

KUMHO PETROCHEMICAL	MATERIAL SAFETY DATA SHEET	reporting date	2010.05.18
		revising date	2011.06.13

1. IDENTIFICATION

A. PRODUCT NAME

KUMHO 1712

B. Recommended Use and Restriction on Use

- General use : Raw materials for rubber products (tires, rubber shoes, sneakers, rubber hoses, belts)
- Restriction on Use Not available

C. Information of Manufacturer/Supplier/distributor

– Manufacturer

- Company name Korea Kumho Petrochemical Co., Ltd.
- Address 680, Sanggae-dong, Nam-gu, Ulsan, 680-180 Korea
- Dept. Quality Assurance Team
- Telephone number +82-52-259-6051~7
- Fax number +82-52-259-6053

2. HAZARD IDENTIFICATION

A. GHS Classification :

Acute Inhalation toxicity : Category 4
 Skin corrosion/irritation : Category 2
 Skin sensitization : Category 1
 Carcinogenicity : Category 1B
 Specific target organ toxicity(repeated exposure) : Category 2
 (Liver, blood system)

B. Hazard identification :

- Hazard symbols



- Signal word

Danger

- Hazard statement

Harmful if inhaled
 Causes skin irritation
 May cause an allergic skin reaction
 May cause cancer
 May cause damage to liver, blood system through prolonged or repeated exposure.

- Precautionary statements

- Prevention: Avoid breathing dust/fume.
 Use only outdoors or in a well-ventilated area.
 Wash thoroughly after handling.
 Wear protective gloves/protective clothing/eye protection/face protection.
 Contaminated work clothing should not be allowed out of the workplace.
 Obtain special instructions before use.
 Do not handle until all safety precautions have been read and understood.
 Use personal protective equipment as required.

Do not breathe dust/fume.

- Response: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Call a POISON CENTER or doctor/physician if you feel unwell.
IF ON SKIN: Wash with plenty of soap and water.
If skin irritation occurs: Get medical advice/attention.
Take off contaminated clothing and wash before reuse.
If skin irritation or rash occurs: Get medical advice/attention.
Wash contaminated clothing before reuse.
IF exposed or concerned: Get medical advice/attention.
Get medical advice/attention if you feel unwell.
- Storage: Store locked up.
- Disposal: Dispose of contents/container in accordance with local/regional/national/international regulation

C. Other hazards which do not result in classification :

- NFPA rating: (0-4 steps)

Health=2, Flammability=1, Reactivity=0

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name	CAS No./ECL No./EINECS No.	Contents(%)
SBR	9003-55-8/KE-13258,KE-32267/-	67.6
Rosin	8050-09-7/KE-18168/232-475-7	5.0
Facid	68911-24-0/KE-16740/-	
Aromatic Oil	64742-04-7/KE-14163/275-055-9	27.0
STX	793-24-8/KE-11272/212-344-0	0.4 ~ 1.0

※ Reference No. : ECL(Registration number of Korean Existing Chemical List)
EINECS(Registration number of Europe Existing Chemical List)

4. FIRST-AID MEASURES

- A. Eye Contact : Flush the eye with plenty of water or saline solution.
Get medical attention if necessary.
- B. Skin Contact : Wash the contaminated skin area with plenty of water at least 15 minutes.
Remove all contaminated clothing and shoes.
Clothing and shoes laundry and dry thoroughly before reuse.

Get medical attention if suffered serious burns from hot materials.
No symptoms of skin irritation, but flush with water or showers if prolonged contact.
- C. Inhalation : Remove exposed person to fresh air.
If not breathing, give artificial respiration.
Use respirator when breathing is difficult.
Get medical attention if necessary.
- D. Ingestion : Do not drink anything to an unconscious person.
Rinse mouth with water if conscious and give 2~4 cups water or milk.
Vomiting occurs, head lower than hips to prevent blocking the airway.
Rinse mouth.
Get medical attention if necessary.
It is not harmful which doing the appropriate handling routine in the industry.
- E. Delay and immediate effects and also chronic effects from short and long term exposure :
- Inhalation : May cause mild irritation concerning short-term exposure.

- Skin corrosion/irritation : No data concerning severe toxicity.
- Serious eye damage/irritation : May cause mild irritation concerning short-term exposure.

