



# $\beta$ -HCH ( $\beta$ -BHC) ( $^{13}\text{C}_6$ , 99%) 100 $\mu\text{g}/\text{mL}$ in toluene

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations  
Issue date: 2/28/2024 Version: 1.0

### SECTION 1: Identification

#### 1.1. Identification

Product form : Mixture  
Product name :  $\beta$ -HCH ( $\beta$ -BHC) ( $^{13}\text{C}_6$ , 99%) 100  $\mu\text{g}/\text{mL}$  in toluene  
Product code : CLM-3623-A-S

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

No additional information available

#### 1.3. Supplier

Cambridge Isotope Laboratories, Inc.  
50 Frontage Rd  
01810  
ANDOVER, MA, 01810  
USA  
T 1-800-322-1174  
[cilsales@isotope.com](mailto:cilsales@isotope.com) - [www.isotope.com](http://www.isotope.com)

#### 1.4. Emergency telephone number

Emergency number : 1-703-741-5970  
Chemtrec 1-800-424-9300 24 hours

### SECTION 2: Hazard(s) identification

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

##### GHS US classification

Flammable liquids Category 2	H225	Highly flammable liquid and vapor
Skin corrosion/irritation Category 2	H315	Causes skin irritation
Reproductive toxicity Category 2	H361	Suspected of damaging fertility, Suspected of damaging the unborn child. (Dermal, Inhalation, oral)
Specific target organ toxicity – Single exposure, Category 3, Narcosis	H336	May cause drowsiness or dizziness
Specific target organ toxicity (repeated exposure) Category 2	H373	May cause damage to organs (kidneys, liver, urinary bladder, brain) through prolonged or repeated exposure (Dermal, Inhalation, oral)
Aspiration hazard Category 1	H304	May be fatal if swallowed and enters airways
Hazardous to the aquatic environment – Acute Hazard Category 2	H401	Toxic to aquatic life

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) : H225 - Highly flammable liquid and vapor  
H304 - May be fatal if swallowed and enters airways  
H315 - Causes skin irritation  
H336 - May cause drowsiness or dizziness

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Precautionary statements (GHS US)	: H361 - Suspected of damaging fertility, Suspected of damaging the unborn child. (Dermal, Inhalation, oral) H373 - May cause damage to organs (kidneys, liver, urinary bladder, brain) through prolonged or repeated exposure (Dermal, Inhalation, oral) H401 - Toxic to aquatic life P201 - Obtain special instructions before use. P202 - Do not handle until all safety precautions have been read and understood. P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. heat, hot surfaces, open flames, sparks P233 - Keep container tightly closed. P240 - Ground/Bond container and receiving equipment. P241 - Use explosion-proof electrical, lighting, ventilating equipment. P242 - Use only non-sparking tools. P243 - Take precautionary measures against static discharge. P260 - Do not breathe fume, mist, spray, vapors. P261 - Avoid breathing dust, fume, gas, mist, spray, vapors. P264 - Wash hands, forearms and face thoroughly after handling. P271 - Use only outdoors or in a well-ventilated area. P273 - Avoid release to the environment. P280 - Wear eye protection, face protection, protective clothing, protective gloves. P301+P310 - If swallowed: Immediately call a doctor, a POISON CENTER. P302+P352 - If on skin: Wash with plenty of water. P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing. P308+P313 - If exposed or concerned: Get medical advice/attention. P312 - Call a doctor, a POISON CENTER if you feel unwell. P314 - Get medical advice/attention if you feel unwell. P321 - Specific treatment (see Hazardous component(s) for labeling on this label). P331 - Do NOT induce vomiting. P332+P313 - If skin irritation occurs: Get medical advice/attention. P362+P364 - Take off contaminated clothing and wash it before reuse. P370+P378 - In case of fire: Use alcohol resistant foam, carbon dioxide (CO <sub>2</sub> ), dry extinguishing powder to extinguish. P403+P233 - Store in a well-ventilated place. Keep container tightly closed. P403+P235 - Store in a well-ventilated place. Keep cool. P405 - Store locked up. P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.
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### 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

