

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Diethyl ether > 99.5 % for analysis low peroxide content stabilized with approx. 7 ppm 2,6-di-tert-b

Revision date: 18.07.2023

Product code: 21161

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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Diethyl ether > 99.5 % for analysis low peroxide content stabilized with approx. 7 ppm 2,6-di-tert-b

REACH Registration Number: 01-2119535785-29-XXXX
CAS No: 60-29-7
Index No: 603-022-00-4
EC No: 200-467-2

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture

Laboratory chemical
Industrial uses: Uses of substances as such or in preparations at industrial sites
Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Uses advised against

Do not use for private purposes (household).

1.3. Details of the supplier of the safety data sheet

Company name: AnalytiChem GmbH
Street: Stempelstraße 6
Place: D-47167 Duisburg
Telephone: 0203/5194-0
E-mail: info@analytichem.de
Contact person: Abteilung Produktsicherheit
E-mail: produktsicherheit@analytichem.de
Internet: www.analytichem.de
Responsible Department: Abteilung Produktsicherheit

Telefax: 0203/5194-290

Telephone: 0203/5194-107/117

1.4. Emergency telephone number:

For Hazardous Materials [or Dangerous Goods] Incidents Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-741-5970 (collect calls accepted)

Further Information

No data available

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

Flam. Liq. 1; H224
Acute Tox. 4; H302
STOT SE 3; H336

Full text of hazard statements: see SECTION 16.

2.2. Label elements

Regulation (EC) No 1272/2008

Signal word: Danger

Pictograms:



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Hazard statements

H224 Extremely flammable liquid and vapour.
H302 Harmful if swallowed.
H336 May cause drowsiness or dizziness.

Precautionary statements

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 Keep container tightly closed.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P403+P235 Store in a well-ventilated place. Keep cool.

Special labelling of certain mixtures

EUH019 May form explosive peroxides.
EUH066 Repeated exposure may cause skin dryness or cracking.

2.3. Other hazards

No information available.

SECTION 3: Composition/information on ingredients

3.1. Substances

Sum formula: (C₂H₅)₂O
Molecular weight: 74,12 g/mol

Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (Regulation (EC) No 1272/2008)			
60-29-7	diethyl ether			100 %
	200-467-2	603-022-00-4	01-2119535785-29-XXXX	
	Flam. Liq. 1, Acute Tox. 4, STOT SE 3; H224 H302 H336 EUH019 EUH066			

Full text of H and EUH statements: see section 16.

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
	Specific Conc. Limits, M-factors and ATE		
60-29-7	200-467-2	diethyl ether	100 %
	inhalation: LC50 = 32000 mg/l (vapours); dermal: LD50 = > 20000 mg/kg; oral: LD50 = 1600 mg/kg		

Further Information

No data available

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

No data available

After inhalation

Provide fresh air.
If breathing is irregular or stopped, administer artificial respiration.
Call a physician immediately.

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After contact with skin

Wash immediately with: Water
Take off immediately all contaminated clothing and wash it before reuse.

After contact with eyes

After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an ophthalmologist immediately.
Remove contact lenses, if present and easy to do. Continue rinsing.

After ingestion

Observe risk of aspiration if vomiting occurs.
Call a physician immediately.

4.2. Most important symptoms and effects, both acute and delayed

Irritant
Respiratory complaints
Vapours may cause drowsiness and dizziness.
Unconsciousness
Circulatory collapse
Dizziness
Inebriation

4.3. Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Carbon dioxide (CO₂)
Foam
Extinguishing powder

Unsuitable extinguishing media

no restriction

5.2. Special hazards arising from the substance or mixture

Combustible liquid.
Vapours are heavier than air, spread along floors and form explosive mixtures with air.
Hazardous combustion products
In case of fire may be liberated:
Carbon dioxide (CO₂) Carbon monoxide
Beware of reignition.

5.3. Advice for firefighters

Remove persons to safety. Do not inhale explosion and combustion gases.
Avoid contact with skin, eyes and clothes.
In case of fire: Wear self-contained breathing apparatus.
Use water spray jet to protect personnel and to cool endangered containers.

Additional information

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.
Suppress gases/vapours/mists with water spray jet.
Move undamaged containers from immediate hazard area if it can be done safely.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

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General advice

Keep away from sources of ignition - No smoking.

This material can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe).

Take action to prevent static discharges.

