



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

1.1. Product identifier

Product form : Mixture
Trade name : Perchloric acid 70% p.A.
Product code : SRE000023CT

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

1.2.1. Relevant identified uses

Main use category : Professional use
Use of the substance/mixture : Sample preparation for metallography

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Cloeren Technology GmbH
In Petersholz 44
DE- 41844 Wegberg
Germany
T 02432/8902510 - F 02432/8902519
info@cloeren.de - www.cloeren.de

1.4. Emergency telephone number

Country	Organisation/Company	Address	Emergency number	Comment
Germany	Giftinformationszentrum-Nord der Länder Bremen, Hamburg, Niedersachsen und Schleswig-Holstein (GIZ-Nord) Universitätsmedizin Göttingen - Georg-August-Universität	Robert-Koch Straße 40 37075 Göttingen	+49 (0) 551 19240	

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Oxidising Liquids, Category 1 H271
Skin corrosion/irritation, Category 1, Sub-Category 1A H314
Full text of H- and EUH-statements: see section 16

Adverse physicochemical, human health and environmental effects

May cause fire or explosion; strong oxidiser. Causes severe skin burns and eye damage.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



GHS03

GHS05

Signal word (CLP) :

Danger

Hazard statements (CLP) :

H271 - May cause fire or explosion; strong oxidiser.
H314 - Causes severe skin burns and eye damage.

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Precautionary statements (CLP) : P220 - Keep away from clothing and other combustible materials.
P283 - Wear fire resistant or flame retardant clothing.
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P405 - Store locked up.
P501 - Dispose of contents and container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

2.3. Other hazards

Contains no PBT/vPvB substances $\geq 0.1\%$ assessed in accordance with REACH Annex XIII

Other information : Hazardous components for labeling:
Perchloric acid.

The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Comments : Mixture of the substances listed below with harmless additives

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Perchloric acid	CAS-No.: 7601-90-3 EC-No.: 231-512-4 EC Index-No.: 017-006-00-4	≥ 30	Ox. Liq. 1, H271 Skin Corr. 1A, H314

Full text of H- and EUH-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Call a physician immediately.
First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact : Rinse skin with water/shower. Rinse immediately contaminated clothing and skin with plenty of water before removing clothes. Take off immediately all contaminated clothing. Call a physician immediately.
First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.
First-aid measures after ingestion : Rinse mouth. Do not induce vomiting. Call a physician immediately.

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

Symptoms/effects after skin contact : Burns.
Symptoms/effects after eye contact : Serious damage to eyes.
Symptoms/effects after ingestion : Burns.

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

Treat symptomatically.

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SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam. Carbon dioxide.

5.2. Special hazards arising from the substance or mixture

Fire hazard : May cause fire or explosion; strong oxidiser.

Hazardous decomposition products in case of fire : Toxic fumes may be released.

5.3. Advice for firefighters

Firefighting instructions : In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Ventilate spillage area. No open flames, no sparks, and no smoking. Avoid contact with skin and eyes. Do not breathe dust/fume/gas/mist/vapours/spray.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Take up liquid spill into absorbent material. Notify authorities if product enters sewers or public waters.

Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Wear personal protective equipment. Avoid contact with skin and eyes. Do not breathe dust/fume/gas/mist/vapours/spray.

Hygiene measures : Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store locked up. Store in a well-ventilated place. Keep cool.

Incompatible materials : combustible materials.

Information on mixed storage : Storage class 5.1 A.

7.3. Specific end use(s)

No additional information available

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SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 National occupational exposure and biological limit values

No additional information available

8.1.2. Recommended monitoring procedures

No additional information available

8.1.3. Air contaminants formed

No additional information available

8.1.4. DNEL and PNEC

No additional information available

8.1.5. Control banding

No additional information available

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Appropriate engineering controls:

Ensure good ventilation of the work station.

8.2.2. Personal protection equipment

Personal protective equipment symbol(s):



8.2.2.1. Eye and face protection

Eye protection:

Safety glasses

8.2.2.2. Skin protection

Skin and body protection:

Wear fire/flammable resistant/retardant clothing.

Hand protection:

The glove material must be impermeable and resistant to the product / the substance / the preparation.

Selection of the glove material taking into account the penetration times, permeation rates and the

Degradation. Recommendation:

uvex u-chem 3000 (DIN EN 374)

Material: nitrile rubber

Material thickness: 0.5 mm

Value for the permeation: > 120 min (level 4)

Recommendation:

uvex u-fit strong N2000 (DIN EN 374)

Material: nitrile rubber

Material thickness: 0.2 mm

Value for the permeation: > 30 min (level 2)

8.2.2.3. Respiratory protection

Respiratory protection:

Ensure adequate ventilation or use a fume cupboard. No respiratory protection is required with normal use.

