1. Identification

Product identifier: Butane

Other means of identification:
- SDS number: WC026
- Recommended use: Hand Torch Fuel
- Recommended restrictions: None known.

Manufacturer/Importer/Supplier/Distributor information:
- Manufacturer/Supplier: Worthington Industries Incorporated
- Address: 200 Old Wilson Bridge Road
  Columbus, OH 43085
  United States
- Email: cylinders@worthingtonindustries.com
- Telephone Number: 866-928-2657
- CHEMTREC - 24 HOURS:
  Within US and Canada: 800-424-9300
  Outside US and Canada: +1 703-741-5970 (collect calls accepted)

2. Hazard(s) identification

Physical hazards:
- Category 1: Flammable gases
  Gases under pressure: Liquefied gas

Health hazards:
- Not classified.

OSHA defined hazards:
- Simple asphyxiating gas

Label elements:
- Signal word: Danger
- Hazard statement: Extremely flammable gas. Contains gas under pressure; may explode if heated. May displace oxygen and cause rapid suffocation.

Precautionary statement:
- Prevention: Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Use only outdoors or in a well-ventilated area. Wear respiratory protection.
- Response: Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so.
- Storage: Protect from sunlight. Store in a well-ventilated place.
- Disposal: Dispose of waste and residues in accordance with local authority requirements.

Hazard(s) not otherwise classified (HNOC):
- None known.

Supplemental information:
- None.

3. Composition/information on ingredients

Mixtures

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isobutane</td>
<td>75-28-5</td>
<td>60-80</td>
</tr>
<tr>
<td>Butane</td>
<td>106-97-8</td>
<td>20-40</td>
</tr>
</tbody>
</table>
Gas concentrations are in percent by volume.

### 4. First-aid measures

#### Inhalation
Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory tract irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

#### Skin contact
Not likely, due to the form of the product. If frostbite occurs, immerse affected area in warm water (not exceeding 105°F/41°C). Keep immersed for 20 to 40 minutes. Get medical attention immediately.

#### Eye contact
Not likely, due to the form of the product. If frostbite occurs, immediately flush eyes with plenty of warm water (not exceeding 105°F/41°C) for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention promptly if symptoms persist or occur after washing.

#### Ingestion
This material is a gas under normal atmospheric conditions and ingestion is unlikely.

#### Most important symptoms/effects, acute and delayed
Exposure to rapidly expanding gas or vaporizing liquid may cause frostbite ("cold burn"). Very high exposure can cause suffocation from lack of oxygen. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Asphyxiation may bring about unconsciousness without warning and so rapidly that victim may be unable to protect themself.

#### Indication of immediate medical attention and special treatment needed
Exposure may aggravate pre-existing respiratory disorders. Provide general supportive measures and treat symptomatically.

#### General information
If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

### 5. Fire-fighting measures

#### Suitable extinguishing media
Dry chemical powder. Carbon dioxide (CO2). Water fog. Foam.

#### Unsuitable extinguishing media
Do not use water jet as an extinguisher, as this will spread the fire.

#### Specific hazards arising from the chemical
Extremely flammable gas. Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed.

#### Special protective equipment and precautions for firefighters
Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

#### Fire fighting equipment/instructions
Do not extinguish fires unless gas flow can be stopped safely; explosive re-ignition may occur. Promptly isolate the scene by removing all persons from the vicinity of the incident. No action shall be taken involving any personal risk or without suitable training. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus. Stop flow of material. Use water to keep fire exposed containers cool and to protect personnel effecting shutoff. If a leak or spill has not ignited, use water spray to disperse the vapors and to protect personnel attempting to stop leak. Prevent runoff from fire control or dilution from entering streams, sewers or drinking water supply.

#### Specific methods
Use standard firefighting procedures and consider the hazards of other involved materials. Cool containers exposed to flames with water until well after the fire is out.

#### General fire hazards
Extremely flammable gas. Contents under pressure. Pressurized container may explode when exposed to heat or flame.

### 6. Accidental release measures

#### Personal precautions, protective equipment and emergency procedures
Evacuate the area promptly. No action shall be taken involving any personal risk or without suitable training. In the event of a leak evacuate all personnel until ventilation can restore oxygen concentrations to safe levels. Keep unnecessary personnel away. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Wear appropriate personal protective equipment (See Section 8).

#### Methods and materials for containment and cleaning up
Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. Stop leak if you can do so without risk. If possible, turn leaking containers so that gas escapes rather than liquid. Isolate area until gas has dispersed. For waste disposal, see section 13 of the SDS.