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### 3.2. Mixtures

Name	Product identifier	%	GHS US classification
TOLUENE UNLABELED	CAS-No.: 108-88-3	99.988	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Repr. 2, H361 STOT SE 3, H336 STOT RE 2, H373 Asp. Tox. 1, H304 Aquatic Acute 2, H401
$\beta$ -HCH ( $\beta$ -BHC) ( $^{13}\text{C}_6$ , 99%)	CAS-No.: 319-85-7	0.012	Acute Tox. 3 (Oral), H301 Acute Tox. 4 (Dermal), H312 Carc. 2, H351 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

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	: IF exposed or concerned: Get medical advice/attention.
First-aid measures after inhalation	: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
First-aid measures after skin contact	: Rinse skin with water/shower. Remove/Take off immediately all contaminated clothing. Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation occurs: Wash with plenty of soap and water, Get immediate medical advice/attention. Get medical advice/attention. Specific treatment (see Hazard pictograms (CLP) on this label).
First-aid measures after eye contact	: Immediately flush eyes thoroughly with water for at least 15 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	: Immediately call a poison center or doctor/physician.

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

Potential Adverse human health effects and symptoms	: This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product. Symptoms/effects. IF INHALED: lungs. Pulmonary irritation. Pulmonary edema. Chest pain. central nervous system. Stomach - Irregularities - Based on Human Evidence. Lung irritation, chest pain, pulmonay edema, Inhalation studies have shown the development of inflammatory and ulcerous lesions of the penis, prepuce, and scrotom in animals.
Symptoms/effects	: Suspected of damaging fertility. Suspected of damaging the unborn child. (in contact with skin, if inhaled, if swallowed). Causes damage to organs (brain, kidneys, liver, urinary bladder) (in contact with skin, if inhaled, if swallowed).
Symptoms/effects after inhalation	: Harmful if inhaled. May cause drowsiness or dizziness.
Symptoms/effects after skin contact	: Harmful in contact with skin. Causes skin irritation. Repeated exposure to this material can result in absorption through skin causing significant health hazard.
Symptoms/effects after eye contact	: May cause eye irritation.
Symptoms/effects after ingestion	: May be fatal if swallowed and enters airways. Risk of lung edema.

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

Treat symptomatically.

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### SECTION 5: Fire-fighting measures

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

Suitable extinguishing media : Dry powder. Dry sand. Dry chemical. Foam. Carbon dioxide.  
Unsuitable extinguishing media : Do not use a heavy water stream.

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

Fire hazard : Highly flammable liquid and vapor.  
Explosion hazard : May form flammable/explosive vapor-air mixture.

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

Firefighting instructions : Do not enter fire area without proper protective equipment, including respiratory protection.  
Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing. Wear recommended personal protective equipment.  
Other information : Use water spray to cool exposed surfaces.

### SECTION 6: Accidental release measures

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

General measures : Flammable liquids. No open flames. No smoking. Eliminate every possible source of ignition. Use special care to avoid static electric charges.

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

Emergency procedures : Use personal protective equipment as required. Ensure adequate air ventilation. Avoid breathing vapors, mist, gas. Eliminate all ignition sources if safe to do so. Evacuate unnecessary personnel. Special attention should be given to low areas/pits where flammable vapors can accumulate.

##### 6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

#### 6.2. Environmental precautions

Prevent liquid from entering sewers, watercourses, underground or low areas. Do not allow to enter drains or water courses. Do not discharge the product into the environment.

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

For containment : For large spills, confine the spill in a dike and charge it with wet sand or earth for subsequent safe disposal. Dike and contain spill. Small quantities of liquid spill: take up in non-combustible absorbent material and shovel into container for disposal.  
Methods for cleaning up : Take up liquid spill into absorbent material. Notify authorities if product enters sewers or public waters. This material and its container must be disposed of in a safe way, and as per local legislation.  
Other information : Dispose of materials or solid residues at an authorized site.

#### 6.4. Reference to other sections

For further information refer to section 13.

