### SECTION 1. PRODUCT AND COMPANY INFORMATION

<table>
<thead>
<tr>
<th>COMPANY NAME</th>
<th>TEL</th>
<th>FAX</th>
</tr>
</thead>
<tbody>
<tr>
<td>BK POWER IMPORTS, INC.</td>
<td>+1 323 262 9969</td>
<td>+1 323 262 9979</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ADDRESS</th>
<th>D.O.T SHIPMENT NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>145 S. ANDERSON ST. LOS ANGELES, CA 90033</td>
<td>Gas(Butane) Cartridge</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PRODUCT AND BRAND NAME</th>
<th>CLASS 2.1, FLAMMABLE GAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lighter Refill Gas Cartridge / POWER BRAND</td>
<td>UN2037</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CREATION DATE</th>
<th>REVISION DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAY.01, 2013</td>
<td></td>
</tr>
</tbody>
</table>

### SECTION 2. COMPOSITION & INGREDIENTS DATA

<table>
<thead>
<tr>
<th>Chemical Ingredients Name</th>
<th>Trade Term/Synonym</th>
<th>Cas No.</th>
<th>Approximate Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propane</td>
<td>n-propane, propylhydride</td>
<td>74-98-6</td>
<td>26wt%</td>
</tr>
<tr>
<td>Iso-Butane</td>
<td>2-methylpropane, trimethylmethane</td>
<td>75-28-5</td>
<td>28wt%</td>
</tr>
<tr>
<td>N-Butane</td>
<td>butane, liquefied petroleum gas</td>
<td>106-97-8</td>
<td>45wt%</td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td></td>
<td>Maximum 2%</td>
</tr>
</tbody>
</table>

### SECTION 3. HAZARD INFORMATION

CERCLA Index (0~3) : health=1, fire=3, reactivity=0, durability=0
NFPA Index (0~4) : health=1, fire=4, reactivity=0

**Emergency Overview**
- Colorless and odorless but may affect central nervous system
- Occasionally smells like rotten garlic
- If inhaled, it may cause anoxia symptoms
- Flammable gas and may cause a fire
- Need to be separated from the ignition source
- Shall not be contacted with eye, skin, and clothes
- Avoid gas inhalation
- Used under proper ventilation
- Closed well with a container’s cap
- Physical hazard : Flammable gas, and it may cause a spark and explode if exposed to heat

**Potential Health Effects**
- **Inhalation**
  - Short term exposure : Irritation, nausea, vomiting, difficulty in breathing, headache, drowsiness, symptoms of drunkenness, tingling, suffocation, coma
  - Long term exposure : No data on adverse effects
- **Skin contact**
  - Short term exposure : May cause blister, frostbite or paralysis
  - Long term exposure : No data on adverse effects.
- **Eye contact**
  - Short term exposure : May cause Frostbite or vision problem
  - Long term exposure : No data
- **Ingestion**
  - Short term exposure : May cause frostbite
  - Long term exposure : No data

**Cancerogenic Status**
- Industry safety and health law : Not specified
- Occupational Safety and Health Administration (OSHA): Not specified
- National Toxicology Program (NTP): Not specified
- International Agency For Research on Cancer (IARC): Not specified
SECTION 4. FIRST AID MEASURES

- Inhalation
  - Move from the exposed areas immediately.
  - Artificial respiration if needed
  - Secure the airway, maintain blood pressure, and inhale oxygen if possible
  - Keep a patient in a warm and comfortable condition
  - Treat appropriately depending on the symptoms
  - Take a proper medical action

- Skin contact
  - Thoroughly wash off with soft detergent and much water (15~20 minutes)
  - If there are symptoms such as frostbite and freezing, take the following process
  - Warm the affected part with warm water of 107°F (41.7°C)
  - Gently wrap the affected part in blanket
  - Take an immediate medical action

- Eye contact
  - Wash eyes immediately with much water or saline solution until no chemicals remain
  - Take an immediate medical action

- Ingestion
  - Treat properly based on the symptoms
  - Take an immediate medical action

- Information on doctor
  - Antidote: No specific antidote exists (General or supportive therapy may be done based on the symptoms)

SECTION 5. MEASURES FOR EXPLOSION & FIRE

- Explosion & fire hazard
  - May burst or explode if exposed to heat or spark
  - Heavier than the air, and there is a possibility of ignition and backfire
  - Container may explode by heat or fire
  - Mixture of gas & air may explode
  - Low electrical conduction may cause static electricity, and ignited by a spark

