

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Version 8.0 Revision Date 30.09.2024 Print Date 03.05.2025

GENERIC EU MSDS - NO COUNTRY SPECIFIC DATA - NO OEL DATA

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

1.1 Product identifiers

Product name : 2-Thienyllithium solution

Product Number : 332747 Brand : Aldrich

REACH No. : This product is a mixture. REACH Registration Number see

section 3.

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

Identified uses : Laboratory chemicals, Manufacture of substances

Uses advised against : For R&D use only. Not for pharmaceutical, household or other

uses.

1.3

CHEMIKART

1.4 Emergency telephone

Emergency Phone # : 000 800 1007 141 (CHEMTREC)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Flammable liquids, (Category 2) H225: Highly flammable liquid and vapor.

Acute toxicity, (Category 4) H302: Harmful if swallowed.

Acute toxicity, (Category 4) H332: Harmful if inhaled.

Skin corrosion, (Category 1B) H314: Causes severe skin burns and eye

damage.

Carcinogenicity, (Category 2) H351: Suspected of causing cancer.

Reproductive toxicity, (Category H361f: Suspected of damaging fertility.

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Specific target organ toxicity - single exposure, (Category 3),

Respiratory system

H335: May cause respiratory irritation.

Specific target organ toxicity - single exposure, (Category 3),

Central nervous system

H336: May cause drowsiness or dizziness.

Specific target organ toxicity - H373: May cause damage to organs repeated exposure, (Category 2) through prolonged or repeated exposure.

Aspiration hazard, (Category 1) H304: May be fatal if swallowed and enters

airways.

Long-term (chronic) aquatic hazard, (Category 2)

H411: Toxic to aquatic life with long lasting

effects.

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Pictogram

EUH019

Signal Word	Danger		
Hazard Statements			
H225	Highly flammable liquid and vapor.		
H302 + H332	Harmful if swallowed or if inhaled.		
H304	May be fatal if swallowed and enters airways.		
H314	Causes severe skin burns and eye damage.		
H335	May cause respiratory irritation.		
H336	May cause drowsiness or dizziness.		
H351	Suspected of causing cancer.		
H361f H373	Suspected of damaging fertility. May cause damage to organs through prolonged or repeated		
11373	exposure.		
H411	Toxic to aquatic life with long lasting effects.		
Precautionary Statements			
P210	Keep away from heat, hot surfaces, sparks, open flames and		
	other ignition sources. No smoking.		
P260	Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.		
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.		
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes.		
	Remove contact lenses, if present and easy to do. Continue		
	rinsing.		
P370 + P378	In case of fire: Use dry powder or dry sand to extinguish.		
P403 + P235	Store in a well-ventilated place. Keep cool.		
Supplemental Hazard information (EU)			
EUH014	Reacts violently with water.		

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May form explosive peroxides.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information:

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher. Toxicological information:

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Formula : C_4H_3LiS Molecular weight : 90,07 g/mol

Component		Classification	Concentration
Tetrahydrofuran			
CAS-No. EC-No. Index-No. Registration number	109-99-9 5-53 603-025-00-0 01-2119444314-46- XXXX	Flam. Liq. 2; Acute Tox. 4; Eye Irrit. 2; Carc. 2; STOT SE 3; H225, H302, H319, H351, H336, H335 Concentration limits: >= 25 %: Eye Irrit. 2, H319; >= 25 %: STOT SE 3, H335;	>= 50 - < 70 %
Hexanes, isomers			
CAS-No. EC-No. Index-No.	92112-69-1 295-570-2 601-037-00-0 *	Flam. Liq. 2; Skin Irrit. 2; Repr. 2; STOT SE 3; Asp. Tox. 1; Aquatic Chronic 2; H225, H315, H361f, H336, H304, H411	>= 30 - < 50 %
2-Thienyllithium			
CAS-No. EC-No.	2786-07-4 220-504-6 *	Acute Tox. 4; Skin Corr. 1B; Eye Dam. 1; H332, H312, H302, H314, H318	>= 5 - < 10 %

^{*}A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, or the annual tonnage does not require a registration.

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

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SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice

First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

If inhaled

After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

In case of eye contact

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

If swallowed

After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Pulmonary failure possible after aspiration of vomit. Call a physician immediately. Do not attempt to neutralise.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

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) Dry powder

Unsuitable extinguishing media

Water Foam

5.2 Special hazards arising from the substance or mixture

Carbon oxides

Sulfur oxides

Lithium oxides

Combustible.

Pay attention to flashback.

Vapors are heavier than air and may spread along floors.

May not get in touch with: Water

Development of hazardous combustion gases or vapours possible in the event of fire.

Forms explosive mixtures with air at ambient temperatures.

5.3 Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

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5.4 Further information

Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols. Keep workplace dry. Do not allow product to come into contact with water.

Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Tightly closed. Keep away from heat and sources of ignition.

Never allow product to get in contact with water during storage.

Store under inert gas. Dry residue is explosive. Test for peroxide formation periodically and before distillation. Test for peroxide formation periodically and before distillation.

