

Sulfuric acid 78%

Date of issue: 2022-07-25

Version: EN 1.0



This MSDA is accordant with Regulation EC 1907/2006 dated 18.12.2006 – REACH and 2020/878 dated 18.06.2010.

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

1.1. Product identifier Sulfuric acid 78%
CAS: 7664-93-9
EC: 231-639-5

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

Use of the sulphuric acid as an intermediate for production of inorganic and organic chemicals. Fertilizers; Use of the sulphuric acid as processing aid, as catalyst, dehydrating agent and pH adjuster;
Use of the sulphuric acid for extraction and processing of minerals and ores; Use of the sulphuric acid for surface treatment, cleaning and pickling; Use of the sulphuric acid in electrolytic processes;
Use of the sulphuric acid for gas purification and waste gas treatment; Use of the sulphuric acid for production of the sulphuric acid contained in batteries; Use of the sulphuric acid in the recycling of batteries containing the sulphuric acid; Use of the sulphuric acid in batteries;
Use of the sulphuric acid as a laboratory reagent;
Use of the sulphuric acid for cleaning, mixing, preparation and repackaging of the sulphuric acid;

Uses advised against: not specified.

1.3. Data of the supplier of the MSDS

Distributor: TOMCHEM Sp. z o.o.
95-050 Konstancin Łódzki ul.
Niesięcin 5A
tel. 42 683-11-83
tel./fax.: 42-636-43-18

E-mail address of the person responsible for the material safety data sheet: info@spin-doradztwo.pl.

1.4. Emergency phone number 112 (general emergency phone), 998 (fire department), 999 (medical emergency);

SECTION 2: Identification of hazards

2.1. Classification of the substance / mixture

Acc. to the Ordinance 1272/2008:

Skin Corr. 1A; H314

Hazard for human health

Causes severe skin burns and eye damage.

Hazards for the environment

No

Physical and chemical hazards

No

2.2. Label elements

Pictograph:



Signaling word: Hazard

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Hazard statement:

H314 Causes severe skin burns and eye damage.

Precautionary statements:

- P260** Do not breathe vapors of the substance
- P264** Wash hands thoroughly after use
- P280** Wear protective gloves/protective clothing/eye protection/face protection.
- P301+P330+P331** - IF SWALLOWED: rinse the mouth. DO NOT induce vomits.
- P303+P361+P353** - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]
- P304+P340** - IF INHALED: If breathing is difficult, take an injured person to the fresh air and keep at rest in a position comfortable for breathing.
- P305+P351+P338** - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
- P301** Immediately call a POISON CENTER or doctor/physician
- P363** Wash contaminated clothing before reuse.
- P405** Store locked up
- P501** Dispose of contents/container to a suitable waste disposal facility in accordance with national regulations

2.3. Other hazards

Appendix XIII to the Regulation REACH - Criteria of identification of persistent, bioaccumulative and toxic substances (PBT) and very persistent and very bioaccumulative substances (vPvB) - not applicable

Substances with endocrine disrupting properties (according to the criteria of Commission Delegated Regulation (EU) 2017/2100, Commission Regulation (EU) 2018/605) - not applicable

SECTION 3: Composition/information on ingredients

3.1. Substances

Product identifier	Content %	Hazard class and category codes	Hazard statements and other	- Specific threshold - M coefficient - Estimated Acute Toxicity (ATE)
Sulfuric acid* CAS no. 7664-93-9 EC No.: 231-639-5 Index no.: 016-020-00-8 Registration no.: 01-2119458838-20-0059	78	Skin Corr. 1 A	H314	Skin Corr. 1A; H314: C ≥ 15 % Skin Irrit. 2; H315: 5% ≤ C < 15 % Eye Irrit. 2; H319: 5 % ≤ C < 15 %

Full text of H statements in section 16
*substance with a specific NDS value.

3.2. Mixtures

Not applicable.

SECTION 4: First aid measures

4.1. Description of first aid measures

In case of skin contact:

Remove all soiled clothing, wash the skin with plenty of water. Apply a sterile dressing to the burned area. Do not use soap or any antacids. Consult a doctor.

Contact with eyes:

Flush eyes for several minutes (approx. 15 min.) with plenty of water, keep the eyelids wide open. Avoid heavy jets because of a risk of damage to the cornea, contact the doctor.

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If inhaled:

In case of dizziness or nausea remove a victim to a fresh air; contact a doctor if the symptoms persist. If shortness of breath occurs, administer the oxygen.

If swallowed:

Give a large amount of water to drink. Do not induce vomiting (risk of perforation), contact a doctor immediately. Never administer anything into the mouth if a victim is unconscious.

4.2. The most significant acute and delayed symptoms and effects of the exposure

Skin contact: chemical burns, hard-to-heal wounds.

