Version: 3.0 Product number: 211723 Revision Date: 09.12.2022
Print Date: 10.12.2022

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

1.1 Product identifier

Product number	211723
Product name	AZ ECI 3027 Photoresist

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

Use of the Sub-stance/Mixture	:	Materials for use in technical applications

1.3 Details of the supplier of the safety data sheet

Company	Merck KGaA * 64271 Darmstadt * Germany * Phone:+49 6151 72-0
Responsible Department	* e-mail: ELECTRONICS_SDS@merckgroup.com

1.4 Emergency telephone number

+49 6151 722440

CHEMTREC International Emergency Telephone Number +1 703-741-5970 [CCN 842835]

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Flammable liquids, Category 3	H226: Flammable liquid and vapour.
Serious eye damage, Category 1	H318: Causes serious eye damage.
Specific target organ toxicity - single exposure, Category 3, Respiratory system	H335: May cause respiratory irritation.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :

Signal word : Danger

Hazard statements :
H226 Flammable liquid and vapour.
H318 Causes serious eye damage.
H335 May cause respiratory irritation.

Precautionary statements : **Prevention:**

P210 Keep away from heat.
P280 Wear eye protection/ face protection.

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.
P313 Get medical advice/ attention.

Hazardous components which must be listed on the label:

ethyl-(S)-2-hydroxypropionate

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

Chemical nature : Organic mixture in:
Solvent

Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
ethyl-(S)-2-hydroxypropionate	687-47-8 211-694-1 607-129-00-7 01-2119516234-49-xxxx	Flam. Liq. 3; H226 Eye Dam. 1; H318 STOT SE 3; H335 (Respiratory system)	>= 50 - <= 100
n-Butyl acetate	123-86-4 204-658-1 607-025-00-1 01-2119485493-29-xxxx	Flam. Liq. 3; H226 STOT SE 3; H336 (Central nervous system) EUH066	>= 1 - < 10
6-Diazo-5,6-dihydro-5-oxo-1-naphthalenesulfonic acid ester with (4-hydroxyphenyl)(2,3,4--trihydroxyphenyl)methanone	107761-81-9 01-0000017066-73-XXXX	Self-react. D; H242 Aquatic Chronic 4; H413	>= 1 - < 2,5

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

If inhaled : fresh air.

In case of skin contact : rinse out with polyethylene glycol 400 or a mixture of polyethylene glycol 300/ethanol 2:1 and wash with plenty of water. If neither is available wash with plenty of water. Immediately take off contaminated clothing. Seek medical advice immediately.

In case of eye contact : rinse out with plenty of water.
Immediately call in ophthalmologist.

Remove contact lenses.

If swallowed : immediately make victim drink water (two glasses at most).
Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms : Irritation and corrosion
Cough
Shortness of breath
Risk of serious damage to eyes.

Drying-out effect resulting in rough and chapped skin.
Gastrointestinal tract damage
Cough
Headache
lack of appetite
stomach discomfort
narcosis

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : No information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Water
Foam
Carbon dioxide (CO2)
Dry powder

Unsuitable extinguishing media : For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting : Combustible.

Fire may cause evolution of:
Sulphur oxides
Nitrogen oxides (NOx)

Vapours are heavier than air and may spread along floors.
Forms explosive mixtures with air at elevated temperatures.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters

Special protective equipment 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.

Further information : Cool closed containers exposed to fire with water spray.
Prevent fire extinguishing water from contaminating surface water or the ground water system.

Suppress (knock down) gases/vapours/mists with a water spray jet.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Advice for non-emergency personnel:
Do not breathe vapours, 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.
Advice for emergency responders:
Protective equipment see section 8.

6.2 Environmental precautions

Environmental precautions : Prevent further leakage or spillage if safe to do so.

6.3 Methods and material for containment and cleaning up

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

6.4 Reference to other sections

For disposal considerations see section 13.

For personal protection see section 8.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling	:	Observe label precautions.
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.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	:	Store in original container.
Further information on storage conditions	:	Protected from light. Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Risks from decomposition products: see section 10.3
Recommended storage temperature	:	If there is a suitable storage temperature range to be complied with, product label contains the relevant information accordingly.

