

SAFETY DATA SHEET

Date Printed: January 20, 2020

Version: 4

Regulation: According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

1. Identification

1.1 Product identifier

1.1.1 Product name: KH-10, KH-31G, KH-31S, KH-60, KM-31, KM-60, KL-10, KL-31, KL-31M, KL-701, EH-105H, EM3090, EM2070, EL-102, EL-103, EL-103H, EL-709, KBM-4, HB-65, HB-100

1.1.2 Other means of identification: Poly(vinyl chloride)

1.2 Recommended use of the chemical and restrictions on use

1.2.1 Recommended use: It is also used for wallpaper, flooring, sealants, tarpaulins, rainwear, belts, shoe soles, textiles for the film, nonflammable cover, plumbing, crab baskets.

1.2.2. Restrictions on use: Do not use for purposes other than those recommended

1.3 Details of the supplier of the safety data sheet

1.3.1 Manufacturer

Company name: Hanwha Solutions Co, Ltd.

Address: Ulsan plant, Hanwha Solutions Co, Ltd., 22 Saneop-ro 440-gil, Nam-gu, Ulsan, Korea

Prepared by: PVC Production 2 Team

Contact Telephone: +82-52-279-5344

1.3.2 Supplier&Distributor

Company name: Hanwha Solutions Co, Ltd.

Address: Hanwha Building, 86 Chenggyecheon-ro, Jung-gu, Seoul, Korea

Prepared by : PSR Sales Team

Contact Telephone: +82-2-729-2773, +82-2-729-4079

1.4 Emergency phone number

Emergency phone: +82-2-729-2773 (Sales) / +82-52-279-5344 (Plant)

2. Hazard(s) identification

2.1 Classification of the substance or mixture

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Physical / Chemical Hazards:

Not classified

Health Hazards:

Not classified

Environmental Hazards:

Not classified

2.2 Label elements, including precautionary statements

o **Pictogram and symbol:** Not applicable

o **Signal word:** Not applicable

o **Hazard statements:** Not applicable

o **Precautionary statements:**

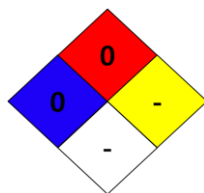
- **Precaution:** Not applicable

- **Treatment:** Not applicable

- **Storage:** Not applicable

- **Disposal:** Not applicable

2.3 Other hazard information not included in hazard classification (National Fire Protection Association; NFPA)



- o **Health:** 0
- o **Flammability:** 0
- o **Reactivity:** -
- o **Specific hazard:** -

3. Composition/information on ingredients

Component	Common name and synonyms	CAS No.	Conc. / %
Polyvinyl chloride	Poly(vinyl chloride)	9002-86-2	100

4. First-aid measures

4.1 Description of first aid measures

Eye contact

- In case of contact with substance, immediately flush eyes with running water at least 20 minutes.
- Get immediate medical advice/attention.

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.

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.

Ingestion

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

4.2 Most important symptoms and effects, both acute and delayed

- 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:** Use regular foam, water, carbon dioxide, dry fire extinguisher when fighting fires involving this material.
- **Unsuitable extinguishing media:** Not available

5.2 Specific hazards arising from the chemical

- Thermal decomposition products: halogen compound, carbon oxides, hydrogen chloride, carbon monoxide, carbon dioxide
- Dust may form explosive mixtures with air.
- 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 Special protective equipment and precautions for fire-fighters

- Dike fire-control water for later disposal; do not scatter the material.
- Move containers from fire area if you can do it without risk.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- Absorb spills with inert material (e.g., dry sand or earth), then place in a chemical waste container.
- 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 of confined areas.

6.3 Methods and materials 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 your hands thoroughly after handling.
- Please work with reference to engineering controls and personal protective equipment.
- The temperature of the substance must be maintained at or below the '49°C ' at all times

7.2 Conditions for safe storage, including any incompatibilities

- Protect from sunlight and store in a closed container.
- Store in cool and dry place.
- Please note that there are materials and conditions to avoid.