F. Notice to Physician : No specific antidote. Treatment may vary with condition of victim and specifics of incident.

5. FIRE FIGHTING MEASURE

A. Suitable (Unsuitable) extinguishing media :

- Extinguishing media: Dry chemicals, CO₂, water, foam
- Unsuitable Extinguishing media : Waterjet
- Large Fire : Water, foam

B. Specific hazards arising from the chemical :

- Thermal decomposition products : CO, CO₂, fume, toxic gas.
- Fire and Explosion H : Slight fire hazard
Dust explosion possible in the presence of air.

C. Fire fighting procedures and equipments :

Wear appropriate personal protective equipment (see section 8. EXPOSURE CONTROLS/PERSONAL PROTECTION).

Do not disperse spilled material with water to avoid scattering.

Cool containers with water.

Avoid inhalation of vapors and use extinguishing media appropriate against the wind.

6. ACCIDENTAL RELEASE MEASURES

A. Personal Precautions, Protective Equipment and Emergency procedures :

Perform in accordance with 「See section 8 . EXPOSURE CONTROLS / PERSONAL PROTECTION」 . Put on appropriate personal protective equipment.

Suppress dust generation.

Avoid with heats, flames, sparks and other sources of ignition.

Ventilation conducted in an appropriate manner.

Use vapor suppression foam to reduce vapors.

B. Environmental Precautions :

Avoid dispersal of spilt material and runoff and contact with waterways, drains and sewers. If large spills, advise emergency services.

C. Methods and materials for containment and cleaning up :

Re-packaging dismantled rubber and if possible re-use.

Dispose of in compliance with all federal, state and local regulations.

7. HANDLING AND STORAGE

A. Handling :

Wear appropriate personal protective equipment(see section 8. EXPOSURE CONTROLS/PERSONAL PROTECTION).

Ventilate adequately.

Minimize occurrence of dust and accumulation.

Storage containers ground.

Avoid contact with eyes, skin and clothing.

Use non-sparking handtools and explosion-proof equipment.

Avoid contact with heats, sparks, flames.

Do not ingestion or inhalation.

Do not pressing, cutting, welding, soldering, bonding, drilling, grinding.

- B. Storage Precautionary Statements :
- Store at normal temperature.
 - Avoid with severe heats, other sources of ignition, strong oxidizing agents.
 - Save in cool, dry and well ventilated place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

A. Exposure limit

- Exposure limit under ISHL
 - SBR Not applicable
 - Rosin Not applicable
 - Facid Not applicable
 - Aromatic Oil TWA 0.8 mg/m³
 - STX Not applicable
- ACGIH
 - SBR Not applicable
 - Rosin For all routes of exposure should be controlled to levels as low as possible
 - Facid Not applicable
 - Aromatic Oil Not applicable
 - STX Not applicable
- Biological exposure limits
 - Not applicable

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. Personal Protective Equipment

- Respiratory Protection
 - Use the respirator be given official approval by Korea Occupational Safety & Health Agency. 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.
 - When take shelter
 - 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)
 - High-efficiency particulate filter respirator attached self-service protector.
 - For Unknown Concentration or Immediately Dangerous to Life or Health
 - Supplied-air respirator (Hybrid air-line mask).
 - Supplied-air respirator with full facepiece
- Eye Protection
 - Wear appropriate protective gloves.
- Hand Protection
 - Wear appropriate protective gloves.
- Body Protection
 - Wear appropriate chemical resistant protected clothing. Wear appropriate face protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

- A. Appearance : State - rubber, Color - Not available
- B. Odor : Mild odor
- C. Odor threshold : Not available

D. pH :	Not available
E. Melting point/Freezing point :	Not applicable
F. Initial Boiling Point/Boiling Ranges :	Not applicable
G. Flash point :	246 °C
H. Evapourating Rate :	Not applicable
I. Flammability(solid, gas) :	Not available
J. Upper/Lower Flammability or explosive limits :	Not available
K. Vapour pressure :	Not applicable
L. Solubility :	Insoluble
M. Vapour density(Air=1) :	Not applicable
N. Specific gravity :	0.92 ~ 0.96
O. Partition coefficient of n-octanol/water :	Not applicable
P. Autoignition Temperature :	> 388 °C
Q. Decomposition Temperature :	Not available
R. Viscosity :	Not applicable
S. Molecular weight :	Approximately 120,000

