1 Identification

Product identifier

Product name: Diisopropyl ether

Stock number: L13215
CAS Number:
108-20-3
EC number:
203-560-6
Index number:
603-045-00-X
Relevant identified uses of the substance or mixture and uses advised against.
Identified use: SU24 Scientific research and development

Details of the supplier of the safety data sheet
Manufacturer/Supplier:
Alfa Aesar
Thermo Fisher Scientific Chemicals, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Tel: 800-343-0660
Fax: 800-322-4757
Email: tech@alfa.com
www.alfa.com
Information Department: Health, Safety and Environmental Department
Emergency telephone number:
During normal business hours (Monday-Friday, 8am-7pm EST), call (800) 343-0660. After normal business hours, call Carechem 24 at (866) 928-0789.

2 Hazard(s) identification

Classification of the substance or mixture in accordance with 29 CFR 1910 (OSHA HCS)

GHS02 Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.

GHS06 Skull and crossbones

Acute Tox. 1 H330 Fatal if inhaled.

GHS07

STOT SE 3 H336 May cause drowsiness or dizziness.
Hazards not otherwise classified No information known.

Label elements
GHS label elements The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)
Hazard pictograms

GHS02 GHS06

Signal word Danger
Hazard statements
H225 Highly flammable liquid and vapor.
H330 Fatal if inhaled.
H336 May cause drowsiness or dizziness.
Precautionary statements
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P320 Specific treatment is urgent (see on this label).
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
WHMIS classification
B2 - Flammable liquid

Classification system
HMIS ratings (scale 0-4)
(Hazardous Materials Identification System)

Health (acute effects) = 1
Flammability = 3
Physical Hazard = 1

Other hazards
Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.

3 Composition/information on ingredients

Chemical characterization: Substances
CAS# Description:
108-20-3 Diisopropyl ether
Identification number(s):
EC number: 203-560-6

(Contd. on page 2)

Product name: Diisopropyl ether

(Contd. of page 1)

Index number: 603-045-00-X
Impurities and stabilizing additives: 100ppm BHT

4 First-aid measures

Description of first aid measures
After inhalation
Supply fresh air. If required, provide artificial respiration. Keep patient warm.
Seek immediate medical advice.
After skin contact
Immediately wash with water and soap and rinse thoroughly.
Seek immediate medical advice.
After eye contact Rinse opened eye for several minutes under running water. Then consult a doctor.
After swallowing Seek medical treatment.
Information for doctor
Most important symptoms and effects, both acute and delayed No further relevant information available.
Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

Extinguishing media
Suitable extinguishing agents Use carbon dioxide, extinguishing powder or foam. Water may be ineffective but may be used for cooling exposed containers.
Special hazards arising from the substance or mixture
If this product is involved in a fire, the following can be released:
Carbon monoxide and carbon dioxide
Advice for firefighters
Protective equipment:
Wear self-contained respirator.
Wear fully protective impervious suit.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
Keep away from ignition sources
Environmental precautions: Do not allow material to be released to the environment without proper governmental permits.
Methods and material for containment and cleaning up:
Keep away from ignition sources.
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Ensure adequate ventilation.
Prevention of secondary hazards: Keep away from ignition sources.
Reference to other sections
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

Handling
Precautions for safe handling
Keep container tightly sealed.
Store in cool, dry place in tightly closed containers.
Ensure good ventilation at the workplace.
Open and handle container with care.
Information about protection against explosions and fires:
Protect against electrostatic charges.
Fumes can combine with air to form an explosive mixture.
Keep ignition sources away.
Do not distill to dryness.
Explosive peroxides may form, handle container cautiously.

Conditions for safe storage, including any incompatibilities
Storage
Requirements to be met by storerooms and receptacles: Store in a cool location.
Information about storage in one common storage facility: Store away from oxidizing agents.
Further information about storage conditions:
Store in cool, dry conditions in well sealed containers.
Avoid contact with air/oxygen (formation of peroxide).
Check container pressure periodically to prevent explosive peroxides.
Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

Additional information about design of technical systems:
Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.
Components with limit values that require monitoring at the workplace:

Diisopropyl ether

	ppm
ACGIH TLV	250; 310-STEL
Austria MAK	250
Belgium TWA	250; 310-STEL
Denmark TWA	250
France VME	250
Germany MAK	500
Korea TLV	250; 310-STEL
Netherlands MAC-TGG	1050 mg/m3
Norway TWA	125
Poland TWA	1000 mg/m3; 1300 mg/m3-STEL
Russia	100 mg/m3-STEL
Switzerland MAK-W	250
United Kingdom TWA	250; 310-STEL
USA PEL	500

