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Acetic acid ethyl ester ROTIDRY® \geq 99,8 % (\leq 100 ppm H₂O)

article number: 4424 Version: GHS 6.0 en Replaces version of: 2023-09-12 Version: (GHS 5)

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

Product identifier 1.1

Identification of the substance	Acetic acid ethyl ester ROTIDRY® ≥99,8 % (≤100 ppm H₂O)		
Article number	4424		
CAS number	141-78-6		
Alternative name(s)	Ethyl acetate		
Relevant identified uses of the substance or mixture and uses advised against			

1.2

Relevant identified uses:	Laboratory chemical Laboratory and analytical use		
Uses advised against:	Do not use for private purposes (household) Food, drink and animal feedingstuffs.		

1.3 Details of the supplier of the safety data sheet

Carl Roth GmbH + Co. KG Schoemperlenstr. 3-5 D-76185 Karlsruhe Germany

Telephone:+49 (0) 721 - 56 06 0 Telefax: +49 (0) 721 - 56 06 149 e-mail: sicherheit@carlroth.de Website: www.carlroth.de

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

e-mail (competent person):

sicherheit@carlroth.de

1.4 **Emergency telephone number**

Name	Street	Postal code/city	Telephone	Website
NSW Poisons Information Centre Childrens Hospital	Hawkesbury Road	2145 West- mead, NSW	131126	

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification acc. to GHS

Section	tion Hazard class		Hazard class and category	Hazard statement
2.6	Flammable liquid	2	Flam. Liq. 2	H225
3.3	Serious eye damage/eye irritation		Eye Irrit. 2	H319
3.8D	Specific target organ toxicity - single exposure (narcotic effects, drowsiness)	3	STOT SE 3	H336

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Suppleme	ental hazard information
Code	Supplemental hazard information
AUH066	repeated exposure may cause skin dryness or cracking

For full text of abbreviations: see SECTION 16

The most important adverse physicochemical, human health and environmental effects

The product is combustible and can be ignited by potential ignition sources.

2.2 Label elements

Labelling

Signal word Danger

Pictograms

GHS02, GHS07



Hazard statements

H225	Highly flammable liquid and vapour
H319	Causes serious eye irritation
H336	May cause drowsiness or dizziness

Precautionary statements

Precautionary statements - prevention

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking

Precautionary statements - response

P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact
	lenses, if present and easy to do. Continue rinsing
P312	Call a POISON CENTER or doctor/physician if you feel unwell
P370+P378	In case of fire: Use sand, carbon dioxide or powder extinguisher for extinction

Precautionary statements - storage

P403+P233	Store in a well-ventilated place. Keep container tightly closed
P403+P235	Store in a well-ventilated place. Keep cool

Precautionary statements - disposal

P501 Dispose of contents/container to industrial combustion plant

Supplemental hazard information

AUH066 Repeated exposure may cause skin dryness or cracking.

2.3 Other hazards

Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of $\ge 0,1\%$.

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SECTION 3: Composition/information on ingredients

3.1	Substances					
	Name of substance	Acetic acid ethyl ester				
	Molecular formula	$C_4H_8O_2$				
	Molar mass	88.11 ^g / _{mol}				
	CAS No	141-78-6				

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

Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart. In case of eye irritation consult an ophthalmologist.

Following ingestion

Rinse mouth. Call a doctor if you feel unwell.

4.2 Most important symptoms and effects, both acute and delayed

Following inhalation: Headaches and dizziness may occur, Breathing difficulties, Dizziness, Drowsiness, Narcosis, Following skin contact: Has degreasing effect on the skin, Irritant effects, After eye contact: Irritation, Following ingestion: Nausea, Aspiration hazard, Vomiting

4.3 Indication of any immediate medical attention and special treatment needed

none

SECTION 5: Firefighting measures

5.1 Extinguishing media



Suitable extinguishing media

co-ordinate firefighting measures to the fire surroundings! water spray, alcohol resistant foam, dry extinguishing powder, BC-powder, carbon dioxide (CO₂)

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Unsuitable extinguishing media

water jet

5.2 Special hazards arising from the substance or mixture

Combustible. In case of insufficient ventilation and/or in use, may form flammable/explosive vapourair mixture. Solvent vapours are heavier than air and may spread along floors. Places which are not ventilated, e.g. unventilated below ground level areas such as trenches, conduits and shafts, are particularly prone to the presence of flammable substances or mixtures. Vapours are heavier than air, spread along floors and form explosive mixtures with air. Vapours may form explosive mixtures with air.

