MATERIAL SAFETY DATA SHEET

(According to Regulation (EC) No 1907/2006 of the European Parliament as amended by Regulation (EC) No 453/2010)

Product name: **CHLORAMIN T**

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

1.1 Product identifier

Trade name:	**Chloramin T**
Synonyms:	N-chlorine-4-methyl-benzen-1-sulfonamid, sodium salt, trihydrate; tosylchloramide sodium
Index No:	616-010-00-9
CAS:	127-65-1
EC:	204-854-7

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

Intended or recommended use of the substance or mixture:	Chloramine T is a universal, powder, highly efficient disinfectant based on active chlorine. Disinfectant with a wide spectrum of efficacy (bactericidal, fungicidal, virucidal, mycobactericidal, tuberculocidal).
Uses advised against:	The product should not be used for any other purpose than determined.

1.3 Details of the supplier of the safety data sheet

Manufacturer trade name:	**Schulke CZ, s.r.o.**
Address:	Lidická 326, 735 81 Bohumín, Czech Republic
Company ID:	24301779
Phone number / Fax:	00420 596 091 421
e-mail:	schulkecz@schuelke.com
e-mail of person responsible for the Safety Data Sheet:	MSDS@bochemie.cz

1.4 Emergency telephone number: 224 91 92 93; 224 91 54 02; 224 91 45 71

Toxikologické informační středisko, Na Bojišti 1, 128 08 Praha 2, CZ

SECTION 2: HAZARDS IDENTIFICATION

The product is classified according to Directive 67/548/EEC and Regulation No. 1272/2008/EC**.**

2.1 Classification of the substance or mixture

According to Directive 67/548/EEC	Xn – Harmful, C – Corrosive; R22-31-34-42
According to Regulation No 1272/2008/EC	Acute Tox. 4, Skin Corr. 1B, Resp. Sens. 1; H302-H314-H334

– For the full wording of R-sentences and shortcut see section 16

The most important adverse physicochemical, human health and environmental effects: The product is harmful if swallowed. Causes severe skin burns and eye damage. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Contact with acids liberates toxic gas.

2.2 Label elements

Hazard pictograms:

Signal word: **Danger**

Hazard statements:	**H302**	Harmful if swallowed.
	H314	Causes severe skin burns and eye damage.
	H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Precautionary statements:	**P102**	Keep out of reach of children.
	P260	Do not breathe dust.
	P280	Wear protective rubber 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.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Supplemental Hazard Information:

EUH 031 Contact with acids liberates toxic gas.

Supplemental label elements:

EUH 206 Warning! Do not use together with other products. May release dangerous gases (chlorine).

2.3 Other hazards

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

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances

Substance name	Content (%)	Index Number CAS EC
Chloramin T*	81	616-010-00-9 127-65-1 204-854-7

*) in the form of N-chlorine-4-methylbenzen-1-sulfonamide, sodium salt, trihydrate (CAS 7080-50-4, EC 204-854-7) the content of the substance is almost 100%

For the full wording of R-sentences and hazard statements see section 16

3.2 Mixtures

Not relevant.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

- **Inhalation:** Shut off source of exposure, if possible. Bring the victim to the fresh air, keep at rest (avoid even walking) if necessary, seek medical attention.
- **Skin contact:** Remove contaminated clothing, wash contaminated skin sufficiently with water, cover sterilely or provide medical help (according to the extent and seriousness).
- **Eye contact:** Flush immediately with large amounts of fresh water at least 10 minutes to get the water under the eyelids, seek medical attention.
- **Ingestion:** Rinse mouth with potable water and leave victim to drink 0.5 L of cool potable water. Do not induce vomiting, seek medical aid.

4.2 Most important symptoms and effects, both acute and delayed

Corrosive effects are predominant.

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

In case of eyes contact, ingestion and in other health problems or should the symptoms persist, always seek medical advice and provide information contained in the MSDS.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable: water, water spray, adapts the extinguisher to the materials burning in the surroundings.

Unsuitable: powder and snow extinguishers (raising dust), if water is used there is a risk of release into sewerage and environment.

5.2 Special hazards arising from the substance or mixture

During fire, toxic and corrosive products may be released due to high temperatures. It disintegrates at temperature above 140°C, releases toxic chlorine during fire. Prevent raising dust.

5.3 Advice for fire fighters

In case fires wear full protective clothing, eyes protection and suitable respiratory system protection. In case of release to the sewers act upon emergency plans (capturing and/or diluting with water).