#### Environmental precautions
Should not be released into the environment. Prevent further leakage or spillage if safe to do so.
7. Handling and storage

Precautions for safe handling
Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Do not smoke. All equipment used when handling the product must be grounded. Do not breathe gas. Avoid prolonged exposure. Do not enter storage areas or confined spaces unless adequately ventilated. Use only outdoors or in a well-ventilated area. Oxygen concentration should not fall below 19.5 % at sea level (pO2 = 135 mmHg). Mechanical ventilation or local exhaust ventilation may be required. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities
Do not store, incinerate, or heat this material above 120 degrees Fahrenheit. Keep away from heat, sparks and open flame. This material can accumulate static charge which may cause spark and become an ignition source. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a cool, dry place out of direct sunlight. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Protect cylinders from damage. Stored containers should be periodically checked for general condition and leakage. Store in original tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits
US. ACGIH Threshold Limit Values

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butane (CAS 106-97-8)</td>
<td>STEL</td>
<td>1000 ppm</td>
</tr>
<tr>
<td>Isobutane (CAS 75-28-5)</td>
<td>STEL</td>
<td>1000 ppm</td>
</tr>
</tbody>
</table>

US. NIOSH: Pocket Guide to Chemical Hazards

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butane (CAS 106-97-8)</td>
<td>TWA</td>
<td>1900 mg/m3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>800 ppm</td>
</tr>
<tr>
<td>Isobutane (CAS 75-28-5)</td>
<td>TWA</td>
<td>1900 mg/m3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>800 ppm</td>
</tr>
</tbody>
</table>

Biological limit values
No biological exposure limits noted for the ingredient(s).

Exposure guidelines
Follow standard monitoring procedures.

Appropriate engineering controls
Provide adequate ventilation and minimize the risk of inhalation of gas.

Individual protection measures, such as personal protective equipment

Eye/face protection
Wear approved safety glasses or goggles.

Skin protection
Wear appropriate chemical resistant gloves.

Hand protection
Wear appropriate chemical resistant gloves.

Skin protection
Wear protective clothing appropriate for the risk of exposure.

Respiratory protection
If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.

Thermal hazards
Contact with liquefied gas might cause frostbites, in some cases with tissue damage. Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations
Do not eat, drink or smoke when using the product. Wash thoroughly after handling. Provide eyewash station and safety shower. Handle in accordance with good industrial hygiene and safety practices.

9. Physical and chemical properties

Appearance

<table>
<thead>
<tr>
<th>Physical state</th>
<th>Form</th>
<th>Color</th>
<th>Odor</th>
<th>Odor threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas (Liquefied)</td>
<td>Compressed liquefied gas</td>
<td>Colorless</td>
<td>Faint. Gasoline-like</td>
<td>Not available</td>
</tr>
<tr>
<td>Property</td>
<td>Value</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>--------------------------------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>Not available</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>-216.76 °F (-138.2 °C)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>-11.7 °F (-24.28 °C)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flash point</td>
<td>-76.3 °F (-60.2 °C)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not available</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Extremely flammable gas.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper/lower flammability or explosive limits</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flammability limit - lower (%)</td>
<td>1.8 %</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flammability limit - upper (%)</td>
<td>8.4 %</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>28 psig (Approximate)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vapor density</td>
<td>&gt; 2 (Air = 1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relative density</td>
<td>0.57 (H2O = 1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solubility (water)</td>
<td>&lt; 0.1 % in water at 70°F</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partition coefficient (n-octanol/water)</td>
<td>Not available</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>548.33 °F (286.85 °C)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not available</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not available</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other information</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not explosive</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>Not oxidizing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent volatile</td>
<td>100 %</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 10. Stability and reactivity

**Reactivity**
The product is stable and non-reactive under normal conditions of use, storage and transport.

**Chemical stability**
Stable under normal temperature conditions and recommended use.

**Possibility of hazardous reactions**
Polymerization will not occur. May form explosive mixture with air. This product may react with oxidizing agents.

**Conditions to avoid**
Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.

**Incompatible materials**

**Hazardous decomposition products**
Thermal decomposition of this product can generate carbon monoxide and carbon dioxide. Hydrocarbons.

### 11. Toxicological information

**Information on likely routes of exposure**

**Inhalation**
High concentrations: Suffocation (asphyxiating) hazard - if allowed to accumulate to concentrations that reduce oxygen below safe breathing levels. Breathing of high concentrations may cause dizziness, light-headedness, headache, nausea and loss of coordination. Continued inhalation may result in unconsciousness.

**Skin contact**
Contact with liquefied gas may cause frostbite.

**Eye contact**
Contact with liquefied gas may cause frostbite.

**Ingestion**
This material is a gas under normal atmospheric conditions and ingestion is unlikely.

**Symptoms related to the physical, chemical and toxicological characteristics**
Exposure to rapidly expanding gas or vaporizing liquid may cause frostbite ("cold burn"). Very high exposure can cause suffocation from lack of oxygen. Victim may not be aware of asphyxiation. Asphyxiation may bring about unconsciousness without warning and so rapidly that victim may be unable to protect themselves.

**Information on toxicological effects**

**Acute toxicity**
Not expected to be acutely toxic.

**Skin corrosion/irritation**
Not classified.
Serious eye damage/eye irritation
Not classified.

Respiratory or skin sensitization
Respiratory sensitization
Not a respiratory sensitizer.

