SAFETY DATA SHEET

KUMAC-TS

Date of issue: 2013-06-13 **Revision date: 2018-08-30** **Version: R0002.0001**

1. IDENTIFICATION

A. Product name

- KUMAC-TS

B. Recommended use and restriction on use

- General use : Vivid color products, vulcanization accelerators for industrial supplies, cables and shoes
- Restriction on use : Not available

C. Manufacturer / Supplier / Distributor information

○ **Manufacturer information**

- Company name : Kumho Petrochemical Co., Ltd. Yeosu Specialty chemicals Plant
- 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
- E-mail address : kwseo08@kkpc.com

○ **Supplier/Distributer information**

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

2. HAZARD IDENTIFICATION

A. GHS Classification

- Acute toxicity (oral) : Category4
- Skin corrosion/irritation : Category3
- Specific target organ toxicity(Repeated exposure) : Category1
- Acute aquatic toxicity : Category2
- Chronic aquatic toxicity : Category2

B. GHS label elements

○ **Hazard symbols**

○ **Signal words**

- Danger

○ **Hazard statements**

- H302 Harmful if swallowed
- H316 Cause mild skin irritation.
- H372 Causes damage to organs through prolonged or repeated exposure (Refer Section SDS 11)
- H401 Toxic to aquatic organisms.
- H411 Toxic to aquatic life with long lasting effects

○ **Precautionary statements**

1) Prevention

- P260 Do not breathe dust/fume.
- P264 Wash hands thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P273 Avoid release to the environment.

2) Response

- P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
- P314 Get medical advice/attention if you feel unwell.
- P330 Rinse mouth.
- P332+P313 If skin irritation occurs: Get medical advice/attention.
- 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 : (NFPA Classification)

○ **NFPA grade (0 ~ 4 level)**

- Health : 2, Flammability : 1, Reactivity : 0

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Trade names and Synonyms	CAS No.	Content(%)
Tetramethylthiuram monosulfide	-	97-74-5	99.3
Water	-	7732-18-5	0.4
Ash	unknown impurities	Not applicable	0.3

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.
- Get medical attention immediately.

B. Skin contact

- Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Laundering enough contaminated clothing before reuse.
- Get medical attention immediately.

C. Inhalation contact

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

D. Ingestion contact

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

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

- Not available

F. Notes to physician

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

5. FIREFIGHTING MEASURES

A. Suitable (Unsuitable) extinguishing media

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

B. Specific hazards arising from the chemical

- Can be ignited by heat, spark, flame.
- The container may explode on heating.
- Some can be burn, but not easily ignite.
- During burning, pyrolysis or combustion can produce irritating and highly toxic gases.
- Inhalation of the substance may be harmful.
- Some fluids may cause dizziness, suffocation-causing vapors.

C. Special protective actions for firefighters

- Notify your local firestation and inform the location of the fire and characteristics hazard.
- Avoid inhalation of materials or combustion by-products.
- Do not access if the tank on fire.
- Use appropriate extinguishing measure suitable for surrounding fire.
- Wear appropriate protective equipment.
- Keep containers cool with water spray.

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.
- Must work against the wind, let the upwind people to evacuate.
- Move container to safe area from the leak area.
- Keep unauthorized people away,isolate hazard area and deny entry.

B. Environmental precautions

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

C. Methods and materials for containment and cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard amount
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Small liquid state spills: Appropriate container for disposal of spilled material collected.
- For disposal of spilled material in appropriate containers collected and clear surface.
- Prevent the influx to waterways, sewers, basements or confined spaces.

7. HANDLING AND STORAGE

A. Precautions for safe handling

- Avoid direct physical contact.
- Since emptied containers retain product residue(vapor, liquid, solid) follow all MSDS and label warnings even after container is emptied.
- Avoid contact with incompatible materials.
- Get the manual before use.

B. Conditions for safe storage, including any incompatibilities

- Do not apply any physical shock to container.
- Avoid direct sunlight.
- Keep in the original container.
- Please pay attention to incompatibilities materials and conditions to avoid.
- Keep sealed when not in use.
- Collected them in sealed containers.
- Do not eat, drink or smoke when using this product.
- Store away from water and sewer.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

A. Exposure limits

○ **ACGIH TLV**

- Not available

○ **OSHA PEL**

- Not available

B. Engineering controls

- A system of local and/or general exhaust is recommended to keep employee exposures above the Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. The use of local exhaust ventilation is recommended to control emissions near the source.

C. Individual protection measures, such as personal protective equipment

○ **Respiratory protection**

- Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
- Respiratory protection is ranked in order from minimum to maximum.
- Consider warning properties before use.
- Dust, mist, fume-purifying respiratory protection
- Any air-purifying respirator with a corpuscle filter of high efficiency
- Any respiratory protection with a electromotion fan(for dust, mist, fume-purifying)
- Self-contained breathing apparatus with a corpuscle filter of high efficiency
- 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.

