

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

KRONES colclean DI 8004
Article number: 0903394100, 0903394103, 0903394104

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

Production of chlorine dioxide

1.2.2 Uses advised against

None known.

1.3 Details of the supplier of the safety data sheet

Company KIC KRONES Internationale Cooperationsgesellschaft mbH
 Böhmerwaldstraße 5
 93073 Neutraubling / GERMANY
 Phone +49 9401 70-3020
 Fax +49 9401 70-3696
 Homepage www.kic-krones.com
 E-mail kic@kic-krones.com

Address enquiries to

Technical information kic@kic-krones.com

Safety Data Sheet sdb@chemiebueero.de

1.4 Emergency telephone number

Advisory body +49 (0)89-19240 (24h) (english)

SECTION 2: Hazards identification
2.1 Classification of the substance or mixture

Skin Corr. 1A: H314 Causes severe skin burns and eye damage.

Eye Dam. 1: H318 Causes serious eye damage.

Met. Corr. 1: H290 May be corrosive to metals.

2.2 Label elements

The product is required to be labelled in accordance with regulation (EC) No 1272/2008 (CLP).

Hazard pictograms

Signal word

DANGER

Contains:

Sulphuric acid

Hazard statements

H314 Causes severe skin burns and eye damage.

H290 May be corrosive to metals.

Precautionary statements

P260 Do not breathe vapours / spray.

P280 Wear protective gloves / protective clothing / eye protection / face protection.

P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

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.

P310 Immediately call a POISON CENTER / doctor.

P390 Absorb spillage to prevent material damage.

2.3 Other hazards
Physico-chemical hazards

May be corrosive to metals.

Environmental hazards

Does not contain any PBT or vPvB substances.

Other hazards

Further hazards were not determined with the current level of knowledge.

SECTION 3: Composition / Information on ingredients

Product-type:

The product is a mixture.

Range [%]	Substance
25 - < 30	Sulphuric acid
	CAS: 7664-93-9, EINECS/ELINCS: 231-639-5, EU-INDEX: 016-020-00-8, Reg-No.: 01-2119458838-20-XXXX
	GHS/CLP: Skin Corr. 1A: H314 - Met. Corr. 1: H290
1 - < 3	Glycolic acid
	CAS: 79-14-1, EINECS/ELINCS: 201-180-5, Reg-No.: 01-2119485579-17-XXXX
	GHS/CLP: Acute Tox. 4: H332 - Skin Corr. 1B: H314
1 - < 3	2-Phosphonobutan-1,2,4-tricarboxylic acid
	CAS: 37971-36-1, EINECS/ELINCS: 253-733-5, Reg-No.: 01-2119436643-39-XXXX
	GHS/CLP: Met. Corr. 1: H290 - Eye Irrit. 2: H319

Comment on component parts

Substances of Very High Concern - SVHC: substances are not contained or are below 0.1%.
All chemical substances in this material are included on or exempted from listing on the TSCA Inventory.
For full text of H-statements: see SECTION 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General information

Remove contaminated soaked clothing immediately and dispose of safely.

Inhalation

Ensure supply of fresh air.
In the event of symptoms seek medical treatment.

Skin contact

Immediate medical treatment necessary, as untreated burns can result in slow-healing wounds.
In case of contact with skin wash off immediately with soap and water.

Eye contact

Consult a doctor immediately.
Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Shield unaffected eye.

Ingestion

Consult a doctor immediately.
Rinse out mouth and give plenty of water to drink.
Do not induce vomiting.
Do not attempt to neutralize.

4.2 Most important symptoms and effects, both acute and delayed

Product is caustic.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

All extinguishing media are suitable but method must take into account the surrounding area to minimize dispersion.

Extinguishing media that must not be used

Full water jet

5.2 Special hazards arising from the substance or mixture

Risk of formation of toxic pyrolysis products.
Sulphur oxides (SO_x).
Phosphorus oxides (PO_x).

5.3 Advice for firefighters

Do not inhale explosion and/or combustion gases.

Use self-contained breathing apparatus.

Wear full protective suit.

Cool containers at risk with water spray jet.

Contain escaping vapours with water.