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Product name: Diisopropyl ether

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Control parameters

Components with limit values that require monitoring at the workplace:

108-20-3 Diisopropyl ether (100.0%)

PEL (USA)	Long-term value: 2100 mg/m³, 500 ppm
REL (USA)	Long-term value: 2100 mg/m³, 500 ppm
TLV (USA)	Short-term value: 1300 mg/m³, 310 ppm Long-term value: 1040 mg/m³, 250 ppm
EL (Canada)	Short-term value: 310 ppm Long-term value: 250 ppm
EV (Canada)	Short-term value: 1.295 mg/m³, 310 ppm Long-term value: 1.045 mg/m³, 250 ppm

Additional information: No data

Exposure controls
Personal protective equipment
General protective and hygienic measures
The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
Remove all soiled and contaminated clothing immediately.
Wash hands before breaks and at the end of work.
Maintain an ergonomically appropriate working environment.
Breathing equipment: Use suitable respirator when high concentrations are present.
Protection of hands:
Impervious gloves
Check protective gloves prior to each use for their proper condition.
The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer.
Penetration time of glove material (in minutes) Not determined
Eye protection: Safety glasses
Body protection: Protective work clothing.

9 Physical and chemical properties

Information on basic physical and chemical properties
General Information
Appearance:

Form:	Liquid
Color:	Colorless
Odor:	Not determined
Odor threshold:	Not determined.
pH-value:	Not determined.
Change in condition	
Melting point/Melting range:	Not determined
Boiling point/Boiling range:	65-69 °C (149-156 °F)
Sublimation temperature / start:	Not determined
Flash point:	-29 °C (-20 °F)
Flammability (solid, gaseous)	Not determined.
Ignition temperature:	Not determined
Decomposition temperature:	Not determined
Auto igniting:	Not determined.
Danger of explosion:	May form explosive peroxides. Do not distill to dryness.
Explosion limits:	
Lower:	Not determined
Upper:	Not determined
Vapor pressure:	Not determined
Density at 20 °C (68 °F):	0.725 g/cm³ (6.05 lbs/gal)
Relative density	Not determined.
Vapor density	Not determined.
Evaporation rate	Not determined.
Solubility in / Miscibility with	
Water:	Not determined
Partition coefficient (n-octanol/water):	Not determined.
Viscosity:	
dynamic:	Not determined.
kinematic:	Not determined.
Other information	No further relevant information available.

10 Stability and reactivity

Reactivity May form explosive peroxides.
Chemical stability Stable under recommended storage conditions.
Thermal decomposition / conditions to be avoided: Decomposition will not occur if used and stored according to specifications.
Possibility of hazardous reactions May form explosive peroxides.
Conditions to avoid No further relevant information available.
Incompatible materials: Oxidizing agents
Hazardous decomposition products: Carbon monoxide and carbon dioxide

11 Toxicological information

Information on toxicological effects
Acute toxicity: No effects known.

LD/LC50 values that are relevant for classification:

Oral	LD50	8470 mg/kg (rat)
Dermal	LD50	20000 mg/kg (rabbit)
Inhalative	LC50/4H	162 mg/m3/4H (rat)

Skin irritation or corrosion:
Irritant to skin and mucous membranes.
Repeated exposure may cause skin dryness or cracking.

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Product name: Diisopropyl ether

