Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU

Diethyl ether 99,9+% Ph. Eur. Stabilized

article number: DEE834
Version: **2.1 en**
Replaces version of: 2020-01-28
Version: (2)

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

1.1 Product identifier

Identification of the substance	**Diethyl ether**
Article number	DEE834
Registration number (REACH)	01-2119535785-29-xxxx
Index No	603-022-00-4
EC number	200-467-2
CAS number	60-29-7

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

Identified uses: laboratory chemical
laboratory and analytical use

1.3 Details of the supplier of the safety data sheet

Laboratoriumdiscounter
Zandvoortstraat 75
1976BN Ijmuiden
Nederland

Telephone: +31 (0) 255 700 210
e-mail: info@laboratoriumdiscounter.nl
Website: www.laboratoriumdiscounter.nl

Competent person responsible for the safety data sheet: : Department Health, Safety and Environment

e-mail (competent person): **info@laboratoriumdiscounter.nl**

1.4 Emergency telephone number

Name	Street	Postal code/city	Telephone	Website
National Poisons Information Service City Hospital	Dudley Rd	B187QH Birmingham	844 892 0111	

Emergency information service **+49/(0)89 19240**

SECTION 2: Hazards identification

2.1 Classification of the substance ormixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

Classification acc. to GHS

Section	Hazard class	Hazard class and category	Hazard statement
2.6	flammable liquid	(Flam. Liq. 1)	H224
3.1O	acute toxicity (oral)	(Acute Tox. 4)	H302
3.8D	specific target organ toxicity - single exposure (narcotic effects, drowsiness)	(STOT SE 3)	H336

Supplemental hazard information

Code	Supplemental hazard information
EUH019	may form explosive peroxides
EUH066	repeated exposure may cause skin dryness or cracking

The most important adverse physicochemical, human health and environmental effects

Narcotic effects.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

Signal word **Danger**

Pictograms

GHS02, GHS07

Hazard statements

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

Precautionary statements

Precautionary statements - prevention

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P243 Take action to prevent static discharges.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

Precautionary statements - response

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312 Call a POISON CENTRE/doctor if you feel unwell.

Supplemental hazard information

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

Labelling of packages where the contents do not exceed 125 ml

Signal word: **Danger**

Symbol(s)

H224	Extremelyflammable liquid and vapour.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P243	Take action to prevent static discharges.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
EUH019	May form explosive peroxides.
EUH066	Repeated exposure may cause skin dryness or cracking.

2.3 Other hazards

There is no additional information.

SECTION 3: Composition/information on ingredients

3.1 Substances

Name of substance	Diethyl ether
Index No	603-022-00-4
Registration number (REACH)	01-2119535785-29-xxxx
EC number	200-467-2
CAS number	60-29-7
Molecular formula	$C_4H_{10}O$
Molar mass	74,12 $g/_{mol}$

Impurities and additives, classification acc. to EU regulation

Name of substance	Identifier	Wt%	Classification acc. to 1272/2008/EC
Butylated hydroxytoluene	CAS No 128-37-0 EC No 204-881-4	0,1	Aquatic Acute 1 / H400 Aquatic Chronic 1 / H410

SECTION 4: First aid measures

4.1 Description of first aid measures

General notes

Take off contaminated clothing.

Following inhalation

Provide fresh air. In all cases of doubt, or when symptoms persist, seek medical advice.

Following skin contact

Rinse skin with water/shower.

Following eye contact

Rinse cautiously with water for several minutes. In all cases of doubt, or when symptoms persist, seek medical advice.

Following ingestion

Rinse mouth with water (only if the person is conscious). Call a doctor.

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

Breathing difficulties, Dizziness, Unconsciousness, Vomiting, Irritant effects, Drowsiness, Narcosis, Inebriation, Circulatory collapse

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings
water spray, foam, dry extinguishing powder, carbon dioxide (CO_2)

Unsuitable extinguishing media

water jet

2. Special hazards arising from the substance or mixture

Combustible. Vapours are heavier than air, spread along floors and form explosive mixtures with air. Vapours can form explosive mixtures with air.