Fire residues and contaminated firefighting water must be disposed of in accordance with the local regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation.

Use personal protective equipment.

Remove persons to safety.

6.2 Environmental precautions

Do not discharge into the drains/surface waters/groundwater.

In case the product spills into drains/surface waters/groundwater, immediately inform the authorities.

6.3 Methods and material for containment and cleaning up

Take up with absorbent material (e.g. acid binder).

Dispose of absorbed material in accordance with the regulations.

6.4 Reference to other sections

See SECTION 8+13

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Use only in well-ventilated areas.

Avoid spilling or spraying in enclosed areas.

When diluting, always stir product into water.

Avoid contact with eyes and skin. Use personal protective equipment.

Do not eat, drink, smoke or take drugs at work.

Remove soiled or soaked clothing immediately.

Clean skin thoroughly after work, apply skin cream.

Use barrier skin cream.

7.2 Conditions for safe storage, including any incompatibilities

Provide acid-resistant floor.

Keep only in original container.

Do not store with alkalis.

Do not store together with acids.

Do not store together with metals.

Do not store with amines

Keep container tightly closed.

Keep container in a well-ventilated place.

Store in a dry place.

Protect from contamination.

7.3 Specific end use(s)

See product use, SECTION 1.2

SECTION 8: Exposure controls / personal protection
8.1 Control parameters
Ingredients with occupational exposure limits to be monitored (GB)

Substance
Sulphuric acid
CAS: 7664-93-9, EINECS/ELINCS: 231-639-5, EU-INDEX: 016-020-00-8
Long-term exposure: 0,05 mg/m ³ , mist; The mist is defined as the thoracic fraction

Ingredients with occupational exposure limits to be monitored (EU)

Substance / EC LIMIT VALUES
Sulphuric acid
CAS: 7664-93-9, EINECS/ELINCS: 231-639-5, EU-INDEX: 016-020-00-8
Eight hours: 0,05 mg/m ³ , thoracic fraction

DNEL

Substance
2-Phosphonobutan-1,2,4-tricarboxic acid, CAS: 37971-36-1
Industrial, inhalative, Long-term - systemic effects: 15 mg/m ³ .
Industrial, dermal, Long-term - systemic effects: 4,2 mg/kg.
general population, inhalative, Long-term - systemic effects: 3,7 mg/m ³ .
general population, dermal, Long-term - systemic effects: 2,1 mg/kg.
general population, oral, Long-term - systemic effects: 2,1 mg/kg.
Sulphuric acid, CAS: 7664-93-9
Industrial, inhalative, Long-term - local effects: 0,05 mg/m ³ .
Industrial, inhalative, Acute - local effects: 0,1 mg/m ³ .
Glycolic acid, CAS: 79-14-1
Industrial, inhalative, Long-term - systemic effects: 10,56 mg/m ³ .
Industrial, dermal, Long-term - systemic effects: 57,69 mg/kg.
general population, inhalative, Long-term - systemic effects: 2,6 mg/m ³ .
general population, dermal, Long-term - systemic effects: 28,85 mg/kg.
general population, oral, Long-term - systemic effects: 0,75 mg/kg.

PNEC

Substance
2-Phosphonobutan-1,2,4-tricarboxic acid, CAS: 37971-36-1
seawater, 0,33 mg/l.
soil, 0,491 mg/kg.
freshwater, 3,33 mg/l.
sediment (freshwater), 1,47 mg/kg.
sewage treatment plants (STP), 50,4 mg/l.
Sulphuric acid, CAS: 7664-93-9
freshwater, 0,0025 mg/l.
sediment (seawater), 0,002 mg/kg dw.
sediment (freshwater), 0,002 mg/kg dw.
sewage treatment plants (STP), 8,8 mg/l.
seawater, 0,00025 mg/l.
Glycolic acid, CAS: 79-14-1
seawater, 0,003 mg/l.
freshwater, 0,031 mg/l.

sewage treatment plants (STP), 7 mg/l.
sediment (seaater), 0,011 mg/kg.
soil, 0,007 mg/kg.
sediment (freshwater), 0,115 mg/kg.

