



## SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Version 6.7

Revision Date 09.02.2024

Print Date 03.05.2025

GENERIC EU MSDS - NO COUNTRY SPECIFIC DATA - NO OEL DATA

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

#### 1.1 Product identifiers

Product name : Perchloric acid

Product Number : 311421

Brand : Aldrich

REACH No. :

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

Identified uses : Laboratory chemicals, Manufacture of substances

#### 1.3

#### 1.4 Emergency telephone

Emergency Phone # : 000 800 1007 141 (CHEMTREC)

### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

Oxidizing liquids, (Category 1) H271: May cause fire or explosion; strong oxidizer.

Corrosive to Metals, (Category 1) H290: May be corrosive to metals.

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

Skin corrosion, (Sub-category 1A) H314: Causes severe skin burns and eye damage.

Serious eye damage, (Category) H318: Causes serious eye damage.

1)

Specific target organ toxicity -  
repeated exposure, (Category 2),  
Thyroid

H373: May cause damage to organs  
through prolonged or repeated exposure.

## 2.2 Label elements

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

Pictogram

Signal Word	Danger
Hazard Statements	
H271	May cause fire or explosion; strong oxidizer.
H290	May be corrosive to metals.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H373	May cause damage to organs (Thyroid) through prolonged or repeated exposure.
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.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P314	Get medical advice/ attention if you feel unwell.
Supplemental Hazard Statements	none

### Reduced Labeling (<= 125 ml)

Pictogram

Signal Word	Danger
Hazard Statements	
H271	May cause fire or explosion; strong oxidizer.
H314	Causes severe skin burns and eye damage.
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.

P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
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

### 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

Synonyms : PCA

Molecular weight : 100,46 g/mol

Component	Classification	Concentration
<b>Perchloric acid</b>		
CAS-No.	7601-90-3	Ox. Liq. 1; Met. Corr. 1; Acute Tox. 4; Skin Corr. 1A; Eye Dam. 1; STOT RE 2; H271, H290, H302, H314, H318, H373 Concentration limits: >= 50 %: Skin Corr. 1A, H314; 10 - < 50 %: Skin Corr. 1B, H314; 1 - < 10 %: Skin Irrit. 2, H315; 1 - < 10 %: Eye Irrit. 2, H319; > 50 %: Ox. Liq. 1, H271; <= 50 %: Ox. Liq. 2, H272; 1 - 50 %: Ox. Liq. 2, H272;
EC-No.	231-512-4	
Index-No.	017-006-00-4	
Registration number	01-2120066865-44-XXXX	
		>= 70 - < 90 %

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

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## SECTION 4: First aid measures

### 4.1 Description of first-aid measures

No data available

### 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

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## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

#### Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

#### Unsuitable extinguishing media

High volume water jet

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

Chlorine

Hydrogen chloride gas

Container explosion may occur under fire conditions.

Combustible.

### 5.3 Advice for firefighters

No data available

### 5.4 Further information

No data available

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## SECTION 6: Accidental release measures

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

For personal protection see section 8.

### 6.2 Environmental precautions

No data available

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

No data available

### 6.4 Reference to other sections

For disposal see section 13.

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## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

For precautions see section 2.2.

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

No data available

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

**Ingredients with workplace control parameters**

### 8.2 Exposure controls

**Personal protective equipment**

**Skin protection**

required

**Control of environmental exposure**

Prevent product from entering drains.

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## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

- |   |  |
|---|--|
| a) Physical state                               | liquid, clear  |
| b) Color  | colorless  |
| c) Odor   | No data available  |
| d) Melting point/freezing point                 | -18 °C   |
| e) Initial boiling point and boiling range      | ca.203 °C at 1.013 hPa   |
| f) Flammability (solid, gas)                    | No data available  |
| g) Upper/lower flammability or explosive limits | No data available  |
| h) Flash point                                  | No data available  |
| i) Autoignition temperature                     | No data available  |
| j) Decomposition temperature                    | No data available  |
| k) pH   | No data available  |
| l) Viscosity                                    | Viscosity, kinematic: No data available<br>Viscosity, dynamic: No data available |
| m) Water solubility                             | completely miscible  |

- n) Partition coefficient: No data available  
n-octanol/water
- o) Vapor pressure 9,1 hPa at 25 °C
- p) Density 1,664 g/cm<sup>3</sup> at 25 °C  
Relative density No data available
- q) Relative vapor density No data available
- r) Particle characteristics No data available
- s) Explosive properties Not explosive
- t) Oxidizing properties The substance or mixture is classified as oxidizing with the category 1.

## 9.2 Other safety information

No data available

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No data available

### 10.2 Chemical stability

Stable under recommended storage conditions.

### 10.3 Possibility of hazardous reactions

Amines and alcohols cause exothermic reactions.

