

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

Product form : Mixture  
Product name : Chloroform-Butanol Reagent  
Product code : LC13050

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : For laboratory and manufacturing use only.

#### 1.3. Details of the supplier of the safety data sheet

LabChem Inc  
Jackson's Pointe Commerce Park Building 1000, 1010 Jackson's Pointe Court  
Zelienople, PA 16063 - USA  
T 412-826-5230 - F 724-473-0647  
[info@labchem.com](mailto:info@labchem.com) - [www.labchem.com](http://www.labchem.com)

#### 1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300 or 011-703-527-3887

### SECTION 2: Hazards identification

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

##### Classification (GHS-US)

Acute Tox. 4 (Oral) H302  
Skin Irrit. 2 H315  
Eye Irrit. 2A H319  
Carc. 2 H351  
STOT RE 1 H372  
Aquatic Acute 2 H401

Full text of H-phrases: see section 16

#### 2.2. Label elements

##### GHS-US labeling

Hazard pictograms (GHS-US) :



Signal word (GHS-US) :

Danger

Hazard statements (GHS-US) :

H302 - Harmful if swallowed  
H315 - Causes skin irritation  
H319 - Causes serious eye irritation  
H351 - Suspected of causing cancer  
H372 - Causes damage to organs (kidneys, liver, central nervous system, hearing organ) through prolonged or repeated exposure (Inhalation, oral)  
H401 - Toxic to aquatic life

Precautionary statements (GHS-US) :

P201 - Obtain special instructions before use  
P202 - Do not handle until all safety precautions have been read and understood  
P260 - Do not breathe mist, vapors, spray  
P264 - Wash exposed skin thoroughly after handling  
P270 - Do not eat, drink or smoke when using this product  
P273 - Avoid release to the environment  
P280 - Wear protective gloves, protective clothing, eye protection, face protection  
P301+P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell  
P302+P352 - IF ON SKIN: Wash with plenty of soap and water  
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P308+P313 - IF exposed or concerned: Get medical advice/attention  
P330 - If swallowed, rinse mouth  
P332+P313 - If skin irritation occurs: Get medical advice/attention  
P337+P313 - If eye irritation persists: Get medical advice/attention

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P362 - Take off contaminated clothing and wash before reuse  
P405 - Store locked up  
P501 - Dispose of contents/container to comply with local, state and federal regulations

### 2.3. Other hazards

Other hazards not contributing to the classification : None under normal conditions.

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

Not applicable

## SECTION 3: Composition/information on ingredients

### 3.1. Substance

Not applicable

### 3.2. Mixture

Name	Product identifier	%	Classification (GHS-US)
Chloroform	(CAS No) 67-66-3	84.6	Acute Tox. 4 (Oral), H302 Carc. 2, H351 Aquatic Acute 2, H401
1-Butanol	(CAS No) 71-36-3	15.4	Flam. Liq. 3, H226 Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Inhalation:gas), H332 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H336 STOT SE 3, H335 STOT RE 1, H372

Full text of H-phrases: 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). Suspected of causing cancer (Inhalation).

First-aid measures after inhalation : Allow victim to breathe fresh air. Allow the victim to rest.

First-aid measures after skin contact : Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical advice/attention.

First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention. Call a POISON CENTER/doctor/physician if you feel unwell.

### 4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries : Causes damage to organs (nervous system, kidneys, liver) through prolonged or repeated exposure (Ingestion, Inhalation).

Symptoms/injuries after inhalation : May cause drowsiness or dizziness. May cause respiratory irritation.

Symptoms/injuries after skin contact : Causes skin irritation.

Symptoms/injuries after eye contact : Causes serious eye irritation.

Symptoms/injuries after ingestion : Swallowing a small quantity of this material will result in serious health hazard.

Chronic symptoms : Cracking of the skin. Impaired concentration. Impaired memory.

### 4.3. Indication of any immediate medical attention and special treatment needed

Obtain medical assistance.

## SECTION 5: Firefighting measures

### 5.1. 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. Special hazards arising from the substance or mixture

No additional information available

### 5.3. Advice for firefighters

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.

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Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

### SECTION 6: Accidental release measures

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

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

Protective equipment : Combined gas/dust mask with filter type A/P3. Gloves. Protective clothing. Safety glasses.  
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. Avoid release to the environment.