Storage class

Storage class (TRGS 510): 4.3: Hazardous materials, which set free flammable gases upon contact with water

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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SECTION 8: Exposure controls/personal protection

8.1 **Control parameters**

Ingredients with workplace control parameters

8.2 **Exposure controls**

Personal protective equipment

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

Skin protection

required

Body Protection

Flame retardant antistatic protective clothing.

Respiratory protection

required when vapours/aerosols are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter type: Filter type ABEK

The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Control of environmental exposure

Do not let product enter drains. Risk of explosion.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Physical state liquid

b) Color No data available c) Odor No data available d) Melting No data available

point/freezing point

e) Initial boiling point 65 - 67 °C at 1.013 hPa and boiling range

Flammability (solid, No data available f)

gas)

g) Upper/lower Upper explosion limit: 11,8 %(V) Lower explosion limit: 1,8 %(V) flammability or explosive limits

h) Flash point -30 °C - closed cup

215 °C Autoignition i) at 1.013 hPa temperature

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temperature

k) pH No data available

I) Viscosity Viscosity, kinematic: No data available

Viscosity, dynamic: No data available

m) Water solubility No data available

n) Partition coefficient: I n-octanol/water

efficient: No data available

o) Vapor pressure 191 hPa at 20 °C

p) Density 0,829 g/cm3

Relative density No data available

q) Relative vapor No data available

density

r) Particle No data available

characteristics

s) Explosive properties Not classified as explosive.

t) Oxidizing properties none

9.2 Other safety information

No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Formation of peroxides possible.

Vapors may form explosive mixture with air.

10.2 Chemical stability

sensitive to moisture

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

Warming.

Moisture.

10.5 Incompatible materials

Water, Oxidizing agents, Oxygen, Alcohols, acids, Chlorine, Fluorine, Perchlorates.

10.6 Hazardous decomposition products

Peroxides

In the event of fire: see section 5

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SECTION 11: Toxicological information

11.1 Information on toxicological effects

Mixture

Acute toxicity

Oral: No data available

Acute toxicity estimate Oral - 733,16 mg/kg

(Calculation method)

Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of

perforation of the esophagus and the stomach.

Acute toxicity estimate Inhalation - 4 h - 16,3 mg/l - vapor(Calculation method)

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of

respiratory tract

Acute toxicity estimate Dermal - > 2.000 mg/kg

(Calculation method)

Skin corrosion/irritation

Remarks: No data available Remarks: Mixture causes burns.

Serious eye damage/eye irritation

Remarks: No data available

Remarks: Mixture causes serious eye damage.

Risk of blindness!

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

Evidence of a carcinogenic effect.

Reproductive toxicity

No data available

Evidence to impair fertility.

Specific target organ toxicity - single exposure

Remarks: No data available

Mixture may cause respiratory irritation. Mixture may cause drowsiness or dizziness.

Specific target organ toxicity - repeated exposure

Remarks: No data available

Mixture may cause damage to organs through prolonged or repeated exposure.

Aspiration hazard

No data availableAspiration hazard, Aspiration may cause pulmonary edema and pneumonitis.

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11.2 Additional Information

Endocrine disrupting properties

Product:

Assessment The substance/mixture does not contain

components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Central nervous system depression, Cough, chest pain, Difficulty in breathing, Exposure to high airborne concentrations can cause anesthetic effects., Lung irritation, Edema, Headache, Dizziness, Drowsiness, Incoordination., slowed reaction time, slurred speech, giddiness, Unconsciousness, Neurotoxic effects., Prolonged or repeated exposure to skin causes defatting and dermatitis., Contact with eyes can cause:, Redness, Blurred vision, Provokes tears., Ingestion may provoke the following symptoms:, Gastrointestinal discomfort

Other dangerous properties can not be excluded.

This substance should be handled with particular care.

Handle in accordance with good industrial hygiene and safety practice.

Components

Tetrahydrofuran

Acute toxicity

LD50 Oral - Rat - male and female - 1.650 mg/kg

Remarks: (ECHA)

Symptoms: Irritation of mucous membranes Acute toxicity estimate Oral - 1.650 mg/kg (ATE value derived from LD50/LC50 value)

LC50 Inhalation - Rat - male and female - 6 h - > 14,7 mg/l - vapor

(US-EPA)

LD50 Dermal - Rat - male and female - > 2.000 mg/kg

(OECD Test Guideline 402)

Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation - 72 h

(Draize Test)

Remarks: Repeated or prolonged exposure may cause skin irritation and dermatitis,

due to degreasing properties of the product.

Serious eye damage/eye irritation

Eyes - Rabbit

Result: Causes serious eye irritation.

