

# CyanoWand Butane Fuel

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### SECTION 1: Identification

#### 1.1. Identification

Product form : Mixtures  
 Product name : CyanoWand Butane Fuel  
 Product code : A-2606C

#### 1.2. Recommended use and restrictions on use

Use of the substance/mixture : Fuel

#### 1.3. Supplier

Arrowhead Forensics  
 11006 Strang Line Road  
 Lenexa, KS 66215  
 Tel: 913-894-8388  
<http://www.arrowheadforensics.com>

#### 1.4. Emergency telephone number

Emergency number : 1.800.424.9300  
 CHEMTREC: 1.800.424.9300

### SECTION 2: Hazard(s) identification

#### 2.1. Classification of the substance or mixture

##### GHS-US classification

Flammable gases Category 1	H220	Extremely flammable gas
Skin corrosion/irritation Category 2	H315	Causes skin irritation
Serious eye damage/eye irritation Category 1	H318	Causes serious eye damage
Specific target organ toxicity (single exposure) Category 3	H335	May cause respiratory irritation
Specific target organ toxicity (single exposure) Category 3	H336	May cause drowsiness or dizziness

Full text of H statements : see section 16

#### 2.2. GHS Label elements, including precautionary statements

##### GHS-US labeling

Hazard pictograms (GHS-US) :



Signal word (GHS-US) : Danger

Hazard statements (GHS-US) : H220 - Extremely flammable gas  
 H315 - Causes skin irritation  
 H318 - Causes serious eye damage  
 H335 - May cause respiratory irritation  
 H336 - May cause drowsiness or dizziness

Precautionary statements (GHS-US) : P210 - Keep away from heat, hot surfaces, open flames, sparks. - No smoking  
 P261 - Avoid breathing fume, vapors  
 P264 - Wash all exposed skin thoroughly after handling  
 P271 - Use only outdoors or in a well-ventilated area  
 P280 - Wear eye protection, protective gloves  
 P302+P352 - If on skin: Wash with plenty of water/...  
 P304+P340 - If inhaled: Remove person to fresh air and keep 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

# CyanoWand Butane Fuel

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

P310 - Immediately call a poison center/doctor/...  
P312 - Call a poison center/doctor/... if you feel unwell  
P321 - Specific treatment (see a physician on this label)  
P332+P313 - If skin irritation occurs: Get medical advice/attention  
P362+P364 - Take off contaminated clothing and wash it before reuse  
P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely  
P381 - Eliminate all ignition sources if safe to do so  
P403 - Store in a well-ventilated place  
P403+P233 - Store in a well-ventilated place. Keep container tightly closed  
P405 - Store locked up  
P501 - Dispose of contents/container to local/regional/national/international regulations

### 2.3. Other hazards which do not result in classification

No additional information available

### 2.4. Unknown acute toxicity (GHS US)

Not applicable

## SECTION 3: Composition/Information on ingredients

### 3.1. Substances

Not applicable

### 3.2. Mixtures

Name	Product identifier	%	GHS-US classification
isobutanol	(CAS No) 78-83-1	96	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Eye Dam. 1, H318 STOT SE 3, H336 STOT SE 3, H335
butane, liquefied, under pressure	(CAS No) 106-97-8	2.4	Flam. Gas 1, H220 Compressed gas, H280
propane	(CAS No) 74-98-6	1.6	Flam. Gas 1, H220 Compressed gas, H280

Full text of hazard classes and H-statements : see section 16

## SECTION 4: First-aid measures

### 4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).  
First-aid measures after inhalation : Allow victim to breathe fresh air. Allow the victim to rest.  
First-aid measures after skin contact : Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.  
First-aid measures after eye contact : Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persist.  
First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

### 4.2. Most important symptoms and effects (acute and delayed)

Symptoms/injuries : Not expected to present a significant hazard under anticipated conditions of normal use.

### 4.3. Immediate medical attention and special treatment, if necessary

No additional information available

## SECTION 5: Fire-fighting measures

### 5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Foam. Dry powder. Carbon dioxide. Water spray. Sand.  
Unsuitable extinguishing media : Do not use a heavy water stream.

### 5.2. Specific hazards arising from the chemical

Reactivity : At very high temperature: risk of explosion on exposure to temperature rise. On burning: release of toxic and corrosive gases/vapours (sulphur oxides, carbon monoxide - carbon dioxide).

### 5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.  
Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

# CyanoWand Butane Fuel

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

##### 6.1.1. For non-emergency personnel

Emergency procedures : Evacuate unnecessary personnel.

##### 6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection.

Emergency procedures : Ventilate area.

#### 6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

#### 6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Store away from other materials.

#### 6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor.

#### 7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep only in the original container in a cool, well ventilated place away from : Keep container closed when not in use.

Incompatible products : Strong bases. Strong acids.

Incompatible materials : Sources of ignition. Direct sunlight.