Eye contact: chemical burns - risk of permanent eye damage.

Respiratory system: chemical irritation of the mucous membranes of the nose, throat and other parts of the respiratory system; due to the possibility of delayed pulmonary oedema keep the victim under medical observation for at least 48 hours.

Gastrointestinal tract chemical burns of the oral cavity, tongue, throat and other sections of the tract. Risk of perforation.

4.3. Recommendations regarding immediate doctor's aid and detailed procedure of treatment of a victim.

Decision on how to proceed is made by a doctor after assessment of the condition of the affected person.

SECTION 5: Firefighting**5.1. Extinguishing media**

Suitable extinguishing media: dry extinguishing powders, carbon dioxide (snow extinguisher), foam. Apply extinguishing methods adjusted to adjacent area.

Inappropriate extinguishing media: Heavy water stream.

5.2. Special hazards arising from the substance or mixture

Sulphuric acid is non-flammable. Oxidizing agent. May promote burning. In the event of fire, under the influence of high temperatures certain toxic decomposition products are released, including sulfur oxides. A large amount of heat is released during contact with water.

5.3. Advice for firefighters

Containers in a fire area must be cooled down with a water spray. If this is possible remove the containers from the hazard zone. In case of fire in an enclosed area use protective clothing and compressed air breathing apparatus. Do not enable penetration of the ground waters and the sewage system.

SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

For non-emergency personnel: notify the relevant services of the accident. Remove everyone, who is not involved into the rescue operation, from the emergency liquidation area.

For persons providing aid. Assure required ventilation, apply the PPE. Do not breathe vapors.

6.2. Environment protection measures

Prevent from spreading and penetration of the sewage system and reservoirs; inform local authorities if it is impossible to assure safety.

6.3. Methods and materials for preventing the spread of contamination and for disposal Prevent spreading and dispose of by collecting on absorbent material (ground limestone, lime, sodium carbonate); place contaminated material in appropriately labeled containers for disposal in accordance with current legislation.

6.4. References to other sections

Waste handling - see section 13 of the sheet. Personal protective equipment - section 8 of the sheet.

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SECTION 7: Handling and storage

7.1. Precautions regarding safe handling

Provide adequate ventilation. Avoid contact with eyes. Avoid contact with the skin. Avoid spilling. Avoid sources of ignition, high temp., hot areas and open flames. Avoid inhaling mists of highly concentrated acid. Work in accordance with safety and hygiene rules: do not eat or drink, do not smoke in a workplace, wash hands after use, remove contaminated clothing and protective equipment before entering eating areas.

7.2. Conditions for safe storage, including information on any incompatibilities Store in a cool, dry, well-ventilated area (general room ventilation and exhaust ventilation) in a properly labeled closed original container. The floor of warehouses suitable for storing corrosive liquids should be easily washable and acid-resistant, with internal plumbing and a separate sewage system. Avoid direct sunlights and sources of heat (temp. exceeding 150 °C). Avoid hot areas and open flames. Keep away from humidity. Store away from metals, chlorates, perchlorates, chloro and fluorinated acids, hydrochloric acid, strong alkalies and strong oxidizers.

7.3. Specific end use(s)

Uses according to section 1.2 - no additional recommendations
See attached exposure scenario.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure standards for occupational hazards in accordance with Regulation of the Minister of Family, Labor and Social Policy dated 12 June 2018 on the highest permissible concentrations and intensities of factors harmful to health in the work environment (Journal of Laws item 1286 as amended).

Ingredients for which exposure limits are binding:

Name and CAS number of the chemical (substance)	Maximum permissible concentration (in mg/m ³) as a function of exposure time during the work shift			Number of fibers (in cm) ³	Remarks: Notation of the substance: "skin"
	NDS	NDSch	NDSP		
Sulphuric acid - thoracic fraction [CAS: 7664-93-9]	0.05	-	-	-	-

The mode, type and frequency of measurements of factors harmful to health in the work environment should be established in accordance with Ordinance of the Minister of Health dated 2 February 2011 (Journal of Laws 2011, No. 33, item 166 as amended)

8.2. Exposure controls

Appropriate technical preventive measures

General ventilation of the room and exhaust ventilation are essential.

Observe general OHS rules.
Wash hands during breaks and after handling the product.
Do not eat, drink, or smoke while working with the product.
Remove contaminated clothing and wash it before reuse.

Personal protective equipment - individual protective equipment:

PPE should be adjusted to hazards in a workplace, with consideration to the Regulation (EU) 2016/425 of the European Parliament and of the Council and the relevant CEN standards.

Eyes / face protection:

Use protective goggles or a face shield (according to standard EN 166).

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Skin protection:

Hands protection:

Use chemical-resistant protective gloves made of butyl rubber, PVC or equivalent according to EN374.