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### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

Additional hazards when processed	: Avoid all eye and skin contact and do not breathe vapor and mist. Keep away from sources of ignition - No smoking. Take precautionary measures against static discharges. Handle empty containers with care because residual vapors are flammable.
Precautions for safe handling	: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Flammable vapors may accumulate in the container. Use explosion-proof equipment. Wear personal protective equipment. Do not breathe dust, fume, gas, spray, vapors, mist. Do not get in eyes, on skin, or on clothing. Use only outdoors or in a well-ventilated area. No open flames. No smoking. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid breathing dust, fume, gas, mist, spray, vapors.
Hygiene measures	: Handle in accordance with good industrial hygiene and safety practice. Wash hands, forearms and face thoroughly after handling.

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

Technical measures	: Ground/bond container and receiving equipment. Store in a well-ventilated place. Keep container tightly closed. Store locked up. Proper grounding procedures to avoid static electricity should be followed. Use explosion-proof Lighting equipment, ventilating equipment.
Storage conditions	: Store at room temperature away from light and moisture.
Incompatible materials	: Heat sources.
Storage area	: Under inert gas.

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

$\beta$ -HCH ( $\beta$ -BHC) ( $^{13}\text{C}_6$ , 99%) 100 $\mu\text{g}/\text{mL}$ in toluene	
<b>USA - ACGIH - Occupational Exposure Limits</b>	
ACGIH OEL TWA [ppm]	20 ppm USA. ACGIH Threshold Limit Values (TLV)
Remark (ACGIH)	Visual impairment. Female reproductive. Pregnancy loss. 2015 Adoption. Substances for which there is a Biological Exposure Index or Indices (see BEI® section). Not classifiable as a human carcinogen.; Component: Toluene CAS-No.: 108-88-3 Parameters: Toluene Value: 0.0300 mg/l Biological specimen: Urine Remarks: End of shift (As soon as possible after exposure ceases) Basis: ACGIH - Biological Exposure Indices (BEI); Component: Toluene CAS-No.: 108-88-3 Parameters: Toluene Value: 0.0200 mg/l Biological specimen: In blood Remarks: Prior to last shift of workweek Basis: ACGIH - Biological Exposure Indices (BEI); Component: Toluene CAS-No.: 108-88-3 Parameters: o-Cresol Value: 0.3000 mg/g Biological specimen: Urine Remarks: End of shift (As soon as possible after exposure ceases) Basis: ACGIH - Biological Exposure Indices (BEI)
<b>USA - OSHA - Occupational Exposure Limits</b>	
OSHA PEL TWA [1]	375 mg/m <sup>3</sup> USA. OSHA - TABLE Z-1 Limits for Air Contaminants 1910.1000
OSHA PEL TWA [2]	100 ppm USA. OSHA - TABLE Z-1 Limits for Air Contaminants 1910.1000
OSHA PEL STEL [1]	560 mg/m <sup>3</sup> USA. OSHA - TABLE Z-1 Limits for Air Contaminants 1910.1000
OSHA PEL STEL [2]	150 ppm USA. OSHA - TABLE Z-1 Limits for Air Contaminants 1910.1000
OSHA PEL C [ppm]	300 ppm USA. Occupational Exposure Limits (OSHA) - Table Z-2
Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift	500 ppm USA. Occupational Exposure Limits (OSHA) - Table Z-2