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel

Wear suitable personal protective equipment. Avoid contact with skin and eyes. Do not use the preparation in a closed area and near flammable material; provide sufficient ventilation or exhaustion of the area.

6.1.2 For emergency responders

Wear suitable personal protective equipment. Avoid contact with skin and eyes. Do not use the substance in the closed area; provide sufficient ventilation or exhaustion of the area. Avoid release to the environment, contact to water and dampness.

6.2 Environmental precautions

Avoid contamination of water and soil and contact with flammable materials (do not use sawdust or cellulose for capturing spillage). In case of accidental discharge of large amount of the concentrated product to the surface water, ground water or waste water, notify local authorities according to local regulations (e.g. fire brigade, police, rescue police, water course administrator). Prevent effect of acids and acidic substances. Prevent excessive contamination of the environment. Store and keep in tightly closed containers, prevent release into the environment.

6.3 Methods and material for containment and cleaning up

The spilled preparation shall be absorbed into an appropriate absorption material (e.g. universal sorbents, sorbents for capturing aggressive substances) and placed into a closable container, prevent release into the sewerage and water streams, or provide sufficient dilution with water. In case of release into sewerage or water stream, follow the local terms and conditions and instructions of emergency plans.

6.4 Reference to other sections

See section 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

General safety regulations for work shall be absorbed when manipulating with the preparation, use the prescribed personal protective equipment. Prevent raising dust during manipulation. Further, secure the disinfectant from potential manipulation by unauthorized persons and provide sufficient ventilation of the working areas, prevent the effect of acids and acidic substances. Do not eat, drink and smoke when manipulating with the preparation. Close the packaging thoroughly after opening.

7.2 Conditions for safe storage, including any incompatibilities

Keep in original, well closed containers. Store in dry areas protected from weather influence and secure from release into the environment and access of unauthorized persons. Do not store in direct sunlight and together with flammable materials. Store separate from food, drinks, feedstuff and from acids and acidic cleaning and washing preparations. Storage temperature: from -20 to +30°C.

7.3 Specific and use(s)

Important information is provided by material data safety sheet, by instructions on the label or on the company web pages.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

8.1.1 Exposure limits values in accordance Regulation of Government No. 361/2007 of Czech Act Collection in last wording.

Substance	CAS	PEL (mg/m^3)	NPK-P (mg/m^3)	Conversion factor to ppm
Chlorine	7782-50-5	0.5	1.5	0.344

8.1.2 Biological limit values

Decree No 432/2003 of Czech Act Collection does not set indication limits of biological exposure tests.

8.1.3 Information monitoring procedures

Monitor the concentration in the workplace according the provisions of Regulation of Government No. 361/2007 of Czech Act Collection in last wording.

8.2 Exposure controls

8.2.1 Appropriate engineering controls

Provide sufficient ventilation, local exhaustion recommended. When working, do not eat, drink and smoke and observe regular hygiene conditions for work. Ensure that only personnel using personal protective aids and acquainted with nature of the disinfectant, instructions for use and conditions of personal and environmental protection, or rules for manipulation with the preparation, is allowed to work with the preparation. When executing disinfection with working solution, use gloves. Keep the personal protective equipment in a usable condition and change damaged one. Contaminated working clothes may be used again when cleaned thoroughly. Wash your hands and face thoroughly with water and soap after work, use reparation lotion for hands.

8.2.2 Individual protection measures, such as personal protective equipment

Eye/face protection:	Use protective goggles or face shield.
Skin protection:	Work clothing, working boots (closed), use protective cream on the skin.
Hand protection:	Wear rubber (latex) gloves.
Respiratory protection:	Provide sufficient ventilation of the area or use protection of respiratory system with filter against dust or aerosols (for concentrated solution).

8.2.3 Environmental exposure controls

Observe instructions for handling and storage, particularly ensure provisions preventing spill of concentrated product into watercourses, soil and sewerage (for further information see Handling Conditions according to Act No 254/2001 of Czech Act Coll., on Waters).

