

## Safety Data Sheet

according to Regulation (EC) No 1907/2006

## Piperazine anhydrous for synthesis

Revision date: 23.02.2023

Product code: 27238

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

Piperazine anhydrous for synthesis

REACH Registration Number: 01-2119480384-35-XXXX  
CAS No: 110-85-0  
Index No: 612-057-00-4  
EC No: 203-808-3

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

Laboratory chemicals

Industrial uses: Uses of substances as such or in preparations at industrial sites

Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

**Uses advised against**

Do not use for private purposes (household).

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

Company name: AnalytiChem GmbH  
Street: Stempelstraße 6  
Place: D-47167 Duisburg  
Telephone: 0203/5194-0  
e-mail: info@analytichem.de  
Contact person: Abteilung Produktsicherheit  
e-mail: produktsicherheit@analytichem.de  
Internet: www.analytichem.de  
Responsible Department: Abteilung Produktsicherheit

Telefax: 0203/5194-290  
Telephone: 0203/5194-107/117

**1.4. Emergency telephone number:**

For Hazardous Materials [or Dangerous Goods] Incidents Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-741-5970 (collect calls accepted)

**Further Information**

No data available

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

Repr. 2; H361fd  
Skin Corr. 1B; H314  
Resp. Sens. 1; H334  
Skin Sens. 1; H317

Full text of hazard statements: see SECTION 16.

**2.2. Label elements****Regulation (EC) No 1272/2008****Signal word:** Danger**Pictograms:**

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## Hazard statements

H228	Flammable solid.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H361fd	Suspected of damaging fertility. Suspected of damaging the unborn child.

## Precautionary statements

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P302+P352	IF ON SKIN: Wash with plenty of soap and water.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308	IF exposed or concerned:
P310	Immediately call a POISON CENTER/doctor.

## 2.3. Other hazards

No data available

## SECTION 3: Composition/information on ingredients

## 3.1. Substances

Sum formula:	C <sub>4</sub> H <sub>12</sub> N <sub>2</sub>
Molecular weight:	86,14 g/mol

## Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (Regulation (EC) No 1272/2008)			
110-85-0	piperazine			100 %
	203-808-3	612-057-00-4	01-2119480384-35-XXXX	
	Repr. 2, Skin Corr. 1B, Resp. Sens. 1, Skin Sens. 1; H361fd H314 H334 H317			

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		
110-85-0	203-808-3	piperazine	100 %
	oral: LD50 = ca. 2600 mg/kg		

## Further Information

This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of = 0.1 % (w/w).

## SECTION 4: First aid measures

## 4.1. Description of first aid measures

## General information

Self-protection of the first aider

## After inhalation

Provide fresh air.

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Call a physician immediately.

#### After contact with skin

Wash immediately with: Water / Polyethylene glycol 400  
Take off immediately all contaminated clothing and wash it before reuse.  
Call a physician immediately.

#### After contact with eyes

Rinse immediately carefully and thoroughly with eye-bath or water.  
Remove contact lenses, if present and easy to do. Continue rinsing.  
Consult an ophthalmologist.

#### After ingestion

Rinse mouth immediately and drink plenty of water.  
Do NOT induce vomiting. Do not allow a neutralisation agent to be drunk.  
Call a physician immediately.

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

Irritant, corrosive  
Allergic reactions, Cough  
Dyspnoea, Abdominal pain  
Unconsciousness, Impairment of vision  
Risk of serious damage to eyes.

#### 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

Co-ordinate fire-fighting measures to the fire surroundings.

#### Unsuitable extinguishing media

no restriction

### 5.2. Special hazards arising from the substance or mixture

Combustible solids  
Danger of dust explosion.  
Hazardous combustion products  
In case of fire may be liberated: Nitrogen oxides (NOx)  
In case of warming: Vapours are heavier than air, spread along floors and form explosive mixtures with air.

### 5.3. Advice for firefighters

In case of fire: Wear self-contained breathing apparatus.  
Avoid contact with skin, eyes and clothes.

