Safety Data Sheet

according to Regulation (EC) No 1907/2006

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

1.1. Product identifier

Nicotine

REACH Registration Number:	01-2120066934-47-
CAS No:	54-11-5
Index No:	614-001-00-4
EC No:	200-193-3

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

Use of the substance/mixture

Professional use, use in liquids fillers for electronic cigarettes
Further information: refer to exposure scenarios attached to this safety data sheet.

Uses advised against

Any non-intended use.

1.3. Details of the supplier of the safety data sheet

Company name:	Alchem Europe SA	
Street:	Via al Fiume, 1	
Place:	CH-6929 Gravesano	
Telephone:	+41 91 604 69 21	
Contact person:	Robin Ward	
e-mail:	rward@alchemeurope.com	
Responsible Department:	Dr. Gans-Eichler Chemieberatung GmbH Otto-Hahn-Str. 36 D-48161 Münster	e-mail: info@tge-consult.de Tel.: +49(0)2534 41594-0 www.tge-consult.de

1.4. Emergency telephone number:

+41 91 604 69 21 (Mo-Fr 9:00-16:00)

Further Information

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (amended by Regulation (EU) No 2020/878)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

Acute Tox. 2; H330
Acute Tox. 2; H310
Acute Tox. 2; H300
Skin Irrit. 2; H315
Eye Dam. 1; H318
Aquatic Chronic 2; H411

Full text of hazard statements: see SECTION 16.

2.2. Label elements

Regulation (EC) No 1272/2008

Signal word: Danger

Pictograms:

Hazard statements

H300+H310+H330	Fatal if swallowed, in contact with skin or if inhaled.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statements

P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.

2.3. Other hazards

This substance does not meet the criteria for classification as PBT or vPvB.
This substance does not have endocrine disrupting properties with respect to non-target organisms.

SECTION 3: Composition/information on ingredients

3.1. Substances

Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (Regulation (EC) No 1272/2008)			
54-11-5	nicotine (ISO); 3-[(2S)-1-methylpyrrolidin-2-yl]pyridine			99 - 100 %
	200-193-3	614-001-00-4	01-2120066934-47-	
	Acute Tox. 2, Acute Tox. 2, Acute Tox. 2, Skin Irrit. 2, Eye Dam. 1, Aquatic Chronic 2; H330 H310 H300 H315 H318 H411			

Full text of H and EUH statements: see section 16.

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
	Specific Conc. Limits, M-factors and ATE		
54-11-5	200-193-3	nicotine (ISO); 3-[(2S)-1-methylpyrrolidin-2-yl]pyridine	99 - 100 %
	inhalation: ATE 0,19 mg/l (dusts or mists); dermal: ATE 70 mg/kg; oral: ATE 5 mg/kg		

Further Information

Product does not contain listed SVHC substances > 0,1 % according to Regulation (EC) No. 1907/2006 Article 59 (REACH)

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

Self-protection of the first aider.
In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

After inhalation

In case of accident by inhalation: remove casualty to fresh air and keep at rest. In case of breathing difficulties administer oxygen. In case of irregular breathing or respiratory arrest provide artificial respiration. Call a physician immediately.

After contact with skin

Wash with plenty of water.

In case of skin contact, wash immediately with 3%-acetic acid and plenty of water. Immediately remove any wetted clothing, shoes or stockings. Call a physician immediately.

After contact with eyes

In case of contact with eyes, rinse immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart. Subsequently consult an ophthalmologist.

After ingestion

If accidentally swallowed rinse the mouth with plenty of water (only if the person is conscious) and obtain immediate medical attention. Induce vomiting when the affected person is not unconscious. Never give anything by mouth to an unconscious person or a person with cramps.

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

Dizziness. excitation. spasms. vomiting. Heart circulatory collapse. Headache. unconsciousness.

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

First Aid, decontamination, treatment of symptoms.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Foam. Carbon dioxide (CO2). Extinguishing powder. Water spray jet.

Unsuitable extinguishing media

High power water jet.