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance (at 20°C):	solid, fine crystal powder
Colour:	white to light greyish
Odour:	characteristic slight chlorine odour
Odour threshold	characteristic slight chlorine odour
pH (at 20°C):	pH 10.8 (1% solution)
Melting point:	decomposed at 167°C, does not melt
Freezing point:	not estimated
Boiling point:	not estimated
Flash point:	not estimated – powder product
Evaporation rate:	not estimated
Flammability (solid, gas):	not highly flammable
Upper/lower flammability or explosive limits:	not flammable
Vapour pressure (at 20°C):	70.1 mN/m
Vapour density:	not estimated
Relative density:	not relev.
Solubility:	149 g/L
Partition coefficient: n-octanol/water:	0.07
Auto-ignition temperature;	not flammable
Decomposition temperature:	not estimated
Viscosity:	not estimated – powder preparation
Explosive properties:	non-explosive
Oxidising properties:	does not show oxidising properties

9.2 Other information:

Content of active chlorine: 25% of mass. The preparation has bleaching effects, may cause bleaching of dyes used for textiles.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

The preparation reacts with concentrated and diluted acids, acidic substances, reducing agents, ammonium, powder metals and ammonium ions.

10.2 Chemical stability

Stable in standard conditions of usage and storage (keep temperature range for storage).

10.3 Possibility of hazardous reactions

Reaction with concentrated as well as diluted acids and acidic substances, reducing agents, powder metals, ammonium and ammonium ions the possibility of a hazardous chemical reaction.

10.4 Conditions to avoid

Increased temperature, effect of direct sunlight, effects of weather, humidity, water precipitation and especially effects of acids and acidic substances and solutions.

10.5 Incompatible materials

Concentrated as well as diluted acids and acidic substances, reducing agents (e.g. hydrides), powder metals, ammonium and ammonium ions.

10.6 Hazardous decomposition products

Chlorine, hydrogen chloride, nitrogen oxides, sulphur dioxide toxicological information.

SECTION 11: INFORMATION ON TOXICOLOGICAL EFFECTS

a) acute toxicity	*Tosylchloramide sodium* LD50 oral, rat 200-2000 mg/kg (test) LD50 dermal, rat > 2000 mg/kg (test) LC50 inhalation, rat > 0.275 mg/l/4 hours on 14 days (literature) LC50 inhalation, rat > 4.2mg/l/4 hours on 14 days (literature) No mortality occurred during the 4-hour exposure period or during the 14 day observation period NO(A)EL, oral (90 days): 30 mg/kg/day for male, female LOAEL, oral (90 days): 30 mg/kg/day for male, female
b) skin corrosion/irritation:	Causes severe skin burns.
c) serious eye damage/irritation:	Causes serious eye damage.
d) respiratory or skin sensitisation:	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
e) germ cell mutagenicity:	Criteria for classification are not met based on available data.
f) carcinogenicity:	Criteria for classification are not met based on available data.
g) reproductive toxicity:	Criteria for classification are not met based on available data.
h) STOT-single exposure:	Criteria for classification are not met based on available data.
i) STOT-repeated exposure:	Criteria for classification are not met based on available data.
j) aspiration hazard:	Criteria for classification are not met based on available data.

SECTION 12: ECOLOGICAL INFORMATION

12.1Toxicity

Acute toxicity established for Tosylchloramide sodium.

Toxicity for fish	LC50	25.3 mg/l/96h (test)
NOEC		16 mg/l
Toxicity for daphnia	EC50	6.42 mg/l/48h (test)
NOEC		3 mg/l

12.2Persistence and degradability

Product degrades during application; its degradation product p-toluenesulphonamide is 95 % biodegradable.
After the removal active chlorine, gives a degradation of 95 % in the 28-day test of biodegradability.

12.3Bioaccumulative potential

Determined value of partition coefficient (n-octanol/water) of product - log Pow is 0.07.
An estimated bioconcentration factor (BCF) of 2.5 suggests that *p*-TSA will not bioaccumulate in aquatic organisms.

12.4Mobility in soil

Adsorption of Chloramine T in soil and sludge is very limited.

$\log K_{OC}^{soil} = 0.527$

$\log K_{OC}^{sed} = 0.450$

12.5Results of PBT and vPvB assessment

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

12.6 Other adverse effects

Toxicity for other environments has not been determined.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

a) Recommended Methods of Substance and Contaminated Packaging Disposal

It is dangerous waste. Personal protective equipment should be used and provisions to be applied when handling and collecting wastes regarding protection of waste spill into environment. Waste hand over to specialized competent company, if need be hand over within the framework of dangerous waste collection in your community. Contaminated packaging hand over to specialised company as dangerous waste or can be recycled after thorough cleaning.

b) Physical/chemical properties that may affect waste treatment options

Avoid contact with concentrated and diluted acids, acidic substances, reducing agents, ammonium, powder metals and ammonium ions.

c) Sewage disposal shall be discouraged

Waste should not be disposed of by release to sewers.

d) Special precautions for any recommended waste treatment

Waste Legal Regulations:

Directive 2008/98/EC on waste and repealing certain Directives. If the product and its packaging become waste, the last user has to assign relevant waste code – European Waste Code (EWC code) according to Commission Decision (2000/532/EC).