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Remark (OSHA)	OSHA PEL (TWA) - 200 ppm - USA. Occupational Exposure Limits (OSHA) - Table Z-2. Remarks: Z37.12-1967
<b>USA - NIOSH - Occupational Exposure Limits</b>	
NIOSH REL TWA	375 mg/m <sup>3</sup> USA. NIOSH Recommended Exposure Limits
NIOSH REL TWA [ppm]	100 ppm USA. NIOSH Recommended Exposure Limits
NIOSH REL STEL	560 mg/m <sup>3</sup> USA. NIOSH Recommended Exposure Limits
NIOSH REL STEL [ppm]	150 ppm USA. NIOSH Recommended Exposure Limits
<b>TOLUENE UNLABELED (108-88-3)</b>	
<b>USA - ACGIH - Occupational Exposure Limits</b>	
ACGIH OEL TWA [ppm]	20 ppm USA. ACGIH Threshold Limit Values (TLV)
Remark (ACGIH)	Visual impairment. Female reproductive. Pregnancy loss. 2015 Adoption. Substances for which there is a Biological Exposure Index or Indices (see BEI® section). Not classifiable as a human carcinogen.; Component: Toluene CAS-No.: 108-88-3 Parameters: Toluene Value: 0.0300 mg/l Biological specimen: Urine Remarks: End of shift (As soon as possible after exposure ceases) Basis: ACGIH - Biological Exposure Indices (BEI); Component: Toluene CAS-No.: 108-88-3 Parameters: Toluene Value: 0.0200 mg/l Biological specimen: In blood Remarks: Prior to last shift of workweek Basis: ACGIH - Biological Exposure Indices (BEI); Component: Toluene CAS-No.: 108-88-3 Parameters: o-Cresol Value: 0.3000 mg/g Biological specimen: Urine Remarks: End of shift (As soon as possible after exposure ceases) Basis: ACGIH - Biological Exposure Indices (BEI)
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OSHA PEL STEL [1]	560 mg/m <sup>3</sup> USA. OSHA - TABLE Z-1 Limits for Air Contaminants 1910.1000
OSHA PEL STEL [2]	150 ppm USA. OSHA - TABLE Z-1 Limits for Air Contaminants 1910.1000
OSHA PEL C [ppm]	300 ppm USA. Occupational Exposure Limits (OSHA) - Table Z-2
Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift	500 ppm USA. Occupational Exposure Limits (OSHA) - Table Z-2
Remark (OSHA)	OSHA PEL (TWA) - 200 ppm - USA. Occupational Exposure Limits (OSHA) - Table Z-2. Remarks: Z37.12-1967
<b>USA - NIOSH - Occupational Exposure Limits</b>	
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NIOSH REL TWA [ppm]	100 ppm USA. NIOSH Recommended Exposure Limits
NIOSH REL STEL	560 mg/m <sup>3</sup> USA. NIOSH Recommended Exposure Limits
NIOSH REL STEL [ppm]	150 ppm USA. NIOSH Recommended Exposure Limits
<b><math>\beta</math>-HCH (<math>\beta</math>-BHC) (<math>^{13}\text{C}_6</math>, 99%) (319-85-7)</b>	
<b>USA - ACGIH - Occupational Exposure Limits</b>	
ACGIH chemical category	No component of this product present at levels greater than or equal to 0.1% is identifiable as a carcinogen or potential carcinogen by ACGIH.

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### 8.2. Appropriate engineering controls

Appropriate engineering controls	: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.
Environmental exposure controls	: Avoid release to the environment.

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

#### Personal protective equipment:

Gloves. Protective clothing. Protective goggles. Self-contained breathing apparatus.

<b>Materials for protective clothing:</b>
Wear suitable protective clothing and gloves
<b>Hand protection:</b>
Wear suitable protective clothing and gloves
<b>Eye protection:</b>
Wear eye protection. Chemical goggles or face shield with safety glasses
<b>Skin and body protection:</b>
Wear suitable protective clothing, gloves and eye/face protection. Wear suitable protective clothing
<b>Respiratory protection:</b>
In case of inadequate ventilation wear respiratory protection. Approved supplied air respirator. Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. Wear respiratory protection.

#### Personal protective equipment symbol(s):



## SECTION 9: Physical and chemical properties

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

Physical state	: Liquid
Appearance	: Liquid.
Color	: Colorless
Odor	: aromatic
Odor threshold	: No data available
pH	: No data available
Melting point	: -93 °C (-135 °F)
Freezing point	: No data available
Boiling point	: 110 – 111 °C (230 - 232 °F)
Flash point	: 4 °C (39.2 °F) - closed cup
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: Highly flammable liquid and vapor.
Vapor pressure	: 29.1 hPa (21.8 mmHg) at 20.0 °C (68.0 °F)
Relative vapor density at 20°C	: No data available
Relative density	: No data available
Density	: 0.865 g/ml at 25 °C (77 °F)
Molecular mass	: 92.14 g/mol
Solubility	: Water: 0.5 g/l
Partition coefficient n-octanol/water (Log Pow)	: No data available

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Auto-ignition temperature	: 535 °C (995 °F)
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosion limits	: 1.2 – 7 % (V)
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

Vapors may form flammable mixture with air. Highly flammable liquid and vapor.

