

## SAFETY DATA SHEET

Creation Date 22-September-2009

Revision Date 13-May-2024

Revision Number 7

### 1. Identification

**Product Name** (+)-Diisopinocampheylchloroborane, 1,8M solution in hexanes

**Cat No. :** AC388420000; AC388420100; AC388421000; AC388428000

**Synonyms** No information available

**Recommended Use** Laboratory chemicals.

**Uses advised against** Food, drug, pesticide or biocidal product use.

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

##### Company

**Importer/Distributor**  
Fisher Scientific  
112 Colonnade Road,  
Ottawa, ON K2E 7L6,  
Canada  
Tel: 1-800-234-7437

Acros Organics  
One Reagent Lane  
Fair Lawn, NJ 07410

##### Manufacturer

Fisher Scientific Company  
One Reagent Lane  
Fair Lawn, NJ 07410  
Tel: (201) 796-7100

##### Emergency Telephone Number

For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11  
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99  
**CHEMTREC** Tel. No. **US**:001-800-424-9300 / **Europe**:001-703-527-3887

### 2. Hazard(s) identification

#### Classification

**WHMIS 2015 Classification** Classified as hazardous under the Hazardous Products Regulations (SOR/2015-17)

<b>Flammable liquids</b>	Category 2
<b>Skin Corrosion/Irritation</b>	Category 1 A
<b>Serious Eye Damage/Eye Irritation</b>	Category 1
<b>Reproductive Toxicity</b>	Category 2
<b>Specific target organ toxicity (single exposure)</b>	Category 3
Target Organs - Central nervous system (CNS), Respiratory system.	
<b>Specific target organ toxicity - (repeated exposure)</b>	Category 2
Target Organs - Hematopoietic System.	
<b>Aspiration Toxicity</b>	Category 1

#### Label Elements

**Signal Word**  
Danger

#### Hazard Statements

Highly flammable liquid and vapor  
May be fatal if swallowed and enters airways  
Causes severe skin burns and eye damage  
May cause respiratory irritation  
May cause drowsiness and dizziness  
Suspected of damaging fertility  
May cause damage to organs through prolonged or repeated exposure



#### Precautionary Statements

##### Prevention

Do not breathe dust/fumes/gas/mist/vapours/spray  
Wash face, hands and any exposed skin thoroughly after handling  
Use only outdoors or in a well-ventilated area  
Obtain special instructions before use  
Do not handle until all safety precautions have been read and understood  
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking  
Keep container tightly closed  
Ground/bond container and receiving equipment  
Wear protective gloves/protective clothing/eye protection/face protection  
Use non-sparking tools  
Take action to prevent static discharges

##### Response

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower  
IF INHALED: Remove person to fresh air and keep comfortable for breathing  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
Immediately call a POISON CENTER/doctor  
Rinse mouth  
Do NOT induce vomiting  
Wash contaminated clothing before reuse  
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish

##### Storage

Store locked up  
Store in a well-ventilated place. Keep container tightly closed

##### Disposal

Dispose of contents/container to an approved waste disposal plant

#### Other Hazards

Toxic to aquatic life with long lasting effects

### 3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Borane, chlorobis[(1S,2R,3S,5S)-2,6,6-trimethylbicyclo[3.1.1] ]hept-3-yl]-	112246-73-8	60
Hexane	110-54-3	40

## 4. First-aid measures

<b>General Advice</b>	Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.
<b>Eye Contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.
<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Call a physician immediately.
<b>Inhalation</b>	If not breathing, give artificial respiration. Risk of serious damage to the lungs (by aspiration). Remove from exposure, lie down. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician immediately.
<b>Ingestion</b>	Do NOT induce vomiting. Clean mouth with water. Never give anything by mouth to an unconscious person. Call a physician immediately. Call a physician or poison control center immediately. If vomiting occurs naturally, have victim lean forward.
<b>Most important symptoms/effects</b>	Causes burns by all exposure routes. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting
<b>Notes to Physician</b>	Treat symptomatically

## 5. Fire-fighting measures

<b>Suitable Extinguishing Media</b>	Carbon dioxide (CO <sub>2</sub> ). Dry chemical. Chemical foam. Water mist may be used to cool closed containers. CO <sub>2</sub> , dry chemical, dry sand, alcohol-resistant foam.
<b>Unsuitable Extinguishing Media</b>	No information available
<b>Flash Point</b>	No information available
<b>Method -</b>	No information available
<b>Autoignition Temperature</b>	No information available
<b>Explosion Limits</b>	
<b>Upper</b>	No data available
<b>Lower</b>	No data available
<b>Sensitivity to Mechanical Impact</b>	No information available
<b>Sensitivity to Static Discharge</b>	No information available

### Specific Hazards Arising from the Chemical

Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes. Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

### Hazardous Combustion Products

Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>). Oxides of boron. Hydrogen chloride gas.

### Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

**NFPA**

**Health**  
3

**Flammability**  
3

**Instability**  
1

**Physical hazards**  
N/A

## 6. Accidental release measures

**Personal Precautions**

Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Remove all sources of ignition. Take precautionary measures against static discharges.

**Environmental Precautions**

Do not flush into surface water or sanitary sewer system.

**Methods for Containment and Clean Up**

Keep in suitable, closed containers for disposal. Soak up with inert absorbent material. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

## 7. Handling and storage

**Handling**

Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance. Handle under an inert atmosphere. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Take precautionary measures against static discharges.

**Storage.**

Flammables area. Corrosives area. Keep away from heat, sparks and flame. Store under an inert atmosphere. Protect from moisture. Keep containers tightly closed in a dry, cool and well-ventilated place. Incompatible Materials. Acids. Alcohols. Oxidizing agent.

## 8. Exposure controls / personal protection

**Exposure Guidelines**

Component	Alberta	British Columbia	Ontario TWAEV	Quebec	ACGIH TLV	OSHA PEL	NIOSH
Hexane	TWA: 50 ppm TWA: 176 mg/m <sup>3</sup> Skin	TWA: 20 ppm Skin	TWA: 50 ppm Skin	TWA: 50 ppm TWA: 176 mg/m <sup>3</sup> Skin	TWA: 50 ppm Skin	(Vacated) TWA: 50 ppm (Vacated) TWA: 180 mg/m <sup>3</sup> TWA: 500 ppm TWA: 1800 mg/m <sup>3</sup>	IDLH: 1100 ppm TWA: 50 ppm TWA: 180 mg/m <sup>3</sup>

**Legend**

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH: NIOSH - National Institute for Occupational Safety and Health

**Engineering Measures**

Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations and safety showers are close to the workstation location.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

**Personal protective equipment**

**Eye Protection**

Goggles

**Hand Protection**

Protective gloves

Glove material	Breakthrough time	Glove thickness	Glove comments
Nitrile rubber Viton (R)	See manufacturers recommendations	-	Splash protection only

Inspect gloves before use. observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. gloves with care avoiding skin contamination.

#### Respiratory Protection

No protective equipment is needed under normal use conditions.

#### Environmental exposure controls

Prevent product from entering drains. Do not allow material to contaminate ground water system.

#### Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

## 9. Physical and chemical properties

Physical State	Liquid
Appearance	Clear
Odor	No information available
Odor Threshold	No information available
pH	No information available
Melting Point/Range	No data available
Boiling Point/Range	No information available
Flash Point	No information available
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	No information available
Specific Gravity	1.01
Solubility	Reacts with water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C20 H34 B Cl
Molecular Weight	320.77

## 10. Stability and reactivity

Reactive Hazard	None known, based on information available
Stability	Stable under normal conditions. Moisture sensitive.
Conditions to Avoid	Heat, flames and sparks. Keep away from open flames, hot surfaces and sources of ignition. Incompatible products. Exposure to moist air or water.
Incompatible Materials	Acids, Alcohols, Oxidizing agent

**Hazardous Decomposition Products** Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>), Oxides of boron, Hydrogen chloride gas

**Hazardous Polymerization** Hazardous polymerization does not occur.

**Hazardous Reactions** Reacts with water forming hydrochloric acid (HCl).

## 11. Toxicological information

### Acute Toxicity

#### Product Information

No acute toxicity information is available for this product

#### Oral LD50

Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.

#### Dermal LD50

Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.

#### Vapor LC50

Based on ATE data, the classification criteria are not met. ATE > 20 mg/l.

#### Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Hexane	LD50 = 25 g/kg ( Rat )	LD50 = 3000 mg/kg ( Rabbit )	LC50 = 48000 ppm ( Rat ) 4 h

**Toxicologically Synergistic Products** No information available

### **Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Irritation** Causes burns by all exposure routes

**Sensitization** No information available

**Carcinogenicity** The classification as a carcinogen need not apply if the full refining history is known and it can be shown that the substance from which it is produced is not a carcinogen. This note applies only to certain complex oil derived substances in Annex I.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Borane, chlorobis[(1S,2R,3S,5S)-2,6,6-trimethylbicyclo[3.1.1]hept-3-yl]-	112246-73-8	Not listed	Not listed	Not listed	Not listed	Not listed
Hexane	110-54-3	Not listed	Not listed	Not listed	Not listed	Not listed

**Mutagenic Effects** No information available

**Reproductive Effects** SUSPECT REPRODUCTIVE HAZARD - CONTAINS MATERIAL WHICH MAY INJURE UNBORN CHILD (CAUSE BIRTH DEFECTS) (BASED ON ANIMAL DATA).