Remarks: (IUCLID)

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table

3.1/3.2)

Respiratory or skin sensitization

Local lymph node assay (LLNA) - Mouse

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Result: negative

(OECD Test Guideline 429)

Germ cell mutagenicity

Test Type: Ames test

Test system: S. typhimurium

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Test system: Chinese hamster ovary cells

Result: negative

Test Type: Chromosome aberration test in vitro Test system: Chinese hamster ovary cells

Result: negative

Method: OECD Test Guideline 474

Species: Mouse - male and female - Red blood cells (erythrocytes)

Result: negative

Carcinogenicity

Suspected of causing cancer.

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

Inhalation - May cause respiratory irritation. - Central nervous system

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table

3.1/3.2)

May cause drowsiness or dizziness.

Acute oral toxicity - Irritation of mucous membranes

Specific target organ toxicity - repeated exposure

Aspiration hazard

No data available

Hexanes, isomers

Acute toxicity

Oral: No data available Inhalation: No data available Dermal: No data available

Skin corrosion/irritation

Remarks: Causes skin irritation.

Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2) The value is given in analogy to the following substances: 2-Methylpentane

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

No data available

Reproductive toxicity

Suspected of damaging fertility.

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Specific target organ toxicity - single exposure

May cause drowsiness or dizziness.

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3 1/3 2)

The value is given in analogy to the following substances: 2-Methylpentane

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

May be fatal if swallowed and enters airways.

2-Thienyllithium

Acute toxicity

Oral: No data available

LC50 Inhalation - 4 h - 1,5 mg/l - dust/mist

(Acute toxicity estimate) LD50 Dermal - 1.100 mg/kg

Skin corrosion/irritation

Remarks: No data available

Serious eye damage/eye irritation

Remarks: No data available

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

No data available

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

SECTION 12: Ecological information

12.1 Toxicity

Mixture

No data available

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

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12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components

considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

No data available

Components

Tetrahydrofuran

Toxicity to fish flow-through test LC50 - Pimephales promelas (fathead

minnow) - 2.160 mg/l - 96 h (OECD Test Guideline 203)

Toxicity to daphnia

static test EC50 - Daphnia magna (Water flea) - 3.485 mg/l -

and other aquatic 48 h

invertebrates

(OECD Test Guideline 202)

Toxicity to flow-through test NOEC - Pimephales promelas (fathead

fish(Chronic toxicity) minnow) - 216 mg/l - 33 d

Remarks: (ECHA)

Hexanes, isomers

Toxicity to fish LC50 - Pimephales promelas (fathead minnow) - 2,5 mg/l - 96

h

Remarks: (ECOTOX Database) (in analogy to similar products)

Toxicity to daphnia and other aquatic

EC50 - Daphnia magna (Water flea) - 2,1 mg/l - 48 h

other aquatic Remarks: (Lit.)

invertebrates (in analogy to similar products)

2-Thienyllithium

No data available

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SECTION 13: Disposal considerations

13.1 Waste treatment methods

No data available

SECTION 14: Transport information

14.1 UN number

ADR/RID: 3399 IMDG: 3399 IATA: 3399

14.2 UN proper shipping name

ADR/RID: ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE, FLAMMABLE

(Tetrahydrofuran, 2-Thienyllithium, Hexanes, isomers)

IMDG: ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE, FLAMMABLE (2-

Thienyllithium, Tetrahydrofuran, Hexanes, isomers)

IATA: Organometallic substance, liquid, water-reactive, flammable (2-Thienyllithium,

Tetrahydrofuran, Hexanes, isomers)

14.3 Transport hazard class(es)

ADR/RID: 4.3 (3) IMDG: 4.3 (3) IATA: 4.3 (3)

14.4 Packaging group

ADR/RID: II IMDG: II IATA: II

14.5 Environmental hazards

ADR/RID: yes IMDG Marine pollutant: yes IATA: no

14.6 Special precautions for user

Tunnel restriction code : (D/E)

Further information : No data available

SECTION 15: Regulatory information

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

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

P5c

Authorisations and/or restrictions on use

National legislation

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

FLAMMABLE LIQUIDS

E2 ENVIRONMENTAL HAZARDS

O1 OTHER HAZARDS

Other regulations

Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.

Take note of Dir 94/33/EC on the protection of young people at work.

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15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out

SECTION 16: Other information

Full text of H-Statements

H225	Highly flammable liquid and vapor.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H351	Suspected of causing cancer.
H361f	Suspected of damaging fertility.
H411	Toxic to aquatic life with long lasting effects.
EUH014	Reacts violently with water.
EUH019	May form explosive peroxides.

Relevant changes since previous version

5. Fire-fighting measures



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Full text of other abbreviations

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM -American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS -Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx -Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS -Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Classification of the mixture		Classification procedure:
Flam. Liq.2	H225	On basis of test data.
Acute Tox.4	H302	Calculation method
Acute Tox.4	H332	Calculation method
Skin Corr.1B	H314	Calculation method
Carc.2	H351	Calculation method
Repr.2	H361f	Calculation method
STOT SE3	H335	Calculation method
STOT SE3	H336	Calculation method
STOT RE2	H373	Calculation method
Asp. Tox.1	H304	Calculation method
Aquatic Chronic2	H411	Calculation method

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture

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