

SAFETY DATA SHEET

PRODUCT NAME

BUTANE GAS CARTRIDGE

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

- A. PRODUCT NAME BUTANE GAS CARTRIDGE MODEL BU-5/BU-6 NET WEIGHT 8OZ (227G)
- B. RECOMMENDED USE OF PRODUCT AND LIMITATIONS
 USE OF PRODUCT For use Only in Portable Gas Appliances
 LIMITATIONS Extremely flammable
- C. IMPORTER
 COMPANY IWATANI CORPORATION OF AMERICA
 ADDRESS 2200 POST OAK BLVD. STE 1150 HOUSTON, TX 77056 (P) 713-965-9970
 EMERGENCY PHONE NUMBER 1-800-429-9300 (CHEM TREC)

2. HAZARDS IDENTIFICATION

- A. CLASSIFICATION
 Flammable gases : Category 1
 Gases under pressure : Liquefied gas
 Specific target organ toxicity – single exposure : Category 3 (Anesthesia effects)

- B. LABEL ELEMENTS, INCLUDING PRECAUTIONARY STATEMENTS
 SYMBOLS



- SIGNAL WORDS DANGER, WARNING
- HAZARD STATEMENTS
 H220 Extremely flammable gas
 H280 Contains gas under pressure : May explode if heated
 H336 May cause drowsiness or dizziness

PRECAUTIONARY STATEMENTS

- PREVENTION
 P210 Keep away from heat/sparks/open flames/hot surface – No smoking
 P251 pressurized container : Do not pierce or burn, even after use
 P261 Avoid breathing dust/fume/gas/mist/vapours/spray
 P271 Use only outdoors or in a well-ventilated area
- RESPONSE
 P304+P340 IF INHALED : Move victim to fresh air and keep at rest in a position comfortable for breathing
 P312 Call a POISON CENTER or doctor/physician if you feel unwell
 P377 Leaking gas fire : Do not extinguish, unless leak can be stopped safely
 P381 Eliminate all ignition sources if safe to do so
- STORAGE
 P403 Store in a well-ventilated place
 P233 Keep container tightly closed
 P405 Store locked up
 P410 Protect from sunlight.
- DISPOSAL
 P501 Dispose of contents/container in accordance with local/regional/national regulations

C. OTHER HAZARDS WHICH DO NOT RESULT IN CLASSIFICATION (NFPA)

| | HEALTH | FIRE | REACTIBILITY |
|-----------|--------|------|--------------|
| ISOBUTANE | 0 | 4 | 0 |
| BUTANE | 1 | 4 | 0 |
| PROPANE | 1 | 4 | 0 |

3. COMPOSITION/INFORMATION ON INGREDIENTS

A. MIXTURE

| CHEMICAL NAME | SYNONYM | CAS No./ID | CONTENT(w%) |
|---------------|---------------------------------|------------|-------------|
| ISO-BUTANE | 2-METHYL PROPANE | 75-28-5 | 25 ~35 |
| N-BUTANE | Butane, Liquefied Petroleum Gas | 106-97-8 | 50 ~70 |
| PROPANE | n-Propane, Propylhydride | 74-98-6 | 0 ~ 5 |

4. FIRST AID MEASURES

- A. EYE CONTACT
 Get emergency medical treatment
 Wash skin and eyes with plenty of flowing water for at least 20 minutes
- B. SKIN CONTACT
 If you suffer from frostbite, flush with plenty of lukewarm water immediately.
 Cover up contaminated skin with a blanket. seek medical attention if ill effect or irritation develops
- C. INHALATION
 Get medical advice/attention if you feel unwell
 Ventilate with fresh air if open exceed mist and fume, get medical treatment if you have a cough or other
- D. INGESTION
 Prompt medical action is essential.
 Use a breathing equipment if get breathless by ingestion and inhalation
- E. MOST IMPORTANT SYMPTOMS/EFFECT, ACUTE AND DELAYS
 Contact with skin or eyes can cause frostbite.