For non-emergency personnel

Provide adequate ventilation.

Use personal protection equipment.

Avoid contact with skin, eyes and clothes.

Remove persons to safety.

Emergency procedures

Do not breathe dust/fume/gas/mist/vapours/spray.

For emergency responders

Precautionary statements For emergency responders : Personal protection equipment: see section 8

6.2. Environmental precautions

Do not allow to enter into surface water or drains.

The vapour of the product is heavier than air and may accumulate below ground level, in pits, channels and basements in higher concentration.

Danger of explosion

6.3. Methods and material for containment and cleaning up

For containment

Cover drains.

Prevent spread over a wide area (e.g. by containment or oil barriers).

Collect in closed and suitable containers for disposal.

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

For cleaning up

Clean contaminated articles and floor according to the environmental legislation.

Other information

Provide adequate ventilation.

Do not breathe dust/fume/gas/mist/vapours/spray.

Wear breathing apparatus if exposed to vapours/dusts/aerosols.

6.4. Reference to other sections

Safe handling: see section 7

Personal protection equipment: see section 8

Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Read label before use. Handle and open container with care.

When using do not eat, drink, smoke, sniff. Keep container tightly closed.

Use personal protection equipment. Use extractor hood (laboratory).

Do not breathe gas/fumes/vapour/spray. Provide adequate ventilation.

Advice on protection against fire and explosion

Take action to prevent static discharges. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Advice on general occupational hygiene

Remove contaminated, saturated clothing immediately. Draw up and observe skin protection programme.

Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat or

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drink.

Further information on handling

Take off immediately all contaminated clothing and wash it before reuse.
If handled uncovered, arrangements with local exhaust ventilation have to be used.
Draw up and observe skin protection programme.
Wash hands and face before breaks and after work and take a shower if necessary.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep container tightly closed. Keep container dry.
Keep in a cool, well-ventilated place.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Protect against: Light

Hints on joint storage

Do not store together with: Oxidising agent. Pyrophoric or self-heating substances.

Further information on storage conditions

Vapours may form explosive mixtures with air.
storage temperature +2°C - +8°C

7.3. Specific end use(s)

Laboratory use Laboratory chemical

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

CAS No	Substance	ppm	mg/m ³	fib/cm ³	Category	Origin
60-29-7	Ethyl ether	100	308		TWA (8 h)	
		200	616		STEL (15 min)	

DNEL/DMEL values

CAS No	Substance	Exposure route	Effect	Value
60-29-7	diethyl ether			
	Worker DNEL, long-term	inhalation	systemic	308 mg/m ³
	Worker DNEL, acute	inhalation	systemic	616 mg/m ³
	Worker DNEL, long-term	dermal	systemic	44 mg/kg bw/day
	Consumer DNEL, long-term	inhalation	systemic	54,5 mg/m ³
	Consumer DNEL, long-term	dermal	systemic	15,6 mg/kg bw/day
	Consumer DNEL, long-term	oral	systemic	15,6 mg/kg bw/day

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PNEC values

CAS No	Substance	Value
60-29-7	diethyl ether	
	Freshwater	2 mg/l
	Freshwater (intermittent releases)	1,65 mg/l
	Marine water	0,2 mg/l
	Freshwater sediment	9,14 mg/kg
	Marine sediment	0,914 mg/kg
	Micro-organisms in sewage treatment plants (STP)	4,2 mg/l
	Soil	0,66 mg/kg

8.2. Exposure controls

Appropriate engineering controls

Technical measures and the application of suitable work processes have priority over personal protection equipment.

If handled uncovered, arrangements with local exhaust ventilation have to be used.

Individual protection measures, such as personal protective equipment

Eye/face protection

Suitable eye protection: goggles.

Hand protection

Protective gloves are recommended Company KCL GmbH, D-36124 Eichenzell, email: vertrieb@kcl.de With specification (test according to EN374):

By long-term hand contact: No data available

By short-term hand contact

Trade name/designation KCL 890 Vitoject®

Suitable material: FKM (fluoro rubber) 0,7 mm

Wearing time with occasional contact (splashes): > 30 min

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types. This recommendation applies only to the product stated in the safety data sheet <(>,<) supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Skin protection

Flame-retardant protective clothing. Wear anti-static footwear and clothing

Respiratory protection

In case of inadequate ventilation wear respiratory protection.

