

**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

**Nicotine**

Revision date: 26.06.2015

Product code:

Page 1 of 11

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1. Product identifier**

Nicotine  
 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.

**Uses advised against**

not known

**1.3. Details of the supplier of the safety data sheet**

Company name:	Alchem International SA	
Street:	Via al Fiume, 1	
Place:	CH-6929 Gravesano	
Telephone:	+41 91 604 69 21	
Contact person:	Robin Ward	
e-mail:	rward@alcheminternational.com	
Responsible Department:	Dr. Gans-Eichler	e-mail: info@tge-consult.de
	Chemieberatung GmbH	Tel.: +49 (0)251/924520-60
	Raesfeldstr. 22	www.tge-consult.de
	D-48149 Münster	

**1.4. Emergency telephone number:**

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

**SECTION 2: Hazards identification****2.1. Classification of the substance or mixture****Regulation (EC) No. 1272/2008**

Hazard categories:

Acute toxicity: Acute Tox. 1

Acute toxicity: Acute Tox. 3

Hazardous to the aquatic environment: Aquatic Chronic 2

Hazard Statements:

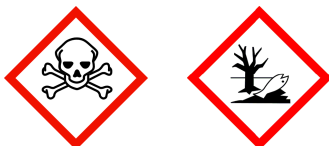
Fatal in contact with skin.

Toxic if swallowed.

Toxic to aquatic life with long lasting effects.

**2.2. Label elements****Regulation (EC) No. 1272/2008****Hazard components for labelling**

3-(N-methyl-2-pyrrolidinyl)pyridine, nicotine (ISO)

**Signal word:** Danger**Pictograms:****Hazard statements**

H301 Toxic if swallowed.

H310 Fatal in contact with skin.

# Safety Data Sheet

according to Regulation (EC) No 1907/2006

## Nicotine

Revision date: 26.06.2015

Product code:

Page 2 of 11

H411 Toxic to aquatic life with long lasting effects.

### Precautionary statements

P262 Do not get in eyes, on skin, or on clothing.  
 P280 Wear suitable gloves.  
 P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor.  
 P302+P352 IF ON SKIN: Wash with plenty of water.  
 P312 Call a POISON CENTER/doctor if you feel unwell.  
 P501 Dispose of waste according to applicable legislation.

### 2.3. Other hazards

This substance does not meet the criteria for classification as PBT or vPvB.

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

#### Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification according to Regulation (EC) No. 1272/2008 [CLP]			
54-11-5	3-(N-methyl-2-pyrrolidinyl)pyridine, nicotine (ISO)			>99,9 %
	200-193-3	614-001-00-4		
	Acute Tox. 1, Acute Tox. 3, Aquatic Chronic 2; H310 H301 H411			

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

#### 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.

# Safety Data Sheet

according to Regulation (EC) No 1907/2006

## Nicotine

Revision date: 26.06.2015

Product code:

Page 3 of 11

### 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**

Suitable extinguishing media: Foam. Extinguishing powder. Carbon dioxide. Water spray.

#### **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 (CO<sub>2</sub>). Carbon monoxide Nitrogen oxides (NO<sub>x</sub>).

### 5.3. Advice for firefighters

Wear a self-contained breathing apparatus and chemical protective clothing.

#### **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

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.

### 6.2. Environmental precautions

Do not allow to enter into surface water or drains. Avoid release to the environment.

### 6.3. Methods and material for containment and cleaning up

Wear personal protection equipment.

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.

Clear contaminated areas thoroughly.

### 6.4. Reference to other sections

refer to chapter 8

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

#### **Advice on safe handling**

Wear personal protection equipment. Large-scale skin contact may cause severe poisoning.

#### **Advice on protection against fire and explosion**

Usual measures for fire prevention.

#### **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

# Safety Data Sheet

according to Regulation (EC) No 1907/2006

## Nicotine

Revision date: 26.06.2015

Product code:

Page 4 of 11

up.

Recommended storage temperature: < 20 °C

### Advice on storage compatibility

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: Light. UV-radiation/sunlight. heat. Cold moisture.

### 7.3. Specific end use(s)

Industrial manufacturing.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### Exposure limits (EH40)

CAS No	Substance	ppm	mg/m <sup>3</sup>	fibres/ml	Category	Origin
54-11-5	Nicotine	-	0.5		TWA (8 h)	WEL
		-	1.5		STEL (15 min)	WEL

### 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.

#### Protective and hygiene measures

Always close containers tightly after the removal of product. When using do not eat, drink, smoke, sniff. Wash hands before breaks and after work. Remove contaminated clothing immediately 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 separately from work clothing.

Avoid contact during pregnancy/while nursing.

#### Eye/face protection

Suitable eye protection: Tightly sealed safety glasses. DIN EN 166

#### Hand protection

Wear suitable gloves.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

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.

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.

