



# SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.0  
Creation Date: July 15, 2019  
Revision Date: July 15, 2019

## SECTION 1: Identification

### 1.1 GHS Product identifier

**Product name** Butyl formate

### 1.2 Other means of identification

**Product number** -

**Other names** Formic acid butyl ester; FEMA No. 2196; Formic acid, butyl ester

### 1.3 Recommended use of the chemical and restrictions on use

**Identified uses** Industrial and scientific research use.

**Uses advised against** no data available

### 1.4 Supplier's details

**Company** Shanghai Yien Chemical Technology Co., Ltd  
**Address** Building 6, 28 Yingong Road, Fengxian District, Shanghai  
Chemical Industry Zone, Shanghai, 201400, China  
**Telephone** +86-400-133-2688

### 1.5 Emergency phone number

**Emergency phone number** +86-400-133-2688

**Service hours** Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

## SECTION 2: Hazard identification

### 2.1 Classification of the substance or mixture

Flammable liquids, Category 2

Eye irritation, Category 2

Specific target organ toxicity – single exposure, Category 3

### 2.2 GHS label elements, including precautionary statements

**Pictogram(s)**



**Signal word**

**Hazard statement(s)** Danger  
H225 Highly flammable liquid and vapour  
H319 Causes serious eye irritation  
H335 May cause respiratory irritation

**Precautionary statement(s)****Prevention**

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233 Keep container tightly closed.  
P240 Ground and bond container and receiving equipment.  
P241 Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242 Use non-sparking tools.  
P243 Take action to prevent static discharges.  
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...  
P264 Wash ... thoroughly after handling.  
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.  
P271 Use only outdoors or in a well-ventilated area.

**Response**

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water [or shower].  
P370+P378 In case of fire: Use ... to extinguish.  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P319 Get medical help if you feel unwell.

**Storage**

P403+P235 Store in a well-ventilated place. Keep cool.  
P403+P233 Store in a well-ventilated place. Keep container tightly closed.  
P405 Store locked up.

**Disposal**

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

**2.3 Other hazards which do not result in classification**

no data available

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**SECTION 3: Composition/information on ingredients****3.1 Substances**

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Butyl formate	Butyl formate	592-84-7	209-772-5	100%

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**SECTION 4: First-aid measures****4.1 Description of necessary first-aid measures****If inhaled**

Fresh air, rest. Refer for medical attention.

**Following skin contact**

Remove contaminated clothes. Rinse and then wash skin with water and soap.

**Following eye contact**

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

**Following ingestion**

Rinse mouth. Do NOT induce vomiting. Refer for medical attention .

**4.2 Most important symptoms/effects, acute and delayed**

Exposure can cause irritation of eyes, nose and throat. High concentrations have a narcotic effect. (USCG, 1999)

### **4.3 Indication of immediate medical attention and special treatment needed, if necessary**

no data available

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## **SECTION 5: Fire-fighting measures**

### **5.1 Suitable extinguishing media**

Excerpt from ERG Guide 129 [Flammable Liquids (Water-Miscible / Noxious)]:  
CAUTION: All these products have a very low flash point: Use of water spray when fighting fire may be inefficient. SMALL FIRE: Dry chemical, CO<sub>2</sub>, water spray or alcohol-resistant foam. Do not use dry chemical extinguishers to control fires involving nitromethane (UN1261) or nitroethane (UN2842). LARGE FIRE: Water spray, fog or alcohol-resistant foam. Do not use straight streams. Move containers from fire area if you can do it without risk. FIRE INVOLVING TANKS OR CAR/TRAILER LOADS: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn. (ERG, 2016)

### **5.2 Specific hazards arising from the chemical**

Special Hazards of Combustion Products: Irritating vapors and toxic gases, such as carbon dioxide and carbon monoxide, may be formed when involved in fire. Behavior in Fire: Vapors can flow along surfaces to distant ignition source and flash back. (USCG, 1999)

### **5.3 Special protective actions for fire-fighters**

Use powder, alcohol-resistant foam, water spray, carbon dioxide. In case of fire: keep drums, etc., cool by spraying with water.

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## **SECTION 6: Accidental release measures**

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

Remove all ignition sources. Evacuate danger area! Consult an expert! Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Ventilation. Collect leaking liquid in sealable containers. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

### **6.2 Environmental precautions**

Remove all ignition sources. Evacuate danger area! Consult an expert! Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Ventilation. Collect leaking liquid in sealable containers. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

### **6.3 Methods and materials for containment and cleaning up**

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

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## **SECTION 7: Handling and storage**

### **7.1 Precautions for safe handling**

NO open flames, NO sparks and NO smoking. Closed system, ventilation, explosion-proof electrical equipment and lighting. Do NOT use compressed air for filling, discharging, or handling. Prevent build-up of electrostatic charges (e.g., by grounding). Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

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

Fireproof. Separated from strong oxidants.

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational Exposure limit values

no data available

#### Biological limit values

no data available

### 8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

### 8.3 Individual protection measures, such as personal protective equipment (PPE)

#### Eye/face protection

Wear safety goggles.