**Developmental Effects** No information available.

**Teratogenicity** No information available.

**STOT - single exposure** Central nervous system (CNS) Respiratory system  
**STOT - repeated exposure** Hematopoietic System

**Aspiration hazard** No information available

**Symptoms / effects, both acute and delayed** Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

**Endocrine Disruptor Information** No information available

**Other Adverse Effects** The toxicological properties have not been fully investigated.

## 12. Ecological information

### Ecotoxicity

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment. Reacts with water so no ecotoxicity data for the substance is available.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Hexane	Not listed	LC50: 2.1 - 2.98 mg/L, 96h flow-through (Pimephales promelas)	Not listed	EC50: 3.87 mg/L/48h

**Persistence and Degradability** Persistence is unlikely based on information available.

**Bioaccumulation/ Accumulation** No information available.

**Mobility** Is not likely mobile in the environment.

Component	log Pow
Hexane	4.11

## 13. Disposal considerations

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

## 14. Transport information

### DOT

UN-No UN2920  
Proper Shipping Name Corrosive liquid, flammable, n.o.s.  
Hazard Class 8  
Subsidiary Hazard Class 3  
Packing Group I

### TDG

UN-No UN2920  
Proper Shipping Name Corrosive liquid, flammable, n.o.s.  
Hazard Class 8  
Subsidiary Hazard Class 3  
Packing Group I

### IATA

UN-No UN2920  
Proper Shipping Name Corrosive liquid, flammable, n.o.s.  
Hazard Class 8  
Subsidiary Hazard Class 3  
Packing Group I

### IMDG/IMO

UN-No UN2920  
Proper Shipping Name Corrosive liquid, flammable, n.o.s.  
Hazard Class 8  
Subsidiary Hazard Class 3  
Packing Group I

## 15. Regulatory information

### International Inventories

Component	CAS-No	DSL	NDSL	TSCA	TSCA Inventory notification - Active-Inactive	EINECS	ELINCS	NLP
Borane,	112246-73-8	-	-	-	-	-	-	-

chlorobis[(1S,2R,3S,5S)-2,6,6-trimethylbicyclo[3.1.1]hept-3-yl]-								
Hexane	110-54-3	X	-	X	ACTIVE	203-777-6	438-390-3	-

Component	CAS-No	IECSC	KECL	ENCS	ISHL	TCSI	AICS	NZIoC	PICCS
Borane, chlorobis[(1S,2R,3S,5S)-2,6,6-trimethylbicyclo[3.1.1]hept-3-yl]-	112246-73-8	-	-	-	-	X	-	-	-
Hexane	110-54-3	X	KE-18626	X	X	X	X	X	X

**Legend:**

X - Listed '-' - Not Listed

KECL - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

IECSC - Chinese Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

ENCS - Japanese Existing and New Chemical Substances

AICS - Australian Inventory of Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

**Canada**

SDS in compliance with provisions of information as set out in Canadian Standard - Part 4, Schedule 1 and 2 of the Hazardous Products Regulations (HPR) and meets the requirements of the HPR (Paragraph 13(1)(a) of the Hazardous Products Act (HPA)).

Component	Canada - National Pollutant Release Inventory (NPRI)	Canadian Environmental Protection Agency (CEPA) - List of Toxic Substances	Canada's Chemicals Management Plan (CEPA)
Hexane	Part 1, Group A Substance Part 5, Individual Substances Part 4 Substance		Subject to Monitoring and Surveillance Activities

**Legend**

NPRI - National Pollutant Release Inventory

**Other International Regulations****Authorisation/Restrictions according to EU REACH**

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Hexane	-	Use restricted. See item 75. (see link for restriction details)	-

**REACH links**<https://echa.europa.eu/substances-restricted-under-reach>**Safety, health and environmental regulations/legislation specific for the substance or mixture**

Component	CAS-No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Borane, chlorobis[(1S,2R,3S,5S)-2,6,6-trimethylbicyclo[3.1.1]hept-3-yl]-	112246-73-8	Not applicable	Not applicable	Not applicable	Not applicable
Hexane	110-54-3	Listed	Not applicable	Not applicable	Not applicable

Component	CAS-No	Seveso III Directive (2012/18/EC) -	Seveso III Directive (2012/18/EC) -	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
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		Qualifying Quantities for Major Accident Notification	Qualifying Quantities for Safety Report Requirements		
Borane, chlorobis[(1S,2R,3S,5S)-2,6,6-trimethylbicyclo[3.1.1]hept-3-yl]-	112246-73-8	Not applicable	Not applicable	Not applicable	Not applicable
Hexane	110-54-3	Not applicable	Not applicable	Not applicable	Annex I - Y42

## 16. Other information

Prepared By	Regulatory Affairs Thermo Fisher Scientific Email: EMSDS.RA@thermofisher.com
Creation Date	22-September-2009
Revision Date	13-May-2024
Print Date	13-May-2024
Revision Summary	This document has been updated to comply with the requirements of WHMIS 2015 to align with the Globally Harmonised System (GHS) for the Classification and Labelling of Chemicals.

### Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of SDS**