1. Identification of the product and the supplier

1) Chemical Name: Poly Vinyl Chloride (PVC)

2) Advisable use and Restriction
   ○ Advisable use:
     - Used for various use such as pipe, profile, synthetic leather, wallpaper.
   ○ Restriction of product using: Used for recommended use.

3) Manufacturer/Supplier/Distributor information
   ○ Supplier: LG Chem, LTD. 70-1, Hwachi-dong, Yeosu-si, Jeollanam-do
   ○ Address: Twin Towers, 20, Yeouido-dong, Yeongdeungpo-gu, Seoul (LG Chem, LTD PVC division)
   ○ Emergency response number: +82-61-680-1131
   ○ Respondent: LG Chem, LTD, PVC division, Yeosu PVC plant, QA team

2. Hazard identification

1) Hazard classification: Not classified

2) Allocation label elements

<table>
<thead>
<tr>
<th>Pictogram and symbol</th>
<th>Signal word</th>
<th>Hazard statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

○ Precautionary statements
   [Prevention]: Not applicable
   [Response]: Not applicable
   [Storage]: Not applicable
   [Disposal]: Not applicable

3) Other hazard information not included in hazard classification
   ○ NFPA Rating system: Health: 1, Flammability: 0, Reactivity: -

3. Composition/information on ingredients

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Common name Synonyms</th>
<th>CAS No.</th>
<th>Content (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poly Vinyl Chloride (PVC)</td>
<td>Chloroethylene polymer</td>
<td>9002-86-2</td>
<td>100 %</td>
</tr>
</tbody>
</table>
4. First-aid measures

1) Eye contact:
   - Keep away from exposure if exposure effect occurred.
   - In case of contact with substance, flush eyes with amount of water for at least 15 minutes.
   - In case of contact with chemicals, get medical advice/attention.

2) Skin contact:
   - Remove contaminated clothing and shoes. Wash skin with soap and water for at least 15 minutes.
   - Get medical attention if skin symptoms occurred.
   - Wash contaminated clothing and shoes before reuse.

3) Inhalation:
   - Move victim to non-contaminated place in fresh air.
   - Get medical attention if irritation or symptoms occurred.
   - Give artificial respiration if victim is not breathing.

4) Ingestion:
   - Get medical attention if swallowed amount of substance.
   - Get medical attention if irritation or symptoms occurred.

5) Indication of immediate medical attention and notes for physician:
   - Call emergency medical service. Get medical advice/attention, if you needed.
   - Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

5. Fire-fighting measures

1) Suitable (and unsuitable) extinguishing media:
   - Suitable extinguishing media: dry chemical, CO₂, water, regular foam

2) Specific hazards arising from the chemical (ex: hazardous combustion products):
   - Containers may explode when heated.
   - It may produce HCl and toxic gases when combusted.
   - It begins to decompose at above 100°C according to the increase of corrosive hydrogen chloride gas.
     - Thermal decomposition products: ethyl chloride, phosgene, vinyl chloride monomer, carbon

3) Special protective equipment and precautions for fire-fighters:
   - Wear positive pressure self-contained breathing apparatus (SCBA).
   - Structural firefighters’ protective clothing will only provide limited protection.

6. Accidental release measures

1) Personal precautions, protective equipment and emergency procedures:
   - Stop leak if you can do it without risk.
   - Isolate exposed area.
   - Keep unauthorized personnel away.
   - Use certificated protective equipment.
   - Ventilate the leaked area.

2) Environmental precautions and protective procedures:
- Ensure adequate ventilation.
- Prevent entry into waterways, sewers or basements.

3) The methods of purification and removal:
- Do not touch or walk through spilled material.
- Prevent entry into waterways, sewers, basements or confined areas.

7. Handling and storage

1) Precautions for safe handling:
- Wash thoroughly after handling.
- Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures.

2) Conditions for safe storage:
- Store in a closed container.
- Keep away from waterways and sewers.