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

Methods for cleaning up : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. 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. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe mist, vapors, spray.  
Hygiene measures : Do not eat, drink or smoke when using this product. Wash exposed skin thoroughly after handling.

#### 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 : Heat sources., Ignition sources, incompatible materials. Keep container closed when not in use.  
Incompatible products : Strong oxidizers.  
Incompatible materials : Sources of ignition. Direct sunlight.

#### 7.3. Specific end use(s)

No additional information available

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

Chloroform-Butanol Reagent		
ACGIH	Not applicable	
OSHA	Not applicable	
Chloroform (67-66-3)		
ACGIH	ACGIH TWA (ppm)	10 ppm
OSHA	OSHA PEL (Ceiling) (mg/m³)	240 mg/m³
OSHA	OSHA PEL (Ceiling) (ppm)	50 ppm
1-Butanol (71-36-3)		
ACGIH	ACGIH TWA (ppm)	20 ppm
OSHA	OSHA PEL (TWA) (mg/m³)	300 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	100 ppm

#### 8.2. Exposure controls

Appropriate engineering controls : Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation. Material should be handled in a laboratory hood whenever possible.

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Personal protective equipment	: Avoid all unnecessary exposure.
Hand protection	: Wear protective gloves.
Eye protection	: Chemical goggles or safety glasses.
Skin and body protection	: Wear suitable protective clothing.
Respiratory protection	: Wear appropriate mask.
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	: Liquid
Appearance	: Clear, colorless liquid.
Color	: Colorless
Odor	: Sweet odour
Odor threshold	: No data available
pH	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: No data available
Relative vapor density at 20 °C	: No data available
Relative density	: No data available
Specific gravity / density	: 1.3 g/ml
Solubility	: Soluble in ethanol. Soluble in other organic solvents. Poorly soluble in water. Water: Solubility in water of component(s) of the mixture : • Chloroform: 0.80 g/100ml • 1-Butanol: 63.2 g/l
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Explosive limits	: No data available

#### 9.2. Other information

No additional information available

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

No additional information available

#### 10.2. Chemical stability

Stable under normal conditions.

#### 10.3. Possibility of hazardous reactions

Not established.

#### 10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

#### 10.5. Incompatible materials

Strong oxidizers.

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### 10.6. Hazardous decomposition products

Hydrogen chloride. Carbon monoxide. Carbon dioxide.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity : Oral: Harmful if swallowed.

Chloroform-Butanol Reagent	
LD50 oral rat	717 mg/kg
ATE US (oral)	717.000 mg/kg body weight
Chloroform (67-66-3)	
LD50 oral rat	695 mg/kg (Rat; OECD 401: Acute Oral Toxicity; Experimental value; 908 mg/kg bodyweight; Rat; OECD 401: Acute Oral Toxicity; Experimental value; 1117 mg/kg bodyweight; Rat)
LD50 dermal rabbit	> 20000 mg/kg (Rabbit; Experimental value; >3980 mg/kg bodyweight; Rabbit)
LC50 inhalation rat (mg/l)	48 mg/l/4h (Rat; Literature study)
ATE US (oral)	695.000 mg/kg body weight
ATE US (vapors)	48.000 mg/l/4h
ATE US (dust, mist)	48.000 mg/l/4h
1-Butanol (71-36-3)	
LD50 oral rat	790 mg/kg
LD50 dermal rabbit	3400 mg/kg
LC50 inhalation rat (mg/l)	8 mg/l/4h
ATE US (oral)	790.000 mg/kg body weight
ATE US (dermal)	3400.000 mg/kg body weight
ATE US (gases)	4500.000 ppmV/4h
ATE US (vapors)	8.000 mg/l/4h
ATE US (dust, mist)	8.000 mg/l/4h

Skin corrosion/irritation : Causes skin irritation.  
Serious eye damage/irritation : Causes serious eye irritation.  
Respiratory or skin sensitization : Not classified  
Germ cell mutagenicity : Not classified  
Carcinogenicity : Suspected of causing cancer.