Hazardous combustion products

In case of fire may be liberated: carbon monoxide (CO), carbon dioxide (CO_2)

3. Advice for firefighters

Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Wearing of suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. Avoid contact with skin, eyes and clothes. Do not breathe vapour/spray. Avoidance of ignition sources.

6.2 Environmental precautions

Keep away from drains, surface and ground water. Explosive properties.

3. Methods and material for containment and cleaning up

Advice on how to contain a spill

Covering of drains.

Advice on how to clean up a spill

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

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

4. Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

SECTION 7: Handling and storage

1. Precautions for safe handling

Provision of sufficient ventilation.

• Measures to prevent fire as well as aerosol and dust generation

Keep away from sources of ignition - No smoking.

Take precautionary measures against static discharge. Due to danger ofexplosion, prevent leakage

of vapours into cellars, flues and ditches.

Advice on general occupational hygiene

Wash hands before breaks and after work. Keep away from food, drink and animal feedingstuffs. When using do not smoke.

2. Conditions for safe storage, including anyincompatibilities

Keep container tightly closed.

Incompatible substances or mixtures

Observe hints for combined storage.

Consideration of other advice

Ground/bond container and receiving equipment.

• Ventilation requirements

Use local and general ventilation.

• Specific designs for storage rooms or vessels

Recommended storage temperature: 15 – 25 °C.

3. Specific end use(s)

No information available.

SECTION 8: Exposurecontrols/personal protection

8.1 Control parameters

National limit values

Occupational exposure limit values (Workplace Exposure Limits)

Country	Name of agent	CAS No	Notation	Identifier	TWA [ppm]	TWA [mg/m³]	STEL [ppm]	STEL [mg/m³]	Ceiling-C [ppm]	Ceiling-C [mg/m³]	Source
EU	diethyl ether	60-29-7		IOELV	100	308	200	616			2000/39/EC
GB	diethyl ether	60-29-7		WEL	100	310	200	620			EH40/2005

Notation

Ceiling-C	Ceiling value is a limit value above which exposure should not occur
STEL	Short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)
TWA	Time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

Relevant DNELs/DMELs/PNECs and other threshold levels

• human health values

Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
DNEL	308 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
DNEL	616 mg/m³	human, inhalatory	worker (industry)	acute - systemic effects
DNEL	44 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects

• relevant DNELs of components of themixture

Name of substance	CAS No	End-point	Threshold level	Protection goal, route of exposure	Used in	Exposure time
Butylated hydroxy-toluene	128-37-0	DNEL	19 mg/kg bw/day	human, dermal	worker (industry)	acute - systemic effects
Butylated hydroxy-toluene	128-37-0	DNEL	18 mg/m³	human, inhalatory	worker (industry)	acute - systemic effects
Butylated hydroxy-toluene	128-37-0	DNEL	3,5 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
Butylated hydroxy-toluene	128-37-0	DNEL	0,5 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects

• environmental values

Endpoint	Threshold level	Environmental compartment	Exposure time
PNEC	1,65 mg/l	water	intermittent release
PNEC	2 mg/l	freshwater	short-term (single instance)
PNEC	0,2 mg/l	marine water	short-term (single instance)
PNEC	4,2 mg/l	sewage treatment plant (STP)	short-term (single instance)
PNEC	9,14 mg/kg	freshwater sediment	short-term (single instance)
PNEC	0,914 mg/kg	marine sediment	short-term (single instance)
PNEC	0,66 mg/kg	soil	short-term (single instance)

• relevant PNECs of components of themixture

Name of substance	CAS No	Endpoint	Threshold level	Environmental compartment	Exposure time
Butylated hydroxytoluene	128-37-0	PNEC	8,33 mg/kg	water	short-term (single instance)
Butylated hydroxytoluene	128-37-0	PNEC	1,99 µg/l	water	intermittent release
Butylated hydroxytoluene	128-37-0	PNEC	0,199 µg/l	freshwater	short-term (single instance)
Butylated hydroxytoluene	128-37-0	PNEC	0,02 µg/l	marine water	short-term (single instance)
Butylated hydroxytoluene	128-37-0	PNEC	0,17 mg/l	sewage treatment plant (STP)	short-term (single instance)
Butylated hydroxytoluene	128-37-0	PNEC	99,6 µg/kg	freshwater sediment	short-term (single instance)
Butylated hydroxytoluene	128-37-0	PNEC	9,96 µg/kg	marine sediment	short-term (single instance)
Butylated hydroxytoluene	128-37-0	PNEC	47,69 µg/kg	soil	short-term (single instance)

8.2 Exposure controls

Individual protection measures (personal protective equipment)

Eye/face protection

Use safety goggle with side protection.

