

SECTION 1: Identification

1.1. Identification

Product form	: Substance
Substance name	: BORNEOL FOOD GRADE
CAS-No.	: 464-45-9
Product code	: TP1061
Formula	: C10H18O
Synonyms	: (1S)-(-)-borneol / (1S,2R,4S)-(-)-borneol / (1S-endo)-1,7,7-trimethyl-bicyclo[2.2.1]heptan-2-ol / (1S-endo)-1,7,7-trimethyl-bicyclo[2.2.1]heptan-2-ol / [(1S)-endo]-(-)-borneol / [1S]-endo-1,7,7-trimethylbicyclo[2.2.1]heptan-2-ol / 1,2-bornanol / 1,2-camphanol / 1,7,7-trimethylbicyclo[2.2.1]heptan-2-ol, [1S]-endo- / 1,7,7-trimethylbicyclo[2.2.1]heptan-2-ol, endo-(1S)- / 1-bornyl alcohol / 2-bornanol, l- / 2-bornanol, levo- / 2-camphanol, l- / 2-camphanol, levo- / bicyclo(2.2.1)heptan-2-ol, 1,7,7-trimethyl-, (1S-endo)- / bicyclo[2.2.1]heptan-2-ol, 1,7,7-trimethyl-, (1S-endo)- / borneol, (1S)-(-)- / borneol, (1S,2R,4S)-(-)- / borneol, [(1S)-endo]-(-)- / borneol, l- / borneol, L(-)- / borneol, levo- / endo-(1S)-1,7,7-trimethyl bicyclo[2.2.1]heptan-2-ol / L(-)-borneol / l-2-bornanol / l-2-camphanol / l-borneol / levo-2-bornanol / levo-2-camphanol / levo-borneol / linderol / NGA1 camphor
BIG no	: 16761

1.2. Recommended use and restrictions on use

No additional information available

1.3. Supplier

EXTRACT CONSULTANTS, LLC.
TERPENES - FLAVORS - BASES
PO BOX 11433, DENVER, CO 80211
www.extractconsultants.com
INFORMATION: 1-888-541-9089

1.4. Emergency telephone number

Emergency number : CHEMTREC - USA: 800-424-9300 International: +1 703-527-3887 / 1-800-424-9300
CCN 13010

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification

Flammable solids Category 2	Flammable solid
Acute toxicity (oral) Category 4	Harmful if swallowed

2.2. GHS Label elements, including precautionary statements

GHS-US labeling

Hazard pictograms (GHS-US) :



GHS02



GHS07

Signal word (GHS-US)	: Warning
Hazard statements (GHS-US)	: Flammable solid Harmful if swallowed
Precautionary statements (GHS-US)	: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/Bond container and receiving equipment Use explosion-proof electrical/ventilating/lighting equipment Wash hands, forearms and face thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection. If swallowed: Call a poison center or doctor if you feel unwell Rinse mouth.

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In case of fire: Use media other than water to extinguish.
Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

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

Name	Product identifier	%	GHS-US classification
l-Borneol (Main constituent)	(CAS-No.) 464-45-9	100	Flam. Sol. 2, H228 Acute Tox. 4 (Oral), H302

Full text of hazard classes and H-statements : see section 16

3.2. Mixtures

Not applicable

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general	: Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.
First-aid measures after inhalation	: Remove the victim into fresh air.
First-aid measures after skin contact	: Wash immediately with lots of water (15 minutes)/shower. Soap may be used. Do not apply (chemical) neutralizing agents.
First-aid measures after eye contact	: Rinse immediately with plenty of water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Take victim to an ophthalmologist. Do not apply neutralizing agents.
First-aid measures after ingestion	: Rinse mouth with water. Ingestion of large quantities: immediately to hospital. Call Poison Information Centre (www.big.be/antigif.htm).

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

Symptoms/effects after skin contact	: Slight irritation.
Symptoms/effects after ingestion	: AFTER INGESTION OF HIGH QUANTITIES: Nausea. Vomiting. Headache. Central nervous system depression. SIMILAR PRODUCTS CAUSE FOLLOWING SYMPTOMS: Mental confusion. Dizziness. Excited/restless. Drunkenness. Tremor. Cramps/uncontrolled muscular contractions. Disturbances of consciousness.

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media	: Quick-acting ABC powder extinguisher. Class A foam extinguisher. Water (quick-acting extinguisher, reel). Water. Class A foam.
Unsuitable extinguishing media	: Quick-acting BC powder extinguisher. Quick-acting CO2 extinguisher.

5.2. Specific hazards arising from the chemical

Fire hazard	: DIRECT FIRE HAZARD: Material presenting a fire hazard. In finely divided state: increased fire hazard. INDIRECT FIRE HAZARD: Temperature above flashpoint: higher fire/explosion hazard.
Explosion hazard	: DIRECT EXPLOSION HAZARD: Fine dust is explosive with air. INDIRECT EXPLOSION HAZARD: Dust cloud can be ignited by a spark.
Reactivity	: Flammable solid.

5.3. Special protective equipment and precautions for fire-fighters

Precautionary measures fire	: Exposure to fire/heat: keep upwind. Exposure to fire/heat: have neighbourhood close doors and windows.
Protection during firefighting	: Heat/fire exposure: compressed air/oxygen apparatus.