Chloroform (67-66-3)	
IARC group	2B - Possibly carcinogenic to humans

Reproductive toxicity : Not classified  
Specific target organ toxicity (single exposure) : Not classified  
  
Specific target organ toxicity (repeated exposure) : Causes damage to organs (kidneys, liver, central nervous system, hearing organ) through prolonged or repeated exposure (Inhalation, oral).  
  
Aspiration hazard : Not classified  
Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met. Harmful if swallowed.  
Symptoms/injuries after inhalation : May cause drowsiness or dizziness. May cause respiratory irritation.  
Symptoms/injuries after skin contact : Causes skin irritation.  
Symptoms/injuries after eye contact : Causes serious eye irritation.  
Symptoms/injuries after ingestion : Swallowing a small quantity of this material will result in serious health hazard.  
Chronic symptoms : Cracking of the skin. Impaired concentration. Impaired memory.

## SECTION 12: Ecological information

### 12.1. Toxicity

Ecology - water : Toxic to aquatic life.

Chloroform (67-66-3)	
LC50 fish 1	18.2 ppm (96 h; Oncorhynchus mykiss)
EC50 Daphnia 1	6.3 mg/l (504 h; Daphnia magna; Reproduction)

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Chloroform (67-66-3)	
LC50 fish 2	43.8 mg/l 96 h; Salmo gairdneri (Oncorhynchus mykiss)
Threshold limit algae 1	185 mg/l (Microcystis aeruginosa; Toxicity test)
Threshold limit algae 2	1100 mg/l (Scenedesmus quadricauda; Toxicity test)
1-Butanol (71-36-3)	
LC50 fish 1	1740 mg/l 96 hr., Pimephales promelas
EC50 Daphnia 1	1983 mg/l 48 hr., Daphnia magna
EC50 other aquatic organisms 1	500 mg/l 72 hr., Desmodesmus subspicatus

### 12.2. Persistence and degradability

Chloroform-Butanol Reagent	
Persistence and degradability	Not established.
Chloroform (67-66-3)	
Persistence and degradability	Not readily biodegradable in water. Non degradable in the soil.
ThOD	0.33 - 1.35 g O <sub>2</sub> /g substance
BOD (% of ThOD)	0.015 - 0.06 % ThOD
1-Butanol (71-36-3)	
Persistence and degradability	Readily biodegradable in water.

### 12.3. Bioaccumulative potential

Chloroform-Butanol Reagent	
Bioaccumulative potential	Not established.
Chloroform (67-66-3)	
BCF fish 1	6 (336 h; Lepomis macrochirus)
BCF fish 2	1.4 - 4.7 (42 days; Cyprinus carpio)
BCF other aquatic organisms 1	224 (Pecten maximus; Mantle, dry weight)
BCF other aquatic organisms 2	438 (Modiolus modiolus; Mantle, dry weight)
Log Pow	1.97 (Experimental value; 20 °C)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).
1-Butanol (71-36-3)	
Log Pow	0.88
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

### 12.4. Mobility in soil

Chloroform (67-66-3)	
Surface tension	0.0271 N/m (20 °C)
Ecology - soil	May be harmful to plant growth, blooming and fruit formation.

### 12.5. Other adverse effects

Effect on ozone layer	:
Effect on the global warming	: No known ecological damage caused by this product.
Other information	: Avoid release to the environment.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Waste disposal recommendations	: Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to comply with local, state and federal regulations.
Ecology - waste materials	: Avoid release to the environment.

## SECTION 14: Transport information

In accordance with DOT	
Transport document description	: UN2810 Toxic liquids, organic, n.o.s. (Chloroform), 6.1, III
UN-No.(DOT)	: UN2810
Proper Shipping Name (DOT)	: Toxic liquids, organic, n.o.s.

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Department of Transportation (DOT) Hazard Classes : 6.1 - Class 6.1 - Poisonous materials 49 CFR 173.132

Hazard labels (DOT) : 6.1 - Poison inhalation hazard



DOT Symbols : G - Identifies PSN requiring a technical name

Packing group (DOT) : III - Minor Danger

DOT Special Provisions (49 CFR 172.102) : IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672).

T7 - 4 178.274(d)(2) Normal..... 178.275(d)(3)

TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling =  $97 / 1 + a (tr - tf)$  Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling.

TP28 - A portable tank having a minimum test pressure of 2.65 bar (265 kPa) may be used provided the calculated test pressure is 2.65 bar or less based on the MAWP of the hazardous material, as defined in 178.275 of this subchapter, where the test pressure is 1.5 times the MAWP.

