

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

## 1. IDENTIFICATION

### A. PRODUCT NAME

KUMHO KNB 35LL

### B. Recommended Use and Restriction on Use

- General use : Raw materials for rubber products needing oilproof characteristic (automobile parts, rubber hoses, gaskets, 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 sensitization : Category 1  
 Respiratory sensitization : Category 1

### B. Hazard identification :

- Hazard symbols



- Signal word Danger
- Hazard statement Harmful if inhaled  
May cause an allergic skin reaction  
May cause an allergic reaction or asthma if inhaled

- Precautionary statements

- Prevention: Avoid breathing dust/fume.  
Contaminated work clothing should not be allowed out of the workplace.  
Wear protective gloves/protective clothing/eye protection/face protection.
- 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 or rash occurs: Get medical advice/attention.  
Wash contaminated clothing before reuse.
- Storage: Not applicable
- 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(%)
NBR	9003-18-3/KE-29396/-	94.0
Rosin	8050-09-7/KE-18168/232-475-7	5.0
Facid	68911-24-0/KE-16740/-	
STP	61788-44-1/KE-32262/262-975-0	1.0 ~ 2.0
K3020	110553-27-0/-/402-860-6	

※ 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 : Flush thoroughly with soap and water.  
Remove all contaminated clothing and shoes.  
In case of skin contact with heated rubber, do not remove material from damaged skin and get medical attention.  
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.  
All the symptoms that considers the potential hazards, get medical attention if necessary.  
It is not harmful which doing the appropriate handling routine in the industry.
- D. Ingestion : Do not drink anything to an unconscious person.  
Vomiting occurs, head lower than hips to prevent blocking the airway.  
Rinse mouth.
- 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. specifics of incident.

### 5. FIRE FIGHTING MEASURE

- A. Suitable (Unsuitable) extinguishing media :  
- Extinguishing media: Water, dry chemicals or foam  
- Unsuitable Extinguishing media Waterjet  
- Large Fire : Water
- B. Specific hazards arising from the chemical :  
- Thermal decomposit  
Hydrocarbons, hydrogen cyanide, sulfur oxides, nitrogen oxides, ammonia, carbon oxides and other oxides such as the irritating, toxic and flammable substances  
- Fire and Explosion H  
If you burn it, difficult to digest.  
Powder and dust leaks have the possibility of explosion.  
May ignited by heat, sparks, flames, heaters, and cigarette.

C. Fire fighting procedures and equipments :

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

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.

Avoid contact with the skin and fume condensate generated in the process.

Avoid with all sources of ignition.

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.

Isolate the area and deny entry until the cooling when exposed.

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.

Do not heat materials without the proper safety equipment.

Avoid contact with food, beverages, tobacco, cosmetics in the workplace.

B. Storage Precautionary Statements :

Store at normal temperature.

Avoid with severe heats, other sources of ignition, strong oxidizing agents.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

A. Exposure limit

- Exposure limit under ISHL :

Not applicable

- ACGIH

NBR Not applicable

Rosin For all routes of exposure should be controlled to levels as low as possible

Facid Not applicable

STP Not applicable

K3020 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 applicable
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 :	0.98
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 :	Not available

## 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 :	Avoid contact with severe heats.
D. Materials to Avoid :	Not available
E. Hazardous Decomposition Products :	Sulfur oxides, hydrogen cyanide, nitrogen oxides, ammonia, hydrocarbons, carbon dioxide and other oxides

## 11. TOXOCOLOGICAL INFORMATION

A. Information on the likely routes of exposure

- (Respiratory tracts) (Dust) Harmful if inhaled.
- (Oral) Not available
- (Eye · Skin) 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 :

NBR Not available  
Rosin LD50 (rat) 7600 mg/kg bw  
Facid Not available  
STP LD50(rat) 2500 mg/kg bw  
K3020 LD50(rat) > 5000 mg/kg

– Acute dermal toxicity :

