

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier**

Product form : Mixture
Name : KSL 111

1.2. Relevant identified uses of the substance or mixture and uses advised against**1.2.1. Relevant identified uses**

Use of the substance/mixture : Shatter resistant agent

1.2.2. Uses advised against

Restrictions on use : Not available

1.3. Details of the supplier of the safety data sheet**Manufacturer**

Kumho Petrochemical Co. Ltd
64, Sanggae-ro, Nam-gu, Ulsan, 44786, Republic of Korea
T +82-52-259-6051~7 - F +82-52-259-6053

Supplier

TsafeE GmbH
Landwehrpl 6, 66111, Saarbruecken, Germany
T +49 177 9166175
shkim@tsafeg.com

1.4. Emergency telephone number

Country	Organisation/Company	Address	Emergency number	Comment
Germany	Giftinformationszentrum-Nord der Länder Bremen, Hamburg, Niedersachsen und Schleswig-Holstein (GIZ-Nord) Universitätsmedizin Göttingen - Georg-August-Universität	Robert-Koch Straße 40 37075 Göttingen	+49 (0) 551 19240	(English only)

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture****Classification according to Regulation (EC) No. 1272/2008 [CLP]**

Not classified

Adverse physicochemical, human health and environmental effects

To our knowledge, this product does not present any particular risk, provided it is handled in accordance with good occupational hygiene and safety practice.

2.2. Label elements**Labelling according to Regulation (EC) No. 1272/2008 [CLP]**

No labelling applicable

2.3. Other hazards

Mixture does not contain substance (s) classified as PBT or vPvB in concentrations above 0,1%.

SECTION 3: Composition/information on ingredients**3.1. Substances**

Not applicable

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3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
WATER	(CAS-No.) 7732-18-5 (EC-No.) 231-791-2	51 – 52	Not classified
Methylenebutanedioic acid polymer with 1,3-butadiene, ethenylbenzene, methyl 2-methyl-2-propenoate and 2-propenoic acid	(CAS-No.) 70857-14-6	48 – 49	Not classified

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact	: In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash contaminated clothing before reuse.
First-aid measures after eye contact	: Do not rub affected area. Immediately rinse with plenty of water (for at least 15 minutes). Immediately call a POISON CENTER/doctor.
First-aid measures after ingestion	: Rinse mouth with water, do not induce vomiting, call a doctor.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects : Not available.

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

Treat symptomatically. Medical personnel should be made aware of substance(s) involved and take measures for self protection.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: Water spray. Use dry chemical, CO ₂ , water spray or regular foam. Dry sand.
Unsuitable extinguishing media	: Do not use water jet to extinguish.

5.2. Special hazards arising from the substance or mixture

Fire hazard	: Not combustible.
Explosion hazard	: Containers could explode when heated.
Reactivity in case of fire	: On exposure to high temperature, may decompose, releasing toxic gases. Inhalation of material could be harmful.
Hazardous decomposition products in case of fire	: Vapour could cause dizziness or suffocation.

5.3. Advice for firefighters

Firefighting instructions	: Get the package away from the fire if this can be done without risk. Inhalation of material could be harmful. No action shall be taken without appropriate training or involving any personal risk.
Protection during firefighting	: NOTIFY POLICE AND FIRE BRIGADE IMMEDIATELY. Withdraw immediately in case of rising sound from venting devices or discolouration from tank. Avoid inhalation of the product. Cool down the containers exposed to heat with a water spray. Fire fighting measures.

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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Avoid contact with skin and eyes. Keep upwind. Remove ignition sources. Wear suitable protective clothing, gloves and eye or face protection.

6.1.1. For non-emergency personnel

Emergency procedures : Use personal protective equipment (PPE). Notify fire brigade and environmental authorities.

6.1.2. For emergency responders

Emergency procedures : Stay upwind/keep distance from source. Do not touch spilled material. Stop leak if safe to do so. Remove all sources of ignition.

6.2. Environmental precautions

Prevent runoff from entering drains, sewers or waterways. Relevant water authorities should be notified of any large spillage to water course or drain.