Wear breathing apparatus if exposed to vapours/dusts/aerosols.

Filtering device with filter or ventilator filtering device of type: AX

Environmental exposure controls

The vapour of the product is heavier than air and may accumulate below ground level, in pits, channels and basements in higher concentration.

Danger of explosion

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SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	Liquid
Colour:	colourless
Odour:	characteristic
Odour threshold:	No data available
Melting point/freezing point:	-116,3 °C
Boiling point or initial boiling point and boiling range:	34,6 °C
Flammability:	not applicable
Lower explosion limits:	1,7 vol. %
Upper explosion limits:	36 vol. %
Flash point:	-40 °C
Auto-ignition temperature:	180 °C
Decomposition temperature:	not determined
pH-Value:	No data available
Viscosity / kinematic:	No data available
Water solubility: (at 20 °C)	69 g/L
Solubility in other solvents	not determined
Dissolution rate:	No data available
Partition coefficient n-octanol/water:	No data available
Dispersion stability:	No data available
Vapour pressure: (at 20 °C)	716 hPa
Vapour pressure:	No data available
Density:	0,71 g/cm ³
Bulk density:	No data available
Relative vapour density:	not determined
Particle characteristics:	No data available

9.2. Other information

Information with regard to physical hazard classes

Explosive properties	
Vapours can form explosive mixtures with air.	
Sustaining combustion:	Sustaining combustion
Self-ignition temperature	
Solid:	not applicable
Gas:	not applicable
Oxidizing properties	
Not oxidising.	

Other safety characteristics

Evaporation rate:	not determined
Solvent separation test:	No data available
Solvent content:	No data available
Solid content:	not determined
Sublimation point:	No data available
Softening point:	No data available
Pour point:	No data available
No data available:	

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Viscosity / dynamic:
(at 20 °C) 0,23 mPa·s
Flow time: No data available

Further Information

May form explosive peroxides.

SECTION 10: Stability and reactivity

10.1. Reactivity

Highly flammable.
Vapours can form explosive mixtures with air.
Protect against: Light
May form explosive peroxides.

10.2. Chemical stability

Protect against:
Light
Air

10.3. Possibility of hazardous reactions

Peroxides, Oxidizing agent, peroxides, for example hydrogen peroxide, Nitric acid, Oxygen, sulphuric acid Acid halides

10.4. Conditions to avoid

Light
Air
Keep away from sources of heat (e.g. hot surfaces), sparks and open flames.
Vapours can form explosive mixtures with air.

10.5. Incompatible materials

plastic and rubber

10.6. Hazardous decomposition products

Peroxides
Hazardous combustion products
In case of fire may be liberated: Carbon dioxide (CO₂) Carbon monoxide

Further information

No data available

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Toxicokinetics, metabolism and distribution

No data available

Acute toxicity

Harmful if swallowed.

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CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
60-29-7	diethyl ether				
	oral	LD50 1600 mg/kg	Rat	Toxicology and applied pharmacology, 197	OECD Guideline 401
	dermal	LD50 > 20000 mg/kg	Rabbit	Am. Ind. Hyg. Assoc. J., 1962, 23, 95-10	OECD Guideline 402
	inhalation (4 h) vapour	LC50 32000 mg/l	Rat	Am. Ind. Hyg. Assoc. J., 1962, 23, 95-10	Test animals are exposed to metered vapo

Irritation and corrosivity

Based on available data, the classification criteria are not met.
Prolonged or repeated skin contact may cause removal of natural fat from the skin resulting in dermatitis (skin inflammation).

Sensitising effects

Based on available data, the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction

Based on available data, the classification criteria are not met.

STOT-single exposure

May cause drowsiness or dizziness. (diethyl ether)

STOT-repeated exposure

Repeated exposure may cause skin dryness or cracking.

Aspiration hazard

Based on available data, the classification criteria are not met.

Information on likely routes of exposure

No data available

Specific effects in experiment on an animal

No data available

Additional information on tests

No data available

Practical experience

No data available

11.2. Information on other hazards

Endocrine disrupting properties

No data available

Other information

The product causes narcotic-like effects.

Further information

Irritant
Respiratory complaints
Vapours may cause drowsiness and dizziness.
Unconsciousness
Circulatory collapse
Dizziness
Inebriation

SECTION 12: Ecological information

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12.1. Toxicity

Based on available data, the classification criteria are not met.

