1. IDENTIFICATION

1. Product Name
   1) Product Name: POTASSIUM CARBONATE - Solid
   2) Other Name: Dipotassium carbonate, Potash, Pearl ash

2. Recommended Use and Restriction on Use
   1) General use: Kali Soap • Kali Glass • Optical Glass Materials
dyeing • tannage • Photos • Analytical reagents, ingredients for
pharmaceuticals. Chemicals used for operations
   2) Restriction on Use: Not available

3. Manufacturer/Distributor Information:

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Address</th>
<th>Emergency Phone No.</th>
<th>Division in charge</th>
</tr>
</thead>
</table>

Home Page: www.unid.co.kr

2. HAZARD IDENTIFICATION

1. GHS Classification

<table>
<thead>
<tr>
<th>Physical Hazards</th>
<th>Health Hazards</th>
<th>Environmental Hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Skin corrosion/irritation Cat. 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Serious eye damage/irritation Cat. 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Specific Target organ Toxicity(single exposure) Cat. 3</td>
<td>-</td>
</tr>
</tbody>
</table>

2. GHS label elements, including precautionary statements

1) Hazard symbols

2) Signal word: Warning
3) Hazard statement
   - H315 Causes skin irritation
   - H319 Causes serious eye irritation
   - H335 May cause respiratory irritation
   - H336 May cause drowsiness or dizziness

4) Precautionary statement

   **Prevention**
   - P264 Wash thoroughly after handling.
   - P280 Wear protective gloves/protective clothing/eye protection/face protection.
   - P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
   - P271 Use only outdoors or in a well-ventilated area.

   **Response**
   - P312 Call a POISON CENTER or doctor/physician if you feel unwell.
   - P362 Take off contaminated clothing and wash before reuse.
   - P302+P352 IF ON SKIN: Wash with plenty of soap and water.
   - P332+P313 IF skin irritation occurs: Get medical advice/attention.
   - P337+P313 IF eye irritation persists: Get medical advice/attention.
   - P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
   - P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

   **Storage**
   - P405 Store locked up.
   - P403+P233 Store in a well-ventilated place. Keep container tightly closed.

   **Disposal**
   - P501 Dispose of contents/container in accordance with local/regional/national/international regulation.

3. Other hazards which do not result in classification:
   - NFPA Grade (0-4 level): Health-1, Flammability-0, Reactivity-0

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Other name</th>
<th>CAS Number</th>
<th>Contents(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>POTASSIUM CARBONATE</td>
<td>–</td>
<td>584-08-7</td>
<td>99.5%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS NO</th>
<th>KE NO</th>
<th>UN NO</th>
<th>EN NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>POTASSIUM CARBONATE</td>
<td>584-09-7</td>
<td>TS77500000</td>
<td>–</td>
<td>209-529-3</td>
</tr>
</tbody>
</table>

### 4. FIRST-AID MEASURES

1. Eye Contact:
   - Immediately Lift eyelid and flush eyes with flowing water.
1. Lift eyelid and completely remove materials. Ensure irrigation under eyelids by occasionally lifting the upper and lower lids.
- Transport to hospital, or doctor.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

2. Skin Contact:
- Remove contaminated clothing and shoes immediately.
- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

3. Inhalation:
- If inhalation of fume or combustion, move to the fresh air.
- Go to where the fresh air and If you necessary, Conduct artificial respiration.
- If not breathing, give artificial respiration.
- If breathing is difficult, give oxygen.

4. Ingestion:
- Wash out mouth with water.
- If swallowed do NOT induce vomiting.
- Lay the patient down as head would be lower than body for suffocation prevention if occur vomiting.
- Get medical attention immediately.

5. Delayed and immediate effects and also chronic effects from short and long term exposure:
- May cause eye, skin, respiratory irritation when exposed.
- May cause lung effect of Long-term exposure to dust of high concentrations.
- Ingestion may cause nausea, vomiting and stomach and severe digestive system irritation and burns.
- Inhalation may cause respiratory irritation.
- If contact with skin May cause irritation and Caustic effect is analogous to Potassium hydroxide.
- If contact with eye May cause irritation and Caustic effect is analogous to Potassium hydroxide.

6. First-aid treatment and note to physician:
- Treatment may vary with condition of victim and specifics of incident.

5. FIRE-FIGHTING MEASURES

1. Suitable (Unsuitable) extinguishing media:
- Extinguishing media : Dry chemical powder, CO2, Water, foam.
- If large fire, use regular extinguishing media or flood with fine water spray.
- Unsuitable extinguishing media : Do not use water-jet.
2. Specific hazards arising from the chemical:
   - Non flammability.
   - Substance itself does not Burn but Decompose when heated may cause corrosive/toxic fume.
   - Fire risk can be ignored but Containers may rupture or explode if exposed.
   - Hazardous combustion product:
     Thermal decomposition may produce gas or/and fume of Carbon dioxide, carbon monoxide, potassium oxide.

