SAFETY DATA SHEET

Date Printed : 03 May 2010
Date Updated : 20 April 2017
Version : rev 2

1. IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

1.1 Product identifier

Name of the Product : KEPA1130, KEPA1150

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

Relevant identified uses : Parts of automobile, Cables, General industrial parts etc.
Uses advised against : No information

1.3 Details of the supplier of the Safety Data Sheet

Company name : KUMHO POLYCHEM CO., LTD.
Address : #144-6, Weoulha-dong, Yeosu-City, Cheonranam-Do, Korea
Contact Telephone : +82-61-688-2825
Fax : +82-61-688-2850
Email Address : spkjg09@polychem.co.kr

1.4. Emergency Telephone : +82-61-688-2700 (Fax: +82-61-688-2899)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Not classified according to OSHA 29 CFR 1910.1200

2.2 Label elements

Pictogram and symbol : Not applicable
Signal word : Not applicable
Hazard statements : Not applicable
Precautionary statements
Precaution : Not applicable
Treatment : Not applicable
Storage : Not applicable
Disposal : Not applicable

2.3 Other hazards : No information available

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Chemical Name	Common Name(Synonyms)	CAS number	EC number	Content (%)
maleic anhydride	2,5-Furandione	108-31-6	203-571-6	<1.0 %
ETHYLENE-PROPYLENE COPOLYMER	1-PROPENE, POLYMER WITH ETHYLENE	9010-79-1	618-455-4	50~100 %
Polypropylene	1-Propene, homopolymer	9003-07-0	618-352-4	0~30 %
ETHENE OCTENE COPOLYMER	ETHENE-1-OCTENE COPOLYMER	26221-73-8	607-890-5	0~50 %

4. FIRST-AID MEASURES

4.1 Description of first aid measures

After eye contact : - In case of contact with substance, immediately flush eyes with running water at least 20 minutes.

After skin contact :
- In case of contact with substance, immediately flush skin with running water at least 20 minutes.
- Remove and isolate contaminated clothing and shoes.
- Wash contaminated clothing and shoes before reuse.
- Get immediate medical advice/attention.

After inhalation :
- Specific medical treatment is urgent.
- Move victim to fresh air.
- Give artificial respiration if victim is not breathing.

- Administer oxygen if breathing is difficult.

After ingestion : - Do not let him/her eat anything, if unconscious.
- Get immediate medical advice/attention.

4.2 Most important symptoms and effects

Acute effects

None known.

Delayed effects

None known.

4.3 Indication of immediate medical attention and notes for physician

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable Extinguishing Media : - Dry sand, dry chemical, alcohol-resistant foam, water spray, regular foam, CO_2

Unsuitable Extinguishing Media : High pressure water streams -

5.2 Special hazards arising from the substance or mixture

- May be ignited by heat, sparks or flames.
- Containers may explode when heated.
- Some of these materials may burn, but none ignite readily.
- Fire will produce irritating and/or toxic gases.
- If inhaled, may be harmful.

5.3 Advice for firefighters

- Dike fire-control water for later disposal; do not scatter the material.
- Move containers from fire area if you can do it without risk.
- Fire involving Tanks; Cool containers with flooding quantities of water until well after fire is out.
- Fire involving Tanks; Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Fire involving Tanks; Always stay away from tanks engulfed in fire.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

-- Eliminate all ignition sources.
- Stop leak if you can do it without risk.
- Please note that materials and conditions to avoid.
- Ventilate the area.
- Do not touch or walk through spilled material.
- Prevent dust cloud.

6.2 Environmental precautions

- Prevent entry into waterways, sewers, basements or confined areas..

6.3 Methods and material for containment and cleaning up

-- Small Spill; Flush area with flooding quantities of water. And take up with sand or other non-combustible absorbent material and place into containers for later disposal.
- Large Spill; Dike far ahead of liquid spill for later disposal.
- With clean shovel place material into clean, dry container and cover loosely; move containers from spill area.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

- Please note that materials and conditions to avoid.
- Wash thoroughly after handling.
- Please work with reference to engineering controls and personal protective equipment.
- Be careful to high temperature.

