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SAFETY DATA SHEET

SECTION 1: IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier:
CHLOROSULPHONIC ACID

CAS number: 7790-94-5
EC number: 232-234-6
Index number: 016-017-01
Registration number: 01-2119454163-45-0001

1.2. Relevant identified uses of the substance and uses advised against:
Sulphonating, chlorinating, sulphochlorinating.

1.3. Details of the supplier of the safety data sheet:
Information about the manufacturer:
Bige Holding Trading and Production Ltd.
H-5007 Szolnok, Tószegi út 51.
Tel.: + 36 56 505 800
Fax: + 36 56 505 800

1.3.1. Responsible person: Krisztián Fehér
E-mail: kfeher@bigeholdingkft.hu

1.4. Emergency telephone number: **Public Toxicological Health Service** (ETTSZ)
1096 Budapest, Nagyvárad tér 2.
Tel.: 06 1 476 6464, 06 80 201 199 (0-24 h)

SECTION 2: HAZARDS IDENTIFICATION

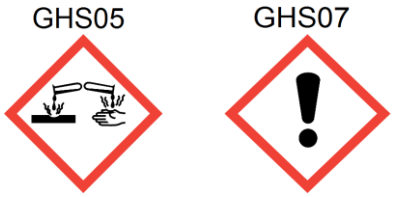
2.1. Classification of the substance:

Classification according to Regulation 1272/2008/EC (CLP):
Skin Corrosion 1A - H314
Specific target organ toxicity (STOT) – single exposure 3 – H335

Warning **H statements:**
H314 – Causes severe skin burns and eye damage.
H335 – May cause respiratory irritation.

2.2. Label elements:

CAS number: 7790-94-5
EC number: 232-234-6



DANGER

Warning **H statements:**
H314 – Causes severe skin burns and eye damage.
H335 – May cause respiratory irritation.

EUH 014 – Reacts violently with water.

Precautionary **P statements:**
P280 – Wear protective gloves/protective clothing/eye protection/face protection.
P305 + P351 + P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing: Continue rinsing.
P310 – Immediately call a POISON CENTER or doctor/physician.

2.3. Other hazards:
No other known specific hazards for human or environment.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance:

Description:
Synonym: Sulphonyl chloride hydroxide, chlorosulphonic acid
CAS number: 7790-94-5
EC number: 232-234-6
Formula: $ClSO_2OH$
Molar mass: 116,5 g/mol
Purity: > 98 %

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures:

IN CASE OF INGESTION:
Measures:
- Obtain immediate medical attention and show him the label.
- Place the victim into comfortable position.
- Do not give the victim anything to eat or drink, and do not induce vomiting if the victim is unconscious.
- Immediately give the injured person plenty of water to drink.

IN CASE OF INHALATION:
Measures:
- Remove to fresh air, keep warm and at rest.
- Pulmonary oedema may occur.
- Obtain immediate medical attention and show him the label!

IN CASE OF SKIN CONTACT:
Measures:
- Remove the contaminated clothes and shoes.
- Wash the contaminated area with plenty of warm water and soap (for 15 minutes) and cover with sterile lint.
- Obtain immediate medical attention and show him the label.

IN CASE OF EYE CONTACT:
Measures:
- In case of contact with eyes flush immediately with plenty of flowing water (for at least 15 minutes).
- Obtain immediate medical attention and show him the label.

4.2. Most important symptoms and effects, both acute and delayed:
Symptoms: coughing, laboured breathing.
Possible hazards: serious burns, pulmonary oedema.

4.3. Indication of any immediate medical attention and special treatment needed:
Symptomatic treatment is needed. For clarifying the danger of a toxic lung oedema, make as quick as possible a throat X-ray picture.

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing media:

5.1.1. Suitable extinguishing media:
Choose extinguishing media suitable for the surrounding fire.

5.1.2. Unsuitable extinguishing media:
If bigger quantity gets into the environment, do not use water.

5.2. Special hazards arising from the substance or mixture:
Chlorosulphonic acid is non-combustible.
In case of fire, smoke and other combustion products may be formed, the inhalation of such combustion products can have serious adverse effects on health.
When heated for a longer time, chlorosulphonic acid decompose into hydrogen chloride, chlorine, sulphur oxide, sulfuryl chloride, pyrosulfuryl chloride and sulphuric acid. In contact with water explosion like decomposition with high temperature build-up into hydrogen chloride and sulphuric acid.