10. STABILITY AND REACTIVITY

A. Stability :	This material is stable under normal temperature and pressure.
B. Possibility of Hazardous Reaction :	Will not occur.
C. Conditions to Avoid :	Heats, flames, sparks and other sources of ignition Avoid contact with incompatible materials.
D. Materials to Avoid :	Not available
E. Hazardous Decomposition Products :	CO, CO ₂ , smoke, hydrocarbon

11. TOXICOLOGICAL INFORMATION

A. Information on the likely routes of exposure	
○ (Respiratory tracts) (Dust)	Harmful if inhaled.
○ (Oral)	Not available
○ (Eye ·Skin)	Causes skin irritation. May cause an allergic skin reaction.
B. Delayed and immediate effects and also chronic effects from short and long term exposure	
○ Acute toxicity :	
- Acute oral toxicity :	
SBR	Not available
Rosin LD50 (rat)	7600 mg/kg bw
Facid	Not available
Aromatic Oil LD50(rat)	> 5000 mg/kg bw
STX LD50(rat)	893 mg/kg
- Acute dermal toxicity :	
SBR	Not available
Rosin LD50 (rat)	2500 mg/kg bw
Facid	Not available
Aromatic Oil LD50(rabbit)	> 3000 mg/kg bw
STX LD50(rabbit)	3160 – 5010 mg/kg bw
- Acute Inhalation toxicity :	
SBR	Not available
Rosin LD50 (rat)	2.3 mg/l/4hr
Facid	Not available
Aromatic Oil	Not available
STX	Not available

- Skin corrosion/irritation :
 - SBR Not available
 - Rosin Mild irritation in the skin irritation test using the rats
 - Facid Not available
 - Aromatic Oil Rabbit, irritating, Draize Test
 - STX Rabbit, moderately irritating, Draize Test
- Serious eye damage/irritation :
 - SBR Not available
 - Rosin Mild irritant property in the eye irritation tests using the rats
 - Facid Not available
 - Aromatic Oil Rabbit, slightly irritating
 - STX Rabbit, slightly irritating, Draize Test
- Respiratory sensitization :
 - SBR Not available
 - Rosin It is listed as a chemical material which causes sensitivity at the Japanese Society of Occupational allergy.
 - Facid Not available
 - Aromatic Oil Not available
 - STX Not available
- Skin sensitization :
 - SBR Not available
 - Rosin Cutaneous sensitizing substances in Japan Society for Occupational Health. There was a case report of allergic contact dermatitis in ACGIH and DFGOT.
 - Facid Not available
 - Aromatic Oil Guinea pig, Buehler Test, not sensitizing
 - STX The substance was found to induce dermal sensitization in experimental animals and humans.
- Carcinogenicity : Not classify to be carcinogenic substance(A1) and carcinogenic substance of presumed(A2) in Public notice.
 - SBR IARC group 3
 - Rosin Not available
 - Facid Not available
 - Aromatic Oil Mouse, 2years, It was concluded that the test substance was a STRONG DERMAL CARCINOGEN.
 - STX Not available
- Germ cell mutagenicity :
 - SBR Not available
 - Rosin Not available
 - Facid Not available
 - Aromatic Oil Bacterial gene mutation assay, Mouse lymphoma assay, cell transformation assay – Positive
 - STX In Vitro Ames test – Negative, In Vivo Cytogenetic assay – Negative
- Reproductive toxicity :
 - SBR Not available
 - Rosin Not available
 - Facid Not available
 - Aromatic Oil Not available
 - STX Three generation study, rat, no effect on fertility, no effect on behavior.
- Specific target organ toxicity(single exposure) :
 - SBR Not available
 - Rosin Not available
 - Facid Not available
 - Aromatic Oil Not available

STX In an acute oral toxicity test used a rat, the abdominal position posture, the fall of the self-motion, the loss of strength of the hind leg, the walk abnormality.

○ Specific target organ toxicity(repeated exposure) :

SBR Not available

Rosin Not available

Facid Not available

Aromatic Oil Effects on the liver included increased relative weight and hepatocellular necrosis at all dose levels. Effects on the thymus included decreased weight at all dose levels and decreased lymphocytic cells in rats treated at higher levels.

STX In a repetition oral administration examination used rat, the fat of the portal vein circumference characteristics hepatocyte and increase of the liver weight and an anemia tendency were seen.