NBR Not available  
Rosin LD50 (rat) 2500 mg/kg bw  
Facid Not available  
STP LD50(rabbit) > 7940 mg/kg bw  
K3020 LD50(rabbit) > 2000 mg/kg bw

– Acute Inhalation toxicity :

NBR Not available  
Rosin LD50 (rat) 2.3 mg/l/4hr  
Facid Not available  
STP Not available  
K3020 Not available

Skin corrosion/irritation :

NBR Not available  
Rosin Mild irritation in the skin irritation test using the rats  
Facid Not available  
STP Rabbit, not irritating  
K3020 Rabbit, not an irritant

Serious eye damage/irritation :

NBR Not available  
Rosin Mild irritant property in the eye irritation tests using the rats  
Facid Not available  
STP Rabbit, not irritating  
K3020 Rabbit, not an irritant

Respiratory sensitization :

NBR Not available  
Rosin It is listed as a chemical material which causes sensitivity at the Japanese Society of Occupational allergy.  
Facid Not available  
STP Not available  
K3020 Not available

Skin sensitization :

NBR 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  
STP Not available  
K3020 Skin sensitization in maximization test  
(Non-sensitization (Guinea pig, Maximization test))

Carcinogenicity : Not classify to be carcinogenic substance(A1) and carcinogenic substance of presumed(A2) in Public notice.

Germ cell mutagenicity :

NBR Not available  
Rosin Not available  
Facid Not available

STP in Vitro, Ames test(Salmonella typhimurium TA) – Negative,  
DNA damage and repair assay (comet assay) – Positive  
K3020 Ames Test – Non mutagenic, Micronucleus Test – Non mutagenic

○ Reproductive toxicity :

NBR Not available  
Rosin Not available  
Facid Not available  
STP Not available

K3020 A teratology study was performed with rats was slightly toxic to the mothers, there were no significant effects on pregnancy or embryo/fetal development.

○ Specific target organ toxicity(single exposure) : Not available

○ Specific target organ toxicity(repeated exposure) :

NBR Not available  
Rosin Not available  
Facid Not available

STP Rat, no significant toxic effects were noted.

K3020 A 90–day oral Gavage study was conducted in the rat. Effects included hypersalivation and increased liver weight without histopathologic changes.

○ 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) :

$100 - (\sum \text{Cunknown if} > 10\%) / \text{ATEmix} = \text{Ci} / \text{ATEi}$

– Acute oral toxicity estimate :

ATEmix = 6100 mg/kg, Not classified

(Contain about above 10% chemical substances of unknown

– Acute dermal toxicity estimate :

ATEmix = 2679 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 :

NBR Not available  
Rosin Not available  
Facid Not available  
STP Not available

K3020 LC50 > 100ppm/96hr, Zebra Fish (estimated, based on

– Invertebrate :

NBR Not available  
Rosin EC50 4.5 mg/L/4hr, Crustacea (Daphnia magna)  
Facid Not available  
STP Not available

K3020 EC 0 < 0.5 ppm/24hr, EC 100 > 5.5 ppm/24hr, Daphnia magna

– Algae :

NBR Not available  
Rosin Not available  
Facid Not available  
STP Not available

K3020 EL50 > 100mg/l/72hr, Scenedesmus subspicatus

B. Persistence and degradability :

- Persistence : Not available
- Degradability :
  - NBR Not available
  - Rosin Not rapidly degrading (BOD 36–48%)
  - Facid Not available
  - STP Not available
  - K3020 COD 2.66 g Oxygen/g

C. Bioaccumulative potential :

- Bioaccumulation : Not available
- Biodegradability :
  - NBR Not available
  - Rosin Not available
  - Facid Not available
  - STP Not available
  - K3020 Not biodegradable in Modified Sturm Test

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 :

– Rosin

- Classification : R43
- Risk Phrases : R43
- Safety Phrase : S2, S24, S37

## 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