

# Material Safety Data Sheet

Version: 01

Revision Date : 4-6-2025

## Section 1. Product Information and Company Identification

Product name	Acetic Anhydride		
Mol. formula	C4H6O3	CAS No.	108-24-7
Mol.wt	102.09 g/mol		
manufacturer name	Pioneers for laboratory chemicals		
Brand name	Piochem		
Address	Area 540, Industrial Zone 6th October city Giza, Egypt.		
Website	www.piochem.com		
E-mail	info@piochem.com		
Phone number	0 12 05700001		

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

Flammable liquids, (Category 3) H226: Flammable liquid and vapor.

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

Acute toxicity, (Category 2) H330: Fatal if inhaled.

Skin corrosion, (Sub-category 1B)

H314: Causes severe skin burns and eye damage.

Serious eye damage, (Category 1)

H318: Causes serious eye damage.

## 2.2 Label elements

### Labelling according Regulation (EC) No 1272/2008

Pictogram



Signal Word

Danger

Hazard Statements

H226

Flammable liquid and vapor.

H302

Harmful if swallowed.

H314

Causes severe skin burns and eye damage.

H330

Fatal if inhaled.

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.

P301 + P312

IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell.

P303 + P361 + P353

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.

P304 + P340 + P310

IF INHALED: Remove person to fresh air and keep comfortable for breathing. 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.

Supplemental Hazard Statements

none

### Reduced Labeling (<= 125 ml)

Pictogram



Signal Word

Danger

Hazard Statements

H330

Fatal if inhaled.

H314

Causes severe skin burns and eye damage.

Precautionary Statements

P280

Wear protective gloves/ protective clothing/ eye protection/ face protection.

P303 + P361 + P353

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.

P304 + P340 + P310

IF INHALED: Remove person to fresh air and keep comfortable

P305 + P351 + P338 for breathing. Immediately call a POISON CENTER/ doctor.  
IF IN EYES: Rinse cautiously with water for several minutes.  
Remove contact lenses, if present and easy to do. Continue rinsing.

Supplemental Hazard Statements none

### 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

### 3.1 Substances

Formula : C<sub>4</sub>H<sub>6</sub>O<sub>3</sub>  
Molecular weight : 102,09 g/mol  
CAS-No. : 108-24-7  
EC-No. : 203-564-8  
Index-No. : 607-008-00-9

Component		Classification	Concentration
<b>Acetic anhydride</b>			
CAS-No.	108-24-7	Flam. Liq. 3; Acute Tox. 4; Acute Tox. 2; Skin Corr. 1B; Eye Dam. 1; H226, H302, H330, H314, H318 Concentration limits: >= 25 %: Skin Corr. 1B, H314; 5 - < 25 %: Skin Irrit. 2, H315; 5 - < 25 %: Eye Dam. 1, H318; 1 - < 5 %: Eye Irrit. 2, H319; >= 5 %: STOT SE 3, H335;	<= 100 %
EC-No.	203-564-8		
Index-No.	607-008-00-9		

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

## SECTION 4: First aid measures

### 4.1 Description of first-aid measures

#### General advice

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

#### If inhaled

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

#### In case of skin contact

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

#### In case of eye contact

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

#### If swallowed

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

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

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

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

No data available

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

#### Suitable extinguishing media

Dry powder Carbon dioxide (CO<sub>2</sub>)

#### Unsuitable extinguishing media

Water Foam

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

Carbon oxides

Combustible.

May not get in touch with: Water

Caution! in contact with water product releases:

Organic acids

Fire may cause evolution of:

Acetic acid vapours

Vapors 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**

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

**5.4 Further information**

Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

**SECTION 6: Accidental release measures**

---

**6.1 Personal precautions, protective equipment and emergency procedures**

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

**6.2 Environmental precautions**

Do not let product enter drains. Risk of explosion.

**6.3 Methods and materials for containment and cleaning up**

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

**6.4 Reference to other sections**

For disposal see section 13.

**SECTION 7: Handling and storage**

---

**7.1 Precautions for safe handling****Advice on safe handling**

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

**Advice on protection against fire and explosion**

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

**Hygiene measures**

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

For precautions see section 2.2.