7.2 Conditions for safe storage, including any incompatibilities

- Store in a closed container.

- Store in cool and dry place.

7.3 Specific end use(s)

- None

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Occupational Exposure Limits :

o Korea regulation	**:** maleic anhydride TWA = 0.4 mg/m³
o ACGIH regulation	**:** maleic anhydride TWA 0.01 mg/m³ (inhalable fraction and vapor)
o Biological exposure index	**:** No information available
o OSHA regulation	**:** maleic anhydride : TWA = 0.25 ppm (1 mg/m³)
o NIOSH regulation	**:** maleic anhydride : TWA = 1 mg/m³
o EU regulation	**:** Not applicable

8.2 Exposure controls

Appropriate engineering controls :

-- Provide local exhaust ventilation system or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

Individual protection measures, such as personal protective equipment :

Respiratory protection :

- Wear NIOSH or European Standard EN 149 approved full or half face piece (with goggles) respiratory protective equipment when necessary.
- In case exposed to particulate material, the respiratory protective equipments as follow are recommended. ;facepiece filtering respirator or air-purifying respirator, high-efficiency particulate air(HEPA) filter media or respirator equipped with powered fan, filter media of use(dust, mist, fume)
- In lack of oxygen(< 19.5%), wear the supplied-air respirator or self-contained breathing apparatus.oxygen

Eye protection :

- Wear facepiece with goggles to protect.
- An eye wash unit and safety shower station should be available nearby work place.
- Wear breathable safety goggles to protect from particulate material causing eye irritation or other disorder.
- An eye wash unit and safety shower station should be available nearby work place.

Hand protection :

- Wear chemical resistant gloves.
- Wear appropriate protective gloves by considering physical and chemical properties of chemicals.

Body protection :

- Wear appropriate protective chemical resistant clothing.
- Wear appropriate protective clothing by considering physical and chemical properties of chemicals.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	
Description :	Solid(Pellet)
Color :	White
Odor :	Slight Odor
Odor threshold :	Not available
pH :	Not applicable
Melting point/freezing point :	Not applicable
Initial boiling point and boiling range :	Not applicable

Flash point :	250 ℃
Evaporation rate :	Not applicable
Flammability (solid, gas) :	Not available
Upper/lower flammability or explosive limits :	Not applicable
Vapor pressure :	Not applicable
Solubility (ies) :	Insoluble in water
Vapor density :	Not applicable
Specific gravity :	0.86 ~ 0.89
Partition coefficient: n-octanol/water :	Not applicable
Auto ignition temperature :	Not available
Decomposition temperature :	300 ℃
Viscosity :	Not applicable
Explosive properties :	Not applicable
Oxidizing properties :	Not applicable
Molecular weight :	100,000 ~ 600,000

9.2 Other information : No information available

10. STABILITY AND REACTIVITY

10.1 Reactivity/Chemical stability/Possibility of hazardous reactions
- Fire may produce irritating and/or toxic gases.
- If inhaled, may be harmful.

10.2 Conditions to avoid : Heat, sparks or flames

10.3 Incompatible materials : Combustibles

10.4 Hazardous decomposition products : Irritating and/or toxic gases

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicology effects

Acute toxicity;