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

##### butane, liquefied, under pressure (106-97-8)

ACGIH	ACGIH TWA (ppm)	1000 ppm (Butane, all isomers; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value)
-------	-----------------	--

##### isobutanol (78-83-1)

Not applicable

##### propane (74-98-6)

Not applicable

#### 8.2. Appropriate engineering controls

No additional information available

#### 8.3. Individual protection measures/Personal protective equipment

##### Personal protective equipment:

Gas mask. Gloves. Safety glasses. Avoid all unnecessary exposure.

##### Hand protection:

Wear protective gloves

##### Eye protection:

Chemical goggles or safety glasses

##### Respiratory protection:

Wear appropriate mask

# CyanoWand Butane Fuel

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations



### Other information:

Do not eat, drink or smoke during use.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state	: Gas
Appearance	: Clear, colorless gas.
Color	: clear Colorless
Odor	: strong Unpleasant odour
Odor threshold	: No data available
pH	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: Non flammable.
Vapor pressure	: No data available
Relative vapor density at 20 °C	: No data available
Relative density	: No data available
Solubility	: Insoluble in water.
Log Pow	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosion limits	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

At very high temperature: risk of explosion on exposure to temperature rise. On burning: release of toxic and corrosive gases/vapours (sulphur oxides, carbon monoxide - carbon dioxide).

### 10.2. Chemical stability

Stable under normal conditions. Heating may cause a fire. Extremely flammable liquid and vapor. Not established.

### 10.3. Possibility of hazardous reactions

Not established.

### 10.4. Conditions to avoid

Heat. High temperature. Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Open flame. Sparks. Direct sunlight. Extremely high or low temperatures.

### 10.5. Incompatible materials

Strong acids. Strong bases.

### 10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced. fume. Carbon monoxide. Carbon dioxide.

# CyanoWand Butane Fuel

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

Acute toxicity : Not classified

<b>butane, liquefied, under pressure (106-97-8)</b>	
LC50 inhalation rat (mg/l)	658 mg/l/4h (Rat; Literature)
LC50 inhalation rat (ppm)	276000 ppm/4h (Rat; Literature)
ATE US (gases)	276000.000 ppmV/4h
ATE US (vapors)	658.000 mg/l/4h
ATE US (dust, mist)	658.000 mg/l/4h

<b>isobutanol (78-83-1)</b>	
LD50 oral rat	> 2830 mg/kg body weight (Rat; OECD 401: Acute Oral Toxicity; Experimental value; 3350 mg/kg bodyweight; Rat; OECD 401: Acute Oral Toxicity; Experimental value)
LD50 dermal rabbit	2460 mg/kg body weight (Rabbit; Experimental value; OECD 402: Acute Dermal Toxicity; > 2000 mg/kg bodyweight; Rabbit; Experimental value; OECD 402: Acute Dermal Toxicity)
ATE US (dermal)	2460.000 mg/kg body weight

Skin corrosion/irritation : Causes skin irritation.  
Serious eye damage/irritation : Causes serious eye damage.  
Respiratory or skin sensitization : Not classified  
Germ cell mutagenicity : Not classified  
Based on available data, the classification criteria are not met  
Carcinogenicity : Not classified  
Reproductive toxicity : Not classified  
Based on available data, the classification criteria are not met  
STOT-single exposure : May cause respiratory irritation. May cause drowsiness or dizziness.  
STOT-repeated exposure : Not classified  
Aspiration hazard : Not classified  
Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met.

### SECTION 12: Ecological information

#### 12.1. Toxicity

<b>butane, liquefied, under pressure (106-97-8)</b>	
LC50 fish 1	> 1000 mg/l (LC50; 96 h; Pimephales promelas)

<b>isobutanol (78-83-1)</b>	
LC50 fish 1	1430 mg/l (LC50; Other; 96 h; Pimephales promelas; Flow-through system; Fresh water; Experimental value)
EC50 Daphnia 1	1100 mg/l (EC50; ASTM; 48 h; Daphnia pulex; Static system; Fresh water; Experimental value)
Threshold limit algae 1	593 mg/l (EC50; OECD 201: Alga, Growth Inhibition Test; 72 h; Pseudokirchneriella subcapitata; Static system; Fresh water; Experimental value)
Threshold limit algae 2	< 53 mg/l (NOEC; OECD 201: Alga, Growth Inhibition Test; 72 h; Pseudokirchneriella subcapitata; Static system; Fresh water; Experimental value)

<b>propane (74-98-6)</b>	
Threshold limit algae 2	8 mg/l (IC50; 72 h; Algae)

#### 12.2. Persistence and degradability

<b>CyanoWand Butane Fuel</b>	
Persistence and degradability	Not established.

<b>butane, liquefied, under pressure (106-97-8)</b>	
Persistence and degradability	Readily biodegradable in water.