**7.2 Conditions for safe storage, including any incompatibilities****Storage conditions**

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorized persons.

Recommended storage temperature see product label.

**Storage class**

Storage class (TRGS 510): 3: Flammable liquids

## 7.3 Specific end 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

#### Ingredients with workplace control parameters

##### Derived No Effect Level (DNEL)

Application Area	Routes of exposure	Health effect	Value
Worker DNEL, acute	inhalation	Local effects	12,6 mg/m <sup>3</sup>
Worker DNEL, longterm	inhalation	Systemic effects	4,2 mg/m <sup>3</sup>
Worker DNEL, longterm	inhalation	Local effects	4,2 mg/m <sup>3</sup>
Worker DNEL, longterm	dermal	Systemic effects	

##### Predicted No Effect Concentration (PNEC)

Compartment	Value
Fresh water	3,058 mg/l
Sea water	0,3058 mg/l
Aquatic intermittent release	30,58 mg/l
Fresh water sediment	11,36 mg/kg
Sea sediment	1,136 mg/kg
Soil	0,47 mg/kg
Sewage treatment plant	115 mg/l

### 8.2 Exposure controls

#### Personal protective equipment

##### Eye/face protection

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

##### Skin protection

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 EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Full contact

Material: butyl-rubber

Minimum layer thickness: 0,7 mm

Break through time: 480 min

Material tested: Butoject® (KCL 898)

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 EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Splash contact

Material: Latex gloves

Minimum layer thickness: 0,6 mm

Break through time: 60 min

Material tested: Lapren® (KCL 706 / Aldrich Z677558, Size M)

## Body Protection

Flame retardant antistatic protective clothing.

## Respiratory protection

required when vapours/aerosols are generated.

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

Recommended Filter type: Filter type ABEK

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

## Control of environmental exposure

Do not let product enter drains. Risk of explosion.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

a) Physical state	liquid
b) Color	colorless
c) Odor	pungent
d) Melting point/freezing point	Melting point: -73 °C
e) Initial boiling point and boiling range	138 - 140 °C at 1.013 hPa
f) Flammability (solid, gas)	No data available
g) Upper/lower flammability or explosive limits	Upper explosion limit: 10,3 %(V) Lower explosion limit: 2,7 %(V)
h) Flash point	49 °C - closed cup
i) Autoignition temperature	316 °C at 1.013,25 hPa



j) Decomposition temperature	No data available
k) pH	No data available
l) Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: 0,84 mPa.s at 25 °C
m) Water solubility	107 g/l at 15 °C - slightly solubleHydrolysis
n) Partition coefficient: n-octanol/water	log Pow: ca.-0,5 at 20 °C - Bioaccumulation is not expected.
o) Vapor pressure	13 hPa at 36 °C
p) Density	1,080 g/cm <sup>3</sup> at 20 °C
Relative density	No data available
q) Relative vapor density	No data available
r) Particle characteristics	No data available
s) Explosive properties	No data available
t) Oxidizing properties	none

## 9.2 Other safety information

Surface tension 31,93 mN/m at 25 °C

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Can violently decompose at elevated temperatures  
Vapor/air-mixtures are explosive at intense warming.

### 10.2 Chemical stability

Decomposes when moist.  
The product is chemically stable under standard ambient conditions (room temperature) .

### 10.3 Possibility of hazardous reactions

Risk of explosion with:  
ethanol  
potassium permanganate  
Strong oxidizing agents  
perchloric acid  
Nitric acid  
hydrogen peroxide  
chromium(VI) oxide  
barium peroxide  
peroxi compounds  
ammonium nitrate  
with





Nitric acid  
Exothermic reaction with:  
Ammonia  
Potassium hydroxide  
nitrates  
Sodium hydroxide  
Acetic acid, diluted  
Violent reactions possible with:  
Water  
Possible formation of:  
acetic acid

#### 10.4 Conditions to avoid

Heating.

