

Material Safety Data Sheet

1. IDENTIFICATION

- A. Product Name : YUHWA HIDEN Grade : M680
- B. Recommended use of the chemical and restrictions on use
A polyolefin plastic – For industrial conversion as a raw material for manufacture of articles or goods
- C. Information of manufacture, supplier
 - 1) Company : Korea Petrochemical Ind. Co., Ltd.
 - 2) Address : 260-158, Cheoyong-ro, Nam-gu, Ulsan, Korea
 - 3) Emergency Telephone No : (052) 278-8242~8246

2. HAZARD IDENTIFICATION

- A. Classification : None
- B. Label element, including precautionary statements
 - 1) Symbols : Data not available
 - 2) Signal word(s) : Data not available
 - 3) Hazard statement(s) : Data not available
 - 4) Precautionary statement(s)
 - Prevention : Data not available
 - Response : Data not available
 - Storage : Data not available
 - Disposal : Data not available
- C. Other hazards which do not result in classification
NFPA Code : Health =1, Flammability = 1, Reactivity = 0

3. COMPOSITION/INFORMATION ON INGREDIENTS

- A. Chemical identity : High Density Polyethylene
- B. Common name, synonym : Ethene Polymer, Ethylene Polymer, Polyethene
- C. CAS No : 9002-88-4
- D. Content : $\geq 99\%$ (Additive : $\leq 1\%$)

4. FIRST AID MEASURES

- A. Eye contact
Flush eyes thoroughly with water at full. If effects occur, consult a physician.
- B. Skin contact
If molten material comes in contact with the skin, do not apply ice but cool under ice water.
Seek medical attention immediately.
- C. Inhalation
Move person to fresh air. If effects occur, consult a physician.
- D. Ingestion
If swallowed, seek medical attention.
- E. Most important symptoms/effect, acute and delayed
None established
- F. Indication of immediate medical attention and special treatment needed, if necessary
Treatment should be directed at the control of symptoms and the clinical condition of the patient.

5. FIRE-FIGHTING MEASURES

- A. Suitable extinguishing media
Dry chemical fire extinguishers, Carbon dioxide fire extinguishers, Foam, Water fog or fine spray.
- B. Specific hazards arising from the chemical
During a fire, smoke contain the original material in addition to combustion products of varying Composition which may be toxic or irritation
- C. Special protective equipment and precautions for firefighters
Keep people away.
Cool surroundings with water to localize fire zone.
Hand held dry chemical or CO₂ extinguishers may be used for small fires.

6. ACCIDENTAL RELEASE MEASURES

- A. Personal precautions, protective equipment and emergency procedures
Isolate the hazard area. Use appropriate safety equipment.
- B. Environmental precautions
Prevent from entering into soil, ditch, sewers, waterways or groundwater.
- C. Methods and materials for containment and cleaning up
Contain spilled material if possible. Sweep up. Collect in suitable containers.

7. HANDLING AND STORAGE

- A. Precautions for safe handling : Not applicable
- B. Conditions for safe storage
Store in accordance with good manufacturing practices.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

- A. Exposure limits in the air of the workplace, biological limit values : Not applicable
- B. Appropriate engineering controls
 - Good general ventilation should be adopted.
 - Local exhaust ventilation may be necessary for some operations.
- C. Individual protection measures
 - 1) Respiratory protection
 - Use an approved air ; purifying respirator when vapors are generated at increased temperatures or when dust or mist is present.
 - The following should be effective types of air ; purifying respirators
 - ⊙ Particulate filter
 - ⊙ Organic vapor cartridge with a particulate pre-filter
 - 2) Eye protection
 - Use safety glasses. Wear chemical goggles.
 - 3) Hand protection
 - Use gloves with insulation for thermal protection.
 - 4) Body protection
 - No precautions other than clean body-covering clothing should be needed.

