1. Product and company identification

a. Product name :

○ LUCENE^{TM} LC100 POLYOLEFIN ELASTOMER

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

○ Lamination film, Packaging film

c. Information on manufacturer/supplier/distributor :

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 (%)
ETHYLENE 1-OCTENE COPOLYMER	ETHENE 1-OCTENE COPOLYMER ETHYLENE 1-OCTENE COPOLYMER POLYOLEFIN ELASTOMER, POE, POLYOLEFIN PLASTOMER, POP	CAS : 26221-73-8	> 99.0

4. First aid measures

a. Eye contact

○ In the case of contact with eyes, rinse immediately with plenty of water for 15 minnutes.
○ 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 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 ; odorless or light waxy odor.

c. Odor threshold ; Not available.

d. pH ; Not applicable.

e. Melting point / freezing point ; Not available.

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

g. Flash point ; 644°F (340℃)

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. Vaper density ; Not applicable**.**

n. Specific gravity ; 0.840 ~ 0.920 (base on water)

o. Partition coefficient ; n-octanol/water : Not applicable**.**

p. Auto-ignition temperature ; > 350℃

q. Decompositon temperature ; Not applicable**.**

r. Viscosity ; Not applicable**.**

s. Molecular weight ; > 1,000

10. Stability and reactivity

a. Chemical stability ; Stable under normal conditions.

b. Possivility 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℃)
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

○ Carcinogencity : 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 measurees of toxicity (acute toxicity estimation (ATE), etc.) ; Not available**.**

12. Ecological information

a. Toxicity : Not available**.**

b. Persistence and degradability : Not available.

c. Bioaccumulative protential : 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

○ **US Federal**

-TSCA

CAS No. 26221-73-8 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. 26221-73-8 is listed on Canada' s DSL/NDSL list.
WHMIS : Not available
CAS No. 26221-73-8 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) : Apr. 27. 2008.

c. Number of revision times and the latest revision date: Aug. 16. 2012. (Rev.2)

d. Others

○ The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.