

**SAFETY DATA SHEET
KUMHO 1789**

According to Regulation (EU) No 453/2010

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING
1.1. Product identifier

Product name KUMHO 1789

REACH Registration number -

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses Raw materials for rubber products (tires, rubber shoes, sneakers, rubber hoses, belts)

Uses advised against Not available.

1.3. Details of the supplier of the safety data sheet

Supplier (OR of KOREA KUMHO Petrochemical Co., Ltd.)

KIST-Europe
Universitaet des Saarlandes
66123, Saarbruecken,
Germany
Tel: +49 681 9382 334
Fax: +49 681 9382 319
e-mail: reach.it@kist-europe.de

Manufacturer Korea Kumho Petrochemical Co., Ltd.

64, Sanggae-ro, Nam-gu
Ulsan, Korea
680-180
Tel : +82-52-259-6051~7
Fax : +82-52-259-6053

1.4. Emergency telephone number

+49 551 19240

GlZ-Nord, Goettingen, Germany (English only)

SECTION 2: HAZARDS IDENTIFICATION
2.1. Classification of the substance or mixture
Classification (EC 1272/2008)

Physical and Chemical Hazards	Not classified.
Human health	Not classified.
Environment	Aquatic Chronic 3 - H412

Classification (1999/45/EEC) R52/53.

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

2.2. Label elements

Contains

N-(1,3-Dimethylbutyl)-N'-phenyl-1,4-phenylenediamine

SBR (Styrene-Butadiene Copolymer)

Resin acids and Rosin acids, potassium salts

Extracts (petroleum), residual oil solvent

Facid

Label In Accordance With (EC) No. 1272/2008

No pictogram required.

Hazard Statements

H412	Harmful to aquatic life with long lasting effects.
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Precautionary Statements

P273	Avoid release to the environment.
P501	Dispose of contents/container to ...

Supplemental label information

EUH208	Contains N-(1,3-Dimethylbutyl)-N'-phenyl-1,4-phenylenediamine. May produce an allergic reaction.
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2.3. Other hazards**SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS****3.2. Mixtures**

N-(1,3-Dimethylbutyl)-N'-phenyl-1,4-phenylenediamine

< 1%

CAS-No.: 793-24-8

EC No.: 212-344-0

Registration Number: 01-2119485839-15-0004

Classification (EC 1272/2008)

Acute Tox. 4 - H302

Skin Sens. 1 - H317

Aquatic Acute 1 - H400

Aquatic Chronic 1 - H410

Classification (67/548/EEC)

Xn;R22.

N;R50/53.

R43.

SBR (Styrene-Butadiene Copolymer)

66-70%

CAS-No.: 9003-55-8

EC No.:

Classification (EC 1272/2008)

Not classified.

Classification (67/548/EEC)

Not classified.

Resin acids and Rosin acids, potassium salts

1-5%

CAS-No.: 61790-50-9

EC No.: 263-142-4

Classification (EC 1272/2008)

Not classified.

Classification (67/548/EEC)

Not classified.

Extracts (petroleum), residual oil solvent

26-28%

CAS-No.: 64742-10-5

EC No.: 265-110-5

Classification (EC 1272/2008)

Not classified.

Classification (67/548/EEC)

Not classified.

Facid

1-5%

CAS-No.: 67701-06-8

EC No.:

Classification (EC 1272/2008)

Not classified.

Classification (67/548/EEC)

Not classified.

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

REACH Registration number

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SECTION 4: FIRST AID MEASURES**4.1. Description of first aid measures****General information**

Get medical attention.

Inhalation

Move into fresh air and keep at rest.

If respiratory problems, artificial respiration/oxygen.

Get medical attention if any discomfort continues.

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Ingestion

Rinse mouth.

Do not induce vomiting. If vomiting occurs, the head should be kept low so that stomach vomit doesn't enter the lungs.

Do not give victim anything to drink if he is unconscious.

Get medical attention if any discomfort continues.

Skin contact

Promptly wash contaminated skin with water. Promptly remove clothing if soaked through and wash the skin with water.

Continue to rinse for at least 15 minutes.

Get medical attention if any discomfort continues.

Wash contaminated clothing before reuse.

Eye contact

Do not rub eye. Promptly wash eyes with plenty of water while lifting the eye lids. Make sure to remove any contact lenses from the eyes before rinsing.