8. Exposure controls/personal protection

8.1 Occupational Exposure limits

- o **ACGIH regulation:** TWA=1mg/m³(respirable fraction)
- o **Biological exposure index:** Not available
- o **OSHA regulation:** Not available
- o **NIOSH regulation:** Not available
- o **EU regulation:**
 - Switzerland: TWA=3mg/m³ [MAK] (respirable dust)
 - United Kingdom: TWA=10mg/m³ (inhalable dust); 4mg/m³ (respirable dust)
STEL=30mg/m³ (calculated, inhalable dust); 12mg/m³ (calculated, respirable dust)
 - Czech Republic: TWA=5mg/m³ (dust)
- o **Other:**
 - China: TWA=5mg/m³ (total dust), STEL=10mg/m³ (total dust)
 - Japan: TWA= 4mg/m³ OEL(Class 2 Dust, total dust); 1mg/m³ OEL(Class 2 Dust, respirable dust)
 - South Africa: TWA= 10mg/m³ (total inhalable dust); 5mg/m³ (respirable dust)

8.2 Exposure controls

Appropriate engineering controls

- Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

Individual protection measures, such as personal protective equipment

Respiratory protection

- If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Air-purifying respirator with an appropriate, government approved (where applicable), air-purifying filter, cartridge or canister. Contact health and safety professional or manufacturer for specific information.

Eye protection

- Wear safety goggles as follow if eye irritation or other disorder occur.
 - ; In case of gaseous state organic material: enclosed safety goggles
 - ; In case of vapour state organic material: safety goggles or breathable safety goggles
 - ; In case of particulate material: breathable safety goggles
- An eye wash unit and safety shower station should be available nearby work place.

Hand protection

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

Body protection

- 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

Color :

white

Odor :

Odorless

Odor threshold :

Not available

pH :

Not available

Melting point/freezing point :

302 °C

Initial boiling point and boiling range :

Not available

Flash point :	391°C
Evaporation rate :	Not available
Flammability (solid, gas) :	Not available
Upper/lower flammability or explosive limits :	Not available
Vapor pressure :	Not available
Vapor density :	Not available
Relative density	1.406g/cm ³ (25°C)
Solubility :	Insolubility
Partition coefficient: n-octanol/water :	Not available
Auto-ignition temperature :	435°C
Decomposition temperature	Not available
Viscosity :	Not available

“NOTE: The physical data presented above are typical values and should not be construed as a specification”

10. Stability and reactivity

10.1 Reactivity/Chemical stability/Possibility of hazardous reactions:

- Stable under normal conditions.
- No dangerous reaction under conditions of normal use.

10.2 Conditions to avoid:

- Keep away from heat/sparks/open flames/hot surfaces.
- Avoid contact with incompatible materials.

10.3 Incompatible materials:

- Strong oxidizing agent

10.4 Hazardous decomposition products:

- Hydrogen compound, carbon oxides, hydrogen chloride, carbon monoxide, carbon dioxide

11. Toxicological information

Information on toxicological effects	
(a) Acute toxicity	Not available
Oral	Not available
Dermal	Not available
Inhalation	Not available
(b) Skin Corrosion/ Irritation	Not available
(c) Serious Eye Damage/ Irritation	Not available
(d) Respiratory sensitization	Not available
(e) Skin Sensitization	Not available

(f) Carcinogenicity	Not classified
	IARC: Group 3 ACGIH: A4
(g) Mutagenicity	Not classified
	<i>In vitro</i> : Ames test (<i>S. typhimurium</i>) with/ without metabolic activation: Negative
(h) Reproductive toxicity	Not available
(i) Specific target organ toxicity (single exposure)	Not available
	In rats, inhalation of fumes from heated polyvinyl chloride produced interstitial edema, as well as focal bronchial and inter-alveolar hemorrhage in the lungs of some animals.
(j) Specific target organ toxicity (repeat exposure)	Not available
	Pulmonary response was in the form of acute inflammatory changes during the early stages of dust burden, followed by the development of granulomatous lesions.
(k) Aspiration Hazard	Not available

12. Ecological information

12.1 Toxicity	Not available
Acute toxicity	Not available
Chronic toxicity	Not available
12.2 Persistence and degradability	Not available
12.3 Bioaccumulative potential	Not available
12.4 Mobility in soil	Not available
12.5 Hazardous to the ozone layer	Not classified
12.6 Other adverse effects	Not available

13. Disposal considerations

13.1 Disposal method

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

13.2 Disposal precaution

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

Do not dump this product into any sewers, on the ground, or into any body of water.