### 10.2. Chemical stability

See storage and expiration date on CoA.

### 10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

### 10.4. Conditions to avoid

Heat. Open flame. Sparks. Direct sunlight. Extremely high or low temperatures.

### 10.5. Incompatible materials

Strong oxidizing agents.

### 10.6. Hazardous decomposition products

Carbon oxides (CO, CO<sub>2</sub>).

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

$\beta$ -HCH ( $\beta$ -BHC) ( $^{13}\text{C}_6$ , 99%) 100 $\mu\text{g}/\text{mL}$ in toluene	
LD50 oral rat	> 5580 mg/kg
LD50 dermal rabbit	12196 mg/kg
LC50 Inhalation - Rat	12,500 - 28,800 mg/m <sup>3</sup> - 4 h
ATE US (dermal)	12196 mg/kg body weight
TOLUENE UNLABELED (108-88-3)	
LD50 oral rat	> 5580 mg/kg
LD50 dermal rabbit	12196 mg/kg
LC50 Inhalation - Rat	12,500 - 28,800 mg/m <sup>3</sup> - 4 h



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<b>TOLUENE UNLABELED (108-88-3)</b>	
ATE US (dermal)	12196 mg/kg body weight
ATE US (vapors)	12.5 mg/l/4h
ATE US (dust, mist)	12.5 mg/l/4h
<b><math>\beta</math>-HCH (<math>\beta</math>-BHC) (<math>^{13}\text{C}_6</math>, 99%) (319-85-7)</b>	
LD50 oral rat	6000 mg/kg
ATE US (oral)	100 mg/kg body weight
ATE US (dermal)	1100 mg/kg body weight
Skin corrosion/irritation	: Causes skin irritation.
Serious eye damage/irritation	: Not classified
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
<b><math>\beta</math>-HCH (<math>\beta</math>-BHC) (<math>^{13}\text{C}_6</math>, 99%) 100 <math>\mu\text{g}/\text{mL}</math> in toluene</b>	
IARC group	3 - Not classifiable
<b>TOLUENE UNLABELED (108-88-3)</b>	
IARC group	3 - Not classifiable
<b><math>\beta</math>-HCH (<math>\beta</math>-BHC) (<math>^{13}\text{C}_6</math>, 99%) (319-85-7)</b>	
IARC group	2B - Possibly carcinogenic to humans
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen
Reproductive toxicity	: Suspected of damaging fertility, Suspected of damaging the unborn child. (Dermal, Inhalation, oral).
STOT-single exposure	: May cause drowsiness or dizziness.
<b>TOLUENE UNLABELED (108-88-3)</b>	
STOT-single exposure	May cause drowsiness or dizziness.
STOT-repeated exposure	: May cause damage to organs (kidneys, liver, urinary bladder, brain) through prolonged or repeated exposure (Dermal, Inhalation, oral).
<b>TOLUENE UNLABELED (108-88-3)</b>	
STOT-repeated exposure	May cause damage to organs (kidneys, liver, urinary bladder, brain) through prolonged or repeated exposure (Dermal, Inhalation, oral).
Aspiration hazard	: May be fatal if swallowed and enters airways.
Viscosity, kinematic	: No data available
Potential Adverse human health effects and symptoms	: This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product. Symptoms/effects. IF INHALED: lungs. Pulmonary irritation. Pulmonary edema. Chest pain. central nervous system. Stomach - Irregularities - Based on Human Evidence. Lung irritation, chest pain, pulmonay edema, Inhalation studies have shown the development of inflammatory and ulcerous lesions of the penis, prepuce, and scrotom in animals.
Symptoms/effects	: Suspected of damaging fertility. Suspected of damaging the unborn child. (in contact with skin, if inhaled, if swallowed). Causes damage to organs (brain, kidneys, liver, urinary bladder) (in contact with skin, if inhaled, if swallowed).
Symptoms/effects after inhalation	: Harmful if inhaled. May cause drowsiness or dizziness.
Symptoms/effects after skin contact	: Harmful in contact with skin. Causes skin irritation. Repeated exposure to this material can result in absorption through skin causing significant health hazard.
Symptoms/effects after eye contact	: May cause eye irritation.