8.2 Exposure controls

Additional advice on system design	Ensure adequate ventilation on workstation. Measurement methods for taking workplace measurements must meet the performance requirements of DIN EN 482. For example, recommendations are given in the IFA's list of hazardous substances.
Eye protection	Tightly fitting goggles. (EN 166:2001) Face shield.
Hand protection	The details concerned are recommendations. Please contact the glove supplier for further information. In full contact: > 0,7 mm, Viton, >480 min (EN 374-1/-2/-3). In splash contact: 0,4 mm, Nitrile rubber, > 30 min (EN 374-1/-2/-3).
Skin protection	Acid-resistant protective clothing.
Other	Avoid contact with eyes and skin. Do not breathe vapour/spray. Personal protective equipment should be selected specifically for the working place, depending on concentration and quantity handled. The resistance of this equipment to chemicals should be ascertained with the respective supplier.
Respiratory protection	Respiratory protection mask in the event of high concentrations. Short term: filter apparatus, filter P2. (DIN EN 143)
Thermal hazards	not applicable
Delimitation and monitoring of the environmental exposition	Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form	liquid
Color	colourless clear
Odor	faintly pungent
Odour threshold	No information available.
pH-value	strongly acidic
pH-value [1%]	< 1
Boiling point [°C]	> 100
Flash point [°C]	not applicable
Flammability (solid, gas) [°C]	not applicable
Lower explosion limit	No information available.
Upper explosion limit	No information available.
Oxidising properties	no
Vapour pressure/gas pressure [kPa]	No information available.
Density [g/ml]	1,25
Bulk density [kg/m³]	not applicable
Solubility in water	completely miscible
Partition coefficient [n-octanol/water]	No information available.
Viscosity	No information available.
Relative vapour density determined in air	No information available.
Evaporation speed	No information available.
Melting point [°C]	< 0
Autoignition temperature [°C]	not self-igniting
Decomposition temperature [°C]	No information available.

9.2 Other information

No information available.

SECTION 10: Stability and reactivity

10.1 Reactivity

Corrosive to metals.

10.2 Chemical stability

Stable under normal ambient conditions (ambient temperature).

10.3 Possibility of hazardous reactions

Reactions with alkalis (lyes).
 Reactions with alkali metals.
 Reactions with earth alkali metals.
 Reactions with metals, with evolution of hydrogen.
 Reactions with peroxides.
 Reactions with acids.
 Reactions with amines.
 Reactions with reducing agents.
 The product is hygroscopic.

10.4 Conditions to avoid

Strong heating.

10.5 Incompatible materials

See SECTION 10.3.

Water

Organic compounds.

10.6 Hazardous decomposition products

In the event of fire: See SECTION 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product
ATE-mix, inhalative, > 20 mg/l.
Substance
2-Phosphonobutan-1,2,4-tricarboxic acid, CAS: 37971-36-1
LD50, oral, Rat: >6500 mg/L (4h) (EU Method B.1).
LD50, dermal, Rat: >4000 mg/kg bw (IUCLID).
NOAEL, oral, Rat: 1000 mg/L.
Sulphuric acid, CAS: 7664-93-9
LD50, inhalative, Rat: 0,375 mg/l (OECD TG 403 aerosols).
LD50, oral, Rat: 2140 mg/kg (OECD TG 401).
Glycolic acid, CAS: 79-14-1
LD50, oral, Rat: 2040 mg/kg.
LC50, inhalative, Rat: 3,6 mg/l.

Serious eye damage/irritation	Risk of serious damage to eyes. Calculation method
Skin corrosion/irritation	Product is caustic. Calculation method
Respiratory or skin sensitisation	Based on the available information, the classification criteria are not fulfilled.
Specific target organ toxicity — single exposure	Based on the available information, the classification criteria are not fulfilled.
Specific target organ toxicity — repeated exposure	Based on the available information, the classification criteria are not fulfilled.
Mutagenicity	Based on the available information, the classification criteria are not fulfilled.
Reproduction toxicity	Based on the available information, the classification criteria are not fulfilled.
Carcinogenicity	Based on the available information, the classification criteria are not fulfilled.
Aspiration hazard	Based on the available information, the classification criteria are not fulfilled.
General remarks	If swallowed - risk of perforation! Influence of the product with the eyes can lead to blindness. Symptoms: abdominal pain, nausea, vomiting, diarrhoea. Irritates the mucous membrane. Toxicological data of complete product are not available. The toxicity data listed pertaining to the ingredients are intended for those working in the medicinal professions, experts for occupational health and safety and toxicologists. The toxicity data pertaining to the ingredients were supplied by the manufacturers of raw materials.