8. Exposure controls/personal protection

1) Occupational Exposure Limits

<table>
<thead>
<tr>
<th>Korean Occupation of Safety and Health Regulation</th>
<th>Poly Vinyl Chloride (PVC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>TWA= 1 mg/m³</td>
</tr>
<tr>
<td>OSHA</td>
<td>Not available</td>
</tr>
<tr>
<td>NIOSH</td>
<td>Not available</td>
</tr>
<tr>
<td>Biological exposure index</td>
<td>Not available</td>
</tr>
<tr>
<td>EU Regulation</td>
<td>• Ireland – TWA: 10 mg/m³ (total inhalable dust); 4 mg/m³ (respirable dust)</td>
</tr>
<tr>
<td></td>
<td>• Bulgaria – TWA : 6.0 mg/m³ (dust)</td>
</tr>
<tr>
<td></td>
<td>• Italy - TWA : 1 mg/m³ (respirable fraction)</td>
</tr>
<tr>
<td>Other</td>
<td>• Austria – STEL: 10 mg/m³</td>
</tr>
<tr>
<td></td>
<td>• Canada- TWA: 1 mg/m³ TWA (respirable fraction), STEL: 10 mg/m³ STEL (total dust)</td>
</tr>
<tr>
<td></td>
<td>• Japan- TWA: 1 mg/m³ OEL (respirable dust); 4 mg/m³ OEL (total dust)</td>
</tr>
</tbody>
</table>

2) Appropriate engineering controls
- Provide local exhaust ventilation system or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.
- Check legal suitability of exposure level.

3) Personal protective equipment:
○ Respiratory protection: Wear NIOSH or European Standard EN 149 approved full or half face piece (with goggles) respiratory protective equipment when necessary.

○ Eye protection:
- An eye wash unit and safety shower station should be available nearby work place.
- Wear safety glasses to protect eyes from scattering toxic substance.

○ Hand protection: Wear chemical resistant gloves to avoid direct contact with chemical substance.

○ Body protection: Wear appropriate protective chemical resistant clothing to prevent exposure of skin.
### 9. Physical and chemical properties

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Appearance</td>
<td>Solid / white</td>
</tr>
<tr>
<td>2) Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td>3) Threshold of odor</td>
<td>Not available</td>
</tr>
<tr>
<td>4) pH</td>
<td>Not available</td>
</tr>
<tr>
<td>5) Melting point/freezing point</td>
<td>302 °C</td>
</tr>
<tr>
<td>6) Initial boiling point and boiling range</td>
<td>Not available</td>
</tr>
<tr>
<td>7) Flash point</td>
<td>Not available</td>
</tr>
<tr>
<td>8) Evaporation rate</td>
<td>Not available</td>
</tr>
<tr>
<td>9) Flammability (solid, gas)</td>
<td>Not available</td>
</tr>
<tr>
<td>10) Upper/lower flammability or explosive limits.</td>
<td>Not available</td>
</tr>
<tr>
<td>11) Vapour pressure</td>
<td>Not available</td>
</tr>
<tr>
<td>12) Solubility(ies)</td>
<td>Insoluble</td>
</tr>
<tr>
<td>13) Vapour density</td>
<td>Not available</td>
</tr>
<tr>
<td>14) Specific gravity /Density</td>
<td>1.406 g/cm³ (20 °C)</td>
</tr>
<tr>
<td>15) n-octanol/water partition coefficient</td>
<td>Not available</td>
</tr>
<tr>
<td>16) Auto ignition temperature</td>
<td>435 °C</td>
</tr>
<tr>
<td>17) Degradation temperature</td>
<td>Not available</td>
</tr>
<tr>
<td>18) Viscosity</td>
<td>Not available</td>
</tr>
<tr>
<td>19) Molecular weight</td>
<td>60,000 ~ 150,000 g/mol</td>
</tr>
</tbody>
</table>

### 10. Stability and reactivity

1) Chemical stability and Possibility of hazardous reactions:
- Stable under normal temperatures and pressures.

2) Conditions to avoid (e.g., static discharge, shock or vibration):
- Avoid heat, flames, sparks and other sources of ignition.
- Avoid contact with incompatible materials.

3) Incompatible materials: Avoid contact with strong acid, heat, flames, sparks and other sources of ignition.

