

## Perchloric acid

77234-1L

Version 1.4

Revision Date 17.12.2022

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

#### 1.1. Product identifier

Product name : Perchloric acid

SDS-number : 000000020900

Type of product : Mixture

Remarks : SDS according to Art. 31 of Regulation (EC) 1907/2006.  
In accordance to the Article 14 (1) of the REACH Regulation  
(EC) No 1907/2006, exposure estimation and risk  
characterisation is not required.

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

Use of the Substance/Mixture : Laboratory chemicals

Uses advised against : none

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

Company	:	Honeywell International Inc. 115 Tabor Road 07950-2546 Morris Plains USA	Honeywell International, Inc. 115 Tabor Road Morris Plains, NJ 07950-2546 USA
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Telephone :  
For further information,  
please contact: : SafetyDataSheet@Honeywell.com

#### 1.4. Emergency telephone number

Emergency telephone number : +1-703-527-3887 (ChemTrec-Transport)  
+1-303-389-1414 (Medical)

Country based Poison Control Center : see chapter 15.1

### SECTION 2: Hazards identification

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### 2.1. Classification of the substance or mixture

#### REGULATION (EC) No 1272/2008

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 - Oral

H302 Harmful if swallowed.

Skin corrosion Category 1A

H314 Causes severe skin burns and eye damage.

Specific target organ toxicity - repeated exposure Category 2

H373 May cause damage to organs (Thyroid) through prolonged or repeated exposure.

### 2.2. Label elements

#### REGULATION (EC) No 1272/2008

Hazard pictograms



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.  
P234 Keep only in original container.  
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P284 Wear respiratory protection.

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P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
P302 + P352 IF ON SKIN: Wash with plenty of 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 + P313 IF exposed or concerned: Get medical advice/ attention.

Hazardous components : perchloric acid  
which must be listed on the  
label

### 2.3. Other hazards

Inhaled corrosive substances can lead to a toxic oedema of the lungs. Results of PBT and vPvB assessment, see chapter 12.5.

## SECTION 3: Composition/information on ingredients

### 3.1. Substance

Not applicable

### 3.2. Mixture

Chemical name	CAS-No. Index-No. REACH Registration Number EC-No.	Classification 1272/2008	Concentration	Remarks
perchloric acid	7601-90-3 017-006-00-4 231-512-4	Ox. Liq. 1; H271 Met. Corr. 1; H290 Acute Tox. 4; H302; Oral Skin Corr. 1A; H314 STOT RE 2; H373; Oral	>= 60 % - <= 62 %	Eye Irrit. 2; H319:1 - < 10 % Skin Corr. 2; H315:1 - < 10 % Ox. Liq. 1; H271:> 50 % Ox. Liq. 2; H272:<= 50 %



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### SECTION 5: Firefighting measures

#### 5.1. Extinguishing media

*Suitable extinguishing media:*

Water spray jet  
Foam  
Carbon dioxide (CO<sub>2</sub>)  
Dry powder

*Extinguishing media which shall not be used for safety reasons:*

High volume water jet

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

Toxic vapors may be produced upon heating this material.  
Heating will cause pressure rise with risk of bursting and subsequent explosion  
Some risk may be expected of corrosive and toxic decomposition products.  
The product itself does not burn.  
Strong oxidizer. Contact with other material may cause fire.  
Do not use a solid water stream as it may scatter and spread fire.

#### 5.3. Advice for firefighters

Wear self-contained breathing apparatus and protective suit.  
No unprotected exposed skin areas.  
In wet solutions watch out for etching influence. Use water spray to cool unopened containers.

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### SECTION 6: Accidental release measures

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

Wear personal protective equipment. Unprotected persons must be kept away.

#### 6.2. Environmental precautions

Prevent further leakage or spillage if safe to do so.

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

Do not pick up with the help of saw-dust or other combustible substances.

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Use chemical neutralising agents

Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).

Dispose of promptly.

Clean contaminated surface thoroughly.

### 6.4. Reference to other sections

For personal protection see section 8.

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## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

*Advice on safe handling:*

Containers which are opened must be carefully resealed and kept upright to prevent leakage. Exhaust ventilation at the object is necessary. Wear personal protective equipment. Contaminated equipment (brushes, rags) must be cleaned immediately with water. Never return unused material to storage receptacle. Wash parts with an aqueous solution of calcium hydroxide.

*Advice on protection against fire and explosion:*

The product is not flammable. Keep away from combustible material. Contact with metals liberates hydrogen gas.

*Hygiene measures:*

Wash hands and face before breaks and immediately after handling the product. Separate rooms are required for washing, showering and changing clothes. Keep working clothes separately. Regular cleaning of equipment, work area and clothing. When using do not eat or drink. When using do not smoke.

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

*Further information on storage conditions:*

Keep only in the original container, tightly closed, in a well ventilated place. Do not leave vessels/containers open. Avoid product residues in/on containers. Store in a place accessible by authorized persons only.