| | |
|---|---|
| F. INDICATION OF IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED, IF NECESSARY | In case of inhalation, consider supplying oxygen. |
| 5. FIRE FIGHTING MEASURES | |
| A. SUITABLE EXTINGUISH MEDIA | Water spray or Fog for surrounding area. Standard form, Special Alcohol-stable foam, Carbon Dioxide-CO2 Use dried sand and soil to extinguish by smothering |
| B. SPECIFIC HAZARDS ARISING FROM THE CHEMICAL | May burst or explode if exposed to heat or spark. Thermal decomposition may produce carbon monoxide and other toxic vapors Heavier than the air, and there is a possibility of ignition and backfire. May cause explosion if cylinder heats up. Low electrical conduction may cause static electricity, and be ignited by spark. Mixture of gas & air may explode. |
| C. SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIRE FIGHTER | Fire fighters/rescuers must put on appropriate protector Get fire fighting on safe distance May be damaged if skin and eyes contact May cause pollution by opened contents Warning, because contents are lighter than water Remove cylinder from danger distance as to not be dangerous |
| D. SPECIAL FIRE FIGHTING PROCEDURES | Use Equipment or Shielding required to protect personnel against bursting, rupturing or venting containers. Do not heat container. Store below 110°F in a Ventilated area. |
| E. UNSUAL FIRE AND EXPLOSION HAZARDS | At elevated temperatures (over 54°C/130°F) CRV of containers will be operated, but rapidly excess heating or fire will be cause burst or rupture of a container. Extremely Flammable. Do not use near fire or flame. |
| 6. ACCIDENTAL RELEASE MEASURE | |
| A. PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES | Avoid heat, flames, sparks and other sources of ignition. Do not touch spilled material. Stop leak if possible without personal risk. Reduce vapors with water spray. Keep unnecessary people away, isolate hazard area and deny entry. Remove sources of ignition. |
| B. ENVIRONMENTAL PRECAUTIONS | Prevent flow to sewer/public waters. stop release |
| C. METHOD AND MATERIALS FOR CONTAINMENT AND CLEANING UP | Stop leak if you can do it without risk Absorb leaked materials with soil and sand, and throw away in a waste treatment container If spill is indoors, remove all possible sources of ignition and ventilate area immediately until all gases and vapors have been removed |
| 7. HANDLING AND STORAGE | |
| A. PRECAUTIONS FOR SAFE HANDLING | Handle after reading all precautionary statements Avoid breathing dust/fume/gas/mist/vapours/spray Do not spray to flash resource point or flammable Avoid contact with skin and eyes Empty containers should not be re-used Protect cylinders from physical damage Use in a well-ventilated area |
| B. CONDITIONS FOR SAFE STORAGE | Keep away from heat/sparks/open flames/hot surface – No smoking Store in locking mechanism system and no youth handling Store in cool, well-ventilated area away from heat, spark or fire Keep away from foods and drinks Protect against direct sun radiation and storage under 40°C |
| 8. EXPOSURE CONTROLS/PERSONAL PROTECTION | |
| A. EXPOSURE LIMITS IN THE AIR OF THE WORKPLACE, BIOLOGICAL LIMIT VALUES | |
| Iso-Butane: | |
| OSHA TWA | No data |
| ACGIH TWA | 800ppm(1900mg/m ³) |
| NIOSH recommended TWA 10 hour(s) | 800ppm(1900mg/m ³) |
| Propane: | |
| OSHA TWA | 1000ppm(1800mg/m ³) |
| ACGIH TWA | 2500ppm |
| NIOSH recommended TWA | 1000ppm(1800mg/m ³) |
| N-Butane: | |
| OSHA TWA | 800ppm(1900mg/m ³) |
| ACGIH TWA | 800ppm |
| NIOSH recommended TWA | 800ppm(1900mg/m ³) |
| EXPOSURE STANDARD | |
| B. APPROPRIATE ENGINEERING CONTROLS | Provide adequate ventilation Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Ensure compliance with applicable exposure limits. |

C. INDIVIDUAL PROTECTION MEASURE

RESPIRATORY PROTECTION

An approved breathing apparatus may be appropriate. in case of emergency or leak, use a respirator

Eye Protection

For the gas: Eye protection not required, but recommended.

For the liquid: Wear splash resistant safety goggles. Contact lences should not be worn.

Provide an emergency eye wash fountain and safety shower at work.

Body Protection

For the gas: Protective clothing is not required.

For the liquid: Wear appropriate protective, cold insulating clothing.

Hand Protection

Wear insulated gloves.