- Fire extinguisher
  - Powder fire extinguisher, carbon dioxide (Use water or fog in case of a blaze)

- Extinguishing a fire
  - If not dangerous, remove from a fire area
  - After putting out a fire, sprinkle a cooling water in the side of the container which is exposed by heat
  - Escape from the end of tank
  - Use a fire hose or monitor nozzle if a blaze occurs in the stored area, and leave it burned if difficult
  - Immediately remove if the size of blaze grows bigger or the tank is discolored by heat
  - Leave it burned and isolate by more than 1 mile if we cannot stop the spills from gas tank, and tank lorry
  - Extinguish it if the gas spills can be stopped
  - Use much water in a form of fog from a long distance
  - Don’t inhale the smoke from the burning materials with one’s back against the wind
  - Keep away outside a 5-mile radius (1/3 mile) if fire is out of control or the container is exposed to a flame

- Harmful combustion product
Pyrolysis product may include a harmful carbon oxidized substance.
SECTION 6. MEASURES FOR LEAKAGE ACCIDENT

- Occupational leakage
  - Avoid heat, flame, spark and other source of ignition
  - Do not touch a spilled material
  - Do it if you can stop a spilled material with safety
  - Sprinkle water in order to reduce vapor
  - Isolate the area until the gas disperses
  - Prohibit smoke, flame or fire at the dangerous area
  - No entry to unauthorized persons, and isolate the dangerous and restricted area
  - Ventilate the closed place before entering

SECTION 7. HANDLING AND STORAGE MEASURES

- Store and handle in accordance with the regulations of a central government and local autonomous entity
- Store based on 29CFR 1910.106
  - Ground (Earth) connection
    - Store the materials with low electric conductivity in the container which meets ground connection standards according to NFPA77–1983
    - Recommend a practical training against static electricity
    - Please isolate and store the materials separated from other materials which shall not be put together at the same time

SECTION 8. EXPOSURE PREVENTION & PROTECTIVE DEVICE

- Exposure standard (TWA)
  - Industry safety & health law
  - Propane:
    - 1000ppm (1800mg/m³) OSHA TWA
    - 2500ppm ACGIH TWA
    - 1000ppm (1800mg/m³) NIOSH recommendation TWA 10hours
    - 1800mg/m³ (1000㎖/㎥) DFG MAK (Peak limit assortment grade –, deviation factor 2)
  - N-Butane:
    - TWA: 800ppm, 1900mg/m³
    - STEL: –
      - 800ppm (1900mg/m³) OSHA TWA (JUN. 30, 1993, Invalid by 58 FR 35338)
      - 800ppm ACGIH TWA
      - 800ppm (1900mg/m³) NIOSH recommendation TWA 10hours
      - 2400mg/m³ (1000㎖/㎥) DFG MAK (Peak limit assortment grade –Ⅱ, deviation factor 4)
  - ISO-Butane:
    - 800ppm (1900mg/m³) ACGIH TWA
    - 800ppm (1900mg/m³) NIOSH recommendation TWA 10hours
    - 2400mg/m³ (1000㎖/㎥) DFG MAK (Peak limit assortment grade –Ⅱ, deviation factor 4)
  - LPG : Liquified Petroleum Gas
    - 1000ppm (1800mg/m³) OSHA TWA
    - 1000ppm ACGIH TWA
    - 1000ppm (1800mg/m³) NIOSH recommendation TWA 10hours

- Ventilation
  - Set up a partial ventilation or general diluted ventilation equipment.
  - Install explosion-screening facilities for the relevant ventilation equipment if there is a possibility of explosion for the material

- Eye protection
  - For the gas, eye protection not required, but recommended.
- For the liquid, spray or dust protective goggles are needed to avoid a direct contact with foreign materials
  - Contact lens shall not be used

■ Emergency eye washing
  - Employer shall install a washing equipment and shower stall near the workplace because possibly employee's eye can be exposed to foreign materials

■ Protection clothes
  - For gas, protective clothing is not necessary
  - In case of possible contact with liquid, employee must wear proper protection clothes and equipment in order to prevent a skin from freezing

■ Protection gloves
  - Wear insulated gloves and gloves against the cold

■ Respirator
  - Below respirator and maximum use concentration is recommended by NIOSH guide or allowance standard report about chemical hazard established by America Health and Human Services Department
  - Specifically-selected respirator shall be based on pollutant density in a workplace, and does not exceed the operation limit of respirator, and finally approved by NIOSH and NSHA at the same time