7.3 Specific end use(s)

Specific use(s)	:	Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
n-Butyl acetate	Workers	inhalation	Acute local effects	960 mg/m3
	Workers	inhalation	Acute systemic effects	960 mg/m3
	Workers	inhalation	Long-term local effects	480 mg/m3

	Workers	inhalation	Long-term systemic effects	480 mg/m3
	Consumers	inhalation	Acute local effects	859,7 mg/m3
	Consumers	inhalation	Acute systemic effects	859,7 mg/m3
	Consumers	inhalation	Long-term local effects	102,34 mg/m3
	Consumers	inhalation	Long-term systemic effects	102,34 mg/m3

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
n-Butyl acetate	Fresh water	0,18 mg/l
	Marine water	0,018 mg/l
	Aquatic intermittent release	0,36 mg/l
	Fresh water sediment	0,981 mg/kg
	Marine sediment	0,0981 mg/kg
	Sewage treatment plant	35,6 mg/l
	Soil	0,0903 mg/kg

8.2 Exposure controls

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

Personal protective equipment

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled and must meet the specifications of a standard EN/ISO/DIN. The chemical resistance of the protective equipment should be enquired at the respective supplier.

Eye protection : Tightly fitting safety goggles

Hand protection :

splash contact

Glove material : Nitrile rubber

Glove thickness : 0,40 mm

Break through time : 30 min

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example:KCL 730 Camatril® -Velours(splash contact)

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Filter type : ABEK-filter

Respiratory protection : required when vapours/aerosols are generated.

Protective measures : Flame retardant antistatic protective clothing.

Environmental exposure controls

Water : Do not flush into surface water or sanitary sewer system. Risk of explosion.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	:	liquid
Colour	:	red brown
Odour	:	characteristic
Freezing point	:	No data available
Boiling point	:	131 °C (1.013 hPa)
Flammability	:	Remarks: Combustible.
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Flash point	:	38 °C Method: closed cup
Auto-ignition temperature	:	Information on components: n-Butyl acetate 370 °C
Decomposition temperature	:	No data available
pH	:	substance/mixture is non-polar/aprotic
Viscosity		
Viscosity, dynamic	:	54 - 65 mPas
Viscosity, kinematic	:	No data available

Solubility(ies)

Water solubility	:	partly soluble - phase separation
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Vapour pressure	:	ca. 2 mbar (20 °C)
Density	:	1,08 g/cm3 (20 °C)
Relative vapour density	:	No data available

9.2 Other information

Explosives	:	Not classified as explosive.
Oxidizing properties	:	none

SECTION 10: Stability and reactivity

10.1 Reactivity

Vapour/air-mixtures are explosive at intense warming.

10.2 Chemical stability

Sensitivity to light
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions

Hazardous reactions	:	Risk of explosion with: Alkali metals Strong oxidizing agents Risk of ignition or formation of inflammable gases or vapours with: potassium tert-butanolate alkali hydroxides no information available

10.4 Conditions to avoid

Conditions to avoid	:	Exposure to light. Heating.

10.5 Incompatible materials

Materials to avoid	:	no information available

10.6 Hazardous decomposition products

in the event of fire: See section 5.

SECTION 11: Toxicological information

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

Acute toxicity

Product:

Acute oral toxicity	:	No data available
Acute inhalation toxicity	:	Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract
Acute dermal toxicity	:	No data available
Acute toxicity (other routes of administration)	:	No data available

Components:

ethyl-(S)-2-hydroxypropionate:

Acute oral toxicity	:	LD50 (Rat, male and female): > 2.000 mg/kg Method: OECD Test Guideline 401 GLP: yes
Acute inhalation toxicity	:	LC50 (Rat, male and female): > 5,4 mg/l Exposure time: 4 h Test atmosphere: vapour Method: OECD Test Guideline 403 GLP: yes Assessment: The substance or mixture has no acute inhalation toxicity
Acute dermal toxicity	:	LD50 Dermal (Rabbit): > 5.000 mg/kg Remarks: (RTECS)

n-Butyl acetate:

Acute oral toxicity	:	LD50 (Rat, female): 10.760 mg/kg Method: OECD Test Guideline 423 Remarks: (External SDS) Symptoms: Risk of aspiration upon vomiting., Aspiration may cause pulmonary oedema and pneumonitis.
Acute inhalation toxicity	:	LC50 (Rat, male and female): 0,74 mg/l Exposure time: 4 h Test atmosphere: aerosol Method: OECD Test Guideline 403 GLP: yes Remarks: (ECHA)