#### Additional information

Use water spray jet to protect personnel and to cool endangered containers.  
Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

#### For non-emergency personnel

Provide adequate ventilation.  
Use personal protection equipment.  
Avoid contact with skin, eyes and clothes.  
Remove persons to safety.  
Emergency procedures  
Do not breathe dust/fume/gas/mist/vapours/spray.

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#### For emergency responders

Precautionary statements For emergency responders : Personal protection equipment: see section 8

#### **6.2. Environmental precautions**

Do not allow to enter into surface water or drains.

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

##### For containment

- Cover drains.
- Prevent spread over a wide area (e.g. by containment or oil barriers).
- Collect in closed and suitable containers for disposal.
- Take up carefully when dry. Take up dust-free and set down dust-free.

##### For cleaning up

Clean contaminated articles and floor according to the environmental legislation.

##### Other information

- Provide adequate ventilation.
- Do not breathe dust/fume/gas/mist/vapours/spray.
- Wear breathing apparatus if exposed to vapours/dusts/aerosols.

#### **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

- Keep container tightly closed.
- Do not breathe dust.
- Avoid contact with skin, eyes and clothes.
- Read label before use.
- Use extractor hood (laboratory).

#### Advice on protection against fire and explosion

Danger of dust explosion.

#### Advice on general occupational hygiene

- Wash contaminated clothing prior to re-use.
- Avoid contact with skin, eyes and clothes.

#### Further information on handling

- Wash contaminated clothing before reuse.
- Wash hands before breaks and after work.
- Draw up and observe skin protection programme.

### **7.2. Conditions for safe storage, including any incompatibilities**

#### Requirements for storage rooms and vessels

- Keep container tightly closed.
- storage temperature: +15°C - +25°C
- Store in a place accessible by authorized persons only.

#### Further information on storage conditions

Store in a dry place.

### **7.3. Specific end use(s)**

Laboratory chemicals

## SECTION 8: Exposure controls/personal protection

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#### 8.1. Control parameters

##### Occupational exposure limits

CAS No	Substance	ppm	mg/m <sup>3</sup>	fib/cm <sup>3</sup>	Category	Origin
110-85-0	Piperazine	-	0.1		TWA (8 h)	
		-	0.3		STEL (15 min)	

##### DNEL/DMEL values

CAS No	Substance	DNEL type	Exposure route	Effect	Value
110-85-0	piperazine				
		Worker DNEL, long-term	inhalation	systemic	0,1 mg/m <sup>3</sup>
		Worker DNEL, acute	inhalation	systemic	0,3 mg/m <sup>3</sup>
		Worker DNEL, long-term	inhalation	local	0,3 mg/m <sup>3</sup>
		Worker DNEL, acute	inhalation	local	0,3 mg/m <sup>3</sup>
		Worker DNEL, long-term	dermal	systemic	0,014 mg/kg bw/day
		Worker DNEL, acute	dermal	systemic	0,042 mg/kg bw/day
		Worker DNEL, acute	dermal	local	2 %
		Consumer DNEL, long-term	oral	systemic	1,5 mg/kg bw/day

##### PNEC values

CAS No	Substance	Environmental compartment	Value
110-85-0	piperazine		
		Freshwater	1,25 mg/l
		Freshwater (intermittent releases)	1,25 mg/l
		Marine water	0,125 mg/l
		Freshwater sediment	4,5 mg/kg
		Marine sediment	0,45 mg/kg
		Secondary poisoning	4,6 mg/kg
		Micro-organisms in sewage treatment plants (STP)	54 mg/l
		Soil	11,5 mg/kg

#### 8.2. Exposure controls

##### Appropriate engineering controls

Technical measures and the application of suitable work processes have priority over personal protection equipment.

##### Individual protection measures, such as personal protective equipment

##### Eye/face protection

goggles

##### Hand protection

Protective gloves are recommended Company KCL GmbH, D-36124 Eichenzell, email: [vertrieb@kcl.de](mailto:vertrieb@kcl.de) With specification (test according to EN374):

By long-term hand contact

Trade name/designation: KCL 741 Dermatrill® L

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Recommended material: NBR (Nitrile rubber) 0,11 mm  
Wearing time with permanent contact: > 480 min

By short-term hand contact  
Trade name/designation: KCL 741 Dermatril® L  
Recommended material: NBR (Nitrile rubber) 0,11 mm  
Wearing time with occasional contact (splashes): > 480 min

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

**Skin protection**

Wear suitable protective clothing.  
Wash hands before breaks and after work.