Hazardous combustion products

In case of fire may be liberated: Carbon monoxide (CO), Carbon dioxide (CO₂)

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. 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

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. Retain contaminated washing water and dispose of it.

6.3 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 (sand, diatomaceous earth, acid- or universal binding agents).

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

6.4 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.

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SECTION 7: Handling and storage

7.1 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 of explosion, 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.

7.2 Conditions for safe storage, including any incompatibilities

Store in a well-ventilated place. Keep container tightly closed. Store in a dry place. Protect against: Direct light irradiation. May cause decomposition by long-term light influence.

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

7.3 Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

National limit values

Occupational exposure limit values (Workplace Exposure Limits)

Cou ntr y	Name of agent	CAS No	Identi- fier	TW A [pp m]	TWA [mg/ m³]	STE L [pp m]	STEL [mg/ m³]	Ceil ing- C [pp m]	Ceil- ing-C [mg/ m³]	Nota- tion	Source
AU	ethyl acetate (acetic acid, ethyl ester)	141-78-6	WES	200	720	400	1,440				WES

Notation

Ceiling-C Ceiling value is a limit value above which exposure should not occur

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Notation

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)

Human health values

Relevant DNELs and other threshold levels

Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
DNEL	734 mg/m ³	human, inhalatory	worker (industry)	chronic - systemic effects
DNEL	1,468 mg/m³	human, inhalatory	worker (industry)	acute - systemic effects
DNEL	734 mg/m³	human, inhalatory	worker (industry)	chronic - local effects
DNEL	1,468 mg/m³	human, inhalatory	worker (industry)	acute - local effects
DNEL	63 mg/kg bw/ day	human, dermal	worker (industry)	chronic - systemic effects

Environmental values

Relevant PNECs and other threshold levels							
End- point	Threshold level	Organism	Environmental com- partment	Exposure time			
PNEC	1.65 ^{mg} / _l	aquatic organisms	water	intermittent release			
PNEC	0.24 ^{mg} / _l	aquatic organisms	freshwater	short-term (single instance)			
PNEC	0.024 ^{mg} / _l	aquatic organisms	marine water	short-term (single instance)			
PNEC	650 ^{mg} / _l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)			
PNEC	1.15 ^{mg} / _{kg}	aquatic organisms	freshwater sediment	short-term (single instance)			
PNEC	0.115 ^{mg} / _{kg}	aquatic organisms	marine sediment	short-term (single instance)			
PNEC	0.148 ^{mg} / _{kg}	terrestrial organisms	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



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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 consider-able 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

Butyl caoutchouc (butyl rubber)

material thickness

0,7mm

• breakthrough times of the glove material

>120 minutes (permeation: level 4)

• 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: A (against organic gases and vapours with a boiling point of > 65 °C , 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

Physical state	liquid
Colour	colourless
Odour	fruity
Odour threshold	50 ppm
Melting point/freezing point	-83.6 °C at 1,013 hPa (ECHA)
Boiling point or initial boiling point and boiling range	77.1 °C at 1,013 hPa (ECHA)
Flammability	flammable liquid in accordance with GHS criteria
Lower and upper explosion limit	73 g/m³ (LEL) - 470 g/m³ (UEL) / 2.2 vol% (LEL) - 11.5 vol% (UEL)
Flash point	-4 °C at 1,013 hPa (ECHA)
Auto-ignition temperature	427 °C at 1,013 hPa (ECHA) (auto-ignition temper- ature (liquids and gases))

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	Decomposition temperature	not relevant
	pH (value)	not determined
	Kinematic viscosity	0.501 ^{mm²} / _s at 20 °C
	Dynamic viscosity	0.451 mPa s at 20 °C
	Solubility(ies)	
	Water solubility	80 ^g / _l at 25 °C (ECHA)
	Partition coefficient	
	Partition coefficient n-octanol/water (log value):	0.68 (pH value: 7, 25 °C) (ECHA)
	Vapour pressure	97 hPa at 20 °C
	Density and/or relative density	
	Density	0.9003 ^g / _{cm³} at 20 °C (ECHA)
	Relative vapour density	3.04 (air = 1)
	Particle characteristics	not relevant (liquid)
	Other safety parameters	
	Oxidising properties	none
9.2	Other information	
	Information with regard to physical hazard classes:	There is no additional information.
	Other safety characteristics:	
	Gas group (explosion group)	IIA Maximum Experimental Safe Gap value; MESG > 0,9 mm
	Maximum explosion pressure	9.5 bar
	Refractive index	1.372

SECTION 10: Stability and reactivity

10.1 Reactivity

It's a reactive substance. Risk of ignition. Vapours may form explosive mixtures with air.