Skin protection

• hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. The times are approximate values from measurements at 22 ° C and permanent contact. Increased temperatures due to heated substances, body heat etc. and a reduction of the effective layer thickness by stretching can lead to a considerable reduction of the breakthrough time. If in doubt, contact manufacturer. At an approx. 1.5 times larger / smaller layer thickness, the respective breakthrough time is doubled / halved. The data apply only to the pure substance. When transferred to substance mixtures, they may only be considered as a guide.

• type of material

NBR (Nitrile rubber)

• material thickness

>0,11 mm

• breakthrough times of the glove material

>480 minutes (permeation: level 6)

• other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.
Flame-retardant protective clothing.

Respiratory protection

Respiratory protection necessary at: Aerosol or mist formation. Type: AX (gas filters and combined filters against low-boiling point organic compounds, colour code: Brown).

Environmental exposure controls

Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	liquid (fluid)
Colour	colourless
Odour	mild sweet
Odour threshold	No data available

Other physical and chemical parameters

pH (value)	This information is not available.
Melting point/freezing point	-116 °C
Initial boiling point and boiling range	34,58 – 34,59 °C at 760 mmHg
Flash point	-40 °C (closed cup)
Evaporation rate	no data available
Flammability (solid, gas)	not relevant (fluid)

Explosive limits	
• lower explosion limit (LEL)	1,7 vol%
•upper explosion limit (UEL)	39 vol%
Explosion limits of dust clouds	not relevant
Vapour pressure	58,96 kPa at 293,2 K
Density	0,71 $^{g}/_{cm^3}$ at 20 °C
Vapour density	2,56 (air = 1)
Bulk density	Not applicable
Relative density	Information on this property is not available.
Solubility(ies)	
Water solubility	64,9 $^{g}/_{l}$ at 20 °C
Partition coefficient	
n-octanol/water (log KOW)	1,19 (pH value: 7, 25 °C) (ECHA)
Soil organic carbon/water (log KOC)	0,987 (ECHA)
Auto-ignition temperature	175 °C at 1 atm - ECHA
Decomposition temperature	no data available
Viscosity	
• kinematic viscosity	0,331 $^{mm^2}/_{s}$ at 293,2 K
•dynamic viscosity	0,235 mPa s at 293,2 K
Explosive properties	Shall not be classified as explosive
Oxidising properties	none

9.2 Other information

Refractive index	1,353
Temperature class (EU, acc. to ATEX)	T4 (Maximum permissible surface temperature on the equipment: 135°C)

SECTION 10: Stability and reactivity

1. Reactivity

Risk of ignition. Vapours can form explosive mixtures with air. May form explosive peroxides.

2. Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure. This substance contains a stabiliser.

3. Possibility of hazardous reactions

Nitrate, Perchlorates, Peroxides, Nitric acid, Oxygen, Sulphuric acid, Strong oxidiser, Nitrogen oxides (NOx), Hydrogen peroxide

4. Conditions to avoid

UV-radiation/sunlight. Keep away from heat. No smoking. Protect from moisture.

5. Incompatible materials

Rubber articles, different plastics

10.6 Hazardous decomposition products

Peroxides. Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Exposure route	Endpoint	Value	Species	Source
oral	LD50	1.215 $^{mg}/_{kg}$	rat	TOXNET

Skin corrosion/irritation

Shall not be classified as corrosive/irritant to skin.

Serious eye damage/eye irritation

Shall not be classified as seriously damaging to the eye or eye irritant.

Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

Summary of evaluation of the CMR properties

Shall not be classified as germ cell mutagenic, carcinogenic nor as a reproductive toxicant

• Specific target organ toxicity - single exposure

May cause drowsiness or dizziness.

• Specific target organ toxicity - repeatedexposure

Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

Symptoms related to the physical, chemical and toxicological characteristics

• If swallowed

vomiting, abdominal pain

• If in eyes

slightly irritant but not relevant for classification

• If inhaled

irritant effects, breathing difficulties, fatigue, narcosis, vapours may cause drowsiness and dizziness, Inebriation, circulatory collapse

• If on skin

has degreasing effect on the skin, irritant effects

Other information

None

SECTION 12: Ecological information

12.1 Toxicity

acc. to 1272/2008/EC: Shall not be classified as hazardous to the aquatic environment.

Aquatic toxicity (acute)

Endpoint	Value	Species	Source	Exposure time
ErC50	>100 mg/l	algae	ECHA	72 h
EC50	>100 mg/l	algae	ECHA	72 h

Aquatic toxicity (acute) of components of the mixture

Name of substance	CAS No	Endpoint	Value	Species	Exposure time
Butylated hydroxytoluene	128-37-0	LC50	>0,57 mg/l	fish	96 h
Butylated hydroxytoluene	128-37-0	EC50	0,48 mg/l	aquatic invertebrates	48 h
Butylated hydroxytoluene	128-37-0	ErC50	>0,4 mg/l	algae	72 h

Aquatic toxicity (chronic)

Endpoint	Value	Species	Source	Exposure time
EC50	>100 mg/l	aquatic invertebrates	ECHA	21 d
NOEC	100 mg/l	aquatic invertebrates	ECHA	21 d
LOEC	>100 mg/l	aquatic invertebrates	ECHA	21 d
growth (EbCx) 20%	310 mg/l	microorganisms	ECHA	3 h

Aquatic toxicity (chronic) of components of the mixture

Name of substance	CAS No	Endpoint	Value	Species	Exposure time
Butylated hydroxytoluene	128-37-0	EC50	0,096 mg/l	aquatic invertebrates	21 d

12.2 Process of degradability

Not readily biodegradable. Theoretical Oxygen Demand: 2,59 mg/mg
Theoretical Carbon Dioxide: 2,375 mg/mg

Degradability of components of the mixture

Name of substance	CAS No	Process	Degradation rate	Time
Butylated hydroxytoluene	128-37-0	biotic/abiotic	<10 %	20 d

12.3 Bioaccumulative potential

Does not significantly accumulate in organisms.

n-octanol/water (log KOW)	1,19 (pH value: 7, 25 °C)
BCF	2,29

Bioaccumulative potential of components of the mixture

Name of sub-stance	CAS No	BCF	Log KOW	BOD5/COD
Butylated hydroxy-toluene	128-37-0	598,4	5,1	

4. Mobility in soil

The Organic Carbon normalised adsorption coefficient	0,987

5. Results of PBT and vPvB assessment

Data are not available.

6. Other adverse effects

Data are not available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

Sewage disposal-relevant information

Do not empty into drains.

Waste treatment of containers/packagings

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used.

2. Relevant provisions relating to waste

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

3. Remarks

Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions.

SECTION 14: Transport information

1.	UN number	**1155**
2.	UN proper shipping name	**DIETHYL ETHER**
	Hazardous ingredients	Diethyl ether
3.	Transport hazard class(es)	
	Class	3 (flammable liquids)

4.	Packing group	I (substance presenting high danger)
5.	Environmental hazards	none (non-environmentally hazardous acc. to the dangerous goods regulations)

6. Special precautions for user

Provisions for dangerous goods (ADR) should be complied within the premises.

7. Transport in bulk according to Annex II of MARPOL and the IBC Code

The cargo is not intended to be carried in bulk.