**Respiratory protection**

Respiratory protection necessary at: dust formation  
Filtering device with filter or ventilator filtering device of type: A-(P3)

**Environmental exposure controls**

Do not allow to enter into surface water or drains.

**SECTION 9: Physical and chemical properties****9.1. Information on basic physical and chemical properties**

Physical state:	solid
Colour:	colourless
Odour:	like: Amines
Melting point/freezing point:	107-111 °C
Boiling point or initial boiling point and boiling range:	147,7 °C
Flammability:	No data available
Lower explosion limits:	4 vol. %
Upper explosion limits:	14 vol. %
Flash point:	65 °C
Auto-ignition temperature:	320 °C
Decomposition temperature:	No data available
pH-Value (at 20 °C):	12 (150 g/l)
Viscosity / kinematic:	No data available
Water solubility: (at 20 °C)	150 g/L
Solubility in other solvents	No data available
Partition coefficient n-octanol/water:	log Pow: -1,24
Vapour pressure:	No data available
Vapour pressure:	No data available
Density (at 20 °C):	1,1 g/cm <sup>3</sup>
Bulk density:	400 kg/m <sup>3</sup>
Relative vapour density:	No data available

**9.2. Other information****Information with regard to physical hazard classes****Explosive properties**

In case of warming: Vapours are heavier than air, spread along floors and form explosive mixtures with air.

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Danger of dust explosion.  
Sustaining combustion: No data available  
Self-ignition temperature  
Solid: No data available  
Gas: No data available  
Oxidizing properties  
No data available

#### Other safety characteristics

Evaporation rate: No data available  
Solvent separation test: No data available  
Solvent content: No data available  
Solid content: No data available  
Sublimation point: No data available  
Softening point: No data available  
Pour point: No data available  
No data available:  
Viscosity / dynamic: No data available  
Flow time: No data available

#### Further Information

No data available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

In case of warming: Vapours are heavier than air, spread along floors and form explosive mixtures with air.  
Danger of dust explosion.

### 10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

### 10.3. Possibility of hazardous reactions

Oxidising agent, strong  
Acid

### 10.4. Conditions to avoid

Heat  
Humidity

### 10.5. Incompatible materials

metals  
Light metal

### 10.6. Hazardous decomposition products

In case of fire may be liberated: Nitrogen oxides (NO<sub>x</sub>)

#### Further information

No data available

## SECTION 11: Toxicological information

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

#### Toxicokinetics, metabolism and distribution

No data available

#### Acute toxicity

Based on available data, the classification criteria are not met.  
If swallowed danger of perforation of the esophagus and the stomach (strong corrosive effects).

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CAS No	Chemical name					
	Exposure route	Dose	Species	Source	Method	
110-85-0	piperazine					
	oral	LD50 mg/kg	ca. 2600	Rat	Study report (1980)	OECD Guideline 401

**Irritation and corrosivity**

Causes severe skin burns and eye damage.

Causes serious eye damage.

**Sensitising effects**

May cause allergy or asthma symptoms or breathing difficulties if inhaled. (piperazine)

May cause an allergic skin reaction. (piperazine)

**Carcinogenic/mutagenic/toxic effects for reproduction**

Suspected of damaging fertility. Suspected of damaging the unborn child. (piperazine)

Germ cell mutagenicity: Based on available data, the classification criteria are not met.

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

**STOT-single exposure**

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

**STOT-repeated exposure**

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

**Aspiration hazard**

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

**Specific effects in experiment on an animal**

No data available

**Additional information on tests**

No data available

**Practical experience**

No data available

**11.2. Information on other hazards**

**Other information**

No data available

**Further information**

Irritant, corrosive

Allergic reactions, Cough

Dyspnoea, Abdominal pain

Unconsciousness, Impairment of vision

Risk of serious damage to eyes.

