

 LG Chem	Material Safety Data Sheet	MSDS No.	LGCD-HD-014
		Rev.	2010. 04. 28
ETHYLENE HEXENE-1 COPOLYMER			

1. Product and company identification

a. Product name :

- LUCENE SP988 (HIGH DENSITY POLYETHYLENE, ETHYLENE HEXENE-1 CO-POLYMER)

b. Recommended use of the chemical and restrictions on use :

- ETHENE, HOMOPOLYMER ; ETHENE COPOLYMER;
- ETHYLENE, POLYMER; POLYETHYLENE;
- HYDROCARBON, ALIPHATIC COMPOUND, POLYMER

c. Information on manufacturer/supplier/distributor :

- LG Chem., LTD. Deasan Plant,
- 679, Daejuk-ri, Daesan-eup, Seosan-city, Chungcheongnam-do, 356-715, KOREA
- Tel: 88-41-661-2603, Fax:88-41-661-2641
- HD/PP Production Team (HDPE)

2. Hazards identification

a. Hazard classification : Not classifiable.

b. Label elements including precautionary statements

- Minimize source of ignition, such as static build-up, heat, spark or flame.
- Material in form of dust is subject to explosions.
- Store in a dry place. Store away from direct sunlight..

c. Other hazards which do not result in classification (e.g. dust explosion hazard)

- NFPA : health -1, Flammability -1, Reactivity -0

3. Composition/Information on ingredients

Chemical Name	Other name	CAS No or Identification no	Content (%)
HIGH DENSITY POLYETHYLENE	ETHENE HEXENE-1 COPOLYMERS ETHYLENE HEXENE-1 COPOLYMERS PE, HDPE, (C ₂ H ₄) _n	CAS : 25213-02-9	> 99.0

4. First aid measures

a. Eye contact

- In the case of contact with eyes, rinse immediately with plenty of water for 15 minutes.
- Seek medical advice.

b. Skin contact

- Remove contaminated clothes, rinse skin with plenty of water or shower.
- Seek medical advice.

c. Inhalation

-
- Remove the exposed individual into fresh air.
 - Make him blow his nose and gargle.
 - Refer for medical attention immediately.

d. Ingestion

- Rinse mouth. In case of large amount, drink large quantity of water and refer for medical attention.

e. Most important acute and delay symptoms / effects ; Not available.

f. First aid and note for physicians :

- No specific antidote.
- Treatment of exposure should be directed at the control of symptoms.

5. Fire-Fighting measures

a. Suitable (and unsuitable) extinguishing media

- Suitable extinguishing media; Use an extinguishing agent suitable for the surrounding fire.
Water. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam.
- Unsuitable extinguishing media: Not available.

b. Specific hazards arising from the chemical (e.g. hazardous combustion products)

- Dense smoke is emitted when burned without sufficient oxygen.
Carbon monoxide(CO), Carbon dioxide and unidentified organic compounds.

c. Special protective equipment and precautions for fire-fighters

- Special protective equipment for fire fighter!
Wear positive-pressure self-contained breathing apparatus(SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves).
If protective equipment is not available or not use, fight fire from a protected location or safe distance.
- Fire fighting procedures
Keep people away. Isolate fire and deny unnecessary entry.
Soak thoroughly with water to cool and prevent re-ignition.
Cool surroundings with water to localize fire zone.

6. Accidental release measures

a. Measures required for personal protection and protective equipment :

- No special measures required.

b. Measures required for environment protection :

- Avoid to enter waterworks or a sewer.

c. Clean-up and removal method :

- Sweep up, then place into a suitable container for disposal.

7. Handling and storage

a. Precautions for safe handling :

- Wash thoroughly after handling.
-

-
- Remove contaminated clothing and wash before reuse.
 - Avoid contact with eyes, skin, and clothing. Avoid ingestion and inhalation.

b. Conditions for safe storage (including incompatibilities) :

- Store in a cool, dry place, Keep container closed when not in use.

8. Exposure controls & personal protection

a. Exposure limits of the chemical substance, biological exposure limits and etc

- None established.

b. Appropriate engineering controls :

- Minimize source of ignition, such as static build-up, heat, spark or flame.
- Ventilation; Good general ventilation should be sufficient for most conditions.
- Local exhaust ventilation may be necessary for some operations.
- Check the recommended threshold exposure limit.

c. Personal protective equipment

- Respiratory Protection ;
Use an approved air-purifying respirator when vapors are generated at increased temperatures of when dust or mist is present.
- Eye Protection:
Protective goggles with side shield or tightly fitting protective goggles,
- Hand protection:
Recommend using an approved chemical protective gloves.
- Body protection:
Put on an approved chemical protective clothes.

9. PHYSICAL AND CHEMICAL PROPERTIES

a. Appearance (physical state, color, etc.) ; Solid (Translucent to white pellets)

b. Odor ; Slight waxy odor.

c. Odor threshold ; Not available.

d. pH ; Not applicable.

e. Melting point / freezing point ; 100~130 °C / Not available.

f. Initial boiling point and boiling range ; Not available.

g. Flash point ; 644°F (340°C)

h. Evaporation rate ; Not applicable.

i. Flammability(solid, gas) ; Not available.

j. Upper/lower flammable or explosive limits ; Not applicable.

