

Diethyl ether

32203-5L

Version 1.5

Revision Date 11.06.2022

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

1.1. Product identifier

Product name : Diethyl ether

SDS-number : 000000020233

Type of product : Substance

Remarks : SDS according to Art. 31 of Regulation (EC) 1907/2006.

Chemical name : diethyl ether; ether

Index-No. : 603-022-00-4

REACH Registration Number : no data available

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

Use of the Substance/Mixture : Laboratory chemicals

Uses advised against : none

1.3. Details of the supplier of the safety data sheet

Company	: Honeywell International Inc.	Honeywell International, Inc.
	: 115 Tabor Road	115 Tabor Road
	: 07950-2546 Morris Plains	Morris Plains, NJ 07950-2546
	: USA	USA
Telephone	:	
For further information, please contact:	: SafetyDataSheet@Honeywell.com	

1.4. Emergency telephone number

Emergency telephone number : +1-703-527-3887 (ChemTrec-Transport)
+1-303-389-1414 (Medical)

Country based Poison Control Center : see chapter 15.1

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SECTION 2: Hazards identification


2.1. Classification of the substance or mixture

REGULATION (EC) No 1272/2008

Flammable liquids Category 1
H224 Extremely flammable liquid and vapour.
Acute toxicity Category 4 - Oral
H302 Harmful if swallowed.
Specific target organ toxicity - single exposure Category 3 - Central nervous system
H336 May cause drowsiness or dizziness.

2.2. Label elements

REGULATION (EC) No 1272/2008

Hazard pictograms	:	
Signal word	:	Danger
Hazard statements	:	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.
Precautionary statements	:	P243 Take precautionary measures against static discharge. P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray. P280 Wear protective gloves/protective clothing/eye protection/face protection. P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P308 + P313 IF exposed or concerned: Get medical advice/ attention.

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2.3. Other hazards

Vapours may form explosive mixtures with air. Aspiration hazard if swallowed - can enter lungs and cause damage. Results of PBT and vPvB assessment, see chapter 12.5.

SECTION 3: Composition/information on ingredients

3.1. Substance

Chemical name	CAS-No. Index-No. REACH Registration Number EC-No.	Classification 1272/2008	Concentration	Remarks
diethyl ether; ether	60-29-7 603-022-00-4 200-467-2	Flam. Liq. 1; H224 Acute Tox. 4; H302; Oral STOT SE 3; H336 EUH019, EUH066	<= 100 %	

3.2. Mixture

Not applicable

Occupational Exposure Limit(s), if available, are listed in Section 8.

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice:

First aider needs to protect himself. Move out of dangerous area. Immediately take off contaminated clothing and rinse body with plenty of water.

Inhalation:

In case of accident by inhalation: remove casualty to fresh air and keep at rest. Consult a physician.

Skin contact:

After contact with skin, wash immediately with plenty of water. Call a physician if irritation develops or persists.

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Eye contact:

Rinse immediately with plenty of water, also under the eyelids. Protect unharmed eye. Call a physician immediately.

Ingestion:

When swallowed, allow water to be drunk. Call a physician immediately.

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

No data available

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

Treat symptomatically.

See Section 11 for more detailed information on health effects and symptoms.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

Water spray
Foam
Carbon dioxide (CO₂)
Dry powder

Extinguishing media which shall not be used for safety reasons:

High volume water jet

5.2. Special hazards arising from the substance or mixture

Heating will cause pressure rise with risk of bursting and subsequent explosion
Flash back possible over considerable distance.
In case of fire hazardous decomposition products may be produced such as:
carbon oxides (CO, CO₂).

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5.3. Advice for firefighters

Wear self-contained breathing apparatus and protective suit.
No unprotected exposed skin areas.
Use water spray to cool unopened containers.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Provide adequate ventilation. Pay attention to the spreading of gases especially at ground level (heavier than air) and to the direction of the wind. Keep people away from and upwind of spill/leak.

6.2. Environmental precautions

Do not flush into surface water or sanitary sewer system. Prevent further leakage or spillage if safe to do so. The product evaporates readily.

6.3. Methods and materials for containment and cleaning up

Soak up with inert absorbent material.
Pick for disposal in tightly closed containers

6.4. Reference to other sections

For personal protection see section 8.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling:

Exhaust ventilation at the object is necessary. Plan first aid action before beginning work with this product. Use only in an area containing explosion proof equipment.