**SECTION 12: Ecological information**

**12.1. Toxicity**

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h]   [d]	Species	Source	Method
110-85-0	piperazine					
	Acute fish toxicity	LC50 mg/l	> 1800	96 h	Poecilia reticulata	Study report (1989) EU Method C.1
	Acute crustacea toxicity	EC50	21 mg/l	48 h	Daphnia magna	Study report (1989) EU Method C.2
	Crustacea toxicity	NOEC mg/l	12,5	21 d	Daphnia magna	Study report (2002) OECD Guideline 211



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**12.2. Persistence and degradability**

> 90 %; 28 d  
OECD-302B  
Readily biodegradable (according to OECD criteria).

**12.3. Bioaccumulative potential**

No indication of bioaccumulation potential.

**Partition coefficient n-octanol/water**

CAS No	Chemical name	Log Pow
110-85-0	piperazine	-1,24

**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.  
No data available

**12.6. Endocrine disrupting properties**

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

**12.7. Other adverse effects**

Discharge into the environment must be avoided.

**Further information**

Do not allow to enter into surface water or drains.

**SECTION 13: Disposal considerations****13.1. Waste treatment methods****Disposal recommendations**

Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste.  
Send to a hazardous waste incinerator facility under observation of official regulations.  
Do not mix with other wastes.  
Do not empty into drains.

**Contaminated packaging**

Handle contaminated packages in the same way as the substance itself.  
The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

**SECTION 14: Transport information****Land transport (ADR/RID)**

<b>14.1. UN number or ID number:</b>	UN 2579
<b>14.2. UN proper shipping name:</b>	PIPERAZINE
<b>14.3. Transport hazard class(es):</b>	8
<b>14.4. Packing group:</b>	III
Hazard label:	8
Classification code:	C8
Limited quantity:	5 kg
Excepted quantity:	E1
Transport category:	3
Hazard No:	80
Tunnel restriction code:	E

**Inland waterways transport (ADN)**

<b>14.1. UN number or ID number:</b>	UN 2579
<b>14.2. UN proper shipping name:</b>	PIPERAZINE

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**14.3. Transport hazard class(es):** 8  
**14.4. Packing group:** III  
 Hazard label: 8  
 Classification code: C8  
 Limited quantity: 5 kg  
 Excepted quantity: E1

**Marine transport (IMDG)**

**14.1. UN number or ID number:** UN 2579  
**14.2. UN proper shipping name:** PIPERAZINE  
**14.3. Transport hazard class(es):** 8  
**14.4. Packing group:** III  
 Hazard label: 8  
 Special Provisions: -  
 Limited quantity: 5 kg  
 Excepted quantity: E1  
 EmS: F-A, S-B

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

**14.1. UN number or ID number:** UN 2579  
**14.2. UN proper shipping name:** PIPERAZINE  
**14.3. Transport hazard class(es):** 8  
**14.4. Packing group:** III  
 Hazard label: 8  
 Special Provisions: A803  
 Limited quantity Passenger: 5 kg  
 Passenger LQ: Y845  
 Excepted quantity: E1  
 IATA-packing instructions - Passenger: 860  
 IATA-max. quantity - Passenger: 25 kg  
 IATA-packing instructions - Cargo: 864  
 IATA-max. quantity - Cargo: 100 kg

**14.5. Environmental hazards**

ENVIRONMENTALLY HAZARDOUS: No

**14.6. Special precautions for user**

No dangerous good in sense of this transport regulation.

**14.7. Maritime transport in bulk according to IMO instruments**

No dangerous good in sense of this transport regulation.

**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 75

Information according to 2012/18/EU (SEVESO III): Not subject to 2012/18/EU (SEVESO III)

**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): 1 - slightly hazardous to water

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#### SECTION 16: Other information

##### Changes

This data sheet contains changes from the previous version in section(s): 1.

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

H228	Flammable solid.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H361fd	Suspected of damaging fertility. Suspected of damaging the unborn child.

##### 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. The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights.

The receiver of our product is singularly responsible for adhering to existing laws and regulations.