5.2. Special hazards arising from the substance or mixture

Can be released in case of fire:
Carbon dioxide (CO2). Carbon monoxide Nitrogen oxides (NOx).

5.3. Advice for firefighters

In case of fire: Wear self-contained breathing apparatus.

Additional information

Use water spray jet to protect personnel and to cool endangered containers. Contaminated fire-fighting water must be collected separately. Do not allow to enter into surface water or drains. Co-ordinate fire-fighting measures to the fire surroundings.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General advice

Remove persons to safety. Provide adequate ventilation. Use appropriate respiratory protection. Do not breathe gas/fumes/vapour/spray. Wear personal protection equipment.
Use a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.

For non-emergency personnel

Wear personal protection equipment (refer to section 8).

For emergency responders

No special measures are necessary.

6.2. Environmental precautions

Discharge into the environment must be avoided.

6.3. Methods and material for containment and cleaning up

For containment

Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents).
Treat the recovered material as prescribed in the section on waste disposal.

For cleaning up

Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Safe handling: see section 7
Personal protection equipment: see section 8
Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Wear personal protection equipment (refer to section 8).

Advice on protection against fire and explosion

Usual measures for fire prevention.

Advice on general occupational hygiene

Always close containers tightly after the removal of product. Do not eat, drink, smoke or sneeze at the workplace. Wash hands before breaks and after work. Remove contaminated clothing immediatley and dispose off safely. Wash contaminated clothing prior to re-use. Used working clothes should not be worn outside the work area. Street clothing should be stored seperately from work clothing.
Avoid contact during pregnancy/while nursing.

Further information on handling

General protection and hygiene measures: refer to chapter 8
Read label before use.
Keep away from heat.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep container tightly closed. Keep only in the original container in a cool, well-ventilated place. Keep locked up.

Hints on joint storage

Do not store together with: Flammable liquids. Flammable solids. Food and fodder. Gas. Pyrophoric substances. Substances and mixtures which, in contact with water, emit flammable gases Oxidizing solids Oxidizing liquids. Radioactive substances. Infectious substances.

Further information on storage conditions

Protect against: frost. UV-radiation/sunlight. heat. Cold Humidity
Long Term Storage Conditions (>6 months): Store at refrigerated condition (below 8°C) under nitrogen in a well closed containers protected from light and moisture.
Transportation & Short-Term Storage Conditions (< 6 months): Below 30°C

7.3. Specific end use(s)

See section 1.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

CAS No	Substance	ppm	mg/m³	fib/cm³	Category	Origin
54-11-5	Nicotine	-	0.5		TWA (8 h)	

DNEL/DMEL values

CAS No	Substance		
DNEL type	Exposure route	Effect	Value

54-11-5	nicotine (ISO); 3-[(2S)-1-methylpyrrolidin-2-yl]pyridine		
Worker DNEL, long-term	inhalation	systemic	0,0313 mg/m³
Worker DNEL, acute	inhalation	systemic	8,6 mg/m³
Worker DNEL, long-term	dermal	systemic	0,00443 mg/kg bw/day
Worker DNEL, acute	dermal	systemic	0,84 mg/kg bw/day
Worker DNEL, acute	dermal	local	0,2 mg/cm²
Consumer DNEL, long-term	inhalation	systemic	0,1555 mg/m³
Consumer DNEL, acute	inhalation	systemic	9,6 mg/m³
Consumer DNEL, long-term	dermal	systemic	0,4472 mg/kg bw/day
Consumer DNEL, acute	dermal	systemic	2,2 mg/kg bw/day
Consumer DNEL, acute	dermal	local	0,2 mg/cm²
Consumer DNEL, long-term	oral	systemic	0,0511 mg/kg bw/day
Consumer DNEL, acute	oral	systemic	0,61 mg/kg bw/day

PNEC values

CAS No	Substance
Environmental compartment	Value
54-11-5	nicotine (ISO); 3-[(2S)-1-methylpyrrolidin-2-yl]pyridine
Freshwater	0,0004 mg/l
Freshwater (intermittent releases)	2,7 mg/l
Marine water	0,00004 mg/l
Marine water (intermittent releases)	0,000065 mg/kg
Freshwater sediment	0,00065 mg/kg
Soil	0,000321 mg/kg