LPG (Liquified Petroleum Gas)
  - 10,000ppm : Air-supply respirator, self-support respirator
  - 19,000ppm : Respirator operated by continuous flow form
  - Whole self-support respirator
  - Whole air-supply respirator
  - Whole air-supply respirator operated continuously by oil pressure
  - Shelter : Shelter-type self-support respirator
  - If there is a urgent danger to life or health,
  - - Operated by inhalation & ventilation resistance or positive pressurization as all of the self-support respirators
  - - Inhalation & ventilation resistance supportively equipped with self-support respirator operated by inhalation & ventilation resistance or positive pressurization
  - - Whole air-supply respirator operated by positive pressurization

SECTION 9. PHYSICAL AND CHEMICAL DATA

<table>
<thead>
<tr>
<th>Component</th>
<th>N-Butane</th>
<th>Iso-Butane</th>
<th>Propane</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical condition*1</td>
<td>liquid &amp; vapor</td>
<td>liquid &amp; vapor</td>
<td>liquid &amp; vapor</td>
</tr>
<tr>
<td>Color</td>
<td>colorless</td>
<td>colorless</td>
<td>colorless</td>
</tr>
<tr>
<td>Smell*2</td>
<td>odorless</td>
<td>odorless</td>
<td>odorless</td>
</tr>
<tr>
<td>Time to smell</td>
<td>no way to know</td>
<td>no way to know</td>
<td>no way to know</td>
</tr>
<tr>
<td>PH</td>
<td>not applicable</td>
<td>not applicable</td>
<td>not applicable</td>
</tr>
<tr>
<td>Melting point</td>
<td>-138.3°C</td>
<td>-160°C</td>
<td>-187.7°C</td>
</tr>
<tr>
<td>Boiling point</td>
<td>-0.5°C</td>
<td>-11.5°C</td>
<td>-42.1°C</td>
</tr>
<tr>
<td>Flashing point</td>
<td>-73.3°C</td>
<td>-88.0°C</td>
<td>-104.4°C</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Flammability</td>
<td>no way to know</td>
<td>no way to know</td>
<td>no way to know</td>
</tr>
<tr>
<td>Explosion limit concentration</td>
<td>Upper 8.4 vol%</td>
<td>Upper 8.4 vol%</td>
<td>Upper 9.5 vol%</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>0.214MPa @21.1°C</td>
<td>0.304MPa @20°C</td>
<td>0.75MPa @20°C</td>
</tr>
<tr>
<td>Vapor density</td>
<td>2.1(air=1)</td>
<td>2.595(air=1)</td>
<td>1.55(air=1)</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>0.549(H2O=1)@20°C</td>
<td>0.549(H2O=1)@20°C</td>
<td>0.501(H2O=1)@20°C</td>
</tr>
<tr>
<td>Solubility</td>
<td>3.25ml/100ml(20°C, water)</td>
<td>no way to know</td>
<td>0.007g/100ml(20°C, water)</td>
</tr>
<tr>
<td>Partition factor</td>
<td>2 R as ion PRW</td>
<td>2 R as ion PRW</td>
<td>2 R as ion PRW</td>
</tr>
<tr>
<td>Component</td>
<td>Ignition point</td>
<td>Decomposition temperature</td>
<td></td>
</tr>
<tr>
<td>---------------------------</td>
<td>----------------</td>
<td>--------------------------</td>
<td></td>
</tr>
<tr>
<td>N-octanol/water</td>
<td>287°C</td>
<td>no way to know</td>
<td></td>
</tr>
<tr>
<td></td>
<td>460°C</td>
<td>no way to know</td>
<td></td>
</tr>
<tr>
<td></td>
<td>466.1°C</td>
<td>no way to know</td>
<td></td>
</tr>
</tbody>
</table>

* Component has no smell, but a little odorant is added.
SECTION 10. STABILITY AND REACTIVITY

- Reactivity
  - Stable at a normal temperature and pressure

- Condition to be avoided
  - Avoid contact with heat, flame, spark and other sources of ignition
  - Vapor has a explosiveness
  - Do not contact with a skin
  - May cause frostbite
  - Because of a pressure, containers may be burst if exposed to heat, and thus could move to a long distance

- Material to be avoided
  - Strong oxidizer: Hazard of fire, explosion
  - Nitric acid, chlorine dioxide: Material to be avoided
  - Carbonyl nickel & acid: Explode at 20~40℃