8.2.2.4. Thermal hazards

No additional information available

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8.2.3. Environmental exposure controls

Environmental exposure controls:

Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Colour	: Colourless.
Odour	: characteristic.
Odour threshold	: Not available
Melting point	: -18 °C
Freezing point	: Not available
Boiling point	: 203 °C
Flammability	: Not applicable
Explosive properties	: Heating may cause an explosion.
Explosive limits	: Not available
Lower explosion limit	: Not available
Upper explosion limit	: Not available
Flash point	: > 100 °C
Auto-ignition temperature	: Not available
Decomposition temperature	: Not available
pH	: Not available
Viscosity, kinematic	: Not available
Solubility	: Miscible with water.
Partition coefficient n-octanol/water (Log Kow)	: Not available
Vapour pressure	: 6.8 mm Hg
Vapour pressure at 50 °C	: Not available
Density	: 1.67 g/cm³
Relative density	: Not available
Relative vapour density at 20 °C	: Not available
Particle characteristics	: Not applicable

9.2. Other information

9.2.1. Information with regard to physical hazard classes

No additional information available

9.2.2. Other safety characteristics

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

May cause fire or explosion; strong oxidiser.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition.

10.5. Incompatible materials

Combustible materials. reducing materials.

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10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

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

Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

Perchloric acid (7601-90-3)

LD50 oral rat	200 – 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 423 (Acute Oral toxicity - Acute Toxic Class Method)
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Skin corrosion/irritation	: Causes severe skin burns.
Serious eye damage/irritation	: Assumed to cause serious eye damage
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified

Perchloric acid (7601-90-3)

NOAEL (oral, rat, 90 days)	1 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents), Guideline: EPA OPPTS 870.3100 (90-Day Oral Toxicity in Rodents)
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Aspiration hazard : Not classified

11.2. Information on other hazards

No additional information available

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Before neutralisation, the product may represent a danger to aquatic organisms.
Hazardous to the aquatic environment, short-term (acute) : Not classified
Hazardous to the aquatic environment, long-term (chronic) : Not classified
Not rapidly degradable

Perchloric acid (7601-90-3)

EC50 - Crustacea [1]	> 100 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	> 435.7 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
NOEC chronic fish	10 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio) Duration: '12 wk'

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

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12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Endocrine disrupting properties

No additional information available

12.7. Other adverse effects

No additional information available






SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

ADR	IMDG	IATA	ADN	RID
14.1. UN number or ID number				
UN 1873	UN 1873	UN 1873	UN 1873	UN 1873
14.2. UN proper shipping name				
PERCHLORIC ACID	PERCHLORIC ACID	Perchloric acid	PERCHLORIC ACID	PERCHLORIC ACID
Transport document description				
UN 1873 PERCHLORIC ACID, 5.1 (8), I, (B/E)	UN 1873 PERCHLORIC ACID, 5.1 (8), I	UN 1873 Perchloric acid, 5.1 (8), I	UN 1873 PERCHLORIC ACID, 5.1 (8), I	UN 1873 PERCHLORIC ACID, 5.1 (8), I
14.3. Transport hazard class(es)				
5.1 (8)	5.1 (8)	5.1 (8)	5.1 (8)	5.1 (8)
				
14.4. Packing group				
I	I	I	I	I
14.5. Environmental hazards				
Dangerous for the environment: No	Dangerous for the environment: No Marine pollutant: No	Dangerous for the environment: No	Dangerous for the environment: No	Dangerous for the environment: No
No supplementary information available				

14.6. Special precautions for user

Overland transport

Classification code (ADR) : OC1
Special provisions (ADR) : 60
Limited quantities (ADR) : 0
Excepted quantities (ADR) : E0

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Packing instructions (ADR) : P502
Special packing provisions (ADR) : PP28
Mixed packing provisions (ADR) : MP3
Portable tank and bulk container instructions (ADR) : T10
Portable tank and bulk container special provisions (ADR) : TP1
Tank code (ADR) : L4DN(+)
Tank special provisions (ADR) : TU3, TU28
Vehicle for tank carriage : AT
Transport category (ADR) : 1
Special provisions for carriage - Loading, unloading and handling (ADR) : CV24
Special provisions for carriage - Operation (ADR) : S20
Hazard identification number (Kemler No.) : 558
Orange plates :