*Advice on common storage:*

Do not store with combustible materials. Keep away from reducing agents. Do not store together with: Metals Amines Alcohols Bases

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

no additional data available

**SECTION 8: Exposure controls/personal protection**

**8.1. Control parameters**

**Components with workplace control parameters**

Contains no substances with occupational exposure limit values.

**DNEL/ PNEC-Values**

Component	End-use/impact	Exposure duration	Value	Exposure routes	Remarks
perchloric acid	Consumers / Long-term systemic effects		0,058 mg/m <sup>3</sup>	Inhalation	
perchloric acid	Consumers / Long-term systemic effects		0,0167 mg/m <sup>3</sup>	Ingestion	

Component	Environmental compartment / Value	Remarks
perchloric acid	Fresh water: 0,0215 mg/l	Assessment factor: 10
perchloric acid	Marine water: 0,00215 mg/l	Assessment factor: 100
perchloric acid	Sewage treatment plant: 8,2 mg/l	Assessment factor: 100
perchloric acid	Fresh water sediment: 4,67 mg/kg dw	Assessment factor: 100
perchloric acid	Marine sediment: 0,467 mg/kg dw	Assessment factor: 1000
perchloric acid	Soil: 0,021 mg/kg dw	

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### 8.2. Exposure controls

#### Occupational exposure controls

The Personal Protective Equipment must be in accordance with EN standards:respirator EN 136, 140, 149; safety glasses EN 166; protective suit: EN 340, 463, 468, 943-1, 943-2; gloves EN 374, 511; safety shoes EN-ISO 20345.

#### Engineering measures

Emergency sprinkling nozzle  
Jointless smooth floor  
Local exhaust

#### Personal protective equipment

##### *Respiratory protection:*

In the case of vapour formation use a respirator with an approved filter.

##### *Hand protection:*

Glove material: Natural Rubber  
Break through time: 480 min  
Glove thickness: 0,6 mm  
Lapren®706

Gloves must be inspected prior to use.

Replace when worn.

Remarks:Supplementary note: The specifications are based on information and tests from similar substances by analogy.

Due to varying conditions ( e.g.temperature or other strains) it must be considered that the usage of a chemical protective glove in practice may be much shorter than the permeation time determined in accordance with EN 374.

Since actual conditions of practical use often deviate from standardised conditions according EN 374 the glove manufacturer recommends to use the chemical protective glove in practice not longer than 50% of the recommended permeation time.

Manufacturer´s directions for use should be observed because of great diversity of types .

Suitable gloves tested according EN 374 are supplied e.g. from KCL GmbH, D-36124 Eichenzell, Vertrieb@kcl.de

##### *Eye protection:*

Safety goggles  
Face-shield

##### *Skin and body protection:*

Complete suit protecting against chemicals



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### Environmental exposure controls

Handle in accordance with local environmental regulations and good industrial practices.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state	: liquid
Colour	: colourless
Odour	: No data available
molecular weight	: 100,46 g/mol
Melting point/range	: -18 °C
Boiling point/boiling range	: ca. 203 °C at 1.013 hPa
Flammability	: No data available
Upper explosion limit	: No data available
Lower explosion limit	: No data available
Flash point	: 113 °C Method: closed cup
Auto-ignition temperature	: No data available
Decomposition temperature	: To avoid thermal decomposition, do not overheat. Thermal sensitivity Explosive decomposition
pH	: No data available
Viscosity, kinematic	: No data available
Water solubility	: completely miscible

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Partition coefficient: n-  
octanol/water : No data available

Vapour pressure : 9,1 hPa  
at 25 °C

Density : 1,67 g/cm<sup>3</sup>

Relative vapour density : No data available

### 9.2 Other Information

Oxidizing properties : The substance or mixture is classified as oxidizing with the  
category 1.

Corrosive to metals : Corrosive to metals

Evaporation rate : No data available

Viscosity, dynamic : No data available

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## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No decomposition if stored normally.

### 10.2. Chemical stability

To avoid thermal decomposition, do not overheat.

Thermal sensitivity

Explosive decomposition

### 10.3. Possibility of hazardous reactions

Heating above the decomposition temperature

Decomposes on heating.

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Gives off hydrogen by reaction with metals.

### 10.4. Conditions to avoid

Protect from heat/overheating.  
Keep away from reducing agents.  
Keep away from combustible material.  
Protect from contamination.

### 10.5. Incompatible materials

Reactions with various metals.  
Reactions with combustible substances.  
Reactions with organic substances.  
Gives off hydrogen by reaction with metals.  
Bases  
Rust  
Dirt

### 10.6. Hazardous decomposition products

Risk of formation of toxic pyrolysis products.  
Chlorine compounds

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## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

*Acute oral toxicity:*

Acute toxicity estimate

Value: 833,33 mg/kg

Method: Calculation method

*Acute dermal toxicity:*

No data available

*Acute inhalation toxicity:*

No data available

*Skin irritation:*

Classification based on Annex VI of regulation 1272/2008/EC.