Advice on protection against fire and explosion:

Keep away from fire, sparks and heated surfaces. Take precautionary measures against static discharges. Ensure all equipment is electrically grounded before beginning transfer operations. Use explosion-proof equipment. Keep product and empty container away from heat and sources of ignition. No sparking tools should be used. No smoking.

Hygiene measures:

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Separate rooms are required for washing, showering and changing clothes. Take off all contaminated clothing immediately. Recommended preventive skin protection General industrial hygiene practice.

7.2. Conditions for safe storage, including any incompatibilities

Further information on storage conditions:

Store in original container. Keep containers tightly closed in a dry, cool and well-ventilated place. Prevent entry of air/oxygen (peroxide formation). Store in a place accessible by authorized persons only.

7.3. Specific end use(s)

no additional data available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits:

Components	Basis / Value type	Value / Form of exposure	Exceeding Factor	Remarks
diethyl ether; ether	EH40 WEL STEL	620 mg/m3 200 ppm		
diethyl ether; ether	EH40 WEL TWA	310 mg/m3 100 ppm		
diethyl ether; ether	EH40 WEL			Listed
diethyl ether; ether	EU ELV STEL	616 mg/m3 200 ppm		Indicative
diethyl ether; ether	EU ELV TWA	308 mg/m3 100 ppm		Indicative

STEL - Short term exposure limit
TWA - Time weighted average

DNEL/ PNEC-Values

Component	End-	Exposure duration	Value	Exposure routes	Remarks
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diethyl ether; ether	Workers / Acute systemic effects		616 mg/m3 200 ppm	Inhalation	
diethyl ether; ether	Workers / Long-term systemic effects		44 mg/kg	Skin contact	
diethyl ether; ether	Workers / Long-term systemic effects		308 mg/m3 100 ppm	Inhalation	
diethyl ether; ether	Consumers / Long-term systemic effects		15,6 mg/kg	Skin contact	
diethyl ether; ether	Consumers / Long-term systemic effects		54,5 mg/m3	Inhalation	
diethyl ether; ether	Consumers / Long-term systemic effects		15,6 mg/kg	Ingestion	

Component	Environmental compartment / Value	Remarks
diethyl ether; ether	Fresh water: 2 mg/l	Assessment factor: 50
diethyl ether; ether	Marine water: 0,2 mg/l	Assessment factor: 500
diethyl ether; ether	Fresh water sediment: 9,14 mg/kg	
diethyl ether; ether	Marine sediment: 0,914 mg/kg	
diethyl ether; ether	Soil: 0,66 mg/kg	
diethyl ether; ether	Sewage treatment plant: 4,2 mg/l	Assessment factor: 10

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8.2. Exposure controls

Occupational exposure controls

The Personal Protective Equipment must be in accordance with EN standards:respirator EN 136, 140, 149; safety glasses EN 166; protective suit: EN 340, 463, 468, 943-1, 943-2; gloves EN 374, 511; safety shoes EN-ISO 20345.

Do not breathe vapours or spray mist.

Personal protective equipment

Respiratory protection:

In the case of vapour formation use a respirator with an approved filter.

Hand protection:

Glove material: Viton®

Break through time: > 10 min

Glove thickness: 0,7 mm

Vitoject® 890

Gloves must be inspected prior to use.

Replace when worn.

Remarks:Supplementary note: The specifications are based on information and tests from similar substances by analogy.

Due to varying conditions (e.g.temperature or other strains) it must be considered that the usage of a chemical protective glove in practice may be much shorter than the permeation time determined in accordance with EN 374.

Since actual conditions of practical use often deviate from standardised conditions according EN 374 the glove manufacturer recommends to use the chemical protective glove in practice not longer than 50% of the recommended permeation time.

Manufacturer´s directions for use should be observed because of great diversity of types .

Suitable gloves tested according EN 374 are supplied e.g. from KCL GmbH, D-36124 Eichenzell, Vertrieb@kcl.de

Eye protection:

Safety goggles

Skin and body protection:

Flame retardant antistatic protective clothing.