If heated

Risk of ignition.

10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

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10.3 Possibility of hazardous reactions

Exothermic reaction with: Fluorine, strong oxidiser, **Danger of explosion:** Alkali metals, Alkaline earth metal, **Violent reaction with:** Strong alkali, Strong acid

10.4 Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Direct light irradiation. Protect from moisture.

10.5 Incompatible materials

different plastics

10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Classification acc. to GHS

Acute toxicity

Shall not be classified as acutely toxic.

Acute toxicity					
Exposure route	Endpoint	Value	Species	Method	Source
oral	LD50	5,620 ^{mg} / _{kg}	rat		TOXNET
dermal	LD50	>20,000 ^{mg} / _{kg}	rabbit		ECHA

Skin corrosion/irritation

Shall not be classified as corrosive/irritant to skin.

Serious eye damage/eye irritation

Causes serious eye irritation.

Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

Carcinogenicity

Shall not be classified as carcinogenic.

Reproductive toxicity

Shall not be classified as a reproductive toxicant.

Specific target organ toxicity - single exposure

May cause drowsiness or dizziness.

Specific target organ toxicity - repeated exposure

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

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

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Symptoms related to the physical, chemical and toxicological characteristics

• If swallowed

nausea, vomiting, aspiration hazard

• If in eyes

Causes serious eye irritation, Irritating to eyes

• If inhaled

fatigue, narcosis, headache, vertigo, breathing difficulties, dizziness, drowsiness, narcosis

• If on skin

Prolonged or repeated skin contact may cause removal of natural fat from the skin resulting in dermatitis (skin inflammation)

Other information

none

11.2 Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of $\ge 0,1\%$.

SECTION 12: Ecological information

12.1 Toxicity

Shall not be classified as hazardous to the aquatic environment.

Aquatic toxicity (acute)				
Endpoint	Value	Species	Source	Exposure time
LC50	230 ^{mg} /l	fish	ECHA	96 h
EC50	220 ^{mg} / _l	fish	ECHA	96 h

12.2 Persistence and degradability

Theoretical Oxygen Demand: 1.816 ^{mg}/_{mg} Theoretical Carbon Dioxide: 1.998 ^{mg}/_{mg}

Biodegradation

The substance is readily biodegradable.

Process of degradability		
Process	Degradation rate	Time
biotic/abiotic	100 %	28 d
oxygen depletion	62 %	5 d

12.3 Bioaccumulative potential

Does not significantly accumulate in organisms.

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n-octanol/water (log KOW)	0.68 (pH value: 7, 25 °C) (ECHA)
BCF	30 (ECHA)

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

12.6 Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of $\ge 0,1\%$.

12.7 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

Only packagings which are approved (e.g. acc. to the Dangerous Goods Regulations) may be used. Handle contaminated packages in the same way as the substance itself. Completely emptied packages can be recycled.

Relevant provisions relating to waste(Basel Convention)

Properties of waste which render it hazardous

H3 Flammable liquids

13.3 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. Non-contaminated packages may be recycled.