Continue to rinse for at least 15 minutes.

4.2. Most important symptoms and effects, both acute and delayed**Skin contact**

May produce an allergic reaction.

4.3. Indication of any immediate medical attention and special treatment needed

Treatment may vary with condition of victim and specifics of incident.

SECTION 5: FIREFIGHTING MEASURES**5.1. Extinguishing media****Extinguishing media**

Water. Foam. Carbon dioxide (CO₂). Dry chemicals.

Unsuitable extinguishing media

Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture**Hazardous combustion products**

Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.

Unusual Fire & Explosion Hazards

Heat may cause the containers to explode.

Specific hazards

When heated and in case of fire, irritating vapours/gases may be formed. Dust or gas may ignite by flames. Fire water contaminated with this chemical must be controlled or prevented from entering environment.

5.3. Advice for firefighters**Special Fire Fighting Procedures**

Keep up-wind to avoid fumes. Cool containers exposed to flames with water until well after the fire is out. Fight advanced or massive fires from safe distance or protected location. Avoid inhalation of materials or combustion by-products. Move container from fire area if it can be done without risk. Stay away from ends of tanks.

Protective equipment for fire-fighters

Use protective equipment appropriate for surrounding materials. Self-contained breathing apparatus.

SECTION 6: ACCIDENTAL RELEASE MEASURES**6.1. Personal precautions, protective equipment and emergency procedures**

Wear protective clothing as described in Section 8 of this safety data sheet. Keep upwind. Do not handle broken packages without protective equipment.

Provide adequate ventilation.

6.2. Environmental precautions

Store away from waterwork or drainage system. Prevent run-off from entering ground, storm sewers and ditches which lead to natural waterways. If large spills, call emergency services to get advice.

6.3. Methods and material for containment and cleaning up

Small Spillages: Collect spilled material in appropriate container for disposal. Large Spillages: Avoid lowland and keep upwind. Containers with collected spillage must be properly labelled with correct contents and hazard symbol. Disposal to licensed waste disposal site in accordance with local waste disposal authority.

6.4. Reference to other sections

For personal protection, see section 8. For waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE**7.1. Precautions for safe handling**

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Wear protective clothing as described in Section 8 of this safety data sheet. Provide adequate ventilation. Avoid heat, flames and other sources of ignition. Avoid handling which leads to dust formation. Anti-static boots. Anti-static suit.

7.2. Conditions for safe storage, including any incompatibilities

Store and handle in accordance with all current regulations and standards. Store in tightly closed original container in a dry, cool and well-ventilated place. Do not store near heat sources or expose to high temperatures. Ground container and transfer equipment to eliminate static electric sparks.

7.3. Specific end use(s)

Not available.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**8.1. Control parameters****DNEL**

Industry	Inhalation.	Short Term	Systemic Effects	56.8 mg/m ³
Industry	Inhalation.	Long Term	Systemic Effects	7.1 mg/m ³
Industry	Dermal	Short Term	Systemic Effects	8 mg/kg/day
Industry	Dermal	Long Term	Systemic Effects	1 mg/kg/day

DNEL Values correspond to N-(1, 3-Dimethylbutyl)-N'-phenyl-1, 4-phenylenediamine.

PNEC

Freshwater	0.00037	mg/l
Marinewater	0.000037	mg/l
STP	0.042	mg/l

PNEC Values correspond to N-(1, 3-Dimethylbutyl)-N'-phenyl-1, 4-phenylenediamine.

8.2. Exposure controls**Protective equipment****Process conditions**

Use engineering controls to reduce air contamination to permissible exposure level. Provide eyewash, quick drench.

Engineering measures

Provide adequate general and local exhaust ventilation.

Respiratory equipment

Wear suitable respiratory protection. Under frequent use or heavy exposure, respiratory protection may be needed. In case of dust formation, wear respirator with particle filter.

Hand protection

Wear suitable gloves.

Eye protection

Wear approved safety goggles.

Hygiene measures

Wash hands after handling.

Skin protection

Wear suitable protective clothing.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**9.1. Information on basic physical and chemical properties**

Appearance	Solid
Colour	Dark brown.
Odour	Mild.
Solubility	Insoluble in water
Initial boiling point and boiling range	
Not applicable.	
Melting point (°C)	
Not applicable.	
Relative density	
Not applicable.	