#### Skin protection

Protective gloves.

#### Respiratory protection

Use ventilation, local exhaust or breathing protection.

#### Thermal hazards

no data available

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## SECTION 9: Physical and chemical properties and safety characteristics

<b>Physical state</b>	N-butyl formate is a clear colorless liquid. Flash point 64°F. Less dense than water. Vapors heavier than air.
<b>Colour</b>	no data available
<b>Odour</b>	no data available
<b>Melting point/freezing point</b>	271°C(lit.)
<b>Boiling point or initial boiling point and boiling range</b>	107°C
<b>Flammability</b>	Highly flammable.
<b>Lower and upper explosion limit/flammability limit</b>	no data available
<b>Flash point</b>	16°C(lit.)
<b>Auto-ignition temperature</b>	612° F (USCG, 1999)
<b>Decomposition temperature</b>	no data available
<b>pH</b>	no data available
<b>Kinematic viscosity</b>	no data available
<b>Solubility</b>	7.56 mg/mL at 27 °C
<b>Partition coefficient n-octanol/water</b>	1.32
<b>Vapour pressure</b>	kPa at 20°C: 2.9
<b>Density and/or relative density</b>	0.894
<b>Relative vapour density</b>	(air = 1): 3.5
<b>Particle characteristics</b>	no data available

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Reacts violently with strong oxidants. This generates fire and explosion hazard.

### 10.2 Chemical stability

no data available

### 10.3 Possibility of hazardous reactions

The vapour mixes well with air, explosive mixtures are easily formed. As a result of flow, agitation, etc., electrostatic charges can be generated. N-BUTYL FORMATE is an ester. Esters react with acids to liberate heat along with alcohols and acids. Strong oxidizing acids may cause a vigorous reaction that is sufficiently exothermic to ignite the reaction products. Heat is also generated by the interaction of esters with caustic solutions. Flammable hydrogen is generated by mixing esters with alkali metals and hydrides. Can generate electrostatic charges [Handling Chemicals Safely 1980. p. 247].

### 10.4 Conditions to avoid

no data available

### 10.5 Incompatible materials

no data available

### 10.6 Hazardous decomposition products

no data available

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## SECTION 11: Toxicological information

### Acute toxicity

- Oral: no data available
- Inhalation: no data available
- Dermal: no data available

### Skin corrosion/irritation

no data available

### Serious eye damage/irritation

no data available

### Respiratory or skin sensitization

no data available

### Germ cell mutagenicity

no data available

### Carcinogenicity

no data available

### Reproductive toxicity

no data available

### STOT-single exposure

The vapour is irritating to the eyes and respiratory tract. The substance may cause effects on the central nervous system. Exposure far above the OEL could cause lowering of consciousness.

### STOT-repeated exposure

The substance defats the skin, which may cause dryness or cracking.

### Aspiration hazard

No indication can be given about the rate at which a harmful concentration of this substance in the air is reached on evaporation at 20°C.

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## SECTION 12: Ecological information

### 12.1 Toxicity

- Toxicity to fish: no data available
- Toxicity to daphnia and other aquatic invertebrates: no data available
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

### 12.2 Persistence and degradability

no data available

### 12.3 Bioaccumulative potential

no data available

### 12.4 Mobility in soil

no data available

### 12.5 Other adverse effects

no data available

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## SECTION 13: Disposal considerations

### 13.1 Disposal methods

#### Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

#### Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

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## SECTION 14: Transport information

### 14.1 UN Number

ADR/RID: UN1128 (For reference only, please check.)	IMDG: UN1128 (For reference only, please check.)	IATA: UN1128 (For reference only, please check.)
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### 14.2 UN Proper Shipping Name

ADR/RID: n-BUTYL FORMATE (For reference only, please check.)	IMDG: n-BUTYL FORMATE (For reference only, please check.)	IATA: n-BUTYL FORMATE (For reference only, please check.)
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### 14.3 Transport hazard class(es)

ADR/RID: 3 (For reference only, please check.)	IMDG: 3 (For reference only, please check.)	IATA: 3 (For reference only, please check.)
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### 14.4 Packing group, if applicable

ADR/RID: II (For reference only, please check.)	IMDG: II (For reference only, please check.)	IATA: II (For reference only, please check.)
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## 14.5 Environmental hazards

ADR/RID: No

IMDG: No

IATA: No

## 14.6 Special precautions for user

no data available

## 14.7 Transport in bulk according to IMO instruments

no data available

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## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
Butyl formate	Butyl formate	592-84-7	209-772-5
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.
Korea Existing Chemicals List (KECL)			Not Listed.

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## SECTION 16: Other information

### Information on revision

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### Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

### References

- IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: [http://www.echemportal.org/echemportal/index?pageID=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en)
- CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>

- Germany GESTIS-database on hazard substance, website:  
<http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

**Other Information**

Do NOT take working clothes home.

**Any questions regarding this SDS, Please send your inquiry to [sds@xixisys.com](mailto:sds@xixisys.com)**

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*Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. We as supplier shall not be held liable for any damage resulting from handling or from contact with the above product.*