Material of the gloves:

Selection of adjusted gloves depends on the material but also on a brand and quality assured by a manufacturer. Resistance of the material the gloves are made from may be determined after tests. Accurate gloves destroying time must be determined by a manufacturer.

Other:

Wear protective work clothing - wash it regularly.

Airways protection:

Avoid inhalation of product vapors. Under the conditions of exceeding the NDS (the highest permissible concentration) of the components in the working environment, use individual respiratory protection equipment - a mask or a half-mask complete with a filter and a type B or universal vapor absorber (class 2) according to EN 141.

Thermal hazards:

Not applicable.

Environment exposure control

Do not enable spreading in the environment and penetration of the sewage and water courses.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

a)	State:	Liquid (oily)
b)	Color	Colorless to pale yellow
c)	Smell	Sharp, suffocating
d)	Melting / solidification temperature <i>(not applicable to gases)</i>	10.4 to 10.9 °C (100% sulphuric acid) -1.11 to 3.0 °C (98% sulphuric acid) -13.89 to -10 °C (96% sulphuric acid) 7.56 °C (83% sulphuric acid)
e)	Preliminary boiling temperature and range of boiling temperatures:	290 °C (100% sulphuric acid) 310-335 °C (98% sulphuric acid) 330 °C (96% sulphuric acid) 360 °C (77% sulphuric acid)
f)	Flammability of materials <i>(applies to gases, liquids, solids)</i>	Non-flammable substance. May promote burning.
g)	Lower and upper explosive limits <i>(not applicable to solids)</i>	Not applicable - does not pose an explosion hazard
h)	Flash point <i>(not applicable to gases, aerosols and solids)</i>	No data
i)	Self-ignition temperature <i>(applies to gases and liquids only)</i>	It is not self-igniting
j)	Decomposition temperature <i>(applies only to self-reactive substances and mixtures, organic peroxides and other substances and mixtures that can decompose)</i>	Not applicable
k)	pH <i>(not applicable to gases)</i>	<1

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l)	Kinematic viscosity <i>(applies to liquids only)</i>	No data
m)	Solubility	Totally soluble in water:
n)	Partition coefficient n-octanol/water (log ratio value)	No data
o)	Vapor pressure	214Pa (65% sulphuric acid) w 20°C 6 Pa (90% sulphuric acid) w 20°C 130Pa (97% sulphuric acid) (148,5°C)
p)	Density or relative density <i>(applies to liquids and solids only)</i>	1.8144-1.8305 kg/m ³ (90-100% sulphuric acid)
q)	Relative vapor density <i>(applies to gases and liquids only)</i>	No data
r)	Particle characteristics <i>(applies to solids only)</i>	Not applicable

9.2. Other information

a)	Viscosity (dynamically)	22.5 cP (0.0025 PaS; 22.5 mPaS) 95% sulphuric acid at 20°C.
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SECTION 10: Stability and reactivity

10.1. Reactivity

Reactive substance.

A large amount of heat is released during dilution A large amount of heat is released during dilution.

10.2. Chemical stability

The product is stable under normal conditions of handling, storage and transport. Hygroscopic substance.

10.3. Hazardous reactions

Reactions with all alkalies and substances of an alkaline and reducing nature are particularly violent, even leading to explosion. It has a corrosive effect on many metals with release of the hydrogen. It passivates iron and aluminum. Dissolves semi-precious metals with release of the SO₂.

10.4. Conditions to be avoided

Avoid raised temp., direct sunlights, hot areas and open flames.

10.5. Incompatible materials

Reducing materials, metals, chlorates, perchlorates, chloro and fluorinated acids, hydrochloric acid, strong bases and strong oxidizers.

10.6. Hazardous products of decomposition

At high temperatures certain toxic decomposition products occur - sulfur oxides.

SECTION 11: Toxicological Information

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

a)	Acute toxicity	On the basis of the available data the criteria of classification are not satisfied
b)	Caustic / skin irritation	It causes serious burns of the skin.
c)	Serious damage to eyes/eye irritation:	It causes serious eye damage.
d)	Skin / airways sensitizing:	On the basis of the available data the criteria of classification are not satisfied

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e)	Mutagenic for reproductive cells:	On the basis of the available data the criteria of classification are not satisfied
f)	Carcinogenicity	On the basis of the available data the criteria of classification are not satisfied
g)	Reproductive toxicity	On the basis of the available data the criteria of classification are not satisfied
h)	Specific target organ toxicity - single exposure	On the basis of the available data the criteria of classification are not satisfied
i)	Specific target organ toxicity - repeated	On the basis of the available data the criteria of classification are not satisfied
j)	Hazards arising from aspiration	On the basis of the available data the criteria of classification are not satisfied

Toxicological data:

LD50 (rat, oral) 2140mg/kg LC50 (rat, inhalation) 375mg/kg/2h NOAEC: 0.3 mg/m³

Sulphuric acid immediately dissociates into hydrogen and sulphate ions, hydrogen ions are responsible for the local effects (irritant and corrosive effects) of the sulphuric acid.