6.3. Methods and material for containment and cleaning up

For containment : Clear spills immediately. Move the affected person away from the contaminated area.

Methods for cleaning up : In case of large spillages: Keep upwind. Take up mechanically (sweeping, shovelling) and collect in suitable container for disposal. Notify environmental authorities. Dispose of waste or used sacks/containers according to local regulations. Keep in suitable, closed containers for disposal. Small spillages: Take up liquid spill into absorbent material, e.g.: sand. Wipe off as much as possible (using a clean, soft, absorbent material).

Other information : Spill area may be slippery.

6.4. Reference to other sections

None under recommended storage and handling conditions (see section 7). For further information refer to section 8: "Exposure controls/personal protection". For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Read and follow the Safety Data Sheet (SDS) before use. Wear suitable protective clothing. Do not inhale vapour.

Hygiene measures : Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Keep only in original container.

Storage conditions : Keep out of direct sunlight. Keep the container hermetically sealed. Avoid shock and friction. Protect from heat and direct sunlight.

Storage temperature : 5 – 40 °C

7.3. Specific end use(s)

For further information see section 1.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 National occupational exposure and biological limit values

No additional information available

8.1.2. Recommended monitoring procedures

No additional information available

8.1.3. Air contaminants formed

No additional information available

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8.1.4. DNEL and PNEC

No additional information available

8.1.5. Control banding

No additional information available

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Appropriate engineering controls:

Ensure good ventilation of the work station. with local exhaust ventilation.

8.2.2. Personal protection equipment

Personal protective equipment symbol(s):



8.2.2.1. Eye and face protection

Eye protection:

Safety glasses. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure

8.2.2.2. Skin protection

Skin and body protection:

Wear suitable protective clothing

Hand protection:

Protective gloves

8.2.2.3. Respiratory protection

Respiratory protection:

A suitable particle filter mask is recommended, depending on the expected exposure levels. Full face piece respirator (organic vapours). High efficiency particulate air filter (HEPA filter). Use recommended respiratory protection

8.2.2.4. Thermal hazards

No additional information available

8.2.3. Environmental exposure controls

Environmental exposure controls:

Avoid release to the environment. Ecological information (Section 12).

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Colour	: milky white.
Molecular mass	: Not available
Appearance	: milky white.
Odour	: slight.
Odour threshold	: Not available
Melting point	: Not available
Freezing point	: Not available
Boiling point	: Not available

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Flammability	: Not available
Explosive limits	: Not available
Lower explosion limit	: Not available
Upper explosion limit	: Not available
Flash point	: Not available
Auto-ignition temperature	: Not available
Decomposition temperature	: Not available
pH	: 8 at 20°C
Viscosity, kinematic	: Not available
Viscosity, dynamic	: < 400 mPa.s at 20 °C
Solubility	: Not available
Partition coefficient n-octanol/water (Log Kow)	: Not available
Vapour pressure	: Not available
Vapour pressure at 50 °C	: Not available
Density	: Not available
Relative density	: Not available
Relative vapour density at 20 °C	: Not available
Particle size	: Not available
Particle size distribution	: Not available
Particle shape	: Not available
Particle aspect ratio	: Not available
Particle aggregation state	: Not available
	Not available
Particle agglomeration state	: Not available
Particle specific surface area	: Not available
Particle dustiness	: Not available

9.2. Other information

9.2.1. Information with regard to physical hazard classes

No additional information available

9.2.2. Other safety characteristics

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Not available.

10.2. Chemical stability

No additional information available

10.3. Possibility of hazardous reactions

Catches fire spontaneously if exposed to air.

10.4. Conditions to avoid

Avoid high temperatures.

10.5. Incompatible materials

Oxidising agents.

10.6. Hazardous decomposition products

Carbon dioxide (CO₂). smokes.