**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

**Nicotine**

Revision date: 26.06.2015

Product code:

Page 5 of 11

**Respiratory protection**

With correct and proper use, and under normal conditions, breathing protection is not required.

Respiratory protection necessary at:

aerosol or mist generation.

exceeding exposure limit values

Suitable respiratory protective equipment: Combination filter device (DIN EN 141).. Type: A-(P3)

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, closed-circuit breathing apparatus must be used!

**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
Colour:	colourless
Odour:	characteristic

pH-Value:	10,2	<b>Test method</b>
-----------	------	--------------------

**Changes in the physical state**

Melting point:	-79 °C
Initial boiling point and boiling range:	246 °C
Sublimation point:	No information available.
Softening point:	No information available.
Flash point:	101 °C
Sustaining combustion:	No data available

**Explosive properties**

No information available.

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

**Oxidizing properties**

No information available.

Vapour pressure: (at 20 °C)	0,056 hPa
Vapour pressure:	No information available.
Density (at 20 °C):	1,01 g/cm <sup>3</sup>
Bulk density:	No information available.

**Solubility in other solvents**

No information available.

Viscosity / dynamic:	No information available.
Viscosity / kinematic:	No information available.
Flow time:	No information available.
Vapour density:	No information available.
Evaporation rate:	No information available.
Solvent separation test:	No information available.

## Safety Data Sheet

according to Regulation (EC) No 1907/2006

### Nicotine

Revision date: 26.06.2015

Product code:

Page 6 of 11

Solvent content: not determined

#### **9.2. Other information**

Solid content: not determined

No information available.

### SECTION 10: Stability and reactivity

#### **10.1. Reactivity**

No information available.

#### **10.2. Chemical stability**

The product is stable under storage at normal ambient temperatures.

#### **10.3. Possibility of hazardous reactions**

No information available.

#### **10.4. Conditions to avoid**

heat. Oxidizing agents.

#### **10.5. Incompatible materials**

No information available.

#### **10.6. Hazardous decomposition products**

Can be released in case of fire: Carbon dioxide (CO<sub>2</sub>). Carbon monoxide Nitrogen oxides (NO<sub>x</sub>).

#### **Further information**

No information available.

### SECTION 11: Toxicological information

#### **11.1. Information on toxicological effects**

##### **Toxicokinetics, metabolism and distribution**

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

##### **Acute toxicity**

Toxic if swallowed.

Fatal in contact with skin.

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	
54-11-5	3-(N-methyl-2-pyrrolidinyl)pyridine, nicotine (ISO)				
	oral	LD50 70 mg/kg	Rat.	ECHA Dossier	
	dermal	LD50 50 mg/kg	Rabbit.	GESTIS	

##### **Irritation and corrosivity**

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

3-(N-methyl-2-pyrrolidinyl)pyridine, nicotine (ISO):

Irritant effect on the respiratory tract: slightly irritant but not relevant for classification.

Irritant effect on the eye:

Method: OECD Guideline 437 (Bovine Corneal Opacity and Permeability Test Method for Identifying Ocular Corrosives and Severe Irritants)

Species: in vitro

Result: negative.

literature information: ECHA Dossier

Irritant effect on the skin: slightly irritant but not relevant for classification.

# Safety Data Sheet

according to Regulation (EC) No 1907/2006

## Nicotine

Revision date: 26.06.2015

Product code:

Page 7 of 11

### Sensitising effects

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

3-(N-methyl-2-pyrrolidinyl)pyridine, nicotine (ISO):

Skin sensitisation:

Method: OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay)

Species: Mouse

Result: negative.

literature information: ECHA Dossier

### Carcinogenic/mutagenic/toxic effects for reproduction

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

In-vitro mutagenicity: Ames test negative. (Salmonella typhimurium)

[BRAMS,A, BUCHET,JP, CRUTZEN-FAYT,MC, DE MEESTER,C, LAUWERYS,R AND LEONARD,A; A COMPARATIVE STUDY, WITH 40 CHEMICALS, OF THE EFFICIENCY OF THE SALMONELLA ASSAY AND THE SOS CHROMOTEST (KIT PROCEDURE); TOXICOL. LETT. 38(1-2):123-133, 1987]

### STOT-single exposure

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

No information available.

### STOT-repeated exposure

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

3-(N-methyl-2-pyrrolidinyl)pyridine, nicotine (ISO):

NOAEL: 1,25 mg/kg (EFSA, 2009)

### Aspiration hazard

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

No information available.

### Specific effects in experiment on an animal

Evidence for reproductive toxicity in experimental animals.

### Additional information on tests

No information available.

### Practical experience

#### Observations relevant to classification

No information available.

#### Other observations

No information available.

#### Further information

No information available.

