

# MATERIAL SAFETY DATA SHEET

## 1. Chemical Product and Company Identification

PRODUCT NAME : PC 370LD, PC 373LD, PC 385LD  
COMPANY : Luvantix ADM Co., Ltd.  
ADDRESS : RM L-601, KAIST ICC, MUNJI-DONG, YUSEONG-GU, DAEJEON, KOREA  
PREPARATION DATE : May. 06<sup>th</sup>. 2015.

## 2. Composition/Information on Ingredients

Chemical name	CAS RN.	Contents (%)
3,3,4,4,5,5,6,6,7,7,8,8,8-Tridecafluorooctyl acrylate	17527-29-6	15 ~ 50
Trimethylolpropane trimethacrylate	3290-92-4	5 ~ 10
1-Hydroxycyclohexyl phenyl ketone	947-19-3	1 ~ 4
2,6-Di-tert-butyl-4-methylphenol	128-37-0	0.5 ~ 2
Ingredients determined not to be hazardous		
Description : Acrylic Fluoro Urethane Elastomer	-	20 ~ 60

## 3. Hazards Identification

### EMERGENCY OVERVIEW

Suspect eye, skin and inhalation irritation hazard.  
Do not get in eyes, on skin, on clothing. Do not take internally. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of soap and water.

### EYE CONTACT:

Suspect slight eye irritation hazard.

### SKIN CONTACT:

Non Irritant Suspect skin sensitization hazard.

Prolonged skin contact may cause skin irritation.

### INHALATION:

Suspect respiratory tract irritation hazard.

### INGESTION:

Not a likely route of exposure. May harmful if swallowed.

### CARCINOGENICITY:

None of the substances in this product are listed as human carcinogens by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), the American Conference of Governmental Industrial Hygienists (ACGIH) or the Industrial Safety and Health Law (Industrial Safety Health Law) in Korea.

## 4. First Aid Measures

### INHALATION:

Move to fresh air in case of accidental inhalation of vapors. If symptoms persist, call a physician.

### SKIN CONTACT:

Wipe or blot away excess material with clean cloth or paper towel. Wash affected areas thoroughly with water. For a large splash, flood body under a shower. If symptoms develop, seek medical advice.

### SWALLOWING:

Give some glasses of water. Induce vomiting. Seek medical advice immediately.

### EYE CONTACT:

Immediately flush eye with water for at least 15 minutes while holding eyelids open. If symptoms develop, seek medical advice.

### NOTES TO PHYSICIAN:

Based on the individual reactions of the patient, the physician's judgment should be used to control symptoms and clinical condition.

## 5. Firefighting Measures

**Flash point** : 130°C

**Auto-Ignition Temperature** : No data available.

**UEL/LEL** : No data available.

**FIRE AND EXPLOSION HAZARD:** High temperatures, inhibitor depletion, accidental impurities, or exposure to radiation or oxidizers may cause spontaneous polymerizing reaction generating heat / pressure.

**EXTINGUISHING MEDIA** : Regular dry chemical, carbon dioxide, water and regular foam.

**FIREFIGHTING:** Wear self-contained breathing apparatus and protective suit.

**HAZARDOUS COMBUSTION PRODUCTS:** May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of nitrogen (NOx) under fire conditions.

**SPECIAL PROTECTIVE EQUIPMENT FOR FIRE FIGHTING:** Fire fighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.

## 6. Accidental Release Measures

**PERSONAL PRECAUTIONS:**

Restrict access to area as appropriate until clean-up operations are complete. Stop or reduce any leaks if it is safe to do so. Avoid contact with skin, eyes and clothing. Do not touch spilled material. Use personal protective equipment recommended in Section 8

(Exposure Controls/Personal Protection).

**ENVIRONMENTAL PRECAUTIONS:**

Notify fire authorities and appropriate federal, state, and local agencies. Prevent the product from spreading into the environment. Avoid direct discharge into drains. It should not be directly discharged into lakes, ponds, waterways or public water supplies.

**METHODS FOR CLEANING UP:**

**SMALL SPILLS:** Soak up spill with absorbent material. Place residues in a suitable, covered, properly labeled container. Wash affected area.

**LARGE SPILLS:** Contain liquid using absorbent material, by digging trenches or by building a dike. Reclaim into recovery or salvage drums or tank truck for proper disposal. Clean contaminated surfaces

with water or aqueous cleaning agents. Contact an approved waste hauler for disposal of contaminated recovered material. Dispose of all contaminated materials in accordance with current local regulations.

## 7. Handling and Storage

**PRECAUTIONS TO BE TAKEN IN HANDLING:**

Avoid contact with eyes. Do not take internally. Avoid the formation of mists in the atmosphere. Have emergency equipment (for fires, spills, leaks, etc.) readily available.

**PRECAUTIONS TO BE TAKEN IN STORAGE:**

Store in suitable labeled containers. Keep containers closed. Keep away from heat sources. Keep away from combustible and explosive incompatible materials.

## 8. Exposure Controls/Personal Protection

**INTRODUCTORY REMARKS:**

These recommendations provide general guidance for handling this product. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application.

**OCCUPATIONAL EXPOSURE LIMITS:**

ACGIH/TLV: BUTYLATED HYDROXYTOLUENE (BHT) TWA 21 mg/m<sup>3</sup>

**ENGINEERING MEASURES:**

If vapor or mist is generated when the material is heated or handled, adequate ventilation in accordance with good engineering practice must be provided to maintain concentrations above the specified exposure or flammable limits.