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Symptoms/effects after ingestion : May be fatal if swallowed and enters airways. Risk of lung edema.

### SECTION 12: Ecological information

#### 12.1. Toxicity

Ecology - general : Toxic to bees.  
Ecology - water : Toxic to aquatic life.

$\beta$ -HCH ( $\beta$ -BHC) ( $^{13}\text{C}_6$ , 99%) 100 $\mu\text{g}/\text{mL}$ in toluene	
EC50 - Crustacea [1]	8 mg/l <i>Daphnia magna</i> (Water flea) - 24h
LC50 - Fish [2]	7.63 mg/l <i>Oncorhynchus mykiss</i> (Rainbow trout) - 96 h
EC50 - Crustacea [2]	6 mg/l <i>Daphnia magna</i> (Water flea) - Immobilization - 48 h
ErC50 algae	245 mg/l <i>Chlorella vulgaris</i> (Fresh water algae) - 24 h
ErC50 other aquatic plants	10 mg/l <i>Pseudokirchneriella subcapitata</i> (Green algae) - 24 h
NOEC (chronic)	5.44 mg/l <i>Pimephales promelas</i> (fathead minnow) - 7 d

TOLUENE UNLABELED (108-88-3)	
EC50 - Crustacea [1]	8 mg/l <i>Daphnia magna</i> (Water flea) - 24h
LC50 - Fish [2]	7.63 mg/l <i>Oncorhynchus mykiss</i> (Rainbow trout) - 96 h
EC50 - Crustacea [2]	6 mg/l <i>Daphnia magna</i> (Water flea) - Immobilization - 48 h
ErC50 algae	245 mg/l <i>Chlorella vulgaris</i> (Fresh water algae) - 24 h
ErC50 other aquatic plants	10 mg/l <i>Pseudokirchneriella subcapitata</i> (Green algae) - 24 h
NOEC (chronic)	5.44 mg/l <i>Pimephales promelas</i> (fathead minnow) - 7 d

$\beta$ -HCH ( $\beta$ -BHC) ( $^{13}\text{C}_6$ , 99%) (319-85-7)	
LC50 - Fish [1]	1.6 mg/l <i>Poecilia reticulata</i> (guppy) - 96 h

#### 12.2. Persistence and degradability

$\beta$ -HCH ( $\beta$ -BHC) ( $^{13}\text{C}_6$ , 99%) 100 $\mu\text{g}/\text{mL}$ in toluene	
Persistence and degradability	Readily biodegradable.

TOLUENE UNLABELED (108-88-3)	
Persistence and degradability	Readily biodegradable.

#### 12.3. Bioaccumulative potential

$\beta$ -HCH ( $\beta$ -BHC) ( $^{13}\text{C}_6$ , 99%) 100 $\mu\text{g}/\text{mL}$ in toluene	
BCF - Fish [1]	0.05 mg/l <i>Leuciscus idus</i> (Golden orfe) - 3 d
Bioconcentration factor (BCF REACH)	90

TOLUENE UNLABELED (108-88-3)	
BCF - Fish [1]	0.05 mg/l <i>Leuciscus idus</i> (Golden orfe) - 3 d
Bioconcentration factor (BCF REACH)	90

$\beta$ -HCH ( $\beta$ -BHC) ( $^{13}\text{C}_6$ , 99%) (319-85-7)	
BCF - Fish [1]	<i>Cyprinus carpio</i> (Carp) - 35 d - 0.05 mg/l

# $\beta$ -HCH ( $\beta$ -BHC) ( $^{13}\text{C}_6$ , 99%) 100 $\mu\text{g}/\text{mL}$ in toluene

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### $\beta$ -HCH ( $\beta$ -BHC) ( $^{13}\text{C}_6$ , 99%) (319-85-7)

Partition coefficient n-octanol/water (Log Pow)	3.78
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#### 12.4. Mobility in soil

No additional information available

#### 12.5. Other adverse effects

Other adverse effects : Disposal must be done according to official regulations. Avoid release to the environment.