SECTION 12: Ecological information

12.1 Toxicity

Substance
2-Phosphonobutan-1,2,4-tricarboxic acid, CAS: 37971-36-1
LC50, (48h), <i>Leuciscus idus</i> : >500 mg/L (IUCLID).
EC50, (24h), <i>Daphnia magna</i> : 265 mg/L (IUCLID).
IC50, (72h), <i>Scenedesmus subspicatus</i> : 140 mg/l (Lit.).
Sulphuric acid, CAS: 7664-93-9
LC50, (96h), <i>Lepomis macrochirus</i> : 16 - 28 mg/l.
EC50, (48h), <i>Daphnia magna</i> : > 100 mg/l (OECD 202).
IC50, (72h), <i>Desmodesmus subspicatus</i> : > 100 mg/l (OECD 201).
Glycolic acid, CAS: 79-14-1
LC50, (96h), <i>Pimephales promelas</i> : 164 mg/l.
EC50, (72h), Algae: 31,2 mg/l.
EC50, (48h), <i>Daphnia magna</i> : 141 mg/l.

12.2 Persistence and degradability

Behaviour in environment compartments	No information available.
Behaviour in sewage plant	The product is an acid. Neutralization is normally necessary before a waste water is discharged into sewage treatment plants.
Biological degradability	The methods for determining the biological degradability are not applicable to inorganic substances. The organic component of the product is biodegradable in part only.

12.3 Bioaccumulative potential

logPow: -1,36 (CAS 37971-36-1)

12.4 Mobility in soil

No information available.

12.5 Results of PBT and vPvB assessment

Based on all available information not to be classified as PBT or vPvB respectively.

12.6 Other adverse effects

Harmful effect due to pH shift.

Ecological data of complete product are not available.

The toxicity data pertaining to the ingredients were supplied by the manufacturers of raw materials.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Waste material must be disposed of in accordance with the Directive on waste 2008/98/EC as well as other national and local regulations. It is not possible to determine a waste code for this product in accordance with the European Waste Catalogue (EWC) since it is only possible to classify it according to how it is used by the customer. The waste code is to be determined within the EU in liaison with the waste-disposal operator.

Product

Dispose of as hazardous waste.
Coordinate disposal with the authorities if necessary.

Waste no. (recommended) 060101*

Contaminated packaging

Uncontaminated packaging may be taken for recycling.
Packaging that cannot be cleaned should be disposed of as for product.

Waste no. (recommended) 150110*

SECTION 14: Transport information

14.1 UN number


Transport by land according to ADR/RID 2796


Inland navigation (ADN) 2796


Marine transport in accordance with IMDG 2796


Air transport in accordance with IATA 2796

14.2 UN proper shipping name

Transport by land according to ADR/RID	Sulphuric acid
- Classification Code	C1
- Label	
- ADR LQ	1 I
- ADR 1.1.3.6 (8.6)	Transport category (tunnel restriction code) 2 (E)

Inland navigation (ADN)	Sulphuric acid
- Classification Code	C1
- Label	

Marine transport in accordance with IMDG	Sulphuric acid
- EMS	F-A, S-B
- Label	
- IMDG LQ	1 I

Air transport in accordance with IATA	Sulphuric acid
- Label	

14.3 Transport hazard class(es)

Transport by land according to ADR/RID	8
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Inland navigation (ADN)	8
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Marine transport in accordance with IMDG	8
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Air transport in accordance with IATA	8
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14.4 Packing group

Transport by land according to ADR/RID	II
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Inland navigation (ADN)	II
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Marine transport in accordance with IMDG	II
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Air transport in accordance with IATA	II
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14.5 Environmental hazards

Transport by land according to ADR/RID no

Inland navigation (ADN) no

Marine transport in accordance with IMDG no

Air transport in accordance with IATA no

14.6 Special precautions for user

Relevant information under SECTION 6 to 8.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

No information available.