9. PHYSICAL AND CHEMICAL PROPERTIES

| PROPERTIES | N-Butane | Iso-Butane | Propane |
|------------------------------------|-------------------------|-------------------------|-------------------------|
| A. APPEARANCE FORM | liquid & vapor | liquid & vapor | liquid & vapor |
| APPEARANCE COLOR | colorless | colorless | colorless |
| B. ODOR | faint odor | faint odor | faint odor |
| C. ODOR THRESHOLD | No data | No data | No data |
| D. pH | Not applicable | Not applicable | Not applicable |
| E. MELTING/FREEZING POINT | -138°C | -160°C | -187°C |
| F. INITIAL BOILING POINT AND RANGE | -1°C | -12°C | -42°C |
| G. FLASH POINT | -60 °C (c.c.) | -88°C | -104°C |
| H. EVAPORATION RATE | No data | No data | No data |
| I. FLAMMABILITY(SOLID, GAS) | flammable gas | flammable gas | flammable gas |
| J. UPPER/LOWER FLAMMABILITY OR | 1.8-8.4 vol% | 1.8-8.4 vol% | 2.2-9.5 vol% |
| K. VAPOR PRESSURE | 1557mmHg (at 20°C) | 2280mmHg (at 20°C) | 5625mmHg (at 20°C) |
| L. SOLUBILY | 3.25mL/100mL(at 20°C) | No data | 0.007g/100mL (at 20°C) |
| M. VAPOR DENSITY | 2.10 g/cm3(air=1) | 2.59 g/cm3(air=1) | 1.55 g/cm3(air=1) |
| N. RELATIVE DENSITY | 0.578 (20°C/4°C liquid) | 0.578 (20°C/4°C liquid) | 0.501 (20°C/4°C liquid) |
| O. PARTITION COEFFICIENT OF | log Pow 2.89 | log Pow 2.80 | log Pow 2.36 |
| P. AUTO-IGNITION TEMPERATURE | 287°C | 460°C | 466°C |
| Q. DECOMPOSITION TEMPERATURE | No data | No data | No data |
| R. VISCOSITY | No data | No data | No data |
| S. EXPLOSIVE PROPERTIES | No data | No data | No data |

10. STABILITY AND REACTIVITY

A. CHEMICAL STABILITY

Material is stable under normal conditions.

B. POSSIBILITY OF HAZARDOUS REACTIVITY

Stable at a normal temperature and pressure.

C. CONDITION TO AVOID

Avoid heat, flames, sparks and other sources of ignition. Minimize contact with material.

D. INCOMPATIBLE MAERIALS

Strong oxidizers such as hydrogen peroxide,nitric acid,sulphuric acid,etc.

E. HAZARDROUS DECOMPOSITION

Toxic carbon compounds(CO2,etc)

11. TOXICOLOGICAL INFORMATION

A. INFORMATION ON THE LIKELY ROUTES

INHALATION EXPOSURE

Irritation, vomiting, difficulty in breathing, irregular heart beating, headache, sleepiness, dizziness, spasm, coma

INGESTION EXPOSURE

May cause ingestion irritation.

SKIN EXPOSURE

Frostbite.

EYE EXPOSURE

Frostbite.

B. DELAYED AND IMMEDIATE EFFECTS AND ALSO CHRONIC EFFECTS FROM SHORT AND LONG TERM EXPOSURE

ACUTE TOXIC

ORAL

LD50(rat) :No data

SKIN

LD50(rabbit) :No data

INHALATION

LD50(rat) :658,000mg/m3,LD50(mouse) :680,000mg/m3

SKIN CORROSION/IRRITATION

No data

SERIOUS EYE DAMAGE/IRRITANT

No data

RESPIRATORY SENSITIZATION

No data

SKIN SENSITIZATION

No data

CARCINOGENICITY

KOREAN INDUSTRIAL RAW OF

No data

KOREAN DEPARTMENT OF LABOR

No data

IARC

No data

OSHA

No data

ACGIH

No data

NTP

No data

EU CLP

No data

GERM-CELL MUTAGENICITY

No data

GENERATIVE TOXICITY

No data

SPECIFIC TARGET ORGAN

No data

SPECIFIC TARGET ORGAN

No data

ASPIRATION HAZARD

No data

12. ECOLOGICAL INFORMATION

A. AQUATIC/TERRESTRIAL ECOLOGY TOXICITY

| | |
|---------|---------|
| FISH | No data |
| DAPHNIA | No data |
| ALGAE | No data |