Vapour density (air=1)

Not applicable.

Vapour pressure

Not applicable.

Evaporation rate

Not applicable.

pH-Value, Conc. Solution

Not available.

pH-Value, Diluted Solution

Not available.

Viscosity

Not applicable.

Decomposition temperature (°C)

Not available.

Odour Threshold, Lower

Not available.

Odour Threshold, Upper

Not available.

Flash point 246 °C**Auto Ignition Temperature (°C)** > 388 °C**Flammability Limit - Lower(%)**

Not available.

Flammability Limit - Upper(%)

Not available.

Partition Coefficient**(N-Octanol/Water)**

Not applicable.

Explosive properties

Not available.

Other Flammability

Not available.

Oxidising properties

Not available.

9.2. Other information**Mol. Weight** ≈ 1,200, 000**SECTION 10: STABILITY AND REACTIVITY****10.1. Reactivity**

Not available.

10.2. Chemical stability

Stable under normal temperature conditions and recommended use.

10.3. Possibility of hazardous reactions

Will not occur.

10.4. Conditions to avoid

Avoid heat, flames and other sources of ignition.

10.5. Incompatible materials**Materials To Avoid**

Not available.

10.6. Hazardous decomposition productsDuring fire, toxic gases (CO, CO₂) are formed. Hydrocarbons.**SECTION 11: TOXICOLOGICAL INFORMATION****11.1. Information on toxicological effects****Acute toxicity:****Acute Toxicity (Oral LD₅₀)**

Not available.

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Acute Toxicity (Dermal LD50)

Not available.

Acute Toxicity (Inhalation LC50)

Not available.

Skin Corrosion/Irritation:

Not available.

Serious eye damage/irritation:

Not available.

Respiratory or skin sensitisation:**Respiratory sensitisation**

Not available.

Skin sensitisation

Not available.

Germ cell mutagenicity:**Genotoxicity - In Vitro**

Not available.

Genotoxicity - In Vivo

Not available.

Carcinogenicity:**Carcinogenicity**

Not available.

Reproductive Toxicity:**Reproductive Toxicity - Fertility**

Not available.

Reproductive Toxicity - Development

Not available.

Specific target organ toxicity - single exposure:**STOT - Single exposure**

Not available.

Specific target organ toxicity - repeated exposure:**STOT - Repeated exposure**

Not available.

Skin contact

May produce an allergic reaction.

Toxicological information on ingredients.

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N-(1,3-Dimethylbutyl)-N'-phenyl-1,4-phenylenediamine (CAS: 793-24-8)**Acute toxicity:****Acute Toxicity (Oral LD50)**

1005 mg/kg Rat

This test is conducted with male rat.

Acute Toxicity (Dermal LD50)

> 7940 mg/kg Rabbit

Acute Toxicity (Inhalation LC50)

Endpoint waived according to REACH Annex VII, IX or XI.

Skin Corrosion/Irritation:

Not irritating.

Serious eye damage/irritation:

Slightly Irritating.

Respiratory or skin sensitisation:**Skin sensitisation**

Guinea pig maximization test (GPMT): Guinea Pig

Sensitising.

Germ cell mutagenicity:**Genotoxicity - In Vitro**

Gene Mutation:

Species : Salmonella typhimurium TA 98, TA 100, TA 1535, TA 1537.

Negative.

Genotoxicity - In Vivo

Chromosome aberration:

Species : rat.

Negative.

Carcinogenicity:**Carcinogenicity**

NOAEL 1000 ppm Oral Rat

Reproductive Toxicity:**Reproductive Toxicity - Fertility**

Screening: NOAEL 100 mg/kg/day Oral Rat P

Reproductive Toxicity - Development

Maternal toxicity: NOAEL 50 mg/kg/day Inhalation. Rat

Facid (CAS: 67701-06-8)**Acute toxicity:****Acute Toxicity (Oral LD50)**

> 2000 mg/kg Rat

Acute Toxicity (Dermal LD50)

> 2000 mg/kg Rabbit

Acute Toxicity (Inhalation LC50)

> 0.1621 mg/l (vapours) Rat 4 hours

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Resin acids and Rosin acids, potassium salts (CAS: 61790-50-9)Acute toxicity:**Acute Toxicity (Oral LD50)**

> 2000 mg/kg Rat

Acute Toxicity (Dermal LD50)

> 2000 mg/kg Rat

Acute Toxicity (Inhalation LC50)

Endpoint waived according to REACH Annex VII, IX or XI.