## SECTION 13: Disposal considerations

### 13.1. Disposal methods

Regional legislation (waste) : Waste materials should be disposed of under conditions which meet Federal, State, and local environmental control regulations.

Product/Packaging disposal recommendations : Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

Additional information : Handle empty containers with care because residual vapors are flammable.

Ecology - waste materials : Dispose of as unused product. Hazardous waste due to toxicity.

## SECTION 14: Transport information

In accordance with DOT / TDG / IMDG / IATA

### 14.1. UN number

DOT NA No	: UN1294
UN-No. (TDG)	: UN1294
UN-No. (IMDG)	: 1294
UN-No. (IATA)	: 1294

### 14.2. UN proper shipping name

Proper Shipping Name (DOT)	: Toluene
Proper Shipping Name (TDG)	: TOLUENE
Proper Shipping Name (IMDG)	: TOLUENE
Proper Shipping Name (IATA)	: Toluene

### 14.3. Transport hazard class(es)

#### DOT

Transport hazard class(es) (DOT)	: 3
Hazard labels (DOT)	: 3



#### TDG

Transport hazard class(es) (TDG)	: 3
Hazard labels (TDG)	: 3

# $\beta$ -HCH ( $\beta$ -BHC) ( $^{13}\text{C}_6$ , 99%) 100 $\mu\text{g}/\text{mL}$ in toluene

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### IMDG

Transport hazard class(es) (IMDG) : 3  
Hazard labels (IMDG) : 3



### IATA

Transport hazard class(es) (IATA) : 3  
Hazard labels (IATA) : 3



## 14.4. Packing group

Packing group (DOT) : II  
Packing group (TDG) : II  
Packing group (IMDG) : II  
Packing group (IATA) : II

## 14.5. Environmental hazards

Other information : No supplementary information available.

## 14.6. Special precautions for user

### DOT

UN-No.(DOT) : UN1294  
DOT Special Provisions (49 CFR 172.102) : IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). 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.  
T4 - 2.65 178.274(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.  
DOT Packaging Exceptions (49 CFR 173.xxx) : 150  
DOT Packaging Non Bulk (49 CFR 173.xxx) : 202  
DOT Packaging Bulk (49 CFR 173.xxx) : 242  
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 5 L  
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 60 L  
DOT Vessel Stowage Location : B - (i) The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) "On deck only" on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.

### TDG

UN-No. (TDG) : UN1294

# $\beta$ -HCH ( $\beta$ -BHC) ( $^{13}\text{C}_6$ , 99%) 100 $\mu\text{g}/\text{mL}$ in toluene

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Explosive Limit and Limited Quantity Index : 1 L  
Excepted quantities (TDG) : E2  
Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index : 5 L  
Emergency Response Guide (ERG) Number : 130

**IMDG**  
Limited quantities (IMDG) : 1 L  
Excepted quantities (IMDG) : E2  
Packing instructions (IMDG) : P001  
IBC packing instructions (IMDG) : IBC02  
Tank instructions (IMDG) : T4  
Tank special provisions (IMDG) : TP1  
EmS-No. (Fire) : F-E - FIRE SCHEDULE Echo - NON-WATER-REACTIVE FLAMMABLE LIQUIDS  
EmS-No. (Spillage) : S-D - SPILLAGE SCHEDULE Delta - FLAMMABLE LIQUIDS  
Stowage category (IMDG) : B  
Flash point (IMDG) : 7°C c.c.  
Properties and observations (IMDG) : Colourless liquid with a benzene-like odour. Flashpoint: 7°C c.c. Explosive limits: 1.27% to 7% Immiscible with water.  
MFAG-No : 130

**IATA**  
PCA Excepted quantities (IATA) : E2  
PCA Limited quantities (IATA) : Y341  
PCA limited quantity max net quantity (IATA) : 1L  
PCA packing instructions (IATA) : 353  
PCA max net quantity (IATA) : 5L  
CAO packing instructions (IATA) : 364  
CAO max net quantity (IATA) : 60L  
ERG code (IATA) : 3L