8.2. Exposure controls



Appropriate engineering controls

If handled uncovered, arrangements with local exhaust ventilation have to be used.
When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Individual protection measures, such as personal protective equipment

Eye/face protection

Suitable eye protection: Tightly sealed safety glasses. EN 166

Hand protection

In case of prolonged or frequently repeated skin contact:
Wear suitable gloves.
Suitable material:
Butyl rubber. Thickness of glove material: (0,5 mm)
FKM (fluororubber). Thickness of glove material: (0,4 mm)
Breakthrough time ~480 min.
Penetration time (maximum wearing period): ~160 min.

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 selected protective gloves have to satisfy the specifications of EU Directive EC/2016/425 and the standard EN 374 derived from it.
Before using check leak tightness / impermeability. In the case of wanting to use the gloves again, clean them before taking off and air them well.

Skin protection

Suitable protective clothing: Lab apron.
Minimum standard for preventive measures while handling with working materials are specified in the TRGS 500 (D).

Respiratory protection

With correct and proper use, and under normal conditions, breathing protection is not required.
Respiratory protection necessary at:
-Exceeding exposure limit values
-Insufficient ventilation and aerosol or mist formation
Suitable respiratory protective equipment: particulates filter device (DIN EN 143). type: P1-3
The filter class must be suitable for the maximum contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product. If the concentration is exceeded, self-contained breathing apparatus must be used.

Thermal hazards

No special measures are necessary.

Environmental exposure controls

This material and its container must be disposed of in a safe way.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	liquid, viscous
Colour:	colourless or brownish
Odour:	characteristic
Odour threshold:	not determined

Changes in the physical state

Melting point/freezing point:	-79 °C
Boiling point or initial boiling point and boiling range:	246 °C
Sublimation point:	not determined
Softening point:	not determined
Pour point:	not determined
Flash point:	111 °C

Flammability

Solid/liquid:	not determined

Explosive properties

none

Lower explosion limits:	0,7 vol. %
Upper explosion limits:	4,0 vol. %
Auto-ignition temperature:	240 °C

Self-ignition temperature

Solid:	not determined
Decomposition temperature:	not determined
pH-Value:	10,2

Viscosity / dynamic:	No information available.
Viscosity / kinematic:	No information available.
Flow time:	No information available.
Water solubility:	miscible.

Solubility in other solvents

Ethanol.

Dissolution rate:	not relevant
Partition coefficient n-octanol/water:	SECTION 12: Ecological information
Dispersion stability:	not relevant
Vapour pressure: (at 20 °C)	0,056 hPa
Vapour pressure:	No information available.
Density (at 20 °C):	1,01 g/cm³
Bulk density:	No information available.
Relative vapour density:	not determined
Particle characteristics:	not relevantNo information available.

9.2. Other information

Information with regard to physical hazard classes

Sustaining combustion:	Not sustaining combustion

Oxidizing properties

none

Other safety characteristics

Solvent separation test:	not determined
Solvent content:	not determined
Solid content:	not determined
Evaporation rate:	not determined

Further Information

No information available.

SECTION 10: Stability and reactivity

10.1. Reactivity

No information available.

10.2. Chemical stability

The product is chemically stable under recommended conditions of storage, use and temperature.

10.3. Possibility of hazardous reactions

No hazardous reaction when handled and stored according to provisions.
Refer to chapter 10.5.

10.4. Conditions to avoid

Protect against: UV-radiation/sunlight. heat.

10.5. Incompatible materials

Materials to avoid: Oxidizing agents, strong. Reducing agents, strong.

10.6. Hazardous decomposition products

Does not decompose when used for intended uses.

SECTION 11: Toxicological information

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

Toxicocinetics, metabolism and distribution

Very toxic in contact with skin. The product is skin resorptive.

Acute toxicity

Fatal if swallowed.
Fatal in contact with skin.
Fatal if inhaled.