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SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity (oral)	: Not available
Acute toxicity (dermal)	: Not available
Acute toxicity (inhalation)	: Not available
Skin corrosion/irritation	: Not available
Serious eye damage/irritation	: Not available
Respiratory or skin sensitisation	: Not available
Germ cell mutagenicity	: Not available
Carcinogenicity	: Not available
Reproductive toxicity	: Not available
STOT-single exposure	: Not available
STOT-repeated exposure	: Not available
Aspiration hazard	: Not available

11.2. Information on other hazards

No additional information available

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.
Hazardous to the aquatic environment, short-term (acute)	: Not available
Hazardous to the aquatic environment, long-term (chronic)	: Not available
Not rapidly degradable	

12.2. Persistence and degradability

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Persistence and degradability	Not available.
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12.3. Bioaccumulative potential

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Bioaccumulative potential	Not available.
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12.4. Mobility in soil

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Mobility in soil	Not available
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12.5. Results of PBT and vPvB assessment

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12.6. Endocrine disrupting properties

Adverse effects on the environment caused by endocrine disrupting properties : Not available

12.7. Other adverse effects

Other adverse effects : Not available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Recycling is preferred to disposal or incineration. Oil-Water Separation. Dispose of in accordance with relevant local regulations. Dispose of contents/container in accordance with licensed collector's sorting instructions.

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

ADR	IMDG	IATA	ADN	RID
14.1. UN number or ID number				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.2. UN proper shipping name				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.3. Transport hazard class(es)				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.4. Packing group				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.5. Environmental hazards				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
No supplementary information available				

14.6. Special precautions for user

Overland transport

Not applicable

Transport by sea

Not applicable

Air transport

Not applicable

Inland waterway transport

Not applicable

Rail transport

Not applicable

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

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SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations

Contains no REACH substances with Annex XVII restrictions

Contains no substance on the REACH candidate list

Contains no REACH Annex XIV substances

Contains no substance subject to Regulation (EU) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of hazardous chemicals.

Contains no substance subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

15.1.2. National regulations

Germany

Employment restrictions

: Observe restrictions according Act on the Protection of Working Mothers (MuSchG)
Observe restrictions according Act on the Protection of Young People in Employment (JArbSchG)

Water hazard class (WGK)

: WGK 3, Highly hazardous to water (Classification according to AwSV, Annex 1)

Hazardous Incident Ordinance (12. BImSchV)

: Is not subject of the Hazardous Incident Ordinance (12. BImSchV)

Storage class (LGK, TRGS 510)

: LGK 12 - Non-combustible liquids

Joint storage table

LGK 1	LGK 2A	LGK 2B	LGK 3	LGK 4.1A
LGK 4.1B	LGK 4.2	LGK 4.3	LGK 5.1A	LGK 5.1B
LGK 5.1C	LGK 5.2	LGK 6.1A	LGK 6.1B	LGK 6.1C
LGK 6.1D	LGK 6.2	LGK 7	LGK 8A	LGK 8B
LGK 10	LGK 11	LGK 12	LGK 13	LGK 10-13

Joint storage not permitted for

: LGK 1, LGK 6.2, LGK 7

Joint storage with restrictions permitted for

: LGK 4.1A, LGK 4.3, LGK 5.1C

Joint storage permitted for

: LGK 2A, LGK 2B, LGK 3, LGK 4.1B, LGK 4.2, LGK 5.1A, LGK 5.1B, LGK 5.2, LGK 6.1A, LGK 6.1B, LGK 6.1C, LGK 6.1D, LGK 8A, LGK 8B, LGK 10, LGK 11, LGK 12, LGK 13, LGK 10-13

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Abbreviations and acronyms:

REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
DNEL	Derived-No Effect Level
PNEC	Predicted No-Effect Concentration
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
COD	Chemical oxygen demand (COD)
DMEL	Derived Minimal Effect level
EC-No.	European Community number

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EC50	Median effective concentration
EN	European Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
CAS-No.	Chemical Abstract Service number
N.O.S.	Not Otherwise Specified
vPvB	Very Persistent and Very Bioaccumulative
ED	Endocrine disrupting properties

Data sources : This safety data sheet was compiled with data and information from the following sources : RTECS, ECOSAR, HSDB, SIDS SIAP, ChemWATCH, CESAR, Chemical DB.

The classification complies with : ATP 12

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.