4) Hazardous decomposition products: ethyl chloride, phosgene, vinyl chloride monomer, carbon
### 11. Toxicological information

**Information of Health Hazardous:**

- **Acute toxicity:**
  - oral: Not available
  - dermal: Not available
  - Inhalation: Not available

- Skin Corrosion/ Irritation: Not available

- Serious Eye Damage/Irritation: Not available

- Respiratory sensitizer: Not available

- Skin Sensitization: Not available

- Carcinogenicity: Not classified
  - IARC: Group 3

- Mutagenicity: Not classified
  - *In vitro* - Ames test (Samonella typhimurium): Negative

- Reproductive toxicity: Not available

- Specific target organ toxicity (single exposure): Not classified
  - In rats, inhalation of fumes from heated polyvinyl chloride produced interstitial edema, as well as focal bronchial and intra-alveolar hemorrhage in the lungs of some animals. However, it is not enough data to classify the toxicity of this substance.

- Specific target organ toxicity (repeat exposure): Not available
  - Lungs may be affected by repeated or prolonged exposure to dust particles, resulting in fibrosis. However, this evidence for the classification is not enough.

- Aspiration Hazard: Not available

### 12. Ecological information

1) Ecological toxicity:

- Acute toxicity: Not available
- Chronic toxicity: Not available

2) Persistence and degradability: Not available

3) Bioaccumulative potential: Not available

4) Mobility in soil: Not available
### 13. Disposal considerations

1) Disposal method:
   - Waste must be disposed of in accordance with federal, state and local environmental control regulations.

2) Disposal precaution:
   - Consider the required attentions in accordance with waste treatment management regulation.

### 14. Transport information

1) UN Number: Not applicable

2) UN Proper shipping name: Not applicable

3) Transport Hazard class: Not applicable

4) Packing group: Not applicable

5) Marine pollutant: Not applicable

6) Special precautions
   - in case of fire: Not applicable
   - in case of spill: Not applicable

### 15. Regulatory information

**Korea:**
- Occupational Safety and Health Regulation: Not regulated
- Toxic Chemical Control Act: Not regulated
- Dangerous Material Safety Management Regulation: Not regulated
- Wastes Control Act: Not regulated

**EU classification:**
- Classification: Not applicable
- Risk phrases: Not applicable
- Safety phrases: Not applicable

**U.S.A management information:**
- CERCLA 103 (40CFR302.4): Not regulated
- EPCRA 302 (40CFR355.3): Not regulated
- EPCRA 304 (40CFR355.4): Not regulated
- EPCRA 313 (40CFR372.65): Not regulated
- United States - Section 8(b) Inventory (TSCA): XU

**Japan management information:**
- Inventory-Existing and New Chemical Substances (ENCS) = (6)-66; (6)-67; (6)-76; (6)-1633

**China management information:**
- Inventory of Existing Chemical Substances (IECSC) = Present
16. Other information

1) Information source and references:
   • Korea Occupational Health & Safety Agency: http://www.kosha.net
   • AKRON: http://ull.chemistry.uakron.edu/erdl
   • ACGIH, TLV and BEIs # 0108, 2008
   • IPCS INCHEM: http://www.inchem.org/documents/icsc/icsc/eics1487.htm
   • National chemicals information systems (http://ncis.nier.go.kr)

2) Issue date : 1997. 04. 01

3) Revision number and date : 2011. 05. 02 (6th)

4) Other material safety data sheet information:
   • This MSDS were made of the informational purposes for the safe handling when education or use of the production department workers. Therefore we make no guarantee for result obtained, and assume no responsibility for damages incurred by use of this product. But the material used for the purpose of the data requested is available for further information.
<table>
<thead>
<tr>
<th>Revision</th>
<th>Revision categories</th>
<th>Revision content</th>
<th>Revision date</th>
<th>Personnel</th>
</tr>
</thead>
<tbody>
<tr>
<td>7th</td>
<td>2. Hazard identification</td>
<td>Revision of existing MSDS GHS applicable categories</td>
<td>2010.06.21</td>
<td>Jung Jang-ho</td>
</tr>
<tr>
<td>8th</td>
<td>Part</td>
<td>Change of form, Revision by recent Data</td>
<td>2011.5.10</td>
<td>Kim Jong-Tae</td>
</tr>
</tbody>
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