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h] [d]	Species	Source	Method
60-29-7	diethyl ether					
	Acute fish toxicity	LC50 mg/l	2560	96 h	Pimephales promelas	Acute toxicities of organic chemicals to other: American Society for Testing and
	Acute algae toxicity	ErC50 mg/l	> 100	72 h	Desmodesmus subspicatus	Study report (2010) OECD Guideline 201
	Crustacea toxicity	NOEC	100 mg/l	21 d	Daphnia magna	Study report (2010) OECD Guideline 211
	Acute bacteria toxicity	(EC50 mg/l)	26000	3 h	activated sludge of a predominantly domestic sewage	Study report (2010) OECD Guideline 209

12.2. Persistence and degradability

Not readily biodegradable (according to OECD criteria)

12.3. Bioaccumulative potential

No indication of bioaccumulation potential.

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
60-29-7	diethyl ether	1,05

BCF

CAS No	Chemical name	BCF	Species	Source
60-29-7	diethyl ether	2	not applicable	Other company data (

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

12.6. Endocrine disrupting properties

This substance does not have endocrine disrupting properties with respect to non-target organisms.

12.7. Other adverse effects

No data available

Further information

Avoid release to the environment.
Do not empty into drains.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Do not allow to enter into surface water or drains.
Send to a physico-chemical treatment facility under observation of official regulations.
Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste.

Contaminated packaging

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.
Handle contaminated packages in the same way as the substance itself.

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SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number or ID number: UN 1155
14.2. UN proper shipping name: DIETHYL ETHER (ETHYL ETHER)
14.3. Transport hazard class(es): 3
14.4. Packing group: I
Hazard label: 3
Classification code: F1
Limited quantity: 0
Excepted quantity: E3
Transport category: 1
Hazard No: 33
Tunnel restriction code: D/E

Inland waterways transport (ADN)

14.1. UN number or ID number: UN 1155
14.2. UN proper shipping name: DIETHYL ETHER (ETHYL ETHER)
14.3. Transport hazard class(es): 3
14.4. Packing group: I
Hazard label: 3
Classification code: F1
Limited quantity: 0
Excepted quantity: E3

Marine transport (IMDG)

14.1. UN number or ID number: UN 1155
14.2. UN proper shipping name: DIETHYL ETHER (ETHYL ETHER)
14.3. Transport hazard class(es): 3
14.4. Packing group: I
Hazard label: 3
Special Provisions: -
Limited quantity: 0
Excepted quantity: E3
EmS: F-E, S-D

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number or ID number: UN 1155
14.2. UN proper shipping name: DIETHYL ETHER (ETHYL ETHER)
14.3. Transport hazard class(es): 3
14.4. Packing group: I
Hazard label: 3
Limited quantity Passenger: Forbidden
Passenger LQ: Forbidden
Excepted quantity: E3
IATA-packing instructions - Passenger: 351
IATA-max. quantity - Passenger: 1 L
IATA-packing instructions - Cargo: 361
IATA-max. quantity - Cargo: 30 L

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

Warning: Combustible liquid.

14.7. Maritime transport in bulk according to IMO instruments

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not applicable

SECTION 15: Regulatory information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****EU regulatory information**

Restrictions on use (REACH, annex XVII):

Entry 3, Entry 40

Information according to 2012/18/EU
(SEVESO III):

P5a FLAMMABLE LIQUIDS

National regulatory information

Employment restrictions:

Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

Water hazard class (D):

1 - slightly hazardous to water

15.2. Chemical safety assessment

For this substance a chemical safety assessment has not been carried out.

SECTION 16: Other information**Changes**

This data sheet contains changes from the previous version in section(s): 9,12.

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

IATA: International Air Transport Association

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service

LC50: Lethal concentration, 50%

LD50: Lethal dose, 50%

Flam. Liq: Flammable liquid

Acute Tox: Acute toxicity

STOT SE: Specific target organ toxicity - single exposure

Relevant H and EUH statements (number and full text)

H224 Extremely flammable liquid and vapour.

H302 Harmful if swallowed.

H336 May cause drowsiness or dizziness.

EUH019 May form explosive peroxides.

EUH066 Repeated exposure may cause skin dryness or cracking.

Further Information

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights.

The receiver of our product is singularly responsible for adhering to existing laws and regulations.

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