8. Information for each of the UN Model Regulations

• Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN)

UN number	1155
Proper shipping name	DIETHYL ETHER
Particulars in the transport document	UN1155, DIETHYL ETHER, 3, I, (D/E)
Class	3
Classification code	F1
Packing group	I
Danger label(s)	3

Excepted quantities (EQ)	E3
Transport category (TC)	1
Tunnel restriction code (TRC)	D/E
Hazard identification No	33
Emergency Action Code	3YE

• International Maritime Dangerous Goods Code (IMDG)

UN number	1155
Proper shipping name	DIETHYL ETHER
Particulars in the shipper's declaration	UN1155, DIETHYL ETHER, 3, I, -40°C c.c.
Class	3
Marine pollutant	-
Packing group	I
Danger label(s)	3

Special provisions (SP)	-
Excepted quantities (EQ)	E3
Limited quantities (LQ)	0

EmS	F-E, S-D
Stowage category	E

• International Civil Aviation Organization (ICAO-IATA/DGR)

UN number	1155
Proper shipping name	Diethyl ether
Particulars in the shipper's declaration	UN1155, Diethyl ether, 3, I
Class	3
Packing group	I
Danger label(s)	3

Excepted quantities (EQ)	E3

SECTION 15: Regulatory information

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

Relevant provisions of the European Union (EU)

• Regulation 649/2012/EU concerning the export and import of hazardous chemicals (PIC)

Not listed.

• Regulation 1005/2009/EC on substances that deplete the ozone layer (ODS)

Not listed.

• Regulation 850/2004/EC on persistent organic pollutants (POP)

Not listed.

• Restrictions according to REACH, Annex XVII

Name of substance	CAS No	Wt%	Type of registration	Conditions of restriction	No
Diethyl ether		100	1907/2006/EC annex XVII	R3	3
Diethyl ether		100	1907/2006/EC annex XVII	R40	40

Legend

R3 1. Shall not be used in:
-ornamental articles intended to produce light or colour effects by means of different phases, for example in ornamental lamps and ashtrays,
- tricks and jokes,
- games for one or more participants, or any article intended to be used as such, even with ornamental aspects,
2. Articles not complying with paragraph 1 shall not be placed on the market.
3.Shall not be placed on the market if they contain a colouring agent, unless required for fiscal reasons, or perfume, or both, ifthey:
- can be used as fuel in decorative oil lamps for supply to the general public, and,
- present an aspiration hazard and are labelled with R65 or H304,
4.Decorative oil lamps for supply to the general public shall not be placed on the market unless they conform to the European Standard on Decorative oil lamps (EN 14059) adopted by the European Committee for Standardisation (CEN).
5. Without prejudice to the implementation of other Community provisions relating to the classification, packaging and labelling of dangerous substances and mixtures, suppliers shall ensure, before the placing on the mar- ket, that the following requirements are met:
(a) lamp oils, labelled with R65 or H304, intended for supply to the general public are visibly, legibly and indelibly marked as follows: 'Keep lamps filled with this liquid out of the reach of children'; and, by 1 December 2010, 'Just a

Legend

sip of lamp oil - or even sucking the wick of lamps - may lead to life-threatening lung damage';
(b)grill lighter fluids, labelled with R65 or H304, intended for supply to the general public are legibly and indelibly marked by 1 December 2010 as follows: 'Just a sip of grill lighter may lead to life threatening lung damage';
(c)lamp oils and grill lighters, labelled with R65 or H304, intended for supply to the general public are packaged in black opaque containers not exceeding 1 litre by 1 December 2010.
6. No later than 1 June 2014, the Commission shall request the European Chemicals Agency to prepare a dossier, in accordance with Article 69 of the present Regulation with a view to ban, if appropriate, grill lighter fluids and fuel for decorative lamps, labelled R65 or H304, intended for supply to the general public.
7. Natural or legal persons placing on the market for the first time lamp oils and grill lighter fluids, labelled with R65 or H304, shall by 1 December 2011, and annually thereafter, provide data on alternatives to lamp oils and grill lighter fluids labelled R65 or H304 to the competent authority in the Member State concerned. Member States shall make those data available to the Commission.

R40 1. Shall not be used, as substance or asmixtures in aerosol dispensers where these aerosol dispensers are intended for supply to the general public for entertainment and decorative purposes such as the following:
- metallic glitter intended mainly for decoration,
- artificial snow and frost,
- 'whoopee' cushions,
- silly string aerosols,
- imitation excrement,
- horns for parties,
- decorative flakes and foams,
- artificial cobwebs,
- stink bombs.