5.3. Advise for fire fighters:
Wear full protective clothing and self-contained breathing apparatus.
Cool the fire affected containers with water spray.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures:

6.1.1. For non-emergency personnel:
Keep unprotected people away, allow only well trained experts wearing suitable protective clothing to abide in the field of accident.

6.1.2. For emergency responders:
Stay upwind.
Knock down gases/vapours/mist with water spray.
Use acid proof tools and appropriate individual protective clothing.

6.2. Environmental precautions:
Dispose of spillage and waste (product/packaging) in accordance with all applicable environmental laws. Do not allow the substance and the resulting waste to enter sewers/soil/surface or ground water. Notify the respective authorities in accordance with local law in the case of environmental pollution immediately.

6.3. Methods and material for containment and cleaning up:
Dike the spilled material and cover with ground lime or dry sand and place the collected waste into appropriate, labelled, closable hazardous waste container till proper removal/disposal.
During the collection, placement and disposal of the waste use appropriate acid resistant individual protective equipment.
The residues should be rinsed away with plenty of water, diluted solution should be neutralised with limestone or soda.

6.4. Reference to other sections:
For further and detailed information see section 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling:
Observe conventional hygiene precautions.
The product must be handled within strictly controlled conditions. The documentation about such conditions - including the choice of technical, administrative and personal protective equipment - is available in all manufacturing sites.
Technical measures:
Ensure adequate ventilation.
Use exclusively in dry and closed system.
Use acid proof equipment.
Carry out racking procedures only at stations with suitable exhaustion.
Precautions against fire and explosion:
Avoid the dispersion of the water into the environment - explosion hazard.

7.2. Conditions for safe storage, including any incompatibilities:
Technical measures and storage condition:
Keep in original, closed and appropriately labelled container.
The place of storage has to be properly ventilated and cleanable.
Store in cool and dry place.
Keep away from moisture.
Follow all instructions on the label.
Ensure adequate ventilation.
Incompatible materials: flammable substances, bases, water based substances.
Packaging material: enamelled container. The product attacks the most of the plastics and several metals. Based on literature data, aluminium is not resistant to the product.

7.3. Specific end use(s):
Sulphonating, chlorinating, sulphochlorinating.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters:

Exposure limit values:
The substance is not regulated with exposure limit value.

DNEL		Routes of exposure	Exposure frequency:	Remarks:
Worker	Consumer			
no data available	no data available	Dermal	Short term (acute) Long term (repeated)	no data available
no data available	no data available	Inhalative	Short term (acute) Long term (repeated)	no data available
no data available	no data available	Oral	Short term (acute) Long term (repeated)	no data available

PNEC			Exposure frequency:	Remarks:
Water	Soil	Air		
no data available	no data available	no data available	Short term (single use) Long term (continuous)	no data available
no data available	no data available	no data available	Short term (single use) Long term (continuous)	no data available
no data available	no data available	no data available	Short term (single use) Long term (continuous)	no data available

8.2. Exposure controls:
In case of a hazardous material with no controlled concentration limit it is the employer's duty to keep concentration levels down to a minimum achievable by existing scientific and technological means, where the hazardous substance poses no harm to workers.

8.2.1 Appropriate engineering controls:
In pursuance of work is proper foresight needed to avoid spilling onto clothes and floors and to avoid contact with eyes and skin.
The product must be handled within strictly controlled conditions. The documentation about such conditions - including the choice of technical, administrative and personal protective equipment - is available in all manufacturing sites.
The product attacks the most of the plastics and several metals. Based on literature data, aluminium is not resistant to the product.
The product should not be contacted with liquid, gases, vapours.
Do not inhale the vapours and the gases.
Do not eat, drink and store food in the workplace.
After the work hours thorough washing is required. Use skin protection.