B. PERSISTENCE AND DEGRADABILITY

| | |
|---------------|----------------|
| PERSISTENCE | Not applicable |
| DEGRADABILITY | No data |

C. BIOACCUMULATIVE POTENTIAL

| | |
|-----------------|---------|
| BIODEGRADATION | No data |
| BIOACCUMULATION | No data |

D. MOBILITY IN SOIL

Absorbs to soil and has low mobility

E. OTHER HAZARDOUS EFFECTS

No data

13. DISPOSAL CONSIDERATIONS

A. DISPOSAL METHODS

All disposal practices must be in compliance with all laws and regulations
Consult local, state, and federal regulations for specific requirements

B. PRECAUTIONS

the contents of containers must be disposed according to related regulations

14. TRANSPORT INFORMATION

| | |
|---------------------------------|---|
| A. UN NUMBER | UN1075 |
| B. UN PROPER SHIPPING NAME | PETROLEUM GASES, LIQUEFIED, class 2.1, F-D, S-U |
| C. HAZARD CLASS(ES) | Class 2.1 |
| D. PACKING GROUP | No data |
| E. MARINE POLLUTANT SUBSTANCES | Not applicable |
| F. SPECIAL PRECAUTIONS FOR USER | Passenger plane or train:Prohibited |

15. REGULATORY INFORMATION

A. REGULATORY INFORMATION This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

B. SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS SPECIFIC FOR THE PRODUCT IN QUESTION:

1)USA

| | |
|------------------------------------|---|
| CERCLA SECTION 103 (40CFR302.4) | Not regulated |
| SARA SECTION 302(40CFR355.30) | Not regulated |
| SARA SECTION 304(40CFR355.40) | Not regulated |
| SARA SECTION 313(40CFR372.65) | Not regulated |
| SARA SECTION 311/312 (40CFR370.21) | Acute:Yes Chronic:No Fire:Yes Reactivity:No Sudden Pressure:Yes |
| OSHA PROCESS SAFETY(29CFR1910.119) | Not regulated |

2)EU classification and Labelling information

| | |
|----------------|---|
| CLASSIFICATION | F |
| RISK PHRASES | R12:Extremely flammable |
| SAFTY PHRASES | S2:Keep out of the reach of children S9:Keep container in a well-ventilated place S16:Keep away from sources of ignition – No smoking |

16. OTHER INFORMATION

A. SOURCE OF DATA

ECB-ESIS(European chemical Substances Information System)(<http://ecb.jrc.it/esis>)
ECOTOX Database, EPA(<http://cfpub.epa.gov/ecotox>)
HSDB, U.S. National Library of Medicine(<http://toxnet.nlm.nih.gov>)
IUCLID Chemical Data Sheet, EC-ECB
International Chemical Safety Cards(ICSC)
<http://www.nema.go.kr/hazmat/>
<http://ncis.nier.go.kr>
Corporate Solution From Thomson Micromedex(<http://csi.micromedex.com>)
ECB-ESIS(European chemical Substances Information System)(<http://ecb.jrc.it/esis>)
International Chemical Safety Cards(ICSC)(<http://www.nihs.go.jp/ICSC>)
TOXNET, U.S. National Library of Medicine(<http://toxnet.nlm.nih.gov>)
The Chemical Database, The Department of Chemistry at the University of Akron (<http://ull.chemistry.uakron.edu/erd>)
NLM:HSDB
NLM:ChemIDPlus
TOMES:Loli
TOPKAT:Skin Irritation
Ecological Structure Activity Relationships(ECOSAR)
Korea Occupational Safety & Health Agency
EPI Suite
Quantitative Structure Activity Relation(QSAR)

Globally Harmonized System of classification and labeling of chemical(GHS), United Nations.

B. THE DATE OF PREPARATION OF THE SDS December. 22. 2012

C. THE NUMBER OF TIMES REVISED AND THE DATE OF PREPARATION OF THE LATEST REVISION

THE NUMBER OF TIMES REVISED No. 1

THE DATE OF PREPARATION OF January. 23. 2015

D. OTHERS

The information contained herein is to the best of our knowledge and belief accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee for result obtained, and assume no responsibility for damages incurred by use of this product. It is the responsibility of the user to comply with all federal, state and local laws and regulations.