2. Without prejudice to the application of other Community provisions on the classification, packaging and labelling of substances, suppliers shall ensure before the placing on the market that the packaging of aerosol dispensers referred to above is marked visibly, legibly and indelibly with:
'For professional users only'.
3. By way of derogation, paragraphs 1 and 2 shall not apply to the aerosol dispensers referred to Article 8 (1a) of Council Directive 75/324/EEC (2).
4. The aerosol dispensers referred to in paragraphs 1 and 2 shall not be placed on the market unless they conform to the requirementsindicated.

• Restrictions according to REACH, Title VIII

None.

• List of substances subject to authorisation (REACH, Annex XIV)/SVHC - candidate list

not listed

• Seveso Directive

2012/18/EU (Seveso III)

No	Dangerous substance/hazard categories	Qualifying quantity (tonnes) for the application of lower and upper-tier requirements		Notes
P5a	flammable liquids (cat. 1)	10	50	49)

Notation

49) - Flammable liquids, category 1, or
- flammable liquids category 2 or 3 maintained at a temperature above their boiling point, or
- other liquids with a flash point ≤ 60 °C, maintained at a temperature above their boiling point

•Directive 75/324/EEC relating to aerosol dispensers

Filling batch

Deco-Paint Directive (2004/42/EC)

VOC content	100 % 710 g/l

Directive on industrial emissions (VOCs, 2010/75/EU)

VOC content	100 %
VOC content	710 g/l

Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) - Annex II

not listed

Regulation 166/2006/EC concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

not listed

Directive 2000/60/EC establishing a framework for Community action in the field of water policy (WFD)

not listed

Regulation 98/2013/EU on the marketing and use of explosives precursors

not listed

Regulation 111/2005/EC laying down rules for the monitoring of trade between the Community and third countries in drug precursors

Name of substance	CAS No	Classification	CN Code	Threshold level
Diethyl ether	60-29-7	Category 3	2909 11 00	

National inventories

Substance is listed in the following national inventories:

Country	National inventories	Status
AU	AICS	substance is listed
CA	DSL	substance is listed
CN	IECSC	substance is listed
EU	ECSI	substance is listed
EU	REACH Reg.	substance is listed
JP	CSCL-ENCS	substance is listed
KR	KECI	substance is listed
MX	INSQ	substance is listed
NZ	NZIoC	substance is listed
PH	PICCS	substance is listed
TR	CICR	substance is listed
TW	TCSI	substance is listed
US	TSCA	substance is listed

Legend

AICS Australian Inventory of Chemical Substances
CICR Chemical Inventory and Control Regulation
CSCL-ENCS List of Existing and New Chemical Substances (CSCL-ENCS)
DSL Domestic Substances List (DSL)
ECSI EC Substance Inventory (EINECS, ELINCS, NLP)
IECSC Inventory of Existing Chemical Substances Produced or Imported in China
INSQ National Inventory of Chemical Substances

Legend

KECI	Korea Existing Chemicals Inventory
NZIoC	New Zealand Inventory of Chemicals
PICCS	Philippine Inventory of Chemicals and Chemical Substances
REACH Reg.	REACH registered substances
TCSI	Taiwan Chemical Substance Inventory
TSCA	Toxic Substance Control Act

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information

Indication of changes (revised safety data sheet)