**RESPIRATORY PROTECTION:**

If significant mists, vapors or aerosols are generated an approved respirator is recommended. An organic vapor cartridge with dust/mist prefilter may be used. If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection.

**HAND PROTECTION:**

Wear appropriate chemical resistant gloves.

**SKIN PROTECTION:**

Wear appropriate chemical resistant clothing. Remove any chemical soaked clothing immediately.

#### EYE PROTECTION:

Wear splash resistant safety goggles with a face shield.

#### HYGIENE RECOMMENDATIONS:

Use good work and personal hygiene practices to avoid exposure. Consider the provision in the work area of a safety shower and eyewash. Always wash thoroughly after handling chemicals. When handling this product never eat, drink or smoke.

### 9. Physical and Chemical Properties

APPEARANCE:	Liquid, clear
ODOR:	Odorless
SOLUBILITY:	Soluble in organic solvents.
pH:	No data available.
VISCOSITY:	1,500 cPs~ 6,000 cPs
FLASH POINT:	130 °C
Auto-Ignition Temperature:	No data available.
UEL/LEL:	No data available.
BOILING POINT:	No data available.
MELTING POINT:	No data available.
SPECIFIC GRAVITY:	1.55 @ 20 (water = 1.00)
VAPOR PRESSURE:	No data available.
VAPOR DENSITY:	No data available.
Octanol/water partition coefficient:	No data available.
MOLECULAR FORMULA:	Not applicable.

Note: These physical properties are typical values for this product and are subject to change.

### 10. Stability and Reactivity

STABILITY: Stable under normal conditions.

Hazardous reactions: Hazardous polymerization will not occur.

#### CONDITIONS TO AVOID:

Avoid overheating and flames. Strong alkaline compounds. Lewis acid (AlCl<sub>3</sub>, SbF<sub>5</sub>, CoF<sub>3</sub>) above 100 C.

#### CHEMICALS TO AVOID:

Sodium hydroxide, potassium hydroxide, aqueous ammonia, aluminum chloride, antimony fluoride and cobalt fluoride

#### HAZARDOUS DECOMPOSITION PRODUCTS:

Acrid smoke-fumes/carbon monoxide/carbon dioxide and perhaps other toxic vapors may be released during a fire involving this product.

### 11. Toxicological Information

ACUTE ORAL TOXICITY: Rat (LD50): > 2,000 mg/kg

ACUTE DERMAL TOXICITY: Rat (LD50): > 2,000 mg/kg

#### CARCINOGENICITY:

None of the substances in this product are listed as human carcinogens by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP) or the American Conference of Governmental Industrial Hygienists (ACGIH).

#### Other:

Moderately Toxic: ingestion. Slightly Toxic: dermal absorption.

Skin (rabbits): Non-Irritant as article

Intravenous / intraperitoneal (mouse): No mortality or evidence of systemic toxicity from the extracts as article

### 12. Ecological Information

ECOTOXICOLOGICAL EFFECTS: No data available.

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

MOBILITY: No data available.

BIODEGRADABILITY: No data available.

BIOACCUMULATION: No data available.

### 13. Disposal Considerations

#### REGULATORY INFORMATION:

All disposals must comply with federal, state, and local regulations. The material, if spilled or discarded, may be a regulated waste. Refer to state and local regulations.

#### METHODS OF DISPOSAL:

Chemical additions, processing or otherwise altering this material may make the waste management information presented in this MSDS incomplete, inaccurate or otherwise inappropriate. Please be advised that state and local requirements for waste disposal may be more restrictive or otherwise different from federal laws and regulations. Consult state and local regulations regarding the proper disposal of this product.

### 14. Transport Information

#### INTERNATIONAL REGULATIONS:

The information in this section is for reference only and should not take the place of a shipping paper specific to an order. Please note that the proper Shipping Name / Hazard Class may vary by packaging, properties, and mode of transportation.

#### LAND TRANSPORT:

Proper Shipping Name: Not classified.

#### AIR TRANSPORT (ICAO/IATA):

Proper Shipping Name: Not classified.

#### MARINE TRANSPORT (IMDG/IMO):

Proper Shipping Name: Not classified.

TRANSPORT INFORMATION: Keep containers tightly closed. Not hazardous product according to these transport classifications.

### 15. Regulatory Information

Regulation under Industrial Safety and Health Law in Korea: Not regulated.  
Korean Toxic Chemicals Control Law (TCCL)

All components of this product are listed, or are exempt from listing, on the Korean Existing Chemicals List (ECL).

Chemicals Prohibited or Restricted from Manufacturing, Importing or Using -None of the components of this product are regulated by this section of TCCL.

Observational Chemicals List - None of the components of this product are regulated by this section of TCCL.

Toxic Chemicals List - None of the components of this product are regulated by this section of TCCL.

### INVENTORIES:

TSCA: Substances in this product are listed on the TSCA Inventory.

EUROPE: Substances in this product have been reviewed for compliance with the EINECS or ELINCS inventories.

AUSTRALIA: Substances in this product comply with the National Industrial Chemicals Notification & Assessment Scheme (NICNAS) and are listed on the Australian Inventory of Chemical Substances (AICS).

CHINA: Substances in this product comply with the Chemical Control Law and are listed on the Inventory of Existing Chemical Substances China (IECSC).

JAPAN: Substances in this product comply with the Law Regulating the Manufacture and Importation of Chemical Substances and are listed on the Ministry of Economy,

Trade and Industry (METI), Chemical Weapons Convention (CWC)

This product does not contain any chemicals listed under the Chemical Weapons Convention.

### 16. Other Information

NO OTHERS.