○ **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	Solid(Pellets)
- Color	Yellow
B. Odor	No odor
C. Odor threshold	Not available
D. pH	Not available
E. Melting point/Freezing point	105 ℃
F. Initial Boiling Point/Boiling Ranges	Not available
G. Flash point	> 150 ℃
H. Evaporation rate	Not available
I. Flammability(solid, gas)	Not available
J. Upper/Lower Flammability or explosive limits	Not available
K. Vapour pressure	0.00027mmHg (25 ℃)
L. Solubility	Soluble(acetone, benzene, 1,2-dichloroethan), Insoluble(water)
M. Vapour density	Negligible at room temperatures
N. Specific gravity(Relative density)	1.4
O. Partition coefficient of n-octanol/water	1.17
P. Autoignition temperature	>200℃
Q. Decomposition temperature	Not available
R. Viscosity	Not available

S. Molecular weight	208.38

10. STABILITY AND REACTIVITY

A. Chemical Stability

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

B. Possibility of hazardous reactions

- Hazardous Polymerization will not occur.

C. Conditions to avoid

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

D. Incompatible materials

- Not available

E. Hazardous decomposition products

- May emit irritating, toxic gas if involved in fire.

11. TOXICOLOGICAL INFORMATION

A. Information on the likely routes of exposure

○ **(Respiratory tracts)**

- Not available

○ **(Oral)**

- Harmful if swallowed

○ **(Eye·Skin)**

- Cause mild skin irritation.

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

○ **Acute toxicity**

*** Oral**

- Product (ATEmix) : 300mg/kg < ATEmix ≤ 2,000mg/kg
- [Tetramethylthiuram monosulfide] : LD50 = 450 mg/kg Rat (NLM)
- [Water] : LD50 > 90,000 mg/kg Rat (KOSHA)

*** Dermal**

- Not available

*** Inhalation**

- Not available

○ **Skin corrosion/irritation**

- [Tetramethylthiuram monosulfide] : Cause mild skin irritation with rabbit. (ESIS)

○ **Serious eye damage/irritation**

- [Tetramethylthiuram monosulfide] : Cause mild skin irritation with rabbit. (ESIS)

○ **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**

- [Tetramethylthiuram monosulfide] : Salmonella typhimurium test result : positive (GENETOX)

○ **Reproductive toxicity**

- Not available

○ **STOT-single exposure**

- Not available

○ **STOT-repeated exposure**

- [Tetramethylthiuram monosulfide] : Causes damage to organs through prolonged or repeated exposure. Oral (Rat) = 26 mg/kg 28d, Category1 (SCA), Regulatory (EC) No 1272/2008 : STOT RE 2, specific-target organ: liver (ECHA)

○ **Aspiration hazard**

- Not available

12. ECOLOGICAL INFORMATION

A. Ecotoxicity

○ **Fish**

- [Tetramethylthiuram monosulfide] : LC50 5.3 mg/L 96 hr Poecilia reticulata (ECOTOX)

○ **Crustaceans**

- [Tetramethylthiuram monosulfide] : LC50 2.9 mg/L 48 hr Daphnia magna (ECOTOX)

○ **Algae**

- [Tetramethylthiuram monosulfide] : EC50 1 mg/L 96 hr Chlorella vulgaris (ESIS)

B. Persistence and degradability

○ **Persistence**

- [Tetramethylthiuram monosulfide] : log Kow 1.17 (ESIS)
- [Water] : log Kow = -1.38

○ **Degradability**

- Not available

C. Bioaccumulative potential

○ **Bioaccumulative potential**

- [Tetramethylthiuram monosulfide] : BCF 2 (HSDB)

○ **Biodegration**

- [Tetramethylthiuram monosulfide] : 0 (%) 28 day (It does not decompose. High potential to be scaled in vivo) (ESIS)

D. Mobility in soil

- [Tetramethylthiuram monosulfide] : Koc 2.528 (Estimate)

E. Other adverse effects

- Not available

13. DISPOSAL CONSIDERATIONS

A. Disposal methods

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

B. Special precautions for disposal

- The user of this product must 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

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

- 3077

B. Proper shipping name

- ENVIRONMENTALLY HAZARDOUS SUBSTANCES, SOLID, 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**

- Not applicable

○ **Information of EU Classification**

*** Classification**

- [Tetramethylthiuram monosulfide] : H302, H317, H411

○ **U.S. Federal regulations**

*** OSHA PROCESS SAFETY (29CFR1910.119)**

- Not applicable

*** CERCLA Section 103 (40CFR302.4)**

- [Tetramethylthiuram monosulfide] : kg 1 lb

*** 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

- 2013-06-13

C. Revision number and Last date revised

- 1 times, 2018-08-30

D. Other

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