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 Cylinder Corporation
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: Flammable gases
Gases under pressure

Health hazards: Not classified.

OSHA defined hazards: Not classified.

Label elements

Signal word: Danger
Hazard statement: Extremely flammable gas. Contains gas under pressure; may explode if heated.
Precautionary statement
Prevention: Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
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): May displace oxygen and cause rapid suffocation.

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>

4. First-aid measures

Inhalation: Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Call a physician or poison control center immediately.
Skin contact

Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention if irritation develops and persists. If frostbite occurs, immerse involved area in warm water (between 100°F/38°C and 110°F/43°C, not exceeding 112°F/44°C). Keep immersed for 20 to 40 minutes. Seek medical assistance.

Eye contact

Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.

Ingestion

Ingestion is not a typical route of exposure for gases or liquefied gases.

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. May cause drowsiness or dizziness.

Indication of immediate medical attention and special treatment needed

Exposure may aggravate pre-existing respiratory disorders. Treat symptomatically.

General information

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, CO₂, water spray, fog, or foam.

Unsuitable extinguishing media

Full water jet.

Specific hazards arising from the chemical

Selection of respiratory protection for firefighting: follow the general fire precautions indicated in the workplace.

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

Move container from fire area if it can be done without risk.

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.

General fire hazards

Extremely flammable gas.

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. Keep unnecessary personnel away.

Ensure adequate ventilation. In case of inadequate ventilation, use respiratory protection. Wear appropriate personal protective equipment (See Section 8).

Methods and materials for containment and cleaning up

Ventilate well, stop flow of gas or liquid if possible. Immediately contact emergency personnel. 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. Prevent from entering into soil, ditches, sanitary sewers, waterways and/or groundwater.

7. Handling and storage

Precautions for safe handling

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. Use only with adequate ventilation. Do not breathe gas. Do not get in eyes, on skin, on clothing. Avoid prolonged exposure. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. Keep away from heat, spark, open flames and other sources of ignition.

Wear appropriate personal protective equipment (See Section 8). Eating, drinking, and smoking should be prohibited in areas where this material is handled, stored, and processed. Risk of vapor concentration on the floor and in low-lying areas.
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. Secure cylinders in an upright position at all times, close all valves when not in use. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS). Store in accordance with local, regional, national, and international regulations. Keep container tightly closed and sealed until ready for use. Protect cylinders from damage.

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. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear approved safety glasses or goggles.

Skin protection

Hand protection

Wear appropriate chemical resistant gloves.

Other

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

| Physical state | Gas (Liquefied). |
| Form | Compressed liquefied gas. |
| Color | Colorless. |

Odor

Faint. Gasoline-like.

Odor threshold

Not available.

pH

Not available.

Melting point/freezing point

-216.76 °F (-138.2 °C)

Initial boiling point and boiling range

-11.7 °F (-24.28 °C)

Flash point

-76.3 °F (-60.2 °C)

Evaporation rate

Not available.

Flammability (solid, gas)

Flammable gas.

Upper/lower flammability or explosive limits

| Flammability limit - lower (%) | 1.8 % |

Butane

911467  Version #: 01  Revision date: -  Issue date: 28-May-2015
Flammability limit - upper (%)
8.4 %

Vapor pressure
28 psig (Approximate)

Vapor density
> 2 (Air = 1)

Relative density
0.57 (H2O = 1)

Solubility(ies)
Solubility (water)
< 0.1 % in water at 70°F

Partition coefficient (n-octanol/water)
Not available.

Auto-ignition temperature
548.33 °F (286.85 °C)

Decomposition temperature
Not available.

Viscosity
Not available.

Other information
Molecular formula
C4-H10

Molecular weight
58.12 g/mol

Percent volatile
100 %

10. Stability and reactivity
Reactivity
The product is 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
Heat, flames and sparks.

Incompatible materials

Hazardous decomposition products
Carbon oxides. Hydrocarbons.

11. Toxicological information
Information on likely routes of exposure

Inhalation
High concentrations: Suffocation (asphyxiant) 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
Not likely, due to the form of the product.

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. May cause drowsiness or dizziness.

Information on toxicological effects

Acute toxicity
High concentration: Suffocation (asphyxiant) hazard - if allowed to accumulate to concentrations that reduce oxygen below safe breathing levels.

Skin corrosion/irritation
Contact with liquefied gas might cause frostbites, in some cases with tissue damage.

Serious eye damage/eye irritation
Direct contact with liquefied gas may cause eye damage from frostbite.

Respiratory or skin sensitization
Respiratory sensitization
Not classified.

Skin sensitization
Not classified.

Germ cell mutagenicity
Not classified.

Carcinogenicity
Not classified.

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

Reproductive toxicity
Not classified.
Specific target organ toxicity - single exposure
Not classified.

Specific target organ toxicity - repeated exposure
Not classified.

Aspiration hazard
Not classified.

Chronic effects
May cause central nervous system effects.

12. Ecological information

Ecotoxicity
Not expected to be harmful to aquatic organisms.

Persistence and degradability
The product is readily biodegradable.

Bioaccumulative potential
The product is not expected to bioaccumulate.

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

Mobility in soil
May evaporate quickly.

Mobility in general
May evaporate quickly.

Other adverse effects
None known.

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 in accordance with all applicable regulations.

Hazardous waste code
D001: Waste Flammable material with a flash point <140 °F

Waste from residues / unused products
Dispose of in accordance with local regulations.

Contaminated packaging
Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

<table>
<thead>
<tr>
<th>UN number</th>
<th>UN1011</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN proper shipping name</td>
<td>Butane</td>
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<tr>
<td>Transport hazard class(es)</td>
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<tr>
<td>Class</td>
<td>2.1</td>
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<tr>
<td>Subsidiary risk</td>
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<td>Label(s)</td>
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<tr>
<td>Packing group</td>
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<td>Special precautions for user</td>
<td>Read safety instructions, SDS and emergency procedures before handling.</td>
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<td>Special provisions</td>
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<td>Packaging exceptions</td>
<td>306</td>
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<td>Packaging non bulk</td>
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<td>Packaging bulk</td>
<td>314, 315</td>
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IATA

<table>
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<th>UN1011</th>
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<td>UN proper shipping name</td>
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<td>Label(s)</td>
<td>2.1</td>
</tr>
<tr>
<td>Packing group</td>
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<tr>
<td>Environmental hazards</td>
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<tr>
<td>Special precautions for user</td>
<td>Read safety instructions, SDS and emergency procedures before handling.</td>
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IMDG

<table>
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<th>UN number</th>
<th>UN1011</th>
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</thead>
<tbody>
<tr>
<td>UN proper shipping name</td>
<td>Butane</td>
</tr>
</tbody>
</table>
Transport hazard class(es)
Class 2.1
Subsidiary risk -
Label(s) 2.1

Packing group
Not applicable.

Environmental hazards
Marine pollutant No.
EmS F-D, S-U

Special precautions for user
Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable.

15. Regulatory information

US federal regulations
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not regulated.
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)
- Butane (CAS 106-97-8) LISTED
- Isobutane (CAS 75-28-5) LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)
Hazard categories
- Immediate Hazard - No
- 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)
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>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>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 -
Version # 01

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe
Flammability: 4
Physical hazard: 1

All information in this Material 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. Worthington Cylinder Corporation cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user’s responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.