Skin sensitization
This product is not expected to cause skin sensitization.

Germ cell mutagenicity
No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity
This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

IARC Monographs. Overall Evaluation of Carcinogenicity
Not listed.

NTP Report on Carcinogens
Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
Not regulated.

Reproductive toxicity
This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure
Not classified.

Specific target organ toxicity - repeated exposure
Not classified.

Aspiration hazard
Not likely, due to the form of the product.

Chronic effects
Exposure over a long period of time may cause central nervous system effects.

12. Ecological information
Ecotoxicity
The product is not expected to be hazardous to the environment.

Persistence and degradability
Not applicable.

Bioaccumulative potential
Not applicable.

Partition coefficient n-octanol / water (log Kow)
- Butane (CAS 106-97-8) 2.89
- Isobutane (CAS 75-28-5) 2.76

Mobility in soil
Not relevant, due to the form of the product.

Other adverse effects
The product contains volatile organic compounds which have a photochemical ozone creation potential.

13. Disposal considerations
Disposal instructions
Use the container until empty. Do not dispose of any non-empty container. Empty containers have residual vapor that is flammable and explosive. Cylinders should be emptied and returned to a hazardous waste collection point. Do not puncture or incinerate even when empty. Dispose in accordance with all applicable regulations.

Local disposal regulations
Dispose of in accordance with local regulations.

Hazardous waste code
D001: Waste Flammable material with a flash point <140 °F
The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products
Dispose in accordance with all applicable regulations.

Contaminated packaging
Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information
DOT
- UN number: UN1011
- UN proper shipping name: Butane
- Transport hazard class(es)
  - Class: 2.1
  - Subsidiary risk: -
  - Label(s): 2.1
- Packing group: Not applicable.
- Special precautions for user: Read safety instructions, SDS and emergency procedures before handling.
- Special provisions: T50

Butane
911467  Version #: 02  Revision date: 30-May-2016  Issue date: 28-May-2015
Packaging exceptions
Packaging non bulk
Packaging bulk

IATA
UN number
UN proper shipping name
Transport hazard class(es)
Class
Subsidiary risk
Label(s)
Packing group
Environmental hazards
ERG Code
Special precautions for user

IMDG
UN number
UN proper shipping name
Transport hazard class(es)
Class
Subsidiary risk
Label(s)
Packing group
Environmental hazards
Marine pollutant
EmS
Special precautions for user
Transport in bulk according to
Annex II of MARPOL 73/78 and
the IBC Code

15. Regulatory information
US federal regulations
TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
CERCLA Hazardous Substance List (40 CFR 302.4)
Butane (CAS 106-97-8)
Isobutane (CAS 75-28-5)

Superfund Amendments and Reauthorization Act of 1986 (SARA)
Hazard categories
Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - Yes
Pressure Hazard - Yes
Reactivity Hazard - No
SARA 302 Extremely hazardous substance
Not listed.
SARA 311/312 Hazardous chemical
Yes
SARA 313 (TRI reporting)
Not regulated.

Other federal regulations
Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Not regulated.
Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Butane (CAS 106-97-8)
Isobutane (CAS 75-28-5)

Safe Drinking Water Act (SDWA)
Isobutane (CAS 75-28-5) Not regulated.

US state regulations
US. Massachusetts RTK - Substance List
Butane (CAS 106-97-8)
Isobutane (CAS 75-28-5)

US. New Jersey Worker and Community Right-to-Know Act
Butane (CAS 106-97-8)
Isobutane (CAS 75-28-5)

US. Pennsylvania Worker and Community Right-to-Know Law
Butane (CAS 106-97-8)
Isobutane (CAS 75-28-5)

US. Rhode Island RTK
Butane (CAS 106-97-8)
Isobutane (CAS 75-28-5)

US. California Proposition 65
California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

International Inventories

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
</tr>
<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
<td>Yes</td>
</tr>
<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
<td>Yes</td>
</tr>
<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*A “Yes” indicates this product complies with the inventory requirements administered by the governing country(s).
A “No” indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision
Issue date 28-May-2015
Revision date 30-May-2016
Version # 02

Further information
The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available.

HMIS® ratings
Health: 1
Flammability: 4
Physical hazard: 1

NFPA ratings
References

ACGIH
EPA: AQUIRE database
NLM: Hazardous Substances Data Base
US. IARC Monographs on Occupational Exposures to Chemical Agents
HSDB® - Hazardous Substances Data Bank
IARC Monographs. Overall Evaluation of Carcinogenicity
ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices (2009)
National Toxicology Program (NTP) Report on Carcinogens
ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices

Disclaimer

All information in this Safety Data Sheet is believed to be accurate and reliable. However, no guarantee or warranty of any kind is made with regard to the accuracy of information or the suitability of the recommendations contained herein. It is the user’s responsibility to assess the safety and toxicity of this product under their own conditions of use and to comply with all applicable laws and regulations.