8.2.2. Individual protection measures, such as personal protective equipment:

1. Eye/face protection: use adequate, tightly fitting goggles or face mask (EN 166).
2. Skin protection:
   a. Hand protection: Use adequate, protective gloves made of rubber or PVC (EN 374). Preventive skin protection is recommended.
   b. Other: use adequate, acid proof protective clothes.
3. Respiratory protection: use gas mask with type B (colour: grey) filter or with type E (colour: yellow) filter and P2 type particle filter. In case of > 1 w% concentration, use self-contained respiratory equipment.
4. Thermal hazard: none known.

8.2.3. Environmental exposure controls:
No specific prescription.

The requirements detailed in Section 8 assume skilled work under normal conditions and usage of the product for appropriate aims. If conditions differ from normal or work is carried out under extreme conditions an expert's advice should be sought out before deciding upon further protective measures.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties:

Parameter		Test method:	Remarks:
1. **Appearance:**	yellowish liquid		
2. **Odour:**	pungent		
3. Odour threshold:	no data available		
4. pH value:	< 1		strong acid
5. Melting point/ freezing point:	- 80 °C		
6. Initial boiling point/boiling range:	152 °C		
7. Flash point:	no data available		
8. Evaporation rate:	no data available		
9. Flammability (solid, gas):	non-flammable		
10. Upper/lower flammability or explosive limits:	no data available		
11. Vapour pressure:	3,08 hPa		
12 Vapour density:	no data available		
13. Relative density:	1,75 g/cm^3		
14. Solubility(ies):	in water: indefinite (with heat generation) other solvents: insoluble		with explosion-like decomposition
15. Partition coefficient: n-octanol/water:	no data available		
16. Self-ignition temperature:	no data available		

17. Degradation temperature: 151 °C
18. Viscosity: 3,0 mPs 15 °C, dynamic;
19. Explosive properties: non-explosive
20. Oxidizing properties: no data available

9.2. Other information:
Relative vapour pressure: 4,02 (air = 1)

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity:
None known.

10.2. Chemical stability:
Stable within normal temperature and general work conditions.

10.3. Possibility of hazardous reactions:
None known.

10.4. Conditions to avoid:
Heating or distillation under vacuum for longer time may occur partial decomposition. Decomposition products: hydrogen chloride, chlorine, sulphur dioxide, sulphuryl chloride, pyrosulphuryl chloride and sulphuric acid.

10.5. Incompatible materials:
Water, alcohols, bases, amines, ketones, ether, dimethyl sulphoxide.

10.6. Hazardous decomposition products:
Chlorine, sulphur dioxide, sulphuryl chloride, pyrosulphuryl chloride and sulphuric acid.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects:
Acute toxicity: none known.
Skin corrosion/irritation: causes severe burns.
Serious eye damage/eye irritation: causes serious eye damage.
Respiratory or skin sensitisation: none known.
Germ cell mutagenicity: none known.
Carcinogenicity: none known.
Reproductive toxicity: none known.
STOT-single exposure: may cause respiratory irritation.
STOT-repeated exposure: none known.
Aspiration hazard: none known.

11.1.1. For substances subject to registration, brief summaries of the information derived from the test conducted:
For detailed test results contact the supplier of the substance.

11.1.2. Relevant toxicological properties of the hazardous substances:
No data available.

11.1.3. Information on likely routes of exposure:
Ingestion, inhalation, skin contact, eye contact.

11.1.4. Symptoms related to the physical, chemical and toxicological characteristics:
Ingestion: corrosion in the mouth and throat.
Skin: irritation, corrosion, wounds due to burning.
If the liquid gets into the eyes, strong corrosion occurs, in more serious cases it causes blindness. Burning sensation, lachrymation may occur.
The vapours of chlorosulphonic acid strongly irritate the mucous membranes and the respiratory tract.
Causes skin irritation.
The vapours strongly irritate the eyes.

11.1.5. Delayed and immediate effects as well as chronic effects from short and long-term exposure:
Causes severe skin burns and eye damage.
May cause respiratory irritation.