ATE oral (nicotine (ISO); 3-[(2S)-1-methylpyrrolidin-2-yl]pyridine) = 5 mg/kg*
ATE dermal (nicotine (ISO); 3-[(2S)-1-methylpyrrolidin-2-yl]pyridine) = 70 mg/kg*
ATE Inhalation (nicotine (ISO); 3-[(2S)-1-methylpyrrolidin-2-yl]pyridine) = 0,19 mg/l*
Literature information:
*Committee for Risk Assessment RAC Opinion proposing harmonised classification and labelling at EU level of Nicotine (ISO); 3-[(2S)-1-methylpyrrolidin-2-yl]pyridine, 09/2015

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
54-11-5	nicotine (ISO); 3-[(2S)-1-methylpyrrolidin-2-yl]pyridine				
	oral	ATE 5 mg/kg			
	dermal	ATE 70 mg/kg			
	inhalation dust/mist	ATE 0,19 mg/l			

Irritation and corrosivity

Causes skin irritation.
Causes serious eye damage.

nicotine (ISO); 3-[(2S)-1-methylpyrrolidin-2-yl]pyridine:
Irritant effect on the respiratory tract: slightly irritant but not relevant for classification.
Irritant effect on the eye:
Method: OECD Guideline 405
Species: Rabbit
Result: positive.
Irritant effect on the skin:
Method: OECD Guideline 402 (Acute Dermal Toxicity)
Species: Rabbit
Result: positive.
literature infomation: ECHA Dossier

Sensitising effects

Based on available data, the classification criteria are not met.

nicotine (ISO); 3-[(2S)-1-methylpyrrolidin-2-yl]pyridine:
Skin sensitisation:
Method: OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay)
Species: Mouse
Result: negative.
literature infomation: ECHA Dossier

Carcinogenic/mutagenic/toxic effects for reproduction

Based on available data, the classification criteria are not met.

nicotine (ISO); 3-[(2S)-1-methylpyrrolidin-2-yl]pyridine: NOAEL: 1,25 mg/kg (EFSA, 2009)
Ethanol. (CAS-No.: 64-17-5):
Subchronic oral toxicity
Exposure time: 90d; Species: Sprague-Dawley Rat.
Method: OECD Guideline 408
Result: NOAEL = 1280 mg/kg

Literature information: ECHA Dossier

STOT-single exposure

Based on available data, the classification criteria are not met.
The product has not been tested.

STOT-repeated exposure

Based on available data, the classification criteria are not met.

nicotine (ISO); 3-[(2S)-1-methylpyrrolidin-2-yl]pyridine: NOAEL: 1,25 mg/kg (EFSA, 2009)
Ethanol. (CAS-No.: 64-17-5):
Subchronic oral toxicity
Exposure time: 90d
Species: Sprague-Dawley Rat.
Method: OECD Guideline 408
Result: NOAEL = 1280 mg/kg
Literature information: ECHA Dossier

Aspiration hazard

Based on available data, the classification criteria are not met.
The product has not been tested.

Specific effects in experiment on an animal

No data available.

11.2. Information on other hazards

Endocrine disrupting properties

This substance does not have endocrine disrupting properties with respect to non-target organisms.

Other information

No data available.

SECTION 12: Ecological information

12.1. Toxicity

CAS No	Chemical name						
	Aquatic toxicity	Dose		[h] | [d]	Species	Source	Method
54-11-5	nicotine (ISO); 3-[(2S)-1-methylpyrrolidin-2-yl]pyridine						
	Acute fish toxicity	LC50	>3 mg/l	96 h	Oncorhynchus mykiss (Rainbow trout)	ECHA Dossier	OECD Guideline 203
	Acute algae toxicity	ErC50	37 mg/l	72 h	Desmodesmus subspicatus	ECHA Dossier	EU Method C.3
	Acute crustacea toxicity	EC50	3 mg/l	48 h	Daphnia magna (Big water flea)	ECHA Dossier	OECD Guideline 202
	Crustacea toxicity	NOEC	0,012 mg/l	16 d	Daphnia pulex (water flea)	ECHA Dossier	OECD Guideline 211