Extracts (petroleum), residual oil solvent (CAS: 64742-10-5)Acute toxicity:**Acute Toxicity (Oral LD50)**

> 5000 mg/kg Rat

Acute Toxicity (Dermal LD50)

> 3000 mg/kg Rabbit

Acute Toxicity (Inhalation LC50)

> 5 mg/l (vapours) Rat 4 hours

Skin Corrosion/Irritation:**Erythema/oeschar score**

Mean erythema score intact skin : 2.42 (at time point 24 and 72hours).

Oedema score

Mean edema score intact skin : 2.5 (at time point 24 and 72 hours).

Species : rabbit.

Serious eye damage/irritation:

Not Irritating.

Respiratory or skin sensitisation:**Skin sensitisation**

Buehler test: Guinea Pig

Not Sensitising.

Germ cell mutagenicity:**Genotoxicity - In Vitro**

Gene Mutation:

Species : Salmonella typhimurium TA 98.

Negative.

Genotoxicity - In Vivo

Chromosome aberration:

Species : rat.

Negative.

Reproductive Toxicity:**Reproductive Toxicity - Fertility**

One-generation study: NOAEL >= 2000 mg/kg/day Dermal Rat P

Reproductive Toxicity - Development

Developmental toxicity: NOAEL 2000 mg/kg/day Dermal Rat

SECTION 12: ECOLOGICAL INFORMATION**Ecotoxicity**

There are no data on the ecotoxicity of this product.

12.1. Toxicity**Acute Toxicity - Fish**

Not available.

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Acute Toxicity - Aquatic Invertebrates

Not available.

Acute Toxicity - Aquatic Plants

Not available.

Acute Toxicity - Microorganisms

Not available.

Chronic Toxicity - Fish Early life Stage

Not available.

Short Term Toxicity - Embryo and Sac Fry Stages

Not available.

Chronic Toxicity - Aquatic Invertebrates

Not available.

Acute Toxicity - Terrestrial

Not available.

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Ecological information on ingredients.N-(1,3-Dimethylbutyl)-N'-phenyl-1,4-phenylenediamine (CAS: 793-24-8)**Acute Toxicity - Fish**

LC50 96 hours 0.028 mg/l Oryzias latipes (Red killifish)

Acute Toxicity - Aquatic Invertebrates

EC50 48 hours 0.69 mg/l Daphnia magna

Acute Toxicity - Aquatic Plants

NOEC 72 hours 0.23 mg/l

Species : Desmodium subspicatus.

Acute Toxicity - Microorganisms

EC50 3 hours 420 mg/l Activated sludge

Chronic Toxicity - Fish Early life Stage

LOEC 0.011 mg/l Oryzias latipes (Red killifish)

NOEC 0.0037 mg/l Oryzias latipes (Red killifish)

Exposure duration : 30 days.

Chronic Toxicity - Aquatic Invertebrates

NOEC 21 days 0.028 mg/l Daphnia magna

LOEC 21 days 0.087 mg/l Daphnia magna

Toxicity to soil:

Endpoint waived according to REACH Annex VII, IX or XI.

Toxicity to terrestrial plants:

Endpoint waived according to REACH Annex VII, IX or XI.

Facid (CAS: 67701-06-8)**Acute Toxicity - Fish**

LC50 96 hours 1354.4 mg/l Lepomis macrochirus (Bluegill)

Acute Toxicity - Aquatic Invertebrates

EC50 48 hours > 4.8 mg/l Daphnia magna

Acute Toxicity - Aquatic Plants

EC50 72 hours > 0.9 mg/l Sclerodermis capricornutum

(based on the growth rate)

Resin acids and Rosin acids, potassium salts (CAS: 61790-50-9)**Acute Toxicity - Fish**

LC50 96 hours 60.3 mg/l Brachydanio rerio (Zebra Fish)

Acute Toxicity - Aquatic Invertebrates

EC50 48 hours 3.8 mg/l Daphnia magna

Acute Toxicity - Aquatic Plants

NOEC 96 hours 0.0125 mg/l Scenedesmus subspicatus

Extracts (petroleum), residual oil solvent (CAS: 64742-10-5)**Acute Toxicity - Fish**

96 hours > = 1000 mg/l Onchorhynchus mykiss (Rainbow trout)

Endpoint : NOEL.