-
- k. Vapor pressure** ; Not applicable.
- l. Solubility** ; Insoluble in water.
- m. Vapor density** ; Not applicable.
- n. Specific gravity** ; 0.940 ~ 0.960 (base on water)
- o. Partition coefficient ; n-octanol/water** : Not applicable.
- p. Auto-ignition temperature** ; > 350°C
- q. Decomposition temperature** ; Not applicable.
- r. Viscosity** ; Not applicable.
- s. Molecular weight** ; > 1,000

10. Stability and reactivity

- a. Chemical stability** ; Stable under normal conditions.
- b. Possibility of hazardous reactions** ; Not available.
- c. Conditions to avoid (e.g. static discharge, shock, vibration, etc)**
- Keep away from heat, sparks and flame.
 - Keep away from substance of Mixing prohibition. (e.g. Halogen, Oxidizer, Acid)
- d. Hazardous decomposition products**
- At elevated temperatures the material will begin to decompose, producing fumes that can contain carbon dioxide, carbon monoxide, ketones, acrolein, aldehydes, unidentified organic compounds.
- e. Hazardous decomposition product :**
- Carbon monoxide, irritating and toxic fumes and gases, carbon dioxide.

11. Toxicological information

- a. Information on the likely routes of exposure**
- (Respiratory system) : Not available.
 - (Oral) : Not available.
 - (Eye, skin) : Negligible hazard at ambient temperature(-18 to 38°C)
Particulates may scratch eye surfaces/ cause mechanical irritation.
- b. Delay and immediate effects and chronic effects from short or long term exposure.**
- Acute toxicity (All routes of possible exposure shall be mentioned.)
 - Acute oral toxicity; Not available
 - Acute dermal toxicity; Not available
 - Acute inhalation toxicity; Not available

- Skin corrosion / irritation : Not classifiable.
- Serious eye damage / eye irritation : Not classifiable.
- Respiratory sensitization : Not classifiable.
- Skin sensitization : Not classifiable
- Carcinogenicity : Not classifiable
- Germ cell mutagenicity : Not available.
- Reproductive toxicity : Not available.
- Specific target organ toxicity (single exposure) : Not available.
- Specific target organ toxicity (repeated exposure) : Not available.
- Aspiration hazard : Not available.

c. Numerical measures of toxicity (acute toxicity estimation (ATE), etc.) ; Not available.

12. Ecological information

- a. Toxicity** : Not available.
- b. Persistence and degradability** : Not available.
- c. Bioaccumulative potential** : Not available.
- d. Mobility in soil** : Not available.
- e. Other adverse effects** : Not available.

13. Disposal considerations

- a. Disposal methods**
 - The user of this product must properly characterize the waste/container generated from the use of this product in accordance with all applicable federal, state and/or local laws and regulations in order to determine the proper disposal of the waste in accordance with all applicable federal, state and/or local laws and regulations.
- b. Precaution for disposal (including the disposal method of contaminated containers and packages)**
 - The user of this product must disposal by oneself or entrust to waste disposer or person who other's waste recycle and dispose, person who establish and operate waste disposal facilities.
 - Dispose of waste in accordance with local regulation.

14. Transport information

- a. UN Number.** ; Not available

-
- b. **UN proper shipping name** : Not available.
 - c. **Transport hazard classes** : Not available.
 - d. **Packing group, if applicable** : Not available.
 - e. **Marine pollutant (Yes/No)** : Not available.
 - f. **Information on any special precautions, which a user needs to be aware of, or needs to comply with in connection with transport** ; Not available.

15. Regulatory information

- a. **Industrial Safety and Health Law** : Not applicable.
- b. **Toxic Chemical Control Law** : Not applicable.
- c. **Dangerous Goods Safety Control Law** : Not available.
- d. **Waste Management Law** : Not available.
- e. **Other regulations in domestic and foreign countries**

- o **US Federal**

- TSCA

- CAS No. 9002-88-4 is listed on the TSCA inventory.

- Health & safety reporting list

- None of the chemicals are on the health & safety reporting list.

- Chemical test rules

- None of the chemicals in this product are under a chemical test rule.

- Section 12b

- None of the chemicals are listed under TSCA section 12b.

- TSCA signification new use rule

- None of the chemicals in this material have a SNUR under TSCA.

- SARA

- Section 302(RQ)

- None of the chemicals in this material have an RQ.

- Section 302(TPQ)

- None of the chemicals in this product have a TPQ.

- Section 313

- No chemicals are reportable under section 313.

- Clean air act :

- This material dose not contain any hazardous air pollutants.

- This material dose not contain any class 1 Ozone depletors.

- This material dose not contain any class 2 Ozone depletors.

- Clean water act :

- None of the chemicals in this product are listed as hazardous substance under CWA.

- None of the chemicals in this product are listed as priority pollutants under CWA.

- None of the chemicals in this product are listed as toxic pollutants under CWA.

OSHA : None of the chemicals in this product are considered highly hazardous by **OSHA**

- **European/ international regulation :**
 - European labeling in according with EC directives.
 - Hazard symbols : Not available
 - Risk phrases :
 - Safety phrases : S 24/25 avoid contact with skin and eyes.

- **Canada :**
 - CAS No. 9002-88-4 is listed on Canada's DSL/NDSL list.
 - WHMIS : Not available
 - CAS No. 9002-88-4 is not listed on Canada's ingredient disclosure list.

- **National substance status**
 - Toxic Substances Control Act(TSCA) : Exist index.
 - TSCA 12(b) export notice : Not exist index.

16. Other information

a. Sources of reference materials

- Handbook of Industrial toxication.
- Chemical Information System.
- National Institute of Environmental Research (<http://ncis.nier.go.kr>),
- Hazardous material information management system,
- National Emergency Management Agency (<http://hazmat.nema.go.kr>),
- IUCLID Chemical Data Sheet, EC-ECB
- Korea Occupational Safety & Health Agency (<http://www.Kosha.net>)

b. The first date of preparation (from Chap.1 in old MSDS) : 1989. 01. 01

c. Number of revision times and the latest revision date: 2009. 11. 23 (Rev.1)

d. Others

- Uakron University(<http://ull.chemistry.uakron.edu/erd>)
 - IPCS(International Programme on Chemical Safety)