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Environmental exposure controls

Handle in accordance with local environmental regulations and good industrial practices.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: liquid
Colour	: colourless
Odour	: characteristic
molecular weight	: 74,12 g/mol
Melting point/range	: -116 °C at 1.013 hPa
Boiling point/boiling range	: 34 - 35 °C at 1.013 hPa
Upper explosion limit	: 48 %(V)
Lower explosion limit	: 1,7 %(V)
Flash point	: -45 °C at 1.013 hPa Method: closed cup
Auto-ignition temperature	: 170 °C
Decomposition temperature	: Stable under recommended storage conditions.
pH	: Not applicable
Auto-ignition temperature	: 174,85 °C at 1.013 hPa
Viscosity, kinematic	: No data available
Water solubility	: 64,9 g/l at 20 °C

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Solubility in other solvents : Soluble in most organic solvents

Partition coefficient: n-
octanol/water : log Pow 1,05
at: 20 °C

Vapour pressure : 587 hPa
at 20 °C

Vapour pressure : 716 hPa
at 25 °C

Density : 0,71 g/cm³
at 20 °C

Relative vapour density : No data available

9.2 Other Information

Oxidizing properties : The substance or mixture is not classified as oxidizing.

Evaporation rate : No data available

Viscosity, dynamic : 0,24 mPa.s
at 20 °C

SECTION 10: Stability and reactivity

10.1. Reactivity

No data available

10.2. Chemical stability

Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

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Reacts with air to form peroxides.
Vapours may form explosive mixture with air.

10.4. Conditions to avoid

Heat, flames and sparks.
Extremes of temperature and direct sunlight.
Exposure to air.

10.5. Incompatible materials

Oxidizing agents
Strong acids

10.6. Hazardous decomposition products

No decomposition if stored and applied as directed.
In case of fire hazardous decomposition products may be produced such as:
carbon oxides (CO, CO₂).

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute oral toxicity:
Acute toxicity estimate
Value: 1.215 mg/kg
Method: Calculation method

Acute dermal toxicity:
No data available

Acute inhalation toxicity:
No data available

Skin irritation:
Species: Rabbit
Result: No skin irritation
Method: OECD Test Guideline 404

Eye irritation:
Species: Rabbit
Result: No eye irritation
Method: OECD Test Guideline 405

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Respiratory or skin sensitisation:

Species: Mouse

Result: non-sensitizing

Method: OECD Test Guideline 429

Repeated dose toxicity:

Note: No data available

Carcinogenicity:

Species: not specified

Note: No data available

Germ cell mutagenicity:

Note: Not classified due to data which are conclusive although insufficient for classification.

Reproductive toxicity:

Species: not specified

Remarks: No data available

Aspiration hazard:

Not classified due to data which are conclusive although insufficient for classification.

11.2. Information on other hazards

Endocrine disrupting properties

No data available

Other information:

Solvents may degrease the skin.

Solvent vapours have a narcotic effect if inhaled in high concentrations.

Not mutagenic in Ames Test

SECTION 12: Ecological information

12.1. Toxicity

Toxicity to fish:

LC50

static test

Species: *Leuciscus idus* (Golden orfe)

Value: > 100 mg/l

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Toxicity to aquatic plants:

ErC50

Species: *Desmodesmus subspicatus* (green algae)

Value: > 100 mg/l

Method: OECD Test Guideline 201

Toxicity to Microorganisms:

No data available

Toxicity to aquatic invertebrates:

EC50

static test

Species: *Daphnia magna* (Water flea)

Value: > 100 mg/l

Exposure time: 48 h

Chronic toxicity to aquatic invertebrates:

LC50

Reproduction Test

Species: *Daphnia magna* (Water flea)

Value: 100 mg/l

Method: OECD Test Guideline 211

12.2. Persistence and degradability

Biodegradability:

aerobic

Result: rapidly biodegradable

12.3. Bioaccumulative potential

No bioaccumulation is to be expected ($\log P_{ow} \leq 4$).

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

No data available

12.6. Endocrine disrupting properties

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No data available

12.7. Other adverse effects

Bioaccumulation is unlikely.
Do not flush into surface water or sanitary sewer system.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product:

Dispose according to legal requirements.