Oral	Not classified - **maleic anhydride** : Rat LD_{50} = 400 mg/kg
Dermal	Not classified - **maleic anhydride** : Rabbit LD_{50} = 2,620 mg/kg
Inhalation	Not classified - **maleic anhydride** : Rat LD_{50} > 4.35 mg/L/1hr
Skin Corrosion/ Irritation;	Not classified - **maleic anhydride** : In test on skin irritation with rabbits, skin irritations were observed.
Serious Eye Damage/ Irritation;	Not classified - **maleic anhydride** : In test on eyes irritation with rabbits, eyes irritations were observed.(GLP)
Respiratory sensitization;	Not classified - **maleic anhydride** : In test on Respiratory sensitization with rats, respiratory sensitizations were observed.
Skin Sensitization;	Not classified - **maleic anhydride** : In test on Skin sensitization with mice, skin sensitizations were observed
Carcinogenicity;	Not classified
IARC	- **Polypropylene** : Group 3
ACGIH	- **maleic anhydride** : A4 - **maleic anhydride** : In test on carcinogenicity with rats, carcinogenicity was not observed.(OECD TG 451)
Mutagenicity;	Not classified - **maleic anhydride** : In the ames test, the result of the assay was negative.

(OECD TG 471)

Reproductive toxicity;	Not classified - **maleic anhydride** : In the toxicity to reproduction test using rat, there were no effects on clinical signs, mortality(OECD TG 416, GLP)
Specific target organ toxicity (single exposure);	Not classified - **maleic anhydride** : In the acute oral toxicity using rat, there were no effects on clinical signs, systemic toxicity(OECD TG 401)
Specific target organ toxicity (repeat exposure);	Not classified - **maleic anhydride** : In the repeated Dose 30-Day inhalation toxicity test using rat, respiratory system irritation were observed. (LOAEC = 0.01mg/L air)(OECD TG 412)
Aspiration Hazard;	Not available

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Acute toxicity	Not classified
Chronic toxicity	Not classified
Fish	- **maleic anhydride :** 96hr-LC_{50} (*Salmo gairdneri*) = 75 mg/L - **Polypropylene :** Acute toxicity is not classified because of poor solubility (water solubility <1 mg / L) and predicted L(E)C50 exceeding water solubility.
crustacean	- **maleic anhydride :** 48hr-LC_{50} (*Daphnia magna*) = 330 mg/L, 21d-NOEC (*Daphnia magna*) = 10 mg/L - **Polypropylene :** Acute toxicity is not classified because of poor solubility (water solubility <1 mg / L) and predicted L(E)C50 exceeding water solubility.
Algae	- **maleic anhydride :** 72hr-EC_{50} (*Selenastrum capricornutum*) > 150 mg/L, 72hr-NOEC (*Selenastrum capricornutum*) = 150 mg/L (OECD TG 201, GLP) - **Polypropylene :** Acute toxicity is not classified because of poor solubility (water solubility <1 mg / L) and predicted L(E)C50 exceeding water solubility.

12.2 Persistence and degradability

Persistence	- **Polypropylene :** High persistency (log Kow is more than 4 estimated.) (Log Kow = 17.21) (estimated)
Degradability	Not available

12.3 Bioaccumulative potential

Bioaccumulation	- **maleic anhydride** : Bioaccumulation is expected to be low according to the BCF < 500 (BCF = 5) - **Polypropylene** : Bioaccumulation is expected to be low according to the BCF < 500 (BCF = 3.162) (estimated)
Biodegradation	- **maleic anhydride** : As well-biodegraded, it is expected to have low accumulation potential in living organisms (= 93% biodegradation was observed after 11 days) (OECD TG 301B, GLP)
12.4 Mobility in soil	- **maleic anhydride** : Low potency of mobility to soil. (Koc = 42) - **Polypropylene** : High potency of mobility to soil. (Koc = 8.633e+014) (estimated)
12.5 Results of PBT and vPvB assessment	No information available
12.6 Other adverse effects	No information available
12.7 Hazardous to the ozone layer	Not applicable

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Disposal Methods

- Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Precautions for disposal

- Consider the required attentions in accordance with waste treatment management regulation.