*Eye irritation:*

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Classification based on Annex VI of regulation 1272/2008/EC.

*Respiratory or skin sensitisation:*

No data available

*Carcinogenicity:*

Note: No data available

*Germ cell mutagenicity:*

Note: Not classified due to data which are conclusive although insufficient for classification.

*Reproductive toxicity:*

Remarks: Not classified due to data which are conclusive although insufficient for classification.

*Aspiration hazard:*

No data available

### 11.2. Information on other hazards

Endocrine disrupting properties

No data available

*Other information:*

No data available

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## SECTION 12: Ecological information

### 12.1. Toxicity

*Toxicity to fish:*

Not classified due to data which are conclusive although insufficient for classification.

*Toxicity to aquatic plants:*

Not classified due to data which are conclusive although insufficient for classification.

*Toxicity to aquatic invertebrates:*

EC50

Species: Daphnia magna (Water flea)

Value: > 100 mg/l

Exposure time: 48 h

Method: OECD Test Guideline 202

Test substance: anhydrous substance

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### 12.2. Persistence and degradability

*Biodegradability:*

The methods for determining biodegradability are not applicable to inorganic substances.

### 12.3. Bioaccumulative potential

No data available

### 12.4. Mobility in soil

No data available

### 12.5. Results of PBT and vPvB assessment

No data available

### 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:*

Dispose according to legal requirements.

*Packaging:*

Legal requirements are to be considered in regard of reuse or disposal of used packaging materials

*Further information:*

Provisions relating to waste:  
EC Directive 2006/12/EC; 2008/98/EEC  
Regulation No. 1013/2006

For personal protection see section 8.

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## SECTION 14: Transport information

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**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

**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

Marine pollutant: no

**14.6 Special precautions for user**

IMDG Code segregation group (SGG1) – ACIDS,

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

No data available

**SECTION 15: Regulatory information**

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

Basis	Value	Remarks
Substances of very high concern (SVHC)		This product does not contain substances of very high concern according to Regulation (EC) No Article 57 above the respective regulatory 1907/2006 (REACH), concentration limit of $\geq 0.1\%$ (w/w).

**Poison Control Center**

Country	Phone Number
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Country	Phone Number
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Austria	+4314064343
Belgium	070 245245
Bulgaria	(+35929154233
Croatia	(+3851)23-48-342
Cyprus	+357 2240 5611
Czech Republic	+420224919293; +420224915402
Denmark	82121212
Estonia	16662; (+372)6269390
Finland	9471977
France	+33(0)145425959
Greece	+30 210 779 3777
Hungary	(+36-80)201-199
Iceland	5432222
Ireland	+353(1)8092166
Italy	0382 24444
Germany	Berlin : 030/19240
	Bonn : 0228/19240
	Erfurt : 0361/730730
	Freiburg : 0761/19240
	Göttingen : 0551/19240
	Homburg : 06841/19240
	Mainz : 06131/19240
Munich : 089/19240	
Latvia	+37167042473

Liechtenstein	+41 442515151
Lithuania	+370532362052
Luxembourg	070245245; (+352)80002-5500
Malta	+356 2395 2000
Netherlands	030-2748888
Norway	22591300
Poland	+48 42 25 38 400
Portugal	800250250
Romania	+40 21 318 3606
Slovakia (NTIC)	+421 2 54 774 166
Slovenia	+386 1 400 6051
Spain	+34915620420
Sweden	112 (begär Giftinformation);+46104566786
Switzerland	145
United Kingdom	(+44) 844 892 0111

**Other inventory information**

US. Toxic Substances Control Act  
On TSCA Inventory

Australia. Inventory of Industrial Chemicals (AIIC), as amended  
On the inventory, or in compliance with the inventory

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Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL)  
All components of this product are on the Canadian DSL

Japan. Kashin-Hou Law List  
On the inventory, or in compliance with the inventory

Korea. Existing Chemicals Inventory (KECI)  
On the inventory, or in compliance with the inventory

Philippines. Inventory of Chemicals and Chemical Substances (PICCS)  
On the inventory, or in compliance with the inventory

China. Inventory of Existing Chemical Substances (IECSC)  
On the inventory, or in compliance with the inventory

New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand  
On the inventory, or in compliance with the inventory

Taiwan Chemical Substance Inventory (TCSI)  
On the inventory, or in compliance with the inventory

### 15.2 Chemical safety assessment

A Chemical Safety Assessment has not been carried out.

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## SECTION 16: Other information

### Text of H-statements referred to under heading 3

perchloric acid : 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.

### Further information



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All directives and regulations refer to amended versions.  
Vertical lines in the left hand margin indicate a relevant amendment from the previous version.

Abbreviations:

EC European Community  
CAS Chemical Abstracts Service  
DNEL Derived no effect level  
PNEC Predicted no effect level  
vPvB Very persistent and very bioaccumulative substance  
PBT Persistent, bioaccumulative und toxic substance

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. Final determination of suitability of any material is the sole responsibility of the user.

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