Packaging:

Legal requirements are to be considered in regard of reuse or disposal of used packaging materials

Further information:

Provisions relating to waste:
EC Directive 2006/12/EC; 2008/98/EEC
Regulation No. 1013/2006

For personal protection see section 8.

SECTION 14: Transport information

14.1 UN number

ADR/RID:1155

IMDG:1155

IATA:1155

14.2 UN proper shipping name

ADR/RID:DIETHYL ETHER

IMDG:DIETHYL ETHER

IATA:Diethyl ether

14.3 Transport hazard class(es)

ADR/RID: 3

IMDG: 3

IATA: 3

14.4 Packaging group

ADR/RID: I

IMDG: I

IATA: I

14.5 Environmental hazards

ADR/RID:no

Marine pollutant: no

14.6 Special precautions for user

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No data available

14.7 Maritime transport in bulk according to IMO instruments

No data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Basis	Value	Remarks
Directive 2012/18/EC Listed in Regulation : P5c: FLAMMABLE LIQUIDS	Quantity: 5.000.000 kg Quantity: 50.000.000 kg	
Substances of very high concern (SVHC)		This product does not contain substances of very high concern according to Regulation (EC) No Article 57 above the respective regulatory 1907/2006 (REACH), concentration limit of $\geq 0.1\%$ (w/w).

Poison Control Center

Country	Phone Number
Austria	+4314064343
Belgium	070 245245
Bulgaria	(+)35929154233
Croatia	(+3851)23-48-342
Cyprus	+357 2240 5611
Czech Republic	+420224919293; +420224915402
Denmark	82121212
Estonia	16662; (+372)6269390
Finland	9471977
France	+33(0)145425959
Greece	+30 210 779 3777
Hungary	(+36-80)201-199

Country	Phone Number
Liechtenstein	+41 442515151
Lithuania	+370532362052
Luxembourg	070245245; (+352)80002-5500
Malta	+356 2395 2000
Netherlands	030-2748888
Norway	22591300
Poland	+48 42 25 38 400
Portugal	800250250
Romania	+40 21 318 3606
Slovakia (NTIC)	+421 2 54 774 166
Slovenia	+386 1 400 6051
Spain	+34915620420

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Iceland	5432222	Sweden	112 (begär Giftinformation);+46104566786
Ireland	+353(1)8092166	Switzerland	145
Italy	0382 24444	United Kingdom	(+44) 844 892 0111
Germany	Berlin : 030/19240		
	Bonn : 0228/19240		
	Erfurt : 0361/730730		
	Freiburg : 0761/19240		
	Göttingen : 0551/19240		
	Homburg : 06841/19240		
	Mainz : 06131/19240		
	Munich : 089/19240		
Latvia	+37167042473		

Other inventory information

US. Toxic Substances Control Act
On TSCA Inventory

Australia. Industrial Chemicals Act (AIC), as amended
On the inventory, or in compliance with the inventory

Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL)
All components of this product are on the Canadian DSL

Japan. Kashin-Hou Law List
On the inventory, or in compliance with the inventory

Korea. Existing Chemicals Inventory (KECI)
On the inventory, or in compliance with the inventory

Philippines. Inventory of Chemicals and Chemical Substances (PICCS)
On the inventory, or in compliance with the inventory

China. Inventory of Existing Chemical Substances (IECSC)
On the inventory, or in compliance with the inventory

New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand
On the inventory, or in compliance with the inventory

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Taiwan Chemical Substance Inventory (TCSI)
On the inventory, or in compliance with the inventory

15.2 Chemical safety assessment

A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

Text of H-statements referred to under heading 3

diethyl ether; ether	:	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.
2,6-di-tert-Butyl-p-cresol (Stabilizer)	:	H400	Very toxic to aquatic life.
		H410	Very toxic to aquatic life with long lasting effects.

Further information

All directives and regulations refer to amended versions.
Vertical lines in the left hand margin indicate a relevant amendment from the previous version.

Abbreviations:

EC European Community
CAS Chemical Abstracts Service
DNEL Derived no effect level
PNEC Predicted no effect level
vPvB Very persistent and very bioaccumulative substance
PBT Persistent, bioaccumulative und toxic substance

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

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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. Final determination of suitability of any material is the sole responsibility of the user.

This information should not constitute a guarantee for any specific product properties.
