

## Safety Data Sheet

according to Regulation (EC) No 1907/2006

### Perchloric acid 20 % for analysis in water

Revision date: 25.02.2022

Product code: 11966

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

##### 1.1. Product identifier

Perchloric acid 20 % for analysis in water

UFI: NC42-M108-C00T-62E6

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

###### Use of the substance/mixture

Laboratory chemicals

Industrial uses: Uses of substances as such or in preparations at industrial sites

Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

###### Uses advised against

Do not use for private purposes (household).

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

Company name:	Fa. Bernd Kraft GmbH	
Street:	Stempelstraße 6	
Place:	D-47167 Duisburg	
Telephone:	0203/5194-0	Telefax: 0203/5194-290
e-mail:	info@berndkraft.de	
Contact person:	Abteilung Produktsicherheit	Telephone: 0203/5194-107/117
e-mail:	produktsicherheit@berndkraft.de	
Internet:	www.berndkraft.de	
Responsible Department:	Abteilung Produktsicherheit	

##### 1.4. Emergency telephone number:

For Hazardous Materials [or Dangerous Goods] Incidents Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-741-5970 (collect calls accepted)

##### Further Information

This product is a mixture. REACH Registration Number see section 3.

#### SECTION 2: Hazards identification

##### 2.1. Classification of the substance or mixture

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

Ox. Liq. 2; H272

Met. Corr. 1; H290

Skin Corr. 1B; H314

Eye Dam. 1; H318

Full text of hazard statements: see SECTION 16.

##### 2.2. Label elements

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

###### Hazard components for labelling

perchloric acid

Signal word: Danger

###### Pictograms:



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**Hazard statements**

H272 May intensify fire; oxidiser.  
H290 May be corrosive to metals.  
H314 Causes severe skin burns and eye damage.

**Precautionary statements**

P260 Do not breathe dust/fume/gas/mist/vapours/spray.  
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing 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.  
P310 Immediately call a POISON CENTER/doctor.

**2.3. Other hazards**

No data available

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

**3.2. Mixtures**

**Chemical characterization**

Mixtures in aqueous solution

**Hazardous components**

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (Regulation (EC) No 1272/2008)			
7601-90-3	perchloric acid			20 - < 25 %
	231-512-4	017-006-00-4		
	Flam. Liq. 3, Ox. Liq. 1, Skin Corr. 1A; H226 H271 H314			

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

**Specific Conc. Limits, M-factors and ATE**

CAS No	EC No	Chemical name	Quantity
	Specific Conc. Limits, M-factors and ATE		
7601-90-3	231-512-4	perchloric acid	20 - < 25 %
	oral: LD50 = 200 - 2000 mg/kg Ox. Liq. 1; H271: >= 50 - 100 Ox. Liq. 2; H272: >= 0 - < 50 Skin Corr. 1A; H314: >= 50 - 100 Skin Corr. 1B; H314: >= 10 - < 50 Skin Irrit. 2; H315: >= 1 - < 10 Eye Irrit. 2; H319: >= 1 - < 10		

**Further Information**

This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of = 0.1 % (w/w).

**SECTION 4: First aid measures**

**4.1. Description of first aid measures**

**General information**

Self-protection of the first aider

**After inhalation**

Provide fresh air.  
Call a physician immediately.

**After contact with skin**

Wash immediately with: Water

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Take off immediately all contaminated clothing and wash it before reuse.  
Call a physician immediately.

#### **After contact with eyes**

Rinse immediately carefully and thoroughly with eye-bath or water.  
Remove contact lenses, if present and easy to do. Continue rinsing.  
Consult an ophthalmologist.

#### **After ingestion**

Rinse mouth immediately and drink plenty of water.  
Do NOT induce vomiting.  
Do not allow a neutralisation agent to be drunk.  
Call a physician immediately.

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

Irritant  
corrosive  
Cough  
Dyspnoea  
Cardiac arrhythmias  
Risk of serious damage to eyes.

#### **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**

Co-ordinate fire-fighting measures to the fire surroundings.

#### **Unsuitable extinguishing media**

no restriction

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

Non-combustible liquids  
Oxidizing  
In case of warming: Decomposition with: Danger of explosion  
Hazardous combustion products  
In case of fire may be liberated:  
Hydrogen chloride (HCl)

### **5.3. Advice for firefighters**

Avoid contact with skin, eyes and clothes.  
In case of fire: Wear self-contained breathing apparatus.

#### **Additional information**

Use water spray jet to protect personnel and to cool endangered containers.  
Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

## SECTION 6: Accidental release measures

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

#### **General advice**

Corrosive to metals.

