

SIGMA-ALDRICH

Material Safety Data Sheet

Version 3.0
Revision Date 12/31/2008
Print Date 02/17/2012

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : (-)-Borneol
Product Number : 139114
Brand : Aldrich
Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA
Telephone : +1 800-325-5832
Fax : +1 800-325-5052
Emergency Phone # : (314) 776-6555

2. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : endo-(1S)-1,7,7-Trimethylbicyclo[2.2.1]heptan-2-ol
Formula : C₁₀H₁₈O
Molecular Weight : 154.25 g/mol

CAS-No.	EC-No.	Index-No.	Concentration
(1S-endo)-1,7,7-Trimethylbicyclo[2.2.1]heptan-2-ol			
464-45-9	207-353-1	-	-

3. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards

Flammable Solid, Skin sensitizer

HMS Classification

Health Hazard: 2
Flammability: 0
Physical hazards: 2

NFPA Rating

Health Hazard: 2
Fire: 2
Reactivity Hazard: 2

Potential Health Effects

Inhalation May be harmful if inhaled. May cause respiratory tract irritation.
Skin May be harmful if absorbed through skin. May cause skin irritation.
Eyes May cause eye irritation.
Ingestion May be harmful if swallowed.

Aldrich - 139114
Delivery 0841001135-000020 Purchase Order P0037023

Sigma-Aldrich Corporation
www.sigma-aldrich.com

Page 1 of 6

4. FIRST AID MEASURES

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

Flammable properties

Flash point 65 °C (149 °F) - closed cup

Ignition temperature no data available

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for fire-fighters

Wear self contained breathing apparatus for fire fighting if necessary.

Further information

Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Use personal protective equipment. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Methods for cleaning up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Handling

Avoid formation of dust and aerosols.

Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Storage

Keep container tightly closed in a dry and well-ventilated place. Store in cool place.

Aldrich - 139114
Delivery 0841001135-000020 Purchase Order P0037023

Sigma-Aldrich Corporation
www.sigma-aldrich.com

Page 2 of 6

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

Personal protective equipment

Respirator
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Where risk assessment shows air-purifying respirators are appropriate, use a dust mask type N95 (US) or type P1 (EN 143) respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection

Handle with gloves.

Eye protection

Safety glasses

Skin and body protection

Choose body protection according to the amount and concentration of the dangerous substance, at the work place.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES**Appearance**

Form
crystalline
Colour
colourless

Safety data

pH
no data available
Melting point
206 - 208 °C (403 - 406 °F)
Boiling point
210 °C (410 °F)
Flash point
65 °C (149 °F) - closed cup

Ignition temperature
no data available
Lower explosion limit
no data available
Upper explosion limit
no data available
Vapour pressure
44.7 hPa (33.5 mmHg) at 25 °C (77 °F)
Water solubility
no data available

10. STABILITY AND REACTIVITY**Storage stability**

Stable under recommended storage conditions.

Conditions to avoid

Heat, flames and sparks.

Materials to avoid
Strong oxidizing agents

11. TOXICOLOGICAL INFORMATION

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides

Acute toxicity

LD50 Oral - rat - 5,800 mg/kg

Irritation and corrosion

Skin - rabbit - Mild skin irritation - 24 h

Sensitisation

May cause allergic skin reaction.

Chronic exposure

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Genotoxicity in vitro - Histidine reversion (Ames)

Signs and Symptoms of Exposure

Nausea, Headache, Vomiting, Convulsions, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Potential Health Effects

Inhalation
May be harmful if inhaled. May cause respiratory tract irritation.

Skin
May be harmful if absorbed through skin. May cause skin irritation.

Eyes
May cause eye irritation.
May be harmful if swallowed.

Additional information

RTICS: DT5095000

12. ECOLOGICAL INFORMATION

Elimination information (persistence and degradability)
no data available

Ecotoxicity effects

Toxicity to fish
LC50 - Pimephales promelas (fathead minnow) - 67.8 mg/l - 96 h

Further information on ecology

no data available

13. DISPOSAL CONSIDERATIONS

Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION**DOT (US)**

UN-Number: 1312 Class: 4.1 Packing group: III
 Proper shipping name: Borneol
 Marine pollutant: No
 Poison Inhalation Hazard: No

IMDG

UN-Number: 1312 Class: 4.1 Packing group: III EMS-No: F-A, S-I
 Proper shipping name: BORNEOL
 Marine pollutant: No

IATA

UN-Number: 1312 Class: 4.1 Packing group: III
 Proper shipping name: Borneol

15. REGULATORY INFORMATION**OSHA Hazards**

Flammable Solid, Skin sensitizer

DSL Status

All components of this product are on the Canadian DSL list.

SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard

Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

(1S-endo)-1,7,7-Trimethylbicyclo[2.2.1]heptan-2-ol	CAS-No. 464-45-9	Revision Date
--	---------------------	---------------

New Jersey Right To Know Components

(1S-endo)-1,7,7-Trimethylbicyclo[2.2.1]heptan-2-ol	CAS-No. 464-45-9	Revision Date
--	---------------------	---------------

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth, or any other reproductive defects.

16. OTHER INFORMATION**Further information**

Copyright 2008 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

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. Sigma-Aldrich Co., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.

00001144