SECTION 14: Transport information

14.1 UN number

	UN RTDG	UN 1173
	IMDG-Code	UN 1173
	ICAO-TI	UN 1173
14.2	UN proper shipping name	
	UN RTDG	ETHYL ACETATE
	IMDG-Code	ETHYL ACETATE

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_	ICAO-TI	Ethyl acetate
4.3	Transport hazard class(es)	
	UN RTDG	3
	IMDG-Code	3
	ICAO-TI	3
4.4	Packing group	
	UN RTDG	II
	IMDG-Code	II
	ICAO-TI	II
4.5	Environmental hazards	non-environmentally hazardous acc. to the dar gerous goods regulations
4.6	Special precautions for user	
	There is no additional information.	
4.7	Transport in bulk according to IMO instrum	
	The cargo is not intended to be carried in bulk	κ.
4.8	Information for each of the UN Model Regu	llations
	Transport informationNational regulations	Additional information(UN RTDG)
	UN number	1173
	Class	3
	Packing group	II
	Danger label(s)	3
	Special provisions (SP)	- UN RTDG
	Excepted quantities (EQ)	E2 UN RTDG
		1L
	Limited quantities (LQ)	UN RTDG
	Limited quantities (LQ) Emergency Action Code	
	-	UN RTDG 3YE
	Emergency Action Code	UN RTDG 3YE
	Emergency Action Code International Maritime Dangerous Goods C	UN RTDG 3YE Code (IMDG) - Additional information
	Emergency Action Code International Maritime Dangerous Goods C Proper shipping name	UN RTDG 3YE Code (IMDG) - Additional information ETHYL ACETATE

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Special provisions (SP)

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Excepted quantities (EQ)	E2
Limited quantities (LQ)	1 L
EmS	F-E, S-D
Stowage category	В
International Civil Aviation Organization (I	CAO-IATA/DGR) - Additional information
Proper shipping name	Ethyl acetate
Particulars in the shipper's declaration	UN1173, Ethyl acetate, 3, II
Danger label(s)	3
Excepted quantities (EQ)	E2
Excepted quantities (EQ)	
Limited quantities (LQ)	1 L

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture There is no additional information.

National regulations(Australia)

Australian Inventory of Chemical Substances(AICS)

Substance is listed.

Other information

Directive 94/33/EC on the protection of young people at work. Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

National inventories

Country	Inventory	Status
AU	AIIC	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 (ACTIVE)

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Country	Inventory	Status
VN	NCI	substance is listed
CICR CSCL-ENCS DSL ECSI IECSC INSQ KECI NCI NZIOC PICCS REACH Reg. TCSI	Domestic Substances List EC Substance Inventory (E Inventory of Existing Cher National Inventory of Che Korea Existing Chemicals National Chemical Invent New Zealand Inventory of	Control Regulation Chemical Substances (CSCL-ENCS) (DSL) EINECS, ELINCS, NLP) mical Substances Produced or Imported in China mical Substances Inventory ory of Chemicals nemicals and Chemical Substances (PICCS) nces ce Inventory

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
2.3	Endocrine disrupting properties: Does not contain an endocrine disruptor (EDC) in a concentration of ≥ 0,1%.	Endocrine disrupting properties: Does not contain an endocrine disruptor (ED) at a concentration of ≥ 0,1%.	yes

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations	
BCF	Bioconcentration factor	
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)	
Ceiling-C	Ceiling value	
DGR	Dangerous Goods Regulations (see IATA/DGR)	
DNEL	Derived No-Effect Level	
EC50	Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval	
ED	Endocrine disruptor	
EINECS	European Inventory of Existing Commercial Chemical Substances	
ELINCS	European List of Notified Chemical Substances	
EmS	Emergency Schedule	
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Na- tions	
IATA	International Air Transport Association	
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)	
ICAO	International Civil Aviation Organization	
ICAO-TI	Technical instructions for the safe transport of dangerous goods by air	

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Abbr.	Descriptions of used abbreviations	
IMDG	International Maritime Dangerous Goods Code	
IMDG-Code	International Maritime Dangerous Goods Code	
LC50	Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested 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	
LEL	Lower explosion limit (LEL)	
NLP	No-Longer Polymer	
PBT	Persistent, Bioaccumulative and Toxic	
PNEC	Predicted No-Effect Concentration	
ppm	Parts per million	
STEL	Short-term exposure limit	
TWA	Time-weighted average	
UEL	Upper explosion limit (UEL)	
UN RTDG	UN Recommendations on the Transport of Dangerous Good	
vPvB	Very Persistent and very Bioaccumulative	
WES	WES Safe Work Australia: Workplace exposure standards for airborne contaminants	

Key literature references and sources for data

Safe Work Australia's Code of Practice for Labelling of Workplace Hazardous Chemicals (under WHS Regulations).

UN Recommendations on the Transport of Dangerous Good. International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

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

Code	Text
H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.

Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.