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Eye irritation or corrosion: *Irritating effect.*
Sensitization: *No sensitizing effects known.*
Germ cell mutagenicity: *No effects known.*
Carcinogenicity: *Carcinogen as defined by OSHA.*
Reproductive toxicity: *No effects known.*
Specific target organ system toxicity - repeated exposure: *No effects known.*
Specific target organ system toxicity - single exposure:
May cause drowsiness or dizziness.
May cause respiratory irritation.
Aspiration hazard: *No effects known.*
Subacute to chronic toxicity:
Brain and Coverings - increased intracranial pressure.
The Registry of Toxic Effects of Chemical Substances (RTECS) reports the following effects in laboratory animals:
Behavioral - somnolence (general depressed activity).
Behavioral - changes in motor activity (specific assay).
Behavioral - muscle contraction or spasticity.
Behavioral - general anesthetic.
Behavioral - altered sleep time (including change in righting reflex).
Behavioral - tetany.
Behavioral - irritability.
Lungs, Thorax, or Respiration - respiratory depression
Lung, Thorax, or Respiration - cough.
Lungs, Thorax, or Respiration - emphysema.
Sense Organs and Special Senses (Eye) - conjunctive irritation.
Brain and Coverings - recordings from specific areas of CNS.
Brain and Coverings - other degenerative changes.
Cardiac - other changes.
Endocrine - effect on menstrual cycle.
Reproductive - Fertility - female fertility index (e.g. # females pregnant per # sperm positive females; # females pregnant per # females mated)
Reproductive - Maternal Effects - other effects.
Reproductive - Specific Developmental Abnormalities - musculoskeletal system.
Reproductive - Fertility - litter size (e.g. # fetuses per litter; measured before birth).
Blood - other changes.
Blood - changes in spleen.
Liver - changes in liver weight.
Liver - liver function tests impaired.
Liver - multiple effects.
Kidney, Ureter, Bladder - changes in bladder weight.
Additional toxicological information: *To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.*

12 Ecological information

Toxicity
Aquatic toxicity: *No further relevant information available.*
Persistence and degradability *No further relevant information available.*
Bioaccumulative potential *No further relevant information available.*
Mobility in soil *No further relevant information available.*
Additional ecological information:
General notes:
Do not allow material to be released to the environment without proper governmental permits.
Do not allow undiluted product or large quantities to reach ground water, water course or sewage system.
Avoid transfer into the environment.
Results of PBT and vPvB assessment
PBT: *Not applicable.*
vPvB: *Not applicable.*
Other adverse effects *No further relevant information available.*

13 Disposal considerations

Waste treatment methods
Recommendation *Consult state, local or national regulations to ensure proper disposal.*
Uncleaned packagings:
Recommendation: *Disposal must be made according to official regulations.*

14 Transport information

UN-Number	
DOT, IMDG, IATA	*UN1159*
UN proper shipping name	
DOT	*Diisopropyl ether*
IMDG, IATA	*DIISOPROPYL ETHER*
Transport hazard class(es)	
DOT	
	
Class	*3 Flammable liquids.*
Label	*3*
Class	*3 (F1) Flammable liquids*
Label	*3*
IMDG, IATA	
	
Class	*3 Flammable liquids.*
Label	*3*
Packing group	
DOT, IMDG, IATA	*II*
Environmental hazards:	*Not applicable.*

(Contd. on page 5)

Product name: Diisopropyl ether

(Contd. of page 4)

Special precautions for user	Warning: Flammable liquids
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
Transport/Additional information:	
DOT	
Marine Pollutant (DOT):	No
UN "Model Regulation":	UN1159, Diisopropyl ether, 3, II

15 Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture
GHS label elements The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)
Hazard pictograms

GHS02 GHS06

Signal word Danger
Hazard statements
H225 Highly flammable liquid and vapor.
H330 Fatal if inhaled.
H336 May cause drowsiness or dizziness.
Precautionary statements
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P320 Specific treatment is urgent (see on this label).
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
National regulations
All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.
All components of this product are listed on the Canadian Domestic Substances List (DSL).
SARA Section 313 (specific toxic chemical listings) Substance is not listed.
California Proposition 65
Prop 65 - Chemicals known to cause cancer Substance is not listed.
Prop 65 - Developmental toxicity Substance is not listed.
Prop 65 - Developmental toxicity, female Substance is not listed.
Prop 65 - Developmental toxicity, male Substance is not listed.
Information about limitation of use: For use only by technically qualified individuals.
Other regulations, limitations and prohibitive regulations
Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006. Substance is not listed.
The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.
Substance is not listed.
Annex XIV of the REACH Regulations (requiring Authorisation for use) Substance is not listed.
Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing SDS: Global Marketing Department
Date of preparation / last revision 11/23/2015 / -
Abbreviations and acronyms:
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
HMIS: Hazardous Materials Identification System (USA)
WHMIS: Workplace Hazardous Materials Information System (Canada)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
vPvB: very Persistent and very Bioaccumulative
ACGIH: American Conference of Governmental Industrial Hygienists (USA)
OSHA: Occupational Safety and Health Administration (USA)
NTP: National Toxicology Program (USA)
IARC: International Agency for Research on Cancer
EPA: Environmental Protection Agency (USA)