○ Aspiration hazard : Not available

C. Calculation the classification of the mixture(acute toxicity estimate calculation etc.) :

Acute oral, dermal and inhalation Toxicity

Acute toxicity estimate(ATEmix) :

$100 - (\sum C_{unknown} \text{ if } > 10\%) / ATE_{mix} = C_i / ATE_i$

- Acute oral toxicity estimate :

ATEmix = 3597 mg/kg, Not classified

(Contain about above 10% chemical substances of unknown

- Acute dermal toxicity estimate :

ATEmix = 2599 mg/kg, Not classified

(Contain about above 10% chemical substances of unknown

- Acute inhalation toxicity estimate :

ATEmix = 2.3 mg/l, Category 4

(Contain about above 10% chemical substances of unknown

12. ECOLOGICAL INFORMATION

A. Ecotoxicity :

○ Acute aquatic toxicity :

- Fish :

SBR Not available

Rosin Not available

Facid Not available

Aromatic Oil NOEC 1000 mg/L/96hr, *Salmo gairdneri*

STX LC50 0.028 mg/l/96hr, *Oryzias latipe*

- Invertebrate :

SBR Not available

Rosin EC50 4.5 mg/L/4hr, Crustacea (*Daphnia magna*)

Facid Not available

Aromatic Oil EL50 > 1000mg/L/48hr, *Daphnia magna*

STX EC50 0.23 mg/l/48hr, *Daphnia magna*

- Algae :

SBR Not available

Rosin Not available

Facid Not available

Aromatic Oil NOEC > 1000mg/L/72hr, EL50 > 1000mg/L/72hr, *Scenedesmus subspicatus*

STX EC50 0.6 mg/l/96hr, *Selenastrum capricornutum*

B. Persistence and degradability :

○ Persistence : Not available

○ Degradability :

SBR Not available

Rosin Not rapidly degrading (BOD 36-48%)

Facid Not available

Aromatic Oil Not available
STX Not available

C. Bioaccumulative potential :

- Bioaccumulation : Not available
- Biodegradability :
 - SBR Not available
 - Rosin Not available
 - Facid Not available
 - Aromatic Oil Not available
 - STX Biodegradation 7.2% after 32day

D. Mobility in soil : Not available

E. Other adverse effects : Not available

13. DISPOSAL CONSIDERATION

- A. Disposal methods : The user of this product must properly characterize the waste/container generated from the use of this product in accordance with all applicable federal, state and/or local laws and regulations in order to determine the proper disposal of the waste in accordance with all applicable federal, state and/or local laws and regulations.
- 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 local regulation.

14. TRANSPORT INFORMATION

- A. UN number : Not regulated for transport of dangerous goods.
- B. Proper shipping name : Not available
- C. Hazard class : Not available
- D. Packing group : Not available
- E. Marine pollutant : Not available
- F. Special precautions for user related to transport or transportation measures :
 - EmS FIRE SCHEDULE : F-A
 - EmS SPILLAGE SCHEDULE : S-A

15. REGULATORY INFORMATION

- A. Korea Industry Safety and Health Law (ISHL) : This product is subject to the chemical for classification and labeling under ISHL Article 41.
- B. The Toxic Chemical Control Act in Korea(TCCA) : This product is not classified as Toxic chemical and Observational chemical under TCCA Article 2.3. and 2.4. Toxic Release Inventory(TRI) Chemicals: Not regulated
- C. Dangerous goods Safety Management Law in Korea : Not applicable
- D. US regulations :
 - OSHA regulation (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

E. Other local or international regulation :

- POPs Management Law : Not applicable
- Rotterdam Convention on Harmful Chemicals & Pesticides : Not applicable
- Stockholm Convention on Persistent Organic Pollutants : Not applicable
- Montreal Protocol on Substances That Deplete the Ozone Layer : Not applicable
- Information of EU Classification :**
 - Aromatic oil
 - Classification : Carc. Cat. 2; R45
 - Risk Phrases : R45
 - Safety Phrase : S53, S45

16. OTHER INFORMATION

A. Reference :

This MSDS is prepared in accordance with ISHL Article 41 and MOL Notification No. 09-68 in Korea and consider the internal regulations by Korea Kumho Petrochemical Co., Ltd.
KOSHA (Korea Occupational Safety & Health Agency) GHS MSDS Database
OECD Existing Chemicals Database
European chemical Substances Information System
NITE (National Institute of Technology and Evaluation) in Japan

B. Issue date :

2010. 5. 18

C. Revision number and Last revised :

1 time, 2010. 6. 13

D. Other information :

Not available