#### **For non-emergency personnel**

Provide adequate ventilation.  
Use personal protection equipment.  
Avoid contact with skin, eyes and clothes.  
Remove persons to safety.  
Emergency procedures

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Do not breathe dust/fume/gas/mist/vapours/spray.

**For emergency responders**

Precautionary statements For emergency responders : Personal protection equipment: see section 8

**6.2. Environmental precautions**

Do not allow to enter into surface water or drains.

Danger of explosion

**6.3. Methods and material for containment and cleaning up**

**For containment**

Cover drains.

Prevent spread over a wide area (e.g. by containment or oil barriers).

Collect in closed and suitable containers for disposal.

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

**For cleaning up**

Clean contaminated articles and floor according to the environmental legislation.

**Other information**

Provide adequate ventilation.

Do not breathe dust/fume/gas/mist/vapours/spray.

Wear breathing apparatus if exposed to vapours/dusts/aerosols.

**6.4. Reference to other sections**

Safe handling: see section 7

Personal protection equipment: see section 8

Disposal: see section 13

**SECTION 7: Handling and storage**

**7.1. Precautions for safe handling**

**Advice on safe handling**

Read label before use.

Handle and open container with care.

Provide adequate ventilation.

Avoid contact with skin, eyes and clothes.

Do not breathe vapour/aerosol.

Use extractor hood (laboratory).

**Advice on protection against fire and explosion**

Keep away from combustible material.

**Advice on general occupational hygiene**

Take off contaminated clothing.

Wash hands before breaks and after work.

When using do not eat or drink.

**Further information on handling**

Take off contaminated clothing and wash it before reuse.

Wash hands before breaks and after work.

Draw up and observe skin protection programme.

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

**Requirements for storage rooms and vessels**

Keep container tightly closed and dry.

Keep away from combustible material.

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

**Hints on joint storage**

Keep away from combustible material.

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**Further information on storage conditions**

Unsuitable container/equipment material: Light metal, Metal  
Keep cool. Protect from sunlight.  
storage temperature: +5°C bis +30°C

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

Laboratory chemicals

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

**8.1. Control parameters**

**DNEL/DMEL values**

CAS No	Substance			
DNEL type	Exposure route	Effect	Value	
7601-90-3	perchloric acid			
Consumer DNEL, long-term	oral	systemic	0,0167 mg/kg bw/day	

**PNEC values**

CAS No	Substance	
Environmental compartment	Value	
7601-90-3	perchloric acid	
Freshwater	0,021 mg/l	
Freshwater (intermittent releases)	147 mg/l	
Marine water	0,002 mg/l	
Freshwater sediment	4,67 mg/kg	
Marine sediment	0,467 mg/kg	
Micro-organisms in sewage treatment plants (STP)	8,2 mg/l	
Soil	0,021 mg/kg	

**8.2. Exposure controls**

**Appropriate engineering controls**

Technical measures and the application of suitable work processes have priority over personal protection equipment.

**Individual protection measures, such as personal protective equipment**

**Eye/face protection**

Suitable eye protection: goggles.

**Hand protection**

Protective gloves are recommended Company KCL GmbH, D-36124 Eichenzell, email: vertrieb@kcl.de With specification (test according to EN374):

By long-term hand contact

Trade name/designation: KCL 897 Butoject®

Recommended material: Butyl caoutchouc (butyl rubber) 0,3 mm

Wearing time with permanent contact: > 480 min

By short-term hand contact

Trade name/designation: KCL 720 Camapren®

Recommended material: CR (polychloroprene, chloroprene rubber) 0,65 mm

Wearing time with occasional contact (splashes): > 480 min

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The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types. 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).

**Skin protection**

Wear suitable protective clothing.  
Take off immediately all contaminated clothing.  
Wash hands before breaks and after work.

**Respiratory protection**

Respiratory protection necessary at: aerosol or mist formation  
Filtering device with filter or ventilator filtering device of type: B

**Environmental exposure controls**

Do not allow to enter into surface water or drains.  
Danger of explosion

**SECTION 9: Physical and chemical properties**

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

Physical state:	Liquid
Colour:	colourless
Odour:	odourless
Odour threshold:	No data available

**Changes in the physical state**

Melting point/freezing point:	No data available
Boiling point or initial boiling point and boiling range:	No data available
Sublimation point:	No data available
Softening point:	No data available
Pour point:	No data available
:	No data available
Flash point:	X

**Flammability**

Solid/liquid:	No data available
Gas:	not applicable

**Explosive properties**

No data available

Lower explosion limits:	No data available
Upper explosion limits:	No data available
Auto-ignition temperature:	No data available