12.2. Persistence and degradability

CAS No	Chemical name			
	Method	Value	d	Source
	Evaluation			
54-11-5	nicotine (ISO); 3-[(2S)-1-methylpyrrolidin-2-yl]pyridine			
	OECD 301B / ISO 9439 / EEC 92/69 annex V, C.4-C	71%	8	ECHA Dossier
	Easily biodegradable (concerning to the criteria of the OECD)			

12.3. Bioaccumulative potential

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow

54-11-5	nicotine (ISO); 3-[(2S)-1-methylpyrrolidin-2-yl]pyridine	1,17 (pH > 12)

12.4. Mobility in soil

No data available.

12.5. Results of PBT and vPvB assessment

This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.
The aforementioned statement applies to substances contained in the product with a minimum content of 0.1%.

12.6. Endocrine disrupting properties

This substance does not have endocrine disrupting properties with respect to non-target organisms.
The aforementioned statement applies to substances contained in the product with a minimum content of 0.1%.

12.7. Other adverse effects

No data available.

Further information

Do not allow to enter into surface water or drains.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Observe in addition any national regulations! Consult the local waste disposal expert about waste disposal.
Non-contaminated packages may be recycled.
According to (EWC) European Waste Catalogue, allocation of waste identity numbers/waste descriptions must be carried out in a specific way for every industry and process.
Control report for waste code/ waste marking according to (EWC) European Waste Catalogue:

List of Wastes Code - residues/unused products

160305 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; off-specification batches and unused products; organic wastes containing hazardous substances; hazardous waste

List of Wastes Code - used product

160305 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; off-specification batches and unused products; organic wastes containing hazardous substances; hazardous waste

List of Wastes Code - contaminated packaging

150110 WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED; packaging (including separately collected municipal packaging waste); packaging containing residues of or contaminated by hazardous substances; hazardous waste

Contaminated packaging

Handle contaminated packages in the same way as the substance itself.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number or ID number:	UN 1654
14.2. UN proper shipping name:	NICOTINE
14.3. Transport hazard class(es):	6.1
14.4. Packing group:	II
Hazard label:	6.1

Classification code: T1

Limited quantity: 100 mL
Excepted quantity: E4
Transport category: 2
Hazard No: 60
Tunnel restriction code: D/E

Other applicable information (land transport)

Temperature, Transport information: 30 °C

Inland waterways transport (ADN)

14.1. UN number or ID number: UN 1654
14.2. UN proper shipping name: NICOTINE
14.3. Transport hazard class(es): 6.1
14.4. Packing group: II
Hazard label: 6.1

Classification code: T1
Special Provisions: 802
Limited quantity: 100 mL
Excepted quantity: E4

Other applicable information (inland waterways transport)

Temperature, Transport information: < 30 °C

Marine transport (IMDG)

14.1. UN number or ID number: UN 1654
14.2. UN proper shipping name: NICOTINE
14.3. Transport hazard class(es): 6.1
14.4. Packing group: II
Hazard label: 6.1

Marine pollutant: YES
Special Provisions: -
Limited quantity: 100 mL
Excepted quantity: E4
EmS: F-A, S-A

Other applicable information (marine transport)

Temperature, Transport information: < 30 °C

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number or ID number: UN 1654
14.2. UN proper shipping name: NICOTINE
14.3. Transport hazard class(es): 6.1
14.4. Packing group: II
Hazard label: 6.1

Limited quantity Passenger: 1 L
Passenger LQ: Y641
Excepted quantity: E4
IATA-packing instructions - Passenger: 654
IATA-max. quantity - Passenger: 5 L

IATA-packing instructions - Cargo: 662
IATA-max. quantity - Cargo: 60 L

Other applicable information (air transport)

Temperature, Transport information: < 30 °C

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: Yes

Danger releasing substance: nicotine (ISO); 3-[(2S)-1-methylpyrrolidin-2-yl]pyridine:

14.6. Special precautions for user

refer to chapter 6 - 8

14.7. Maritime transport in bulk according to IMO instruments

not relevant

SECTION 15: Regulatory information

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

EU regulatory information

Restrictions on use (REACH, annex XVII):

Entry 3, Entry 75

2010/75/EU (VOC): 0%

2004/42/EC (VOC): 100 % (1010 g/l)

Information according to 2012/18/EU (SEVESO III): H2 ACUTE TOXIC

Additional information: E2

Additional information

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (amended by Regulation (EU) No 2020/878)
This substance is hazardous in the sense of regulation (EC) No 1272/2008 (CLP).
REACH 1907/2006 Appendix XVII, No.: 3, 75

National regulatory information

Employment restrictions: Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

Water hazard class (D): 3 - highly hazardous to water

15.2. Chemical safety assessment

For this substance a chemical safety assessment has been carried out.

SECTION 16: Other information

Changes

Rev. 1,0; 06.12.2013; Initial release
Rev. 1,01; 28.01.2014
Rev. 1,02; 05.05.2014
Rev. 1,10; 26.06.2015; Changes in chapter: 1-16
Rev. 1,20; 02.06.2017; Changes in chapter: 1-16
Rev. 2,00; 06.12.2018; Changes in chapter: 2,3,8,11,12, 15, 16
Rev. 2,10; 18.10.2019; Changes in chapter: 9, 14
Rev. 2,20; 01.03.2021; Changes in chapter: 3, 6. 11, 12, 14, 16
Rev. 2,30; 10.07.2021; Changes in chapter: 9, 14
Rev. 2,40; 02.01.2023; Changes in chapter: 1-16

Abbreviations and acronyms

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
CAS: Chemical Abstracts Service
CLP: Classification, Labelling and Packaging of substances and mixtures
DNEL: Derived No Effect Level
d: day(s)
EINECS: European INventory of Existing Commercial chemical Substances
ELINCS: European LIst of Notified Chemical Substances
ECHA: European Chemicals Agency
EWC: European Waste Catalogue
IARC: INTERNATIONAL AGENCY FOR RESEARCH ON CANCER
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organization
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
GefStoffV: Gefahrstoffverordnung (Ordinance on Hazardous Substances, Germany)
h: hour
LOAEL: Lowest observed adverse effect level
LOAEC: Lowest observed adverse effect concentration
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
NOAEL: No observed adverse effect level
NOAEC: No observed adverse effect concentration
NLP: No-Longer Polymers
N/A: not applicable
OECD: Organisation for Economic Co-operation and Development
PNEC: predicted no effect concentration
PBT: Persistent bioaccumulative toxic
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
REACH: Registration, Evaluation, Authorisation of Chemicals
SVHC: substance of very high concern
TRGS: Technische Regeln für Gefahrstoffe
UN: United Nations
VOC: Volatile Organic Compounds

Relevant H and EUH statements (number and full text)

H300	Fatal if swallowed.
H300+H310+H330	Fatal if swallowed, in contact with skin or if inhaled.
H310	Fatal in contact with skin.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H330	Fatal if inhaled.
H411	Toxic to aquatic life with long lasting effects.

Further Information

Classification according to Regulation (EC) No 1272/2008 [CLP] - Classification procedure:
Health hazards: Calculation method.
Environmental hazards: Calculation method.
Physical hazards: On basis of test data and / or calculated and / or estimated.

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.

Identified uses

No	Short title	LCS	SU	PC	PROC	ERC	AC	TF	Specification
1	Formulation of nicotine salts and nicotine mixtures.	-	-	0	1, 2, 3, 4, 5, 8a, 8b, 9, 15, 28	2, 3	-	84	
2	Industrial use of intermediates.	-	9, 20	29	1, 2, 3, 8a, 8b, 9, 15, 28	6a	-	77	
3	Consumer use (To use in electronic cigarettes.)	-	-	0	-	8a, 8d	-	84	

LCS: Life cycle stages

SU: Sectors of use

PC: Product categories

PROC: Process categories

ERC: Environmental release categories

AC: Article categories

TF: Technical functions