- Dangerous decomposition product
  - Pyrolysis product may contain poisonous carbon oxidized substance

- Polymerization reaction
  - No data at a normal temperature and pressure

SECTION 11. TOXICOLOGICAL DATA

- Toxicological data
  - Propane:
    - LA50: 6960㎍/㎏, inhalation – rat
  - Iso-Butane:
    - LC50: 57pph/15min, inhalation – rat
  - N-Butane:
    - LC50: 658㎎/㎥/45min, inhalation – rat
    - LC50: 680㎎/㎥/2hours, inhalation – mouse

- Carcinogenicity
  - Industry safety & health law: No data

- Acute toxicity level
  - No toxicity by inhalation (little toxicity by ingestion)

- Effect on target organs
  - Simple asphyxiant, and central nervous system suppressant

- Additional data
  - Stimulant like epinephrine may cause ventricular fibrillation

- Effect on health
  - Inhalation: Asphyxiant/anesthetic
    - Acute exposure
      - It may cause headache, dullness, difficulty in breathing, drowsiness, and losing consciousness
      - If exposed under 1% concentration for 10 minutes, it may cause drowsiness or dizziness
      - High concentration may cause suffocation, difficulty in breathing, nausea, vomiting, coma, spasm, and paralysis
      - 19,000ppm concentration may cause immediate danger to life or health
- Chronic exposure: No data
- Skin contact
  - Acute exposure: Contact with liquid may cause frostbite, ache, and water blister
  - Chronic exposure: May cause symptoms the same as acute exposure
- Eye contact
  - Acute exposure: Contact with liquid may cause frostbite, ache, and eyesight loss
  - Chronic exposure: May cause symptoms the same as acute exposure
- Ingestion
  - Acute exposure: Gas ingestion is not likely to occur, but if you swallow the liquid, it may cause frostbite on the lips, mouth, and membrane
  - Chronic exposure: No data

SECTION 12. ENVIRONMENTAL EFFECT
- Environmental effect index (0~4): No data
- Acute water system toxicity: No data
- Resolvability: No data
- BCF: No data
- Log water/octanum distribution index: No data

SECTION 13. DIRECTIONS FOR DISPOSAL
- Comply with a central government and local autonomous entity regulations
- Disposal shall be executed by a standard of 40CFR 262 applied for hazardous waste generator
- EPA hazardous waste No. D001

SECTION 14. INFORMATION FOR TRANSPORTATION
- UN harmfulness grade classification: 2.1
- UN packing group: -
- UN DOT harmfulness grade classification (40CFR 172.101): Flammable gas
- UN DOT indication standard (40CFR 172.101 & Subpart): Flammable gas
- UN DOT shipping name & IO number (40CFR 172.101):
  - Propane: LPG, UN1075
  - Iso-Butane: Iso-Butane, UN1999
  - N-Butane: N-Butane or N-Butane mixture UN1011
- UN DOT packing standard (40CFR 172.101)
- UN DOT restriction quantity (40CFR 172.101)
  - Passenger plane or train: Prohibited
  - Cargo plane: 150kg

SECTION 15. DETAILS ON LEGISLATION
- Korea
  - Industry safety & health law: Allowable concentration
  - Control law of hazardous chemical materials: -
  - Fire Services Act: -
- USA
  - TSCA: Stipulated
  - CERCLA clauses 103(40CFR 302.4): Not stipulated
SECTION 16. DIRECTIONS FOR PRODUCT

- Precautions in handling and storage
  - Do not expose to heat and store at below 40°C in an airy place.
  - Please pay attention in order to avoid a cut on the finger by groove.
  - In case the product drops on the ground, be careful about deformation of nozzle and gas leakage.
  - After use, please separate the product in order to avoid an explosion by radiant heat.
  - Keep out of reach of children.
  - Do not put such things as iron plate, stone plate, aluminum foil, which have much radiant heat, above the product covers.
  - Use in an airy place since a use in the airtight place may cause explosion and suffocation.
  - Do not spray or inhale to human body and avoid an impact on the product.

- Please read and follow the directions on the product label.

SECTION 17. OTHER REFERENCES

- Data source: GS Caltex Corporation, Korea Petro Chemical Ind. Co., Ltd., Korea Occupational Safety & Health Agency.

- The above information is correct as far as we know.
  The company has no responsibility for injuries or damages caused by an inappropriate use.