**Self-ignition temperature**

Solid:	No data available
Gas:	No data available

Decomposition temperature: No data available

pH-Value (at 20 °C): acidic

Viscosity / dynamic: No data available

Viscosity / kinematic: No data available

Flow time: No data available

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Water solubility:	Soluble in: Water
<b>Solubility in other solvents</b> not determined	
Dissolution rate:	No data available
Partition coefficient n-octanol/water:	No data available
Dispersion stability:	No data available
Vapour pressure:	No data available
Vapour pressure:	No data available
Density (at 20 °C):	1,115 g/cm <sup>3</sup>
Bulk density:	No data available
Relative vapour density:	No data available

**9.2. Other information**

**Information with regard to physical hazard classes**

Sustaining combustion: No data available

**Oxidizing properties**

The product is: oxidising, Oxidising.

Oxidizing liquids, Category 2

**Other safety characteristics**

Solvent separation test: No data available

Solvent content: No data available

Solid content: No data available

Evaporation rate: No data available

**Further Information**

Corrosive to metals.

**SECTION 10: Stability and reactivity**

**10.1. Reactivity**

Explosive

Oxidizing

**10.2. Chemical stability**

The product is stable under storage at normal ambient temperatures.

**10.3. Possibility of hazardous reactions**

Explosive reaction with:

Hydrogen, Combustible substance

Hydrocarbons, halogenated; Hydrogen halide

Fluorine, Ether

Dimethylsulfoxide (DMSO), Alcohols

Nitriles, Hydrogen chloride (HCl)

Acetic anhydride, Metal

Ethanol, Methanol

Dichloromethane, Phenol

Phosphine, Phosphorus oxides (e.g. P<sub>2</sub>O<sub>5</sub>)

Reducing agent, sulphuric acid

iron and steel, coal

Nitric acid, Acetic acid

Exothermic reaction with:

Ketone, Alkali (lye)

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Ignition hazard: Hydrogen iodide (HI), Aniline (Formaldehyde)

**10.4. Conditions to avoid**

No data available

**10.5. Incompatible materials**

Rubber articles  
Metal  
Light metal  
Fat

**10.6. Hazardous decomposition products**

In case of fire may be liberated:  
SECTION 5: Firefighting measures

**Further information**

No data available

**SECTION 11: Toxicological information**

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

**Toxicokinetics, metabolism and distribution**

There are no data available on the mixture itself.

**Acute toxicity**

Based on available data, the classification criteria are not met.  
If swallowed danger of perforation of the esophagus and the stomach (strong corrosive effects).

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
7601-90-3	perchloric acid				
	oral	LD50 200 - 2000 mg/kg	Rat	Study report (2003)	OECD Guideline 423

**Irritation and corrosivity**

Causes severe skin burns and eye damage.  
Causes serious eye damage.  
Risk of serious damage to eyes.

**Sensitising effects**

Based on available data, the classification criteria are not met.

**Carcinogenic/mutagenic/toxic effects for reproduction**

Based on available data, the classification criteria are not met.

**STOT-single exposure**

Based on available data, the classification criteria are not met.

**STOT-repeated exposure**

Based on available data, the classification criteria are not met.

**Aspiration hazard**

Based on available data, the classification criteria are not met.

**Information on likely routes of exposure**

There are no data available on the mixture itself.

**Specific effects in experiment on an animal**

There are no data available on the mixture itself.

**Additional information on tests**

There are no data available on the mixture itself.

**Practical experience**

There are no data available on the mixture itself.



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**11.2. Information on other hazards**

**Endocrine disrupting properties**

There are no data available on the mixture itself.

**Other information**

There are no data available on the mixture itself.

**Further information**

Irritant  
corrosive  
Cough  
Dyspnoea  
Cardiac arrhythmias  
Risk of serious damage to eyes.

**SECTION 12: Ecological information**

**12.1. Toxicity**

There are no data available on the mixture itself.

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h]   [d]	Species	Source	Method
7601-90-3	perchloric acid					
	Acute fish toxicity	LC50 mg/l	1470	96 h	Lepomis macrochirus	Publication (2004) EPA OPPTS 850.1075
	Acute algae toxicity	ErC50 mg/l	> 435,7	72 h	Pseudokirchneriella subcapitata	Study report (1998) OECD Guideline 201
	Acute crustacea toxicity	EC50 mg/l	> 100	48 h	Daphnia magna	Study report (2004) OECD Guideline 202
	Acute bacteria toxicity	(EC50 mg/l)	> 1000	0,5 h	Activated sludge	Study report (1997) ISO 8192

**12.2. Persistence and degradability**

The methods for determining the biological degradability are not applicable to inorganic substances.

**12.3. Bioaccumulative potential**

There are no data available on the mixture itself.