Suggestion of waste classification:

Subgroup	16 03	off-specification batches and unused products
	16 03 05*	organic wastes containing dangerous substances

Suggestion of waste container classification:

Containers with residues of the product: 15 01 10* packaging containing residues of or contaminated by dangerous substances.

SECTION 14: TRANSPORT INFORMATION

	(ADR/RID/GGVSE)	IMDG/ ICAO
14.1 UN-No.:	UN 3263	UN 3263
14.2 UN proper shipping name:	SOLID CORROSIVE SUBSTANCE, ORGANIC, N.O.S (CHLORAMIN T)	SOLID CORROSIVE SUBSTANCE, ORGANIC, N.O.S (CHLORAMIN T)
14.3 Transport hazard class:	8	8
14.4 Packing group:	III	III
14.5 Environmental hazards	NO	NO
14.6 Special precautions for user:	--	--
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code.	--	--
Other information	**Danger code (Kemler):** 80	**Danger code (Kemler):** 80
	Limited quantities (LQ): 5 kg	**Limited quantities (LQ):** 5 kg

SECTION 15: REGULATORY INFORMATION

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

Legislation regulating individual issues of the environmental protection and occupational hygiene conditions.
Regulation No. 1907/2006 (REACH).
Regulation No 1272/2008/ES (CLP)
Regulation (EU) No. 528/2012 concerning the making available on the market and use of biocidal products.
Directive 67/548/EEC on harmonisations of legal and administrative regulations on classification, packaging and labelling hazardous substances.

15.2 Chemical safety assessment

A chemical Safety assessment was not carried out.

SECTION 16: OTHER INFORMATION

a) Changes during Revision of the MSDS

Revision No.9 – Change of information on supplier (point 1) and other.

The changed sections are indicated with bold line:

b) A key or legend to abbreviations and acronyms used

Acute Tox. 4	Acute toxicity cat. 4
Skin Corr. 1B	Skin corrosion cat. 1B
Resp. Sens. 1	Reproductive toxicity cat. 2
LC50	Lethal concentration, 50 percent
EC50	Effective Concentration, 50 percent
LD50	Lethal dose, 50 percent
NPK-P	Maximum Permissible Concentration
PEL	Permissible Exposure Limit
PBT	Persistent, Bioaccumulative and Toxic
vPvB	Very Persistent and Very Bioaccumulative
NOEC	No observed effect concentration
NO(A)EL	No-observed-adverse-effect level
LOAEL	The lowest-observed-adverse-effect level

c) Key literature references and sources for data

Information contained herein is based on best knowledge and current legislation, according to 1907/2006/EC and 1272/2008/EC. Material Safety Data Sheet has been prepared on the base of public data in databases and tests owned by manufacturer. The MSDS contains information needed for security of safety and occupational health protection and the environmental protection. The mentioned information refers to present state of knowledge and experience and is in accordance with legislation in force. It cannot be considered warranty of suitability or usability of the product for particular application.

d) The methods of evaluating information

The product was classified according to method described in Directive 67/548/EEC and Regulation 1272/2008/EC.

e) List of relevant R phrases, hazard statements, safety phrases and/or precautionary statements

R 22	Harmful if swallowed.
R 31	Contact with acids liberates toxic gas.
R 34	Causes burns.
R 42	May cause sensitization by inhalation.
H 302	Harmful if swallowed.
H 314	Causes severe skin burns and eye damage.
H 334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
EUH031	Contact with acids liberates toxic gas.

f) Instructions for Training

Personnel handling the preparation must be instructed about manipulation risks and on requirements for health and environmental protection (relevant provisions of the Labor Code as amended) and further, they must be demonstrably familiarized with dangerous properties, occupational health and environmental protection principles and first aid measures (Act No. 258/2000 Coll. on public health protection as amended).

g) Recommended Use Limitations

The preparation should not be used for any other purpose than determined (see point 1.2). As specific conditions of use of the substance are beyond control of the supplier, the user is the only responsible to adapt the information and warnings contained herein to local legislation and regulations. The safety information describes the product from perspective of its safety and it cannot be deemed technical specifications of the product.