### 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

$\beta$ -HCH ( $\beta$ -BHC) ( $^{13}\text{C}_6$ , 99%) 100 $\mu\text{g}/\text{mL}$ in toluene	
CERCLA RQ	1000 lb
SARA Section 302 Threshold Planning Quantity (TPQ)	SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302
SARA Section 311/312 Hazard Classes	Fire hazard Immediate (acute) health hazard Delayed (chronic) health hazard

Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):

Name	CAS-No.	Listing	Commercial status	Flags
TOLUENE UNLABELED	108-88-3	Present	Active	
$\beta$ -HCH ( $\beta$ -BHC) ( $^{13}\text{C}_6$ , 99%)	319-85-7	Not present	-	

# $\beta$ -HCH ( $\beta$ -BHC) ( $^{13}\text{C}_6$ , 99%) 100 $\mu\text{g}/\text{mL}$ in toluene

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<b>TOLUENE UNLABELED (108-88-3)</b>	
CERCLA RQ	1000 lb
SARA Section 302 Threshold Planning Quantity (TPQ)	SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302
SARA Section 311/312 Hazard Classes	Fire hazard Immediate (acute) health hazard Delayed (chronic) health hazard

<b><math>\beta</math>-HCH (<math>\beta</math>-BHC) (<math>^{13}\text{C}_6</math>, 99%) (319-85-7)</b>	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Delayed (chronic) health hazard

### 15.2. International regulations

#### CANADA

<b><math>\beta</math>-HCH (<math>\beta</math>-BHC) (<math>^{13}\text{C}_6</math>, 99%) 100 <math>\mu\text{g}/\text{mL}</math> in toluene</b>
Listed on the Canadian DSL (Domestic Substances List)

<b>TOLUENE UNLABELED (108-88-3)</b>
Listed on the Canadian DSL (Domestic Substances List)

#### EU-Regulations

No additional information available

#### National regulations

No additional information available

### 15.3. US State regulations

<b><math>\beta</math>-HCH (<math>\beta</math>-BHC) (<math>^{13}\text{C}_6</math>, 99%) 100 <math>\mu\text{g}/\text{mL}</math> in toluene</b>	
U.S. - California - Proposition 65 - Carcinogens List	No
U.S. - California - Proposition 65 - Developmental Toxicity	Yes
U.S. - California - Proposition 65 - Reproductive Toxicity - Female	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No
No significant risk level (NSRL)	7000 $\mu\text{g}/\text{day}$
State or local regulations	U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List U.S. - Massachusetts - Right To Know List

# $\beta$ -HCH ( $\beta$ -BHC) ( $^{13}\text{C}_6$ , 99%) 100 $\mu\text{g}/\text{mL}$ in toluene

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TOLUENE UNLABELED (108-88-3)					
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 significant risk level (NSRL)	Maximum allowable dose level (MADL)
No	Yes	No	No	7000 $\mu\text{g}/\text{day}$	

$\beta$ -HCH ( $\beta$ -BHC) ( $^{13}\text{C}_6$ , 99%) (319-85-7)					
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 significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	No	No	No		

Component	State or local regulations
TOLUENE UNLABELED(108-88-3)	U.S. - New Jersey - Right to Know Hazardous Substance List; U.S. - Pennsylvania - RTK (Right to Know) List; U.S. - Massachusetts - Right To Know List

## SECTION 16: Other information

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Other information

: This product is not radioactive. The data given for this product are those of the corresponding unlabeled compound, unless specifically indicated otherwise. Health and safety data for labeled compounds are generally not available, but are assumed to be similar or identical to the corresponding unlabeled compound.

Full text of H-phrases	
H225	Highly flammable liquid and vapor
H301	Toxic if swallowed
H304	May be fatal if swallowed and enters airways
H312	Harmful in contact with skin
H315	Causes skin irritation
H336	May cause drowsiness or dizziness
H351	Suspected of causing cancer
H361	Suspected of damaging fertility or the unborn child
H373	May cause damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H401	Toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects

Safety Data Sheet (SDS), USA

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.