicable
- **Montreal Protocol listed ingredients**
 - Not applicable

16. OTHER INFORMATION

A. Reference

- The information contained herein is believed to be accurate. It is provided independently of any sale of the product for purpose of hazard communication. It is not intended to constitute performance information concerning the product. No express warranty, or implied warranty of merchantability or fitness for a particular purpose is made with respect to the product or the information contained herein.
- This Safety Data Sheet was compiled with data and information from the following sources: KOSHA, NITE, ESIS, NLM, SIDS, IPCS

B. Issue date

- 2015-05-19

C. Revision number and Last date revised

- 3 times, 2021-01-08

D. Other

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