11.1.6. Interactive effects:
No data available.

11.1.7. Absence of specific data:
No information.

11.1.8. Other information:
No data available.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity:
Aquatic toxicity:
LC_{50}: 282 mg/l/96 h (fish)

12.2. Persistence and degradability:
It should not get into waste water or sewer without dilution and neutralisation. Recommended substance for neutralisation: lime milk, lime hydrate, soda solution.

12.3. Bioaccumulation potential:
No data available.

12.4. Mobility in soil:
Spreads in the air in mist form.
Water/soil: well-soluble, quick spreading.

12.5. Results of PBT and vPvB assessment:
No data available.

12.6. Other adverse effects:
Do not enter into drains, watercourses and soil.
Harmful for aquatic organisms. The effects of the product depend on the environmental circumstances, for example: pH, temperature, the composition of organic and inorganic substances.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods:
Disposal according to the local regulations.

13.1.1. Information regarding the disposal of the product:
Take up with suitable adsorbent.
Dispose according to the relevant regulations.
No appropriate EWC code can be given for the substance, since the identification of the proper code can be done with the method of use defined by the user of the substance. The European waste code number has to be determined after a discussion with a specialist dealing with waste disposal.

13.1.2. Information regarding the disposal of the packaging:
Dispose according to the relevant regulations.
The contaminated packaging must be fully emptied. Neutralise it with water and alkali. The neutralisation liquid should be disposed according to the local regulations. The neutralised containers should be disposed in the usual way.

13.1.3. Physical/chemical properties that may affect waste treatment options shall be specified:
None known.

13.1.4. Sewage disposal:
None known.

13.1.5. Special precautions for any recommended waste treatment:
No data available.

SECTION 14: TRANSPORT INFORMATION

14.1. UN Number:
1754

14.2. UN proper shipping name:
CHLOROSULPHONIC ACID (with or without sulphuric trioxide)

14.3. Transport hazard class(es):
ADR/RID-GGVS/E class: 8 C1
Kemler-number: X88
Labels: 8
EmS: 8-03
IMDG Class: 8
Labels: 8
ICAO/IATA class: 8
Labels: 8
Waterway transport: note: MFAG 700
Air transport: Forbidden in passenger and cargo aircraft.

14.4. Packaging group:
I

14.5. Environmental hazard:
No relevant information available.

14.6. Special precautions for user:
No relevant information available.

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code:
Not applicable.

SECTION 15: REGULATORY INFORMATION

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

REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC

REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006

Commission Regulation (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

15.2. Chemical safety assessment: chemical safety assessment is available about the product.

SECTION 16: OTHER INFORMATION

Information regarding the revision of the safety data sheet:
The safety data sheet has been revised according to Regulation (EU) 2015/830 (Section 1-16).
No change in the classification of the product.

Full text of the abbreviations in the safety data sheet:
DNEL: Derived no effect level. PNEC: Predicted no effect concentration. CMR effects: carcinogenity, mutagenicity and toxicity for reproduction. PBT: Persistent, bioaccumulative and toxic. vPvB: very persistent and very bioaccumulative. n.d.: not defined. n.a.: not applicable. VOC: Volatile Organic Compound
ÁK value: allowed average concentration. CK value: allowed peak concentration (short term highest allowed air pollution). MK value: maximal concentration.

Data sources: previous version of the safety data sheet (22. 06. 2015., version: 2)

Relevant H-Phrases (number and full text) of Section 2:
H314 – Causes severe skin burns and eye damage.
H335 – May cause respiratory irritation.
EUH 014 – Reacts violently with water.

Training advice: no data available.

This safety data sheet had been prepared on the basis of information provided by the manufacturer/supplier and conform to the relevant regulations.

The information, data and recommendations contained herein are provided in good faith, obtained from reliable sources and believed to be true and accurate as of the date issued; however, no representation is made as to the comprehensiveness of the information. The SDS shall be used only as a guide for handling the product; in the course of handling and using the product other considerations may arise or be required.
Users are cautioned to determine the appropriateness and applicability of the above information to their particular circumstances and purposes and assume all risk associated with the use of this product. It is the responsibility of the user to fully comply with local, national and international regulations concerning the use of this product.

Safety data sheet was prepared by: ToxInfo Kft.

Professional help regarding the explanation of the safety data sheet:

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