**BCF**

CAS No	Chemical name	BCF	Species	Source
7601-90-3	perchloric acid	> 0,12 - < 0,14	Danio rerio	Chemosphere 65 (2006)

**12.4. Mobility in soil**

There are no data available on the mixture itself.

**12.5. Results of PBT and vPvB assessment**

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

The substance in the mixture does not meet the PBT/vPvB criteria according to REACH, annex XIII.

**12.6. Endocrine disrupting properties**

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

There are no data available on the mixture itself.

**12.7. Other adverse effects**

Avoid release to the environment.

**Further information**

Do not allow to enter into surface water or drains.

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**SECTION 13: Disposal considerations**

**13.1. Waste treatment methods**

**Disposal recommendations**

Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste.  
Send to a physico-chemical treatment facility under observation of official regulations.  
Do not mix with other wastes.  
Do not empty into drains.

**Contaminated packaging**

Handle contaminated packages in the same way as the substance itself.  
The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

**SECTION 14: Transport information**

**Land transport (ADR/RID)**

**14.1. UN number or ID number:** UN 1802  
**14.2. UN proper shipping name:** Perchloric acid  
**14.3. Transport hazard class(es):** 8  
**14.4. Packing group:** II  
Hazard label: 8+5.1  
Classification code: CO1  
Special Provisions: 522  
Limited quantity: 1 L  
Excepted quantity: E0  
Transport category: 2  
Hazard No: 85  
Tunnel restriction code: E

**Inland waterways transport (ADN)**

**14.1. UN number or ID number:** UN 1802  
**14.2. UN proper shipping name:** Perchloric acid  
**14.3. Transport hazard class(es):** 8  
**14.4. Packing group:** II  
Hazard label: 8+5.1  
Classification code: CO1  
Special Provisions: 522  
Limited quantity: 1 L  
Excepted quantity: E0

**Marine transport (IMDG)**

**14.1. UN number or ID number:** UN 1802  
**14.2. UN proper shipping name:** Perchloric acid  
**14.3. Transport hazard class(es):** 8  
**14.4. Packing group:** II  
Hazard label: 8+5.1  
Special Provisions: -  
Limited quantity: 1 L  
Excepted quantity: E0  
EmS: F-H, S-Q  
Segregation group: heavy metals and their salts (including their organometallic compounds)

**Air transport (ICAO-TI/IATA-DGR)**

**14.1. UN number or ID number:** UN 1802  
**14.2. UN proper shipping name:** Perchloric acid

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<b>14.3. Transport hazard class(es):</b>	8	
<b>14.4. Packing group:</b>	II	
Hazard label:	8+5.1	
Special Provisions:	A1	
Limited quantity Passenger:	Forbidden	
Passenger LQ:	Forbidden	
Excepted quantity:	E2	
IATA-packing instructions - Passenger:		Forbidden
IATA-max. quantity - Passenger:		Forbidden
IATA-packing instructions - Cargo:		855
IATA-max. quantity - Cargo:		30 L

**14.5. Environmental hazards**

ENVIRONMENTALLY HAZARDOUS: No

**14.6. Special precautions for user**

Warning: Oxidising substances.

**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**

**EU regulatory information**

Restrictions on use (REACH, annex XVII):

Entry 3, Entry 40

Information according to 2012/18/EU (SEVESO III): P8 OXIDISING LIQUIDS AND SOLIDS

**National regulatory information**

Employment restrictions: Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

Water hazard class (D): 1 - slightly hazardous to water

**SECTION 16: Other information**

**Changes**

This data sheet contains changes from the previous version in section(s): 1,9,11,12,13.

**Abbreviations and acronyms**

- ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
- IMDG: International Maritime Code for Dangerous Goods
- IATA: International Air Transport Association
- GHS: Globally Harmonized System of Classification and Labelling of Chemicals
- EINECS: European Inventory of Existing Commercial Chemical Substances
- ELINCS: European List of Notified Chemical Substances
- CAS: Chemical Abstracts Service
- LC50: Lethal concentration, 50%
- LD50: Lethal dose, 50%

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**Classification for mixtures and used evaluation method according to Regulation (EC) No 1272/2008 [CLP]**

Classification	Classification procedure
Ox. Liq. 2; H272	On basis of test data
Met. Corr. 1; H290	On basis of test data
Skin Corr. 1B; H314	Calculation method
Eye Dam. 1; H318	Calculation method

**Relevant H and EUH statements (number and full text)**

H226	Flammable liquid and vapour.
H271	May cause fire or explosion; strong oxidiser.
H272	May intensify fire; oxidiser.
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.

**Further Information**

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material. The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights. The receiver of our product is singularly responsible for adhering to existing laws and regulations.

*(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)*