Acute Toxicity - Aquatic Invertebrates

48 hours > mg/l Daphnia magna

Endpoint : NOEL.

Acute Toxicity - Aquatic Plants

72 hours 34.9 mg/l Sclerodermis capricornutum

(Calculated from QSAR approach) Endpoint : NOEL. (based on the growth rate)

Acute Toxicity - Microorganisms

72 hours > 1000 mg/l

Endpoint : NOEL. Species : Tetrahymena pyriformis. (Calculated from QSAR approach)

Chronic Toxicity - Fish Early life Stage

28 days 63 mg/l Onchorhynchus mykiss (Rainbow trout)

Endpoint : NOEL. (Calculated from QSAR approach)

Chronic Toxicity - Aquatic Invertebrates

21 days > = 1000 mg/l Daphnia magna

Endpoint : NOEL.

12.2. Persistence and degradability

Not available.

Biodegradation

Not available.

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Ecological information on ingredients.N-(1,3-Dimethylbutyl)-N'-phenyl-1,4-phenylenediamine (CAS: 793-24-8)**Phototransformation**

Air. DT50 1.7 hours

Stability (Hydrolysis)

pH7 Half-life: 5 hours 50°C

Biodegradation

Water Degradation (2%) 28 days

Water and Sediment Degradation (97%) 22 hours

12.3. Bioaccumulative potential**Bioaccumulation factor**

Not available.

Partition coefficient

Not applicable.

Ecological information on ingredients.N-(1,3-Dimethylbutyl)-N'-phenyl-1,4-phenylenediamine (CAS: 793-24-8)**Bioaccumulation factor**

BCF 1.2 ~ 23 Cyprinus carpio (Common carp)

12.4. Mobility in soil**Mobility:**

Not available.

12.5. Results of PBT and vPvB assessment

This product does not contain any PBT or vPvB substances.

12.6. Other adverse effects

Not available.

SECTION 13: DISPOSAL CONSIDERATIONS**General information**

Dispose of contents/containers in accordance with local/regional/national/international regulations. Waste is suitable for incineration. If the waste contains designated waste and difficult to separate, incinerate it or reduce the volume following the similar way as incineration. If applicable, pretreat the waste by oil/water separation.

13.1. Waste treatment methods

Confirm disposal procedures with environmental engineer and local regulations. Residues and empty containers should be taken care of as hazardous waste according to local and national provisions.

SECTION 14: TRANSPORT INFORMATION**General**

The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA, ADR/RID).

14.1. UN number

Not applicable.

14.2. UN proper shipping name

Not applicable.

14.3. Transport hazard class(es)

Not applicable.

14.4. Packing group

Not applicable.

14.5. Environmental hazards**Environmentally Hazardous Substance/Marine Pollutant**

No.

14.6. Special precautions for user

Not applicable.

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not applicable.

SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**Authorisations (Title VII Regulation 1907/2006)**

No specific authorisations are noted for this product.

Restrictions (Title VIII Regulation 1907/2006)

No specific restrictions of use are noted for this product.

15.2. Chemical Safety Assessment

A chemical safety assessment has been carried out for Resin acids and Rosin acids, potassium salts (CAS:61790-50-9), Facid (CAS:67701-06-8), Extracts (petroleum), residual oil solvent (CAS:64742-10-5) and N-(1, 3-Dimethylbutyl)-N'-phenyl-1, 4-phenylenediamine (CAS:793-24-8).

SECTION 16: OTHER INFORMATION

Abbreviations and acronyms used in the safety data sheet

Precautionary Statements In Full.

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

Issued By KIST Europe

Safety Data Sheet Status Approved.

Date 29.08.2013

Risk Phrases In Full

R22 Harmful if swallowed.

R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

R43 May cause sensitisation by skin contact.

R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Hazard Statements In Full

H302 Harmful if swallowed.

H317 May cause an allergic skin reaction.

H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.

H412 Harmful to aquatic life with long lasting effects.

Disclaimer

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.