3. Special protection actions and equipments for fire-fighting:
   - Firefighters should wear self contained breathing apparatus and protective clothing.
   - If safe to do so, remove containers from path of fire.
   - If removal is impossible, cool containers and surrounding area with water.
   - Cool containers with flooding quantities of water until well after fire is out.
   - Do not allow run-off from fire fighting to enter drains or water courses.
   - Do not impervious water inside containers.

6. ACCIDENTAL RELEASE MEASURES

1. Personal precautions
   - Wear appropriate personal protective equipment and avoid inhalation or contact with eyes and skin.
   - Wear appropriate personal protective equipment (see section 8. EXPOSURE CONTROLS/PERSONAL PROTECTION).
   - Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
   - Stop leak if you can do it without risk.
   - Keep unnecessary people away.
   - Ventilate leak areas.
   - Avoid dust formation.

Isolate of spilled material (Small spills : Adsorption of absorbent etc.)
   - Possibly collect recoverable product (used for shovel or vacuum vehicle).
   - Residue is neutralized for the acid.
   - Move container to safe area from the leak area.
   - Wear personal protect clothes, protective equipment.

2. Environmental precautions:
   - Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.
   - If large spills, advise emergency services.

3. Methods and materials for containment and cleaning up
   1) Small spills
      - Remove the spilled material.
      - Use to dry removal method and Suppression occurrence of dust.
2) Large spills
   -. For disposal of spilled material in appropriate containers collected.
   -. Wash spill area with plenty of water.

7. HANDLING AND STORAGE

1. Handling
   -. Wear appropriate personal protective equipment (see section 8. EXPOSURE CONTROLS /PERSONAL PROTECTION).
   -. Avoid contact with incompatible materials.
   -. Use in a well-ventilated area.
   -. Do not mixed storage and transportation of grocery, fodder, medicines, food.
   -. When handling, DO NOT eat, drink or smoke.
   -. Avoid breathing dust and contact with the eyes, skin.
   -. Wash hands with soap and water after handling.
   -. Minimize occurrence of dust and accumulation.

2. Storage Precautionary Statements
   -. Save and handle applicable laws and regulations.
   -. the original container should be stored.
   -. Store away from water or moisture and store in dry area (strong hygroscopic property).
   -. The container withstand for physical damage should be stored.
   -. Save in cool, dry and well ventilated place.
   -. Stored in airtight containers and Avoid contact with water and moistures.
   -. Absorption is the cause of the reduction of the concentration with Potassium Carbonate.
   -. Do not store with Volatile Organic Compounds. Product may discolor.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

1. Exposure Limits
   -. Exposure limit under ISHL(KOREA) : Not applicable
   -. ACGIH limit : Not applicable
   -. Biological exposure limits : Not applicable

2. Engineering Controls
   -. The use of local exhaust ventilation is recommended to control emissions near the source. Laboratory samples should be handled in a fume hood. Provide mechanical ventilation of confined spaces.

3. Personal Protective Equipment
   1) Respiratory Protection :
      -. Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
- Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use.
  → Dust, mist, fume-purifying respiratory protection
  → Any air-purifying respirator with a corpuscle filter of high efficiency
  → Any respiratory protection with a electromotion fan(for dust, mist, fume-purifying)
- For Unknown Concentration or Immediately Dangerous to Life or Health
  → Self-contained breathing apparatus(pressure-demand or other positive-pressure mode in combination)
  → Supplied-air respirator with full facepiece

2) Eye protection:
- Wear primary eye protection such as splash resistant safety goggles with a secondary protection faceshield.
- Provide an emergency eye wash station and quick drench shower in the immediate work area.

3) Hand protection: Wear appropriate protective gloves.

4) Body protection: Wear appropriate protective cloth.

9. PHYSICAL AND CHEMICAL PROPERTIES

1. Appearance: Liquid / Colorless or white
2. Odor: Odorless
3. Odor threshold: Not available
4. pH: 11.0 (0.02 M Solution)
5. Melting point / Freezing point: 5° F (-15°C)
6. Initial Boiling Point / Boiling Ranges: Decomposition / 234° F (-112°C) / Not available
7. Flash point: Not available
8. Evaporation Rate: Not available
9. Flammability (solid, gas): Not available
10. Upper/Lower Flammability or explosive limits: Not available
11. Vapor pressure: 12 mmHg (20°C)
12. Solubility: soluble(water)
13. Vapor density: Not available
14. Relative density: 1.496 (15.6°C) (Water=1)
15. Partition coefficient of n-octanol/water: Not available
16. Autoignition Temp.: Not available (Not applicable)
17. Decomposition Temp. : Not available
18. Viscosity : Not available
19. Molecular weight : 138.21

10. STABILITY AND REACTIVITY

1. Stability
   -. This material is stable under recommended storage at normal temperature and pressure.
2. Possibility of Hazardous Reaction
   -. Polymerization : Will not occur.
3. Conditions to Avoid
   -. Keep away from heat, flame, sparks and source of ignition.
4. Materials to Avoid
   -. Avoid contact with Oxidants(Acids, nitrates, chlorine bleach, the chlorine used in pools).
   -. Because the reaction with Aluminum, Fluoro, Magnesium, Silicon, Chlorine Trifluoride, Powder metal should be avoided.
5. Hazardous Decomposition Products :
   -. Carbon compounds, potassium and it’s compound.