Acute dermal toxicity	:	LD50 (Rabbit, male and female): > 14.100 mg/kg Method: OECD Test Guideline 402 Remarks: (External SDS)

6-Diazo-5,6-dihydro-5-oxo-1-naphthalenesulfonic acid ester with (4-hydroxyphenyl)(2,3,4--trihydroxyphenyl)methanone:

Acute oral toxicity	:	LD50 (Rat): > 2.000 mg/kg Method: OECD Test Guideline 401 Remarks: (own results)
Acute inhalation toxicity	:	Assessment: Toxic effects cannot be excluded
Acute dermal toxicity	:	Assessment: Toxic effects cannot be excluded

Skin corrosion/irritation

Product:

No data available

Components:

ethyl-(S)-2-hydroxypropionate:

Species	:	Rabbit
Exposure time	:	4 h
Method	:	OECD Test Guideline 404
Result	:	No irritation
GLP	:	yes

n-Butyl acetate:

Species	:	Rabbit
Method	:	OECD Test Guideline 404
Result	:	No irritation
Remarks	:	(ECHA)
Result	:	Repeated exposure may cause skin dryness or cracking.
Remarks	:	(ECHA)

6-Diazo-5,6-dihydro-5-oxo-1-naphthalenesulfonic acid ester with (4-hydroxyphenyl)(2,3,4--trihydroxyphenyl)methanone:

Species	:	Rabbit
Method	:	OECD Test Guideline 404
Result	:	No skin irritation
Remarks	:	(own results)

Serious eye damage/eye irritation

Product:

Remarks	:	Risk of blindness!

Components:

ethyl-(S)-2-hydroxypropionate:

Species	:	chicken
Exposure time	:	10 s
Assessment	:	Causes serious eye damage.
Result	:	Irreversible effects on the eye
GLP	:	yes
Remarks	:	(ECHA)

n-Butyl acetate:

Species	:	Rabbit
Method	:	OECD Test Guideline 405
Result	:	No eye irritation
GLP	:	yes
Remarks	:	(ECHA)

6-Diazo-5,6-dihydro-5-oxo-1-naphthalenesulfonic acid ester with (4-hydroxyphenyl)(2,3,4--trihydroxyphenyl)methanone:

Species	:	Rabbit
Method	:	OECD Test Guideline 405
Result	:	No eye irritation
Remarks	:	slight irritation (own results)

Respiratory or skin sensitisation

Product:

No data available

Components:

ethyl-(S)-2-hydroxypropionate:

Test Type	:	Local lymph node assay (LLNA)
Exposure routes	:	Skin contact
Species	:	Mouse
Method	:	OECD Test Guideline 429
Result	:	Did not cause sensitisation on laboratory animals.
GLP	:	yes

n-Butyl acetate:

Test Type	:	Maximisation Test
Exposure routes	:	Skin contact
Species	:	Mouse
Result	:	Did not cause sensitisation on laboratory animals.
Remarks	:	(ECHA)

6-Diazo-5,6-dihydro-5-oxo-1-naphthalenesulfonic acid ester with (4-hydroxyphenyl)(2,3,4--trihydroxyphenyl)methanone:

Test Type	:	Maximisation Test
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	Did not cause sensitisation on laboratory animals.
Remarks	:	(own results)

Germ cell mutagenicity

Product:

Genotoxicity in vitro	:	No data available
Genotoxicity in vivo	:	No data available

Components:

ethyl-(S)-2-hydroxypropionate:

Genotoxicity in vitro :

Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: Mutagenicity (Salmonella typhimurium - reverse mutation assay)
Result: negative
GLP: yes

Test Type: Chromosome aberration test in vitro
Test system: Human lymphocytes
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative
GLP: yes

Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative
GLP: yes

n-Butyl acetate:

Genotoxicity in vitro :

Test Type: Ames test
Test system: Escherichia coli/Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
Remarks: (External SDS)

Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Metabolic activation: without metabolic activation
Method: OECD Test Guideline 473
Result: negative
Remarks: (ECHA)

6-Diazo-5,6-dihydro-5-oxo-1-naphthalenesulfonic acid ester with (4-hydroxyphenyl)(2,3,4--trihydroxyphenyl)methanone:

Genotoxicity in vitro	:	Test Type: Ames test Method: Mutagenicity (Escherichia coli - reverse mutation assay) Result: negative Remarks: (own results)

Carcinogenicity

Product:

No data available

Reproductive toxicity

Product:

Effects on fertility	:	No data available
Effects on foetal development	:	No data available

STOT - single exposure

Product:

No data available

Components:

ethyl-(S)-2-hydroxypropionate:

Exposure routes	:	Inhalation
Assessment	:	May cause respiratory irritation.

n-Butyl acetate:

Target Organs	:	Central nervous system
Assessment	:	May cause drowsiness or dizziness.
Remarks	:	(ECHA)

STOT - repeated exposure

Product:

No data available

Repeated dose toxicity

Product:

No data available

Aspiration toxicity

Product:

No data available

11.2 Information on other hazards

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.

Further information

Product:

Remarks : Properties to be expected based on the main component of the mixture:

Remarks : Drying-out effect resulting in rough and chapped skin.
Headache
lack of appetite
stomach discomfort
narcosis

Remarks : Other dangerous properties can not be excluded.
Handle in accordance with good industrial hygiene and safety practice.

SECTION 12: Ecological information

12.1 Toxicity

Product:

No data available

Components:

ethyl-(S)-2-hydroxypropionate:

Toxicity to fish : LC50 (Danio rerio (zebra fish)): 320 mg/l
Exposure time: 96 h
Test Type: semi-static test
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 683 mg/l
Exposure time: 48 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 202
GLP: yes

Toxicity to algae/aquatic : ErC50 (Pseudokirchneriella subcapitata (green algae)): 3.500

plants		mg/l Exposure time: 72 h Test Type: semi-static test Analytical monitoring: yes Method: OECD Test Guideline 201
Toxicity to microorganisms	:	NOEC (activated sludge): >= 1.000 mg/l Exposure time: 3 h Test Type: static test Method: OECD Test Guideline 209 GLP: yes EC50 (activated sludge): > 1.000 mg/l Exposure time: 3 h Test Type: static test Method: OECD Test Guideline 209 GLP: yes

n-Butyl acetate:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 18 mg/l Exposure time: 96 h Test Type: flow-through test Analytical monitoring: yes Method: OECD Test Guideline 203 Remarks: (External SDS)
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 44 mg/l Exposure time: 48 h Test Type: static test Remarks: (ECHA)
Toxicity to algae/aquatic plants	:	ErC50 (Desmodesmus subspicatus (green algae)): 674,7 mg/l Exposure time: 72 h Test Type: static test Remarks: (ECHA)
Toxicity to microorganisms	:	EC50 (Pseudomonas putida): 959 mg/l Exposure time: 18 h Remarks: (IUCLID)

Ecotoxicology Assessment

Chronic aquatic toxicity	:	This product has no known ecotoxicological effects.

6-Diazo-5,6-dihydro-5-oxo-1-naphthalenesulfonic acid ester with (4-hydroxyphenyl)(2,3,4--trihydroxyphenyl)methanone:

Toxicity to fish	:	LC50 (Danio rerio (zebra fish)): > 500 mg/l Exposure time: 96 h Method: OECD Test Guideline 203

Remarks: (own results)

12.2 Persistence and degradability

Product:

No data available

Components:

ethyl-(S)-2-hydroxypropionate:

Biodegradability	:	Result: Readily biodegradable. Biodegradation: 86 % Exposure time: 28 d Remarks: (External SDS)
Chemical Oxygen Demand (COD)	:	1.620 mg/g Remarks: (External SDS)

n-Butyl acetate:

Biodegradability	:	Test Type: aerobic Result: Readily biodegradable. Biodegradation: 83 % Exposure time: 28 d Method: OECD Test Guideline 301D Remarks: (ECHA)
ThOD	:	2.207 mg/g Remarks: (Lit.)
BOD/ThOD	:	7 - 46 % Remarks: (Lit.)

6-Diazo-5,6-dihydro-5-oxo-1-naphthalenesulfonic acid ester with (4-hydroxyphenyl)(2,3,4--trihydroxyphenyl)methanone:

Biodegradability	:	Result: Not readily biodegradable. Biodegradation: < 20 % Exposure time: 28 d Method: Modified Sturm Test Remarks: (own results)

12.3 Bioaccumulative potential

Product:

No data available

Components:

ethyl-(S)-2-hydroxypropionate:

Partition coefficient: n-octanol/water	:	log Pow: 0,31 (20 °C) Method: (calculated) Remarks: (ECHA) Bioaccumulation is not expected.

n-Butyl acetate:

Partition coefficient: n-octanol/water	:	log Pow: 2,3 (25 °C) Method: OECD Test Guideline 107 GLP: yes Remarks: Bioaccumulation is not expected.

