

**SAFETY DATA SHEET** according  
to GB/T 16483 and GB/T 17519Version 8.0  
Revision Date 01.06.2023  
Print Date 06.07.2023  
Date of first issue 01.06.2023SDS No. SIGALD - 71853  
Product Number SIGALD - 71853**Sodium perchlorate monohydrate****SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifiers**

Product name : Sodium perchlorate monohydrate

Product Number : 71853  
Brand : SIGALD  
CAS-No. : 7791-07-3**1.2 Details of the supplier of the safety data sheet**Company : Sigma-Aldrich (Shanghai) Trading Co.Ltd.  
509 Renqing Road  
Zhangjiang High Tech East Park, Pudong  
SHANGHAI  
201201 SHANGHAI  
CHINA西格玛奥德里奇（上海）贸易有限公司  
上海市浦东新区仁庆路 509 号 10 幢  
邮政编码：201201Merck KGaA  
64271 Darmstadt  
Germany  
Phone:+49 6151 72-0Telephone : +86 21 6141-5566  
Fax : +86 21 6141-5567**1.3 Emergency telephone**

Emergency Phone # : +86 532 83889090

**1.4 Relevant identified uses of the substance or mixture and uses advised against**Identified uses : For R&D use only. Not for pharmaceutical, household or other  
uses.

## SECTION 2: Hazards identification

### Summary of emergency

crystalline white odorless May cause fire or explosion; strong oxidizer., Harmful if swallowed., Causes mild skin irritation., Causes serious eye irritation. Show this material safety data sheet to the doctor in attendance. After inhalation: fresh air. In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. After eye contact: rinse out with plenty of water., Call in ophthalmologist., Remove contact lenses. After swallowing: immediately make victim drink water (two glasses at most)., Consult a physician. Not combustible. Has a fire-promoting effect due to release of oxygen. Ambient fire may liberate hazardous vapours. Risk of ignition or formation of inflammable gases or vapours with: Light metals, Organic Substances, Metals, Alcohols, Fluorine, Halogenated hydrocarbon, semimetallic oxides, Polyvinyl chloride, sulfur, acids Violent reactions possible with: Cyanides Risk of explosion with: ammonium compounds, Reducing agents, magnesium, Powdered metals, combustible substances

### 2.1 GHS Classification

Oxidizing solids (Category 1), H271  
Acute toxicity, Oral (Category 4), H302  
Skin corrosion/irritation (Category 3), H316  
Serious eye damage/eye irritation (Category 2A), H319

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

### 2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word

Danger

Hazard statement(s)

H271 May cause fire or explosion; strong oxidizer.  
H302 Harmful if swallowed.  
H316 Causes mild skin irritation.  
H319 Causes serious eye irritation.

Precautionary statement(s)

Prevention

P210 Keep away from heat.  
P220 Keep/Store away from clothing/ combustible materials.  
P221 Take any precaution to avoid mixing with combustibles.  
P264 Wash skin thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P280 Wear protective gloves/ eye protection/ face protection.  
P283 Wear fire/ flame resistant/ retardant clothing.

Response

P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P306 + P360 IF ON CLOTHING: rinse immediately contaminated clothing and skin with plenty of water before removing clothes.  
P332 + P313 If skin irritation occurs: Get medical advice/ attention.

P337 + P313  
P370 + P378  
P371 + P380 + P375  
Disposal  
P501

If eye irritation persists: Get medical advice/ attention.  
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.  
In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.  
Dispose of contents/ container to an approved waste disposal plant.

**Reduced Labeling (<= 125 ml)**

Pictogram



Signal Word

Danger

Hazard statement(s)

H271 May cause fire or explosion; strong oxidizer.  
H302 Harmful if swallowed.  
H316 Causes mild skin irritation.  
H319 Causes serious eye irritation.

Precautionary statement(s)

none

**2.3 Physical and chemical hazards**

H271 May cause fire or explosion; strong oxidizer.

**2.4 Health hazards**

H302 Harmful if swallowed.  
H316 Causes mild skin irritation.  
H319 Causes serious eye irritation.

**2.5 Environmental hazards**

Referring to current information, no environmental hazard.

**2.6 Other hazards - none**

**SECTION 3: Composition/information on ingredients**

Substance / Mixture : Substance

**3.1 Substances**

Formula :  $\text{ClNaO}_4 \cdot \text{H}_2\text{O}$   
Molecular weight : 140.46 g/mol  
CAS-No. : 7791-07-3  
EC-No. : 231-511-9  
Index-No. : 017-010-00-6

**Hazardous ingredients**

Component	Classification	Concentration
<b>Sodium perchlorate monohydrate</b>		
	Oxidizing solids Category 1; Acute toxicity Category 4; Skin corrosion/irritation Category 3; Serious eye	<= 100 %

	damage/eye irritation Category 2A; H271, H302, H316, H319	
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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

#### General advice

Show this material safety data sheet to the doctor in attendance.

#### If inhaled

After inhalation: fresh air.

#### In case of skin contact

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

#### In case of eye contact

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

#### If swallowed

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

### 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

### 4.4 Notes to physician

No data available

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## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

#### Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

#### Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

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

Hydrogen chloride gas

Sodium oxides

Not combustible.

Has a fire-promoting effect due to release of oxygen.

Ambient fire may liberate hazardous vapours.

### 5.3 Advice for firefighters

In the event of fire, wear self-contained breathing apparatus. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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## SECTION 6: Accidental release measures

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

Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. 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.

### 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 dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

### 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

#### Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition.

#### Hygiene measures

Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

For precautions see section 2.2.