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

14. Transport information

14.1 UN No.: Not applicable

14.2 UN Proper shipping name: Not applicable

14.3 Transport Hazard classes: Not applicable

ADR: Not applicable

IMDG: Not applicable

ICAO/IATA: Not applicable

RID: Not applicable

14.4 Packing group: Not applicable

14.5 Environmental hazards: Not applicable

14.6 Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code): Not established

14.7 Special precautions for user

in case of fire: Not applicable

in case of leakage: Not applicable

15. Regulatory information

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

USA Regulatory Information

TSCA (Toxic Substances Control Act): Section 8 (b) inventory (Present) [XU]

Proposition 65: Not regulated

OSHA Regulation: Not regulated

CERCLA Regulation: Not regulated

SARA 302 Regulation: Not regulated

SARA 304 Regulation: Not regulated

SARA 313 Regulation: Not regulated

Foreign Regulatory Information

Substance of Rotterdam Protocol: Not regulated

Substance of Stockholm Protocol: Not regulated

Substance of Montreal Protocol: Not regulated

Foreign Inventory Status

- Korea management information: Existing Chemical Substance (KE-29063)
- European List of Notified Chemical Substances (ELINCS) : Present (420-490-3)
- Japan management information: Existing and New Chemical Substances (ENCS): Present
(6)-66, (6)-67, (6)-76, (6)-1633)
- China management information: Inventory of Existing Chemical Substances (IECSC): Present (21446)
- Australia management information: Inventory of Chemical Substances (AICS): Present
- Canada management information: Domestic Substances List (DSL): Present
- New Zealand management information: Inventory of Chemicals (NZIoC): May be used as a single component chemical under an appropriate group standard.
- Philippines management information: Inventory of Chemicals and Chemical Substances (PICCS): Present

16. Other information, including date of preparation or last revision**16.1 Indication of changes :**

Preparation date: Jun. 20, 2016
Version : 3
Revision date : January 20, 2020

16.2 Key literature reference and sources for data:

- National chemicals information systems; <http://ncis.nier.go.kr>
- Pubchem; <http://pubchem.ncbi.nlm.nih.gov/>
- AKRON; <http://ull.chemistry.uakron.edu/erd/>
- IARC Monographs on the Evaluation of Carcinogenic Risks to Humans; <http://monographs.iarc.fr>
- ECHA; <http://echa.europa.eu/web/guest>
- HSDB; <http://toxnet.nlm.nih.gov/>
- OECD SIDS; <http://webnet.oecd.org/>
- NIOSH(The National Institute for Occupational Safety and Health)
- ACGIH(American Conference of Governmental Industrial Hygienists)
- TOMES-LOLI®; <http://www.rightanswerknowledge.com/loginRA.asp>
- National Emergency Management Agency-Korea dangerous material inventory management system; <http://hazmat.mpss.kfi.or.kr/index.do>
- Waste Control Act enforcement regulation attached [1]
- EPISUITE Program ver.4.1

16.3 Abbreviations

ACGIH: American Conference of Governmental Industrial hygienists
NIOSH: The National Institute for Occupational Safety and Health
OSHA: Occupational Safety & Health Administration
IARC: International Agency for Research on Cancer
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
ICAO/IATA: International Civil Aviation Organization/ International Air Transport Association
RID: Regulations Concerning the International Transport of Dangerous Goods by Rail

16.4 Other

- Product should be handled, stored, and used in accordance with the generally accepted industrial hygiene practices and in conformity with all the applicable legal regulations.
- The information provided herein is based on the knowledge possessed at this present time from the view point of safety requirements.
- It should, therefore, not be construed as guaranteeing specific properties.