Tunnel restriction code (ADR) : B/E

Transport by sea

Special provisions (IMDG) : 900
Limited quantities (IMDG) : 0
Excepted quantities (IMDG) : E0
Packing instructions (IMDG) : P502
Special packing provisions (IMDG) : PP28
Tank instructions (IMDG) : T10
Tank special provisions (IMDG) : TP1
EmS-No. (Fire) : F-A
EmS-No. (Spillage) : S-Q
Stowage category (IMDG) : D
Segregation (IMDG) : SGG1A, SG16, SG36, SG49
Properties and observations (IMDG) : Colourless liquid. Mixtures with combustible material may ignite spontaneously and, when involved in a fire, by shock or by friction, may cause an explosion. Highly corrosive to most metals. Causes burns to skin, eyes and mucous membranes. Transport of PERCHLORIC ACID with more than 72% acid, by mass is prohibited.

Air transport

PCA Excepted quantities (IATA) : E0
PCA Limited quantities (IATA) : Forbidden
PCA limited quantity max net quantity (IATA) : Forbidden
PCA packing instructions (IATA) : Forbidden
PCA max net quantity (IATA) : Forbidden
CAO packing instructions (IATA) : 553
CAO max net quantity (IATA) : 2.5L
ERG code (IATA) : 5C

Inland waterway transport

Classification code (ADN) : OC1
Special provisions (ADN) : 60
Limited quantities (ADN) : 0
Excepted quantities (ADN) : E0
Equipment required (ADN) : PP, EP
Number of blue cones/lights (ADN) : 0

Rail transport

Classification code (RID) : OC1
Special provisions (RID) : 60
Limited quantities (RID) : 0
Excepted quantities (RID) : E0
Packing instructions (RID) : P502
Special packing provisions (RID) : PP28

Perchloric acid 70% p.A.

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Mixed packing provisions (RID)	: MP3
Portable tank and bulk container instructions (RID)	: T10
Portable tank and bulk container special provisions (RID)	: TP1
Tank codes for RID tanks (RID)	: L4DN(+)
Special provisions for RID tanks (RID)	: TU3, TU28, TE16
Transport category (RID)	: 1
Special provisions for carriage - Loading, unloading and handling (RID)	: CW24
Hazard identification number (RID)	: 558

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

REACH Annex XVII (Restriction List)

Contains no REACH substances with Annex XVII restrictions

REACH Annex XIV (Authorisation List)

Contains no REACH Annex XIV substances

REACH Candidate List (SVHC)

Contains no substance on the REACH candidate list

PIC Regulation (Prior Informed Consent)

Contains no substance subject to Regulation (EU) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of hazardous chemicals.

POP Regulation (Persistent Organic Pollutants)

Contains no substance subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

Ozone Regulation (1005/2009)

Contains no substance subject to REGULATION (EU) No 1005/2009 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 September 2009 on substances that deplete the ozone layer.

Explosives Precursors Regulation (2019/1148)

Contains no substance subject to Regulation (EU) 2019/1148 of the European Parliament and of the Council of 20 June 2019 on the marketing and use of explosives precursors.

Drug Precursors Regulation (273/2004)

Contains no substance subject to Regulation (EC) 273/2004 of the European Parliament and of the Council of 11 February 2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances.

15.1.2. National regulations

Germany

Employment restrictions	: Observe restrictions according Act on the Protection of Working Mothers (MuSchG). Observe restrictions according Act on the Protection of Young People in Employment (JArbSchG).
Water hazard class (WGK)	: WGK 1, Slightly hazardous to water (Classification according to AwSV, Annex 1).
Storage class (LGK, TRGS 510)	: LGK 5.1A - Highly oxidising substances.
Chemicals Prohibition Ordinance (ChemVerbotsV)	: This product is subject to ChemVerbotsV Annex 2 Entry 2. The following requirement must be observed: Basic requirements for the implementation of the submission (according to § 8 paragraph 1, 3 and 4).
Hazardous Incident Ordinance (12. BImSchV)	: Is not subject of the Hazardous Incident Ordinance (12. BImSchV)

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15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Abbreviations and acronyms:

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
COD	Chemical oxygen demand (COD)
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
EN	European Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
CAS-No.	Chemical Abstract Service number
N.O.S.	Not Otherwise Specified
vPvB	Very Persistent and Very Bioaccumulative
ED	Endocrine disrupting properties

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Full text of H- and EUH-statements:

H271	May cause fire or explosion; strong oxidiser.
H314	Causes severe skin burns and eye damage.
Ox. Liq. 1	Oxidising Liquids, Category 1
Skin Corr. 1A	Skin corrosion/irritation, Category 1, Sub-Category 1A

The classification complies with : ATP 12

Safety Data Sheet (SDS), EU

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.