### 10.4 Conditions to avoid

No data available

### 10.5 Incompatible materials

Strong bases, Strong acids, Amines, Phosphorus halides, Alcohols, Organic materials, Powdered metals, Strong reducing agents

### 10.6 Hazardous decomposition products

In the event of fire: see section 5

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## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Mixture

#### Acute toxicity

LD50 Oral - Rat - < 2.000 mg/kg

(OECD Test Guideline 423)

Inhalation: No data available

Dermal: No data available

**Skin corrosion/irritation**

Remarks: Extremely corrosive and destructive to tissue.

**Serious eye damage/eye irritation**

Remarks: Corrosive

**Respiratory or skin sensitization**

No data available

**Germ cell mutagenicity**

Test Type: Ames test

Test system: Salmonella typhimurium

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

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**

May cause damage to organs through prolonged or repeated exposure.

- Thyroid

**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.

**Components**

**Perchloric acid**

**Acute toxicity**

LD50 Oral - Rat - 1.100 mg/kg

Remarks: Behavioral:Excitement.

Lungs, Thorax, or Respiration:Dyspnea.

Nutritional and Gross Metabolic: Changes in: Body temperature decrease.  
(RTECS)

Acute toxicity estimate Oral - 1.100 mg/kg  
(ATE value derived from LD50/LC50 value)

Inhalation: No data available

Dermal: No data available

**Skin corrosion/irritation**

Remarks: Causes severe burns.

Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

**Serious eye damage/eye irritation**

Remarks: Causes serious eye damage.

**Respiratory or skin sensitization**

No data available

**Germ cell mutagenicity**

Test Type: Ames test

Test system: Salmonella typhimurium

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**

May cause damage to organs through prolonged or repeated exposure.

- Thyroid

**Aspiration hazard**

No data available

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**SECTION 12: Ecological information**

**12.1 Toxicity**

**Mixture**

Toxicity to daphnia and other aquatic invertebrates	Immobilization EC50 - Daphnia magna (Water flea) - > 100 mg/l - 48 h (OECD Test Guideline 202)
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**12.2 Persistence and degradability**

No data available

**12.3 Bioaccumulative potential**

No data available

**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

Do not empty into drains.  
Neutralization will not reduce ecotoxic effects.

### **Components**

#### **Perchloric acid**

Toxicity to fish	flow-through test EC50 - Lepomis macrochirus (Bluegill sunfish) - 1.470 mg/l - 96 h (US-EPA) Remarks: The value is given in analogy to the following substances: Sodium perchlorate monohydrate
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - > 100 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	static test ErC50 - Pseudokirchneriella subcapitata (green algae) - > 435,7 mg/l - 72 h (OECD Test Guideline 201) Remarks: The value is given in analogy to the following substances: Sodium perchlorate
Toxicity to bacteria	static test EC50 - activated sludge - > 1.000 mg/l - 3 h (ISO 8192) Remarks: The value is given in analogy to the following substances: Sodium perchlorate
Toxicity to fish(Chronic toxicity)	semi-static test NOEC - Danio rerio (zebra fish) - 10 mg/l - 12 Weeks (OECD Test Guideline 215) Remarks: The value is given in analogy to the following substances: Ammonium perchlorate

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

No data available

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

ADR/RID: 1873

IMDG: 1873

IATA: 1873

**14.2 UN proper shipping name**

ADR/RID: PERCHLORIC ACID

IMDG: PERCHLORIC ACID

IATA: Perchloric acid

Passenger Aircraft: Not permitted for transport

**14.3 Transport hazard class(es)**

ADR/RID: 5.1 (8)

IMDG: 5.1 (8)

IATA: 5.1 (8)

**14.4 Packaging group**

ADR/RID: I

IMDG: I

IATA: I

**14.5 Environmental hazards**

ADR/RID: no

IMDG Marine pollutant: no

IATA: no

**14.6 Special precautions for user**

Tunnel restriction code : (B/E)

Further information : No data available

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**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.

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OXIDISING LIQUIDS AND SOLIDS

**15.2 Chemical Safety Assessment**

For this product a chemical safety assessment was not carried out

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**SECTION 16: Other information****Full text of H-Statements**

H271

May cause fire or explosion; strong oxidizer.

H272	May intensify fire; oxidizer.
H290	May be corrosive to metals.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.

### Full text of other abbreviations

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; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); 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; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

### Classification of the mixture

Ox. Liq.1	H271
Met. Corr.1	H290
Acute Tox.4	H302
Skin Corr.1A	H314
Eye Dam.1	H318
STOT RE2	H373

### Classification procedure:

Based on product data or assessment
Based on product data or assessment
Calculation method
Calculation method
Calculation method
Based on product data or

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