Section	Former entry (text/value)	Actual entry (text/value)	Safety-relev-ant
2.1	Remarks: For full text of Hazard- and EU Hazard-state-ments: see SECTION 16.		yes
2.2		Pictograms: change in the listing (table)	yes
2.2		Precautionary statements - prevention: change in the listing (table)	yes
2.2	Precautionary statements - storage		yes
2.2		Precautionary statements - storage: change in the listing (table)	yes
2.2		Precautionary statements - response	yes
2.2		Precautionary statements - response: change in the listing (table)	yes
2.2		Labelling of packages where the contents do not exceed 125 ml: change in the listing (table)	yes
8.1		Occupational exposure limit values (Workplace Exposure Limits): change in the listing (table)	yes
8.1		•human health values: change in the listing (table)	yes
8.1		• relevant DNELs of components of the mixture	yes
8.1		•relevant DNELs of components of the mixture: change in the listing (table)	yes
8.1		•environmental values: change in the listing (table)	yes
8.1		• relevant PNECs of components of the mixture	yes
8.1		•relevant PNECs of components of the mixture: change in the listing (table)	yes
14.3	Transport hazard class(es)	Transport hazard class(es): class 3 hazard - flammable liquids	yes
14.8	Particulars in the transport document: UN1155, DIETHYL ETHER, (ether), 3, I, (D/E)	Particulars in the transport document: UN1155, DIETHYL ETHER, 3, I, (D/E)	yes
14.8	Limited quantities (LQ): 0		yes
14.8		Emergency Action Code: 3YE	yes

Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
14.8	Particulars in the shipper's declaration: UN1155, DIETHYL ETHER, (ether), 3, I, -40°C c.c.	Particulars in the shipper's declaration: UN1155, DIETHYL ETHER, 3, I, -40°C c.c.	yes
14.8		Marine pollutant: -	yes
14.8		•International Civil Aviation Organization (ICAO-IATA/DGR)	yes
14.8		UN number: 1155	yes
14.8		Proper shipping name: Diethyl ether	yes
14.8		Particulars in the shipper's declaration: UN1155, Diethyl ether, 3, I	yes
14.8		Class : 3	yes
14.8		Packing group: I	yes
14.8		Danger label(s): 3	yes
14.8		Danger label(s): change in the listing (table)	yes
14.8		Excepted quantities (EQ): E3	yes

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
2000/39/EC	Commission Directive establishing a first list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR	Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
Aquatic Acute	hazardous to the aquatic environment - acute hazard
Aquatic Chronic	hazardous to the aquatic environment - chronic hazard
BCF	bioconcentration factor
BOD	Biochemical Oxygen Demand
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
Ceiling-C	ceiling value
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
CMR	Carcinogenic, Mutagenic or toxic for Reproduction
CN Code	Combined Nomenclature
COD	chemical oxygen demand
DGR	Dangerous Goods Regulations (see IATA/DGR)
DMEL	Derived Minimal Effect Level

Abbr.	Descriptions of used abbreviations
DNEL	Derived No-Effect Level
EC50	Effective Concentration 50 %. The EC50 corresponds to the concentration of atested substance causing 50 % changes in response (e.g. on growth) during a specified time interval
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)
EH40/2005	EH40/2005 Workplace exposure limits (http://www.nationalarchives.gov.uk/doc/open-government-licence/)
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
ErC50	≡ EC50: in this method, that concentration of test substance which results in a 50 % reduction in either growth (EbC50) or growth rate (ErC50) relative to the control
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
index No	the Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008
IOELV	indicative occupational exposure limit value
LC50	Lethal Concentration 50%: the LC50 corresponds tothe concentration of atested substance causing 50 % lethality during a specified time interval
LD50	Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval
LOEC	Lowest Observed Effect Concentration
log KOW	n-octanol/water
MARPOL	International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant")
NLP	No-Longer Polymer
NOEC	No Observed Effect Concentration
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
ppm	parts per million
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
STEL	short-term exposure limit
SVHC	Substance of Very High Concern
TWA	time-weighted average
VOC	Volatile Organic Compounds
vPvB	very Persistent and very Bioaccumulative
WEL	workplace exposure limit

Key literature references and sources for data

- Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU
- Regulation (EC) No. 1272/2008 (CLP, EU GHS)
- Dangerous Goods Regulations (DGR) for the air transport (IATA)
- International Maritime Dangerous Goods Code (IMDG)

List of relevant phrases (code and full text as stated in chapter 2 and 3)

Code	Text
H224	extremely flammable liquid and vapour
H302	harmful if swallowed
H336	may cause drowsiness or dizziness
H400	very toxic to aquatic life
H410	very toxic to aquatic life with long lasting effects

Disclaimer

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.