DOT Packaging Exceptions (49 CFR 173.xxx) : 153

DOT Packaging Non Bulk (49 CFR 173.xxx) : 203

DOT Packaging Bulk (49 CFR 173.xxx) : 241

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 60 L

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 220 L

DOT Vessel Stowage Location : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.

DOT Vessel Stowage Other : 40 - Stow "clear of living quarters"

### Additional information

Other information : No supplementary information available.

### ADR

No additional information available

### Transport by sea

No additional information available

### Air transport

No additional information available

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

#### Chloroform-Butanol Reagent

SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Delayed (chronic) health hazard
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All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

Chloroform	CAS No 67-66-3	84.6
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#### Chloroform (67-66-3)

Listed on United States SARA Section 313

RQ (Reportable quantity, section 304 of EPA's List of Lists)	10 lb
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SARA Section 313 - Emission Reporting	0.1 %
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### 1-Butanol (71-36-3)

Listed on United States SARA Section 313

RQ (Reportable quantity, section 304 of EPA's List of Lists)

5000 lb

SARA Section 311/312 Hazard Classes

Immediate (acute) health hazard  
Fire hazard

### 15.2. International regulations

#### CANADA

##### Chloroform-Butanol Reagent

WHMIS Classification

Class D Division 1 Subdivision B - Toxic material causing immediate and serious toxic effects  
Class D Division 2 Subdivision A - Very toxic material causing other toxic effects  
Class D Division 2 Subdivision B - Toxic material causing other toxic effects

##### Chloroform (67-66-3)

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification

Class D Division 1 Subdivision B - Toxic material causing immediate and serious toxic effects  
Class D Division 2 Subdivision A - Very toxic material causing other toxic effects  
Class D Division 2 Subdivision B - Toxic material causing other toxic effects

##### 1-Butanol (71-36-3)

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification

Class B Division 2 - Flammable Liquid  
Class D Division 2 Subdivision B - Toxic material causing other toxic effects

#### EU-Regulations

No additional information available

#### Classification according to Regulation (EC) No. 1272/2008 [CLP]

#### Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

Not classified

#### 15.2.2. National regulations

##### Chloroform (67-66-3)

Listed on the Canadian IDL (Ingredient Disclosure List)

##### 1-Butanol (71-36-3)

Listed on the Canadian IDL (Ingredient Disclosure List)

### 15.3. US State regulations

California Proposition 65 - This product contains, or may contain, trace quantities of a substance(s) known to the state of California to cause cancer and/or reproductive toxicity

##### Chloroform (67-66-3)

U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significance risk level (NSRL)
Yes	No	No	No	20 µg/day

## SECTION 16: Other information

Other information : None.



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Full text of H-phrases: see section 16:

Acute Tox. 4 (Inhalation:gas)	Acute toxicity (inhalation:gas) Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Aquatic Acute 2	Hazardous to the aquatic environment - Acute Hazard Category 2
Carc. 2	Carcinogenicity Category 2
Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Flam. Liq. 3	Flammable liquids Category 3
Skin Irrit. 2	Skin corrosion/irritation Category 2
STOT RE 1	Specific target organ toxicity (repeated exposure) Category 1
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H226	Flammable liquid and vapor
H302	Harmful if swallowed
H315	Causes skin irritation
H319	Causes serious eye irritation
H332	Harmful if inhaled
H335	May cause respiratory irritation
H336	May cause drowsiness or dizziness
H351	Suspected of causing cancer
H372	Causes damage to organs through prolonged or repeated exposure
H401	Toxic to aquatic life

NFPA health hazard

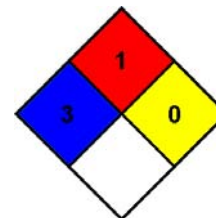
: 3 - Short exposure could cause serious temporary or residual injury even though prompt medical attention was given.

NFPA fire hazard

: 1 - Must be preheated before ignition can occur.

NFPA reactivity

: 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



HMIS III Rating

Health

: 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given

Flammability

: 1 Slight Hazard

Physical

: 0 Minimal Hazard

Personal Protection

: H

SDS US (GHS HazCom 2012)

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