SECTION 15: Regulatory information**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

EEC-REGULATIONS 1991/689 (2001/118); 2010/75; 2004/42; 648/2004; 1907/2006 (REACH); 1272/2008; 75/324/EEC (2008/47/EC); (EU) 2015/830; (EU) 2016/131; (EU) 517/2014

TRANSPORT-REGULATIONS DOT-Classification, ADR (2017); IMDG-Code (2017, 38. Amdt.); IATA-DGR (2017).

NATIONAL REGULATIONS (GB): EH40/2005 Workplace exposure limits (Second edition, published December 2011). CHIP 3/ CHIP 4

- **Observe employment restrictions for people** Observe employment restrictions for young people.
Observe employment restrictions for mothers-to-be and nursing mothers.

- **VOC (2010/75/CE)** not applicable

15.2 Chemical safety assessment

For this product a chemical safety assessment has not been carried out.

SECTION 16: Other information**16.1 Hazard statements (SECTION 03)**

H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.

16.2 Abbreviations and acronyms:

ADR = Accord européen relatif au transport international des marchandises Dangereuses par Route
 RID = Règlement concernant le transport international ferroviaire de marchandises dangereuses
 ADN = Accord européen relatif au transport international des marchandises dangereuses par voie de navigation intérieure
 ATE = acute toxicity estimate
 CAS = Chemical Abstracts Service
 CLP = Classification, Labelling and Packaging
 DMEL = Derived Minimum Effect Level
 DNEL = Derived No Effect Level
 EC50 = Median effective concentration
 ECB = European Chemicals Bureau
 EEC = European Economic Community
 EINECS = European Inventory of Existing Commercial Chemical Substances
 ELINCS = European List of Notified Chemical Substances
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals
 IATA = International Air Transport Association
 IBC-Code = International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
 IC50 = Inhibition concentration, 50%
 IMDG = International Maritime Code for Dangerous Goods
 IUCLID = International Uniform Chemical Information Database
 LC50 = Lethal concentration, 50%
 LD50 = Median lethal dose
 LC0 = lethal concentration, 0%
 LOAEL = lowest-observed-adverse-effect level
 MARPOL = International Convention for the Prevention of Marine Pollution from Ships
 NOAEL = No Observed Adverse Effect Level
 NOEC = No Observed Effect Concentration
 PBT = Persistent, Bioaccumulative and Toxic substance
 PNEC = Predicted No-Effect Concentration
 REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals
 STP = Sewage Treatment Plant
 TLV@TWA = Threshold limit value – time-weighted average
 TLV@STEL = Threshold limit value – short-time exposure limit
 VOC = Volatile Organic Compounds
 vPvB = very Persistent and very Bioaccumulative

16.3 Other information

Classification procedure

Skin Corr. 1A: H314 Causes severe skin burns and eye damage. (Calculation method)
 Eye Dam. 1: H318 Causes serious eye damage. (Calculation method)
 Met. Corr. 1: H290 May be corrosive to metals. (Calculation method)

Modified position

SECTION 7 been added: Avoid contact with eyes and skin. Use personal protective equipment.
 SECTION 8 been added: Measurement methods for taking workplace measurements must meet the performance requirements of DIN EN 482. For example, recommendations are given in the IFA's list of hazardous substances.
 SECTION 9 been added: No information available.
 SECTION 9 deleted: not determined
 SECTION 11 been added: Based on the available information, the classification criteria are not fulfilled.
 SECTION 11 deleted: not determined
 SECTION 11 been added: Calculation method
 SECTION 11 been added: Risk of serious damage to eyes.
 SECTION 12 been added: The organic component of the product is biodegradable in part only.
 SECTION 12 been added: The methods for determining the biological degradability are not applicable to inorganic substances.
 SECTION 12 been added: No information available.
 SECTION 12 deleted: not determined



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