9. PHYSICAL AND CHEMICAL PROPERTIES

- A. Appearance (Physical state, color etc) : Pellet with white color or transparent colorless.
- B. Odor : odorless
- C. Odor threshold : Data not available
- D. pH : Not applicable
- E. Melting point / Freezing point : 130°C~140°C / 90°C~110°C
- F. Initial boiling point and boiling range : Not applicable
- G. Flash point : Data not available
- H. Evaporation rate : Not applicable
- I. Flammability (Solid, Gas) : Data not available
- j. Upper/lower flammability or explosive limits : Data not available
- K. Vapor pressure : Not applicable
- L. Solubility : Data not available
- M. Vapor density : Not applicable
- N. Specific gravity : 0.940~0.970
- O. Partition coefficient n-octanol/water : Not applicable
- P. Auto ignition temperature : 350°C
- Q. Decomposition temperature : Data not available
- R. Viscosity : Data not available
- S. Molecular weight : > 5,000

10. STABILITY AND REACTIVITY

- A. Chemical stability : Stable at room temperature and atmospheric pressure
- B. Possibility of hazardous reactivity : Data not available
- C. Conditions to avoid : Exposure to elevated temperature, Flame, Ignition source.
- D. Materials to avoid : Strong oxidizing agents
- E. Hazardous decomposition products
Processing may release fumes and other decomposition products

11. TOXICOLOGICAL INFORMATION

- A. Information on the likely routes of exposures
 - 1) Inhalation exposure : Dust inhalation may be cause cough
 - 2) Ingestion exposure : Data not available
 - 3) Skin and eye exposure : Data not available
- B. Delayed and immediate effects and also chronic effects from short and long term exposure
 - 1) Acute toxicity
 - Ingestion : LD50 ; > 3200 mg/kg, (rat)
 - Skin absorption : Data not available
 - Inhalation : LC50 ; 12000mg/m³, (mouse)
 - 2) Skin corrosion/irritation : Not applicable
 - 3) Serious eye damage/ irritation : Not applicable
 - 4) Respiratory sensitization : Data not available
 - 5) Skin sensitization : Data not available
 - 6) Carcinogenicity : Not listed in IARC
 - 7) Germ cell mutagenicity : Not listed in IARC
 - 8) Reproductive toxicity : Not applicable
 - 9) Specific target organ systemic toxicity-single exposure : Not applicable
 - 10) Specific target organ systemic toxicity-repeated exposure : Not applicable
 - 11) Aspiration hazard : Not applicable
- C. Numerical measure of toxicity(such as acute toxicity estimate) : Data not available

12. ECOLOGICAL INFORMATION

- A. Aquatic, terrestrial organisms toxicity : Data not available
- B. Persistence and degradability : Data not available
- C. Bioaccumulative potential : Data not available
- D. Mobility in soil : Data not available
- E. Other adverse effects : Data not available

13. DISPOSAL CONSIDERATIONS

- A. Disposal methods
All disposal practices must be in compliance with all Federal, state/provincial and local laws and regulations
- B. Disposal considerations(Specify disposal container and methods) : Data not available

14. TRANSPORT INFORMATION

- A. UN number : Data not available
- B. UN proper shipping name : Data not available
- C. Transport hazard class : Data not available
- D. Packing group, if applicable : Data not available
- E. Environmental hazards : Data not available
- F. Special precautions for user : Data not available

15. REGULATORY INFORMATION

- A. Safety, health and environmental regulations specific for the product in question
 - 1) USA
 - OAHHS (29CFR1910.119) : Not regulated
 - CERCLA 103 (40CFR302.4) : Not regulated
 - SARA 302 (40CFR355.30) : Not regulated
 - SARA 304 (40CFR355.40) : Not regulated
 - SARA 313 (40CFR372.65) : Not regulated
 - California Proposition 65 : Not regulated
 - 2) EU
 - EU Classification : Not determined

16. OTHER INFORMATION

- A. References and sources for data
 - 1) KPIC R&D Center
 - 2) Korea Occupational Safety and Health Agency
 - 3) Globally Harmonized System of classification and labeling of chemicals(GHS), First revised edition, United Nations.
 - 4) EINECS (European Inventory of Existing Commercial chemical Substances)
 - 5) IARC (International Agency for Research on Cancer)

B. Originated data

June 10th 2010

C. Revision number and date

- 1) Revision number : 3
- 2) Final revision date : June 10th 2010

D. Others

The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof. Vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material even if reasonable safety procedures are followed.