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

#### Storage conditions

Tightly closed. Separately or together with other oxidising substances only and away from sources of ignition and heat. Because of their oxidation potential these products can raise the burning rate of combustible substances substantially or ignite combustible substances on contact with them.

Hygroscopic. Store under inert gas. strongly hygroscopic

#### Storage class

Storage class (TRGS 510): 5.1A: Strongly oxidizing hazardous materials

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.

## 8.2 Exposure controls

### Appropriate engineering controls

Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

### 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). Safety glasses

#### 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 EN374 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: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested:KCL 741 Dermatril® L

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](http://www.kcl.de)).

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested:KCL 741 Dermatril® L

#### Body Protection

protective clothing

#### Respiratory protection

required when dusts 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.

#### Control of environmental exposure

Do not let product enter drains.

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## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

- |                   |                         |
|-------------------|-------------------------|
| a) Physical state | crystalline             |
| b) Color          | white                   |
| c) Odor           | odorless                |
| d) Melting        | Melting point: 471.8 °C |

	point/freezing point	
e)	Initial boiling point and boiling range	No data available
f)	Flammability (solid, gas)	No data available
g)	Upper/lower flammability or explosive limits	No data available
h)	Flash point	Not applicable
i)	Autoignition temperature	No data available
j)	Decomposition temperature	No data available
k)	pH	4.5 - 7.0 at 50 g/l at 25 °C
l)	Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: No data available
m)	Water solubility	No data available
n)	Partition coefficient: n-octanol/water	Not applicable for inorganic substances
o)	Vapor pressure	No data available
p)	Density	2.52 g/cm <sup>3</sup> at 50 °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	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 Chemical stability

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

### 10.2 Possibility of hazardous reactions

Risk of ignition or formation of inflammable gases or vapours with:

Light metals

Organic Substances

Metals

Alcohols  
Fluorine  
Halogenated hydrocarbon  
semimetallic oxides  
Polyvinyl chloride  
sulfur  
acids  
Violent reactions possible with:  
Cyanides  
Risk of explosion with:  
ammonium compounds  
Reducing agents  
magnesium  
Powdered metals  
combustible substances

### 10.3 Conditions to avoid

no information available

### 10.4 Incompatible materials

Iron, Mild steel

### 10.5 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

#### Acute toxicity

Acute toxicity estimate Oral - 500.1 mg/kg

(Expert judgment)

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

Inhalation: No data available

Dermal: No data available

#### Skin corrosion/irritation

Skin - Rabbit

Result: Mild skin irritation - 4 h

(OECD Test Guideline 404)

#### Serious eye damage/eye irritation

Eyes - Rabbit

(OECD Test Guideline 405)

#### Respiratory or skin sensitization

Local lymph node assay (LLNA) - Mouse

Result: negative

(OECD Test Guideline 429)

#### 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  
Test Type: Mutagenicity (mammal cell test): chromosome aberration.  
Test system: Human lymphocytes  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 473  
Result: negative  
Test Type: In vitro mammalian cell gene mutation test  
Test system: Mouse lymphoma test  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 476  
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**

Repeated dose toxicity - Rat - male and female - Oral - 90 d - NOAEL (No observed adverse effect level) - 1 mg/kg

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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**SECTION 12: Ecological information**

**12.1 Toxicity**

Toxicity to fish	static test LC50 - Danio rerio (zebra fish) - > 1,000 mg/l - 96 h (OECD Test Guideline 203)
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 NOEC - Pseudokirchneriella subcapitata (green algae) - 86.3 mg/l - 72 h (OECD Test Guideline 201)

**12.2 Persistence and degradability**

Not applicable for inorganic substances

**12.3 Bioaccumulative potential**

No data available

**12.4 Mobility in soil**

No data available

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The life science business of Merck operates as MilliporeSigma in the US and Canada

### 12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

### 12.6 Endocrine disrupting properties

No data available

### 12.7 Other adverse effects

No data available

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

Offer surplus and non-recyclable solutions to a licensed disposal company.

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## SECTION 14: Transport information

### 14.1 UN number

ADR/RID: 1502

IMDG: 1502

IATA-DGR: 1502

### 14.2 UN proper shipping name

ADR/RID: SODIUM PERCHLORATE

IMDG: SODIUM PERCHLORATE

IATA-DGR: Sodium perchlorate

### 14.3 Transport hazard class(es)

ADR/RID: 5.1

IMDG: 5.1

IATA-DGR: 5.1

### 14.4 Packaging group

ADR/RID: II

IMDG: II

IATA-DGR: II

### 14.5 Environmental hazards

ADR/RID: no

IMDG Marine pollutant: no

IATA-DGR: no

### 14.6 Special precautions for user

Based on chemical properties, choose appropriate tools and conditions of transport.

Transporting tools shall be equipped with appropriate and sufficient firefighting equipment and emergency leaking installations. If transporting by road, please go along the specified route.

### 14.7 Incompatible materials

Iron, Mild steel

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## SECTION 15: Regulatory information

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

#### National regulatory information

#### Regulations on Safety Management of Hazardous Chemicals

Catalogue of Hazardous Chemicals

: Listed

### **Other regulations**

Please pay attention on the waste treatment should also comply with local regulations requirement.

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## **SECTION 16: Other information**

### **-Full text of H-Statements referred to under sections 2 and 3.**

H271	May cause fire or explosion; strong oxidizer.
H302	Harmful if swallowed.
H316	Causes mild skin irritation.
H319	Causes serious eye irritation.

### **Further information**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.sigma-aldrich.com](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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