6-Diazo-5,6-dihydro-5-oxo-1-naphthalenesulfonic acid ester with (4-hydroxyphenyl)(2,3,4--trihydroxyphenyl)methanone:

Partition coefficient: n-octanol/water	:	log Pow: 4 Method: OECD Test Guideline 107 Remarks: Potential bioaccumulation (own results)

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

Product:

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.

Components:

n-Butyl acetate:

Assessment	:	Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

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

Product:

Additional ecological information : Discharge into the environment must be avoided.

Components:

6-Diazo-5,6-dihydro-5-oxo-1-naphthalenesulfonic acid ester with (4-hydroxyphenyl)(2,3,4--trihydroxyphenyl)methanone:

Additional ecological information : (in analogy to similar compounds)
Do not allow contact with soil, surface or ground water.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Waste should not be disposed of by release to sewers.

SECTION 14: Transport information

Air transport (IATA)

14.1. UN/ID No.	:	UN 1993
14.2. Proper shipping name	:	Flammable liquid, n.o.s. (Ethyl lactate,n-Butyl acetate)
14.3. Class	:	3
14.4. Packing group	:	III
14.5 Environmentally hazardous	:	--
14.6 Special precautions for user	:	no

Sea transport (IMDG)

14.1. UN number	:	UN 1993
14.2. Proper shipping name	:	FLAMMABLE LIQUID, N.O.S. (Ethyl lactate, n-Butyl acetate)
14.3. Class	:	3
14.4. Packing group	:	III
14.5 Environmentally hazardous	:	--
14.6 Special precautions for user	:	yes
EmS Code	:	F-E, S-E

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not relevant

Land transport (ADR/RID)

14.1. UN number	:	UN 1993
14.2. Proper shipping name	:	FLAMMABLE LIQUID, N.O.S. (Ethyl lactate, n-Butyl acetate)
14.3. Class	:	3
14.4. Packing group	:	III
14.5 Environmentally hazardous	:	--
14.6 Special precautions for user	:	yes
Tunnel restriction code	:	(D/E)

Inland waterway transport (ADN)
ADN Classification : Not Assigned

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15: Regulatory information

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII)	:	Conditions of restriction for the following entries should be considered: Number on list 3
REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).	:	Not applicable
Regulation (EC) No 1005/2009 on substances that deplete the ozone layer	:	Not applicable
Regulation (EU) 2019/1021 on persistent organic pollutants (recast)	:	Not applicable
REACH - List of substances subject to authorisation (Annex XIV)	:	Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.	P5c	FLAMMABLE LIQUIDS

Storage class (TRGS 510) : 3, Flammable liquids

Other regulations:

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

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

H226	:	Flammable liquid and vapour.
H242	:	Heating may cause a fire.
H318	:	Causes serious eye damage.
H335	:	May cause respiratory irritation.
H336	:	May cause drowsiness or dizziness.
H413	:	May cause long lasting harmful effects to aquatic life.
EUH066	:	Repeated exposure may cause skin dryness or cracking.

Full text of other abbreviations

Aquatic Chronic	:	Long-term (chronic) aquatic hazard
Eye Dam.	:	Serious eye damage
Flam. Liq.	:	Flammable liquids
Self-react.	:	Self-reactive substances and mixtures
STOT SE	:	Specific target organ toxicity - single exposure

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; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; 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;

SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

Decimal notation: "Thousands" places are identified with a dot (example: 2.000 mg/kg means "two thousand mg/kg"). Decimal places are identified with a comma (example: 1,35 g/cm3).

Revision Note

Safety datasheet sections which have been updated : General revision

Classification of the mixture:		**Classification procedure:**
Flam. Liq. 3	H226	Based on product data or assessment
Eye Dam. 1	H318	Calculation method
STOT SE 3	H335	Calculation method

Disclaimer

The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product. This safety datasheet only contains information relating to safety and does not replace any product information or product specification.

REG_EU / EN