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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

- Protective equipment : Gloves. Protective clothing.
- Emergency procedures : Mark the danger area. Prevent dust cloud formation, e.g. by wetting. No naked flames. Wash contaminated clothes.
- Measures in case of dust release : In case of dust production: keep upwind. Dust production: have neighbourhood close doors and windows. In case of dust production: stop engines and no smoking. In case of dust production: no naked flames or sparks. Dust: spark-/explosionproof appliances/lighting equipment.

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

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

- For containment : Contain released product, pump into suitable containers. Plug the leak, cut off the supply. Knock down/dilute dust cloud with water spray. Powdered form: no compressed air for pumping over spills.
- Methods for cleaning up : Stop dust cloud by covering with sand/earth. Scoop solid spill into closing containers. Powdered: do not use compressed air for pumping over spills. Clean contaminated surfaces with an excess of water.
- 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.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Avoid raising dust. Keep away from naked flames/heat. At temperature > flashpoint: use spark-/explosionproof appliances. In finely divided state: use spark-/explosionproof appliances. Finely divided: keep away from ignition sources/sparks. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Comply with the legal requirements. Clean contaminated clothing. Powdered form: no compressed air for pumping over. Keep container tightly closed.
- Hygiene measures : Observe normal hygiene standards.

7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Ground/bond container and receiving equipment.
- Storage conditions : Keep cool. Protect from sunlight. Keep away from ignition sources. Store in a well-ventilated place.
- Heat-ignition : KEEP SUBSTANCE AWAY FROM: heat sources. ignition sources.
- Information on mixed storage : KEEP SUBSTANCE AWAY FROM: oxidizing agents.
- Storage area : Store in a dry area. Meet the legal requirements. Store at room temperature.
- Special rules on packaging : SPECIAL REQUIREMENTS: closing. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.
- Packaging materials : SUITABLE MATERIAL: glass. plastics.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Appropriate engineering controls

- Appropriate engineering controls : Ensure good ventilation of the work station.
- Environmental exposure controls : Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Hand protection:

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Gloves

Eye protection:

Safety glasses. In case of dust production: protective goggles

Skin and body protection:

Protective clothing

Respiratory protection:

Dust production: dust mask with filter type P2.

Combined gas/dust mask with filter type A/P2

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Crystalline solid.
Color	: WHITE CRYSTALLINE SOLID
Odor	: CAMPHORACEOUS, WOODY-PEPPERY ODOR
Odor threshold	: No data available
pH	: No data available
Melting point	: 207 °C
Freezing point	: Not applicable
Boiling point	: 210 °C
Flash point	: 95 °C
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: Flammable solid.
Vapor pressure	: No data available
Relative vapor density at 20 °C	: 5.31
Relative density	: Not applicable
Specific gravity / density	: 1011 kg/m ³
Molecular mass	: 154.25 g/mol
Solubility	: Insoluble.
Log Pow	: No data available
Auto-ignition temperature	: Not applicable
Decomposition temperature	: No data available
Viscosity, kinematic	: Not applicable
Viscosity, dynamic	: No data available
Explosion limits	: Not applicable
Explosive properties	: No data available
Oxidizing properties	: No data available

9.2. Other information

VOC content	: 100 %
Refractive index	: Not applicable

SECTION 10: Stability and reactivity

10.1. Reactivity

Flammable solid.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition.

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10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

I-Borneol (464-45-9)	
ATE US (oral)	500 mg/kg body weight

Skin corrosion/irritation : Not classified

Serious eye damage/irritation : Not classified

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Specific target organ toxicity – single exposure : Not classified

Specific target organ toxicity – repeated exposure : Not classified

Aspiration hazard : Not classified

Potential Adverse human health effects and symptoms : Harmful if swallowed. Slightly irritant to skin.

Symptoms/effects after skin contact : Slight irritation.

Symptoms/effects after ingestion : AFTER INGESTION OF HIGH QUANTITIES: Nausea. Vomiting. Headache. Central nervous system depression. SIMILAR PRODUCTS CAUSE FOLLOWING SYMPTOMS: Mental confusion. Dizziness. Excited/restless. Drunkenness. Tremor. Cramps/uncontrolled muscular contractions. Disturbances of consciousness.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Not classified as dangerous for the environment according to the criteria of Regulation (EC) No 1272/2008.

Ecology - water : Harmful to fishes.

12.2. Persistence and degradability

I-Borneol (464-45-9)	
Persistence and degradability	Biodegradable in water.
ThOD	2.9 g O ₂ /g substance

12.3. Bioaccumulative potential

I-Borneol (464-45-9)	
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

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- Product/Packaging disposal recommendations : Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Remove to an authorized incinerator equipped with an afterburner and a flue gas scrubber with energy recovery.
- Additional information : Hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No 1357/2014 and Regulation (EU) No 2017/997.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT
Not regulated

Transportation of Dangerous Goods

Not applicable

Transport by sea

Not applicable

Air transport

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

I-Borneol (464-45-9)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

I-Borneol (464-45-9)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

No additional information available

National regulations

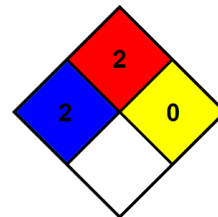
No additional information available

15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

SECTION 16: Other information

- Revision date : 03/06/2019
- NFPA health hazard : 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.
- NFPA fire hazard : 2 - Materials that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur.
- NFPA reactivity : 0 - Material that in themselves are normally stable, even under fire conditions.



SDS US (GHS HazCom 2012)

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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