## SECTION 12: Ecological information

### 12.1. Toxicity

CAS No	Chemical name	Dose	[h]   [d]	Species	Source	
54-11-5	3-(N-methyl-2-pyrrolidinyl)pyridine, nicotine (ISO)					
	Acute fish toxicity	LC50	4 mg/l	96 h	GESTIS	
	Acute algae toxicity	ErC50	37 mg/l	72 h	Desmodesmus subspicatus	ECHA Dossier
	Acute crustacea toxicity	EC50	0,242 mg/l	48 h	Daphnia magna	ECHA Dossier

### 12.2. Persistence and degradability

## Safety Data Sheet

according to Regulation (EC) No 1907/2006

### Nicotine

Revision date: 26.06.2015

Product code:

Page 8 of 11

CAS No	Chemical name			
	Method	Value	d	Source
	Evaluation			
54-11-5	3-(N-methyl-2-pyrrolidinyl)pyridine, nicotine (ISO)			
	OECD 301B / ISO 9439 / EEC 92/69 annex V, C.4-C	71%	28	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	3-(N-methyl-2-pyrrolidinyl)pyridine, nicotine (ISO)	1,17

#### 12.4. Mobility in soil

No information available.

#### 12.5. Results of PBT and vPvB assessment

This substance does not meet the criteria for classification as PBT or vPvB.

#### 12.6. Other adverse effects

No information available.

#### Further information

Do not allow uncontrolled discharge of product into the environment.

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

##### Advice on disposal

Dispose of waste according to applicable legislation. Non-contaminated packages may be recycled.

##### Waste disposal number of waste from residues/unused products

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

##### Waste disposal number of used product

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

##### Waste disposal number of contaminated packaging

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

##### Contaminated packaging

Non-contaminated packages may be recycled.

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

### SECTION 14: Transport information

#### Land transport (ADR/RID)

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



## Safety Data Sheet

according to Regulation (EC) No 1907/2006

## Nicotine

Revision date: 26.06.2015

Product code:

Page 9 of 11



Classification code: T1  
 Limited quantity: 100 mL  
 Excepted quantity: E4  
 Transport category: 2  
 Hazard No: 60  
 Tunnel restriction code: D/E

**Inland waterways transport (ADN)**

**14.1. UN 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

**Marine transport (IMDG)**

**14.1. UN 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

**Air transport (ICAO-TI/IATA-DGR)**

**14.1. UN 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

## Safety Data Sheet

according to Regulation (EC) No 1907/2006

### Nicotine

Revision date: 26.06.2015

Product code:

Page 10 of 11

IATA-packing instructions - Passenger:	654
IATA-max. quantity - Passenger:	5 L
IATA-packing instructions - Cargo:	662
IATA-max. quantity - Cargo:	60 L

#### **14.5. Environmental hazards**

ENVIRONMENTALLY HAZARDOUS:      yes



Danger releasing substance:      3-(N-methyl-2-pyrrolidinyl)pyridine, nicotine (ISO):

#### **14.6. Special precautions for user**

refer to chapter 6-8

#### **14.7. Transport in bulk according to Annex II of Marpol and the IBC Code**

not relevant

#### **Other applicable information**

No information available.

### SECTION 15: Regulatory information

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

##### **EU regulatory information**

2010/75/EU (VOC):	0%
2004/42/EC (VOC):	100 % (1010 g/l)

##### **Additional information**

The substance is classified as hazardous according to Regulation (EC) 1272/2008 [GHS].  
 -2012/18/CE (SEVESO III) Annex I, Part 1: H1 ; 5t/20t  
 -REACH 1907/2006 Appendix XVII: 3

##### **National regulatory information**

Employment restrictions:	Observe restrictions to employment for juvenils 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 contaminating class (D):	3 - highly water contaminating
--------------------------------	--------------------------------

#### **15.2. Chemical safety assessment**

For this substance a chemical safety assessment has not 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

#### **Abbreviations and acronyms**

ADR: Accord européen sur le transport des marchandises dangereuses par Route  
 CAS Chemical Abstracts Service  
 DNEL: Derived No Effect Level  
 IARC: INTERNATIONAL AGENCY FOR RESEARCH ON CANCER  
 International Carriage of Dangerous Goods by Road)  
 IMDG: International Maritime Code for Dangerous Goods  
 IATA: International Air Transport Association

**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

**Nicotine**

Revision date: 26.06.2015

Product code:

Page 11 of 11

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)  
 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 level  
 NTP: National Toxicology Program  
 N/A: not applicable  
 OSHA: Concerning the International Transport of Dangerous Goods by Rail )  
 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 )  
 SARA: Superfund Amendments and Reauthorization Act  
 SVHC: substance of very high concern  
 TRGS Technische Regeln für Gefahrstoffe  
 TSCA: Toxic Substances Control Act  
 VOC: Volatile Organic Compounds  
 VwVwS: Verwaltungsvorschrift wassergefährdender Stoffe  
 WGK: Wassergefährdungsklasse

**Relevant H and EUH statements (number and full text)**

H301	Toxic if swallowed.
H310	Fatal in contact with skin.
H411	Toxic to aquatic life with long lasting effects.

**Further Information**

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.