11. TOXICOLOGICAL INFORMATION

1. Information of Exposure route :
   1) (Respiratory tract) : May cause respiratory irritation.
   2) (Oral) : Not Classified.
   3) (Eye ∙ Skin) : Causes serious eye irritation, Causes skin irritation.

2. Delayed and immediate effects and also chronic effects from short and long term exposure
   1) Acute Toxicity :
      -. Oral Toxicity : LD50 > 2000mg/kg b.w.(Rat)
      -. Dermal Toxicity : Not available
      -. Inhalation Toxicity : Not available
   2) Skin corrosion/irritation :
      -. Irritation is observed.
   3) Serious eye damage/irritation :
      -. Irritation is observed.
4) Respiratory sensitization: Not available

5) Skin sensitization:
   - In the intracutaneous skin sensitisation test, allergic skin reactions is not observed.

6) Carcinogenicity: Not applicable

7) Germ cell mutagenicity:
   - Ames test: Negative
   - Gene mutation(mammalian cell gene mutation assay): Negative
   - Chromosome aberration(mammalian chromosome aberration test): Negative

8) Reproductive toxicity:
   - No adverse effects were observed in the reproductive sturdy using the rats for high concentration.

9) Specific Target organ Toxicity(single exposure):
   - May cause respiratory irritation.

10) Specific Target organ Toxicity(repeated exposure):
    - No adverse effects are observed in the repeated exposure sturdy using the rodents.

11) Aspiration hazard: Not available

12. ECOLOGICAL INFORMATION

1. Ecotoxicity:
   - Acute aquatic toxicity
     - Fish: LC50=68mg/L, 96hr, Oncorhynchus mykiss
     - Daphnia magna: EC50=430mg/L, 48hr, Daphnia magna(non-GLP)
     - Algal: Not available

2. Persistence and degradability: Not available

3. Bioaccumulation: Not available

4. Mobility in soil: Not available

5. Other adverse effects: Not available

13. DISPOSAL CONSIDERATIONS

1. 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.
2. Special precautions for disposal
   - The user of this product must dispose 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

1. UN Number : Not regulated for transport of dangerous goods
2. UN Proper Shipping name : Not applicable
3. Transport hazard class(es) : Not applicable
4. Packing group : Not applicable
5. Sea pollutants : Not applicable
6. Special precautions for user related to transport or transportation measures :
   - EmS FIRE SCHEDULE : Not applicable
   - EmS SPILLAGE SCHEDULE : Not applicable

15. REGULATORY INFORMATION

1. ISHL(The industrial Safety and Health Law in Korea) : Not applicable
2. The Toxic Chemical Control Act in Korea(TCCA in Korea) : Not applicable
3. Dangerous goods Safety Management Law in Korea : Not applicable
4. Waste Management Law in Korea : Not applicable
5. Other regulations
   1) POPs Management Law : Not applicable
   2) Information of EU Classification :
      - Classification : Not Classification
      - Symbol(s) and Indication(s) of Danger : Not applicable
      - Risk and Safety Phrases : Not applicable
   3) US REGULATIONS :
      - CERCLA section 103 (40 CFR 302.4) : Not regulated
      - SARA section 302 (40 CFR 355.30) : Not regulated
      - SARA section 304 (40 CFR 355.40) : Not regulated
      - SARA Hazard Categories, SARA section 311/312 (40 CFR 370.21)
        ACUTE: YES
        CHRONIC: NO
        FIRE: NO
        REACTIVE : NO
        SUDDEN RELEASE : NO
      - SARA section 313 (40 CFR 372.65) : Not regulated
      - OSHA regulation (29 CFR 1910.119) : Not regulated
4) Chemical inventory status:
- US inventory (TSCA): listed.
- TSCA 12(b) Export Notifications: Not listed.

5) Others
- Rotterdam Convention on Harmful Chemicals & Pesticides: Not applicable
- Stockholm Convention on Persistent Organic Pollutants: Not applicable
- Montreal Protocol on Substances That Deplete the Ozone Layer: Not applicable

### 16. OTHER INFORMATION

1. Reference
   1) The Korea Occupational Safety and Health Agency: KOSHA MSDS
   2) Korea regulations
      : Industrial Safety and Health Law, Waste Management Law, Toxic Chemical Control Act,
      ENFORCEMENT DECREE OF THE WATER QUALITY AND ECOSYSTEM CONSERVATION ACT.

2. Issue date: 2010. 03. 12
3. Revision number and Last date revised: 2011. 05. 11
4. Written Authority: Chemtopia Co., Ltd. (http://www.chemtopia.net Tel. 02-826-9100)