# CyanoWand Butane Fuel

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

<b>isobutanol (78-83-1)</b>	
Persistence and degradability	Readily biodegradable in water. Biodegradable in the soil. Low potential for adsorption in soil. Photodegradation in the air.

<b>propane (74-98-6)</b>	
Persistence and degradability	Readily biodegradable in water. Not applicable (gas). Photodegradation in the air.

### 12.3. Bioaccumulative potential

<b>CyanoWand Butane Fuel</b>	
Bioaccumulative potential	Not established.

<b>butane, liquefied, under pressure (106-97-8)</b>	
Log Pow	2.89 (Experimental value)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

<b>isobutanol (78-83-1)</b>	
Log Pow	1 (Practical experience/observation; 25 °C)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

<b>propane (74-98-6)</b>	
BCF fish 1	9 - 25 (BCF)
Log Pow	2.28 (Calculated)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

### 12.4. Mobility in soil

<b>butane, liquefied, under pressure (106-97-8)</b>	
Surface tension	< 0.1 N/m (0 °C)

<b>isobutanol (78-83-1)</b>	
Surface tension	0.0697 N/m (20 °C)
Log Koc	log Koc, SRC PCKOCWIN v1.66; 0.31; Calculated value

<b>propane (74-98-6)</b>	
Surface tension	0.016 N/m (-47 °C)

### 12.5. Other adverse effects

Effect on the global warming	: No known effects from this product.
GWPmix comment	: No known effects from this product.
Other information	: Avoid release to the environment.

## SECTION 13: Disposal considerations

### 13.1. Disposal methods

Product/Packaging disposal recommendations	: Dispose in a safe manner in accordance with local/national regulations.
Ecology - waste materials	: Avoid release to the environment.

## SECTION 14: Transport information

### Department of Transportation (DOT)

In accordance with DOT

Transport document description	: UN2037 Receptacles, small, containing gas (FLAMMABLE GAS), 2.1, II
UN-No.(DOT)	: UN2037
Proper Shipping Name (DOT)	: Receptacles, small, containing gas FLAMMABLE GAS
Class (DOT)	: 2.1 - Class 2.1 - Flammable gas 49 CFR 173.115
Packing group (DOT)	: II - Medium Danger

# CyanoWand Butane Fuel

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Hazard labels (DOT) : 2.1 - Flammable gas



Other information : No supplementary information available.

### TDG

### Transport by sea

### Air transport

Transport document description (IATA) : UN UN2037 Receptacles, small, containing gas, 2.1  
UN-No. (IATA) : UN2037  
Proper Shipping Name (IATA) : Receptacles, small, containing gas  
Class (IATA) : 2.1 - Gases : Flammable

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

#### CyanoWand Butane Fuel

Listed on the United States TSCA (Toxic Substances Control Act) inventory

### 15.2. International regulations

#### CANADA

No additional information available

#### EU-Regulations

No additional information available

#### National regulations

No additional information available

### 15.3. US State regulations

No additional information available

## SECTION 16: Other information

Data sources : REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labeling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

Training advice : Normal use of this product shall imply use in accordance with the instructions on the packaging. Keep in tightly closed container. Keep cool and dry. Avoid all ignition sources - heat, open flame, sparks. Avoid incompatible materials. Avoid dust creation and accumulation. Avoid inhalation and ingestion. Avoid contact with eyes. Wash thoroughly after handling.

Other information : This Safety Data Sheet has been established in accordance with the applicable European Union legislation.

# CyanoWand Butane Fuel

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Full text of H-phrases:

H220	Extremely flammable gas
H226	Flammable liquid and vapor
H280	Contains gas under pressure; may explode if heated
H315	Causes skin irritation
H318	Causes serious eye damage
H335	May cause respiratory irritation
H336	May cause drowsiness or dizziness

NFPA health hazard

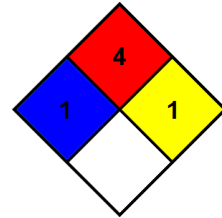
: 1 - Exposure could cause irritation but only minor residual injury even if no treatment is given.

NFPA fire hazard

: 4 - Will rapidly or completely vaporize at normal pressure and temperature, or is readily dispersed in air and will burn readily.

NFPA reactivity

: 1 - Normally stable, but can become unstable at elevated temperatures and pressures or may react with water with some release of energy, but not violently.



HMIS III Rating

Health

: 1 Slight Hazard - Irritation or minor reversible injury possible

Flammability

: 4 Severe Hazard - Flammable gases, or very volatile flammable liquids with flash points below 73 F, and boiling points below 100 F. Materials may ignite spontaneously with air. (Class IA)

Physical

: 1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.

Personal Protection

: G

G - Safety glasses, Gloves, Vapor respirator

SDS US (GHS HazCom 2012)

*The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, expressed or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigation to determine the suitability of the information for their particular purposes.*