14. TRANSPORT INFORMATION

14.1 UN number : Not applicable to the criteria for classification

14.2 UN proper shipping name : Not applicable to the criteria for classification

14.3 Transport hazard class : Not applicable to the criteria for classification

14.4 Packing group : Not applicable to the criteria for classification

14.5 Environmental hazards : Not applicable to the criteria for classification

14.6 Special precautions for user

- in case of fire : Not applicable

- in case of leakage : Not applicable

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not applicable

15. REGULATORY INFORMATION

15.1 Internal Regulatory information

U.S.A management information (Section 8(b) Inventory (TSCA)	- **maleic anhydride** : Present - **ETHYLENE-PROPYLENE COPOLYMER** : Present[XU] - **Polypropylene** : Present[XU] - **ETHENE OCTENE COPOLYMER** : Present[XU]
U.S.A management information (OSHA Regulation)	Not regulated
U.S.A management information (CERCLA Regulation)	- **maleic anhydride** : CERCLA RQ 5000 lb
U.S.A management information (EPCRA 302 Regulation)	Not regulated
U.S.A management information (EPCRA 304 Regulation)	Not regulated
U.S.A management information (EPCRA 313 Regulation)	- **maleic anhydride :** Regulated

15.2 Foreign Regulatory Information

KOREA Regulatory information	
Occupational Safety and Health Regulation	Not regulated
	- **maleic anhydride :** Work environment monitoring listed (6 months) - **maleic anhydride :** Administration subject listed - **maleic anhydride :** Health examination agent (12 months)
Chemical Control Act	Not regulated
Dangerous Material Safety Management Regulation	Not regulated **-maleic anhydride :** Non-dangerous goods
External information	
Substance of Roterdame Protocol	Not regulated
Substance of Stockholme Protocol	Not regulated
Substance of Montreal Protocol	Not regulated

16. OTHER INFORMATION

16.1 Information source and references

U.S. National library of Medicine(NLM) Hazardous Substances Data Bank(HSDB); http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB

EPISUITE v4.1; http://www.epa.gov/opt/exposure/pubs/episuitedl.htm

U.S. National library of Medicine(NLM) ChemIDplus; http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?CHEM

National Emergency Management Agency-Korea dangerous material inventory management system; http://www.nema.go.kr/hazmat/main/main.jsp

Korea Occupational Health & Safety Agency; http://www.kosha.net

Eastman Chemical Company SDS

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans; http://monographs.iarc.fr
LookChem; http://www.lookchem.com/
National Chemicals Information System; http://ncis.nier.go.kr/ncis/
TOMES-LOLI® ; http://www.rightanswerknowledge.com/loginRA.asp
Waste Control Act enforcement regulation attached [1]
The Chemical Database -The Department of Chemistry at the University of Akron; http://ull.chemistry.uakron.edu/erd/
guidechem; http://www.guidechem.com
National Toxicology Program; http://ntp-apps.niehs.nih.gov/ntp_tox/index.cfm
American Conference of Governmental Industrial Hygienists TLVs and BEIs.
NIOSH Pocket Guide; http://www.cdc.gov/niosh/npg/npgdcas.html
REACH information on registered substances; http://apps.echa.europa.eu/registered/registered-sub.aspx
EU CLP; http://esis.jrc.ec.europa.eu/index.php?PGM=cla

16.2 Issuing date : 03 May 2010

16.3 Revision number and date

revision number : (2)

date of the latest revision : 20 April 2017

16.4. Other

•This SDS is authored in pursuant to the OSHA 29 CFR 1910.1200.

•The content is based on the latest information and knowledge that we currently possess.

•This SDS was authored to aid buyer, processor or any other third person who handles the chemical of subject in the SDS; additionally, it does not warrant suitability of the chemical for special purposes or the commercial use of statements that approves the use of it in combination with other chemicals as well as technical or legal liabilities.

•The content of the SDS may vary depending on the country or the region and may not coincide with the actual regulations. Therefore, the buyer or the processor of the chemical is responsible for observing responsible government's or the region's regulations.