#### 10.5 Incompatible materials

No data available

#### 10.6 Hazardous decomposition products

In the event of fire: see section 5

### SECTION 11: Toxicological information

#### 11.1 Information on toxicological effects

##### Acute toxicity

LD50 Oral - Rat - male and female - 630 mg/kg

Remarks: (ECHA)

Acute toxicity estimate Oral - 630 mg/kg

(ATE value derived from LD50/LC50 value)

LC50 Inhalation - Rat - 4 h - > 0,5 - < 2 mg/l - vapor

(OECD Test Guideline 412)

Remarks: (ECHA)

Acute toxicity estimate Inhalation - 0,5001 mg/l - vapor

(ATE value derived from LD50/LC50 value)

Dermal: No data available

##### Skin corrosion/irritation

Skin - in vitro test

Result: Causes burns. - 4 h

Remarks: (ECHA)

##### Serious eye damage/eye irritation

Eyes - Rat

Result: Corrosive - 24 h

Remarks: (ECHA)

Remarks: Causes serious eye damage.

##### Respiratory or skin sensitization

No data available

##### Germ cell mutagenicity

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  
Test Type: Ames test  
Test system: Salmonella typhimurium  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 471  
Result: negative  
Test Type: Chromosome aberration test in vitro  
Test system: Chinese hamster ovary cells  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 473  
Result: negative

Test Type: Micronucleus test  
Species: Rat  
Cell type: Bone marrow  
Application Route: inhalation (vapor)  
Method: OECD Test Guideline 474  
Result: negative

**Carcinogenicity**

No data available

**Reproductive toxicity**

No data available

**Specific target organ toxicity - single exposure**

No data available

**Specific target organ toxicity - repeated exposure**

No data available

**Aspiration hazard**

No data available

## 11.2 Additional Information

**Endocrine disrupting properties****Product:**

Assessment

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

burning sensation, Cough, wheezing, laryngitis, Shortness of breath, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**SECTION 12: Ecological information****12.1 Toxicity**

Toxicity to fish	semi-static test LC50 - Oncorhynchus mykiss (rainbow trout) - > 300,82 mg/l - 96 h (OECD Test Guideline 203) Remarks: (in analogy to similar products)
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - > 1.000 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	static test ErC50 - Skeletonema costatum - > 300,82 mg/l - 72 h (ISO 10253)
Toxicity to bacteria	static test NOEC - Pseudomonas putida - 1.150 mg/l - 16 h Remarks: (ECHA)

**12.2 Persistence and degradability**

Biodegradability	Zahn-Wellens Test - Exposure time 5 d Result: > 95 % - Readily biodegradable. (OECD Test Guideline 302B)
------------------	--

**12.3 Bioaccumulative potential**

No bioaccumulation is to be expected (log Pow ≤ 4).

**12.4 Mobility in soil**

No data available

**12.5 Results of PBT and vPvB assessment**

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

**12.6 Endocrine disrupting properties****Product:**

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

**12.7 Other adverse effects**

The following may develop after reaction of the product with water:

acetic acid

Harmful effect due to pH shift.

Caustic even in diluted form.

Discharge into the environment must be avoided.

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

No data available

---

**SECTION 14: Transport information****14.1 UN number**

ADR/RID: 1715

IMDG: 1715

IATA: 1715

**14.2 UN proper shipping name**

ADR/RID: ACETIC ANHYDRIDE

IMDG: ACETIC ANHYDRIDE

IATA: Acetic anhydride

**14.3 Transport hazard class(es)**

ADR/RID: 8 (3)

IMDG: 8 (3)

IATA: 8 (3)

**14.4 Packaging group**

ADR/RID: II

IMDG: II

IATA: II

**14.5 Environmental hazards**

ADR/RID: no

IMDG Marine pollutant: no

IATA: no

**14.6 Special precautions for user**

Tunnel restriction code : (D/E)

Further information : No data available

---

**SECTION 15: Regulatory information****15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

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

**National legislation**

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

H2

ACUTE TOXIC

P5c

FLAMMABLE LIQUIDS

**Other regulations**

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

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



## 15.2 Chemical Safety Assessment

A Chemical Safety Assessment has been carried out for this substance.

---

### SECTION 16: Other information

#### Full text of H-Statements

H226	Flammable liquid and vapor.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.