11.2. Information on other hazards

Endocrine disrupting properties

No.

SECTION 12: Ecological information

12.1. Toxicity

The substance is not classified as hazardous to the environment, however, lowering the pH has a very adverse effect on aquatic organisms. Do not allow the product to enter drains or ground waters, sewage system and watercourses.

EC10/LC10 or NOEC for freshwater fish: 0.025mg/L

EC50> 100 mg / L (Daphnia magna).

EC50/LC50 for freshwater invertebrates: 100mg/L

EC10/LC10 or NOEC for freshwater invertebrates: 0.15mg/L

EC10/LC10 or NOEC for freshwater algae: 100mg/L

EC10/LC10 or NOEC of aquatic microorganisms: 26000mg/L

12.2. Persistence and decomposition

Not applicable - Inorganic substance, readily dissociates in water.

12.3. Bio-accumulation

Sulphuric acid is a strong mineral acid (pKa = 1.92) that readily dissociates in water to the hydrogen and sulphate ions and is completely miscible with water. The hydrogen ions and sulphate ions formed are naturally present in the water/sediment and bio-accumulation of these ions is not expected.

12.4. Mobility in a soil

The substance dissociates in water.

12.5. Results of assessment of the PBT and the vPvB properties

It does not meet the PBT and vPvB criteria.

12.6. Endocrine disrupting properties

A substance that does not disrupt the endocrine system.

12.7. Other harmful effects

No data

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SECTION 13: Wastes disposal

13.1. Methods of wastes utilization

Sulphuric acid should be disposed of in accordance with local and state regulations. Sulphuric acid should be neutralized with 10% milk of lime used in excess. Disposal of waste should be handled by specialized companies. Store the residues in the original containers. Dispose acc. to regulations in force.





Empty, cleaned packaging should be disposed of (including recycling) in accordance with applicable regulations.

Determine waste codes at the place of production in accordance with the Ordinance of the Minister of Climate dated 2 January 2020 on the waste catalog (Journal of Laws, item 10):

Community provisions on waste:

Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives as amended.

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1. UN number or ID number	3264	3264	3264	3264
14.2. Correct UN transport name	CORROSIVE LIQUID, ACIDIC, INORGANIC MATERIAL, N.O.S. (Sulfuric acid)	CORROSIVE LIQUID, ACIDIC, INORGANIC MATERIAL, N.O.S. (Sulfuric acid)	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Sulphuric acid)	Corrosive liquid, acidic, inorganic, n.o.s. (Sulphuric acid)
14.3. Transport hazard class	8 Stickers: 8 	8 Stickers: 8 	8 Stickers: 8 	8 Stickers: 8 
14.4. Packages group	II	II	II	II
14.5. Hazards for the environment	No	No	No	No
14.6. Special precautions for users	Classification code: C1 Limited quantity (LQ) 1L Exempted quantities: E2 Hazard recognition no.: 80 Transport category: 2 Restrictions code for tunnels: E	Classification code: C1 Limited quantity (LQ) 1L Exempted quantities: E2	LQ: 1L EmS: F-A, S-B Stowage and handling: Category B SW2 Segregation: -	Passenger Aircraft (PAX) IATA LTD QTY Pkg Inst: Y840 IATA LTD QTY Max Qty per Pkg: 0,5L IATA Pkg Inst: 851 Max Capacity per inner receptacle: 1L Max Net Qty per Pkg: 1L Cargo Aircraft (CAO) Cargo Air Packing Inst: 855 Cargo Air Max : 30L IATA Special Prov: A3

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14.7. Bulk sea transport in accordance with the IMO instruments	No data
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SECTION 15: Regulatory information**15.1. Specific legal regulations regarding the safety, the health and the environment protection for a substance or a mixture.**

1. Regulation (EC) No. 1907/2006 dated 18 December 2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), as amended.
2. Commission Regulation (EU) 2020/878 of 18 June 2020 amending Annex II to Regulation (EC) No. 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)
3. Regulation (EC) No. 1272/2008 of the European Parliament and of the Council dated 16 December 2008 (CLP) as amended.
4. Law dated 25 February 2011 on chemical substances and their mixtures (i.e. Journal of Laws 2020, item 2289, 2021, item. 2151).
5. Law dated 28 May 2020 on amendments to the Law on chemical substances and their mixtures and some other laws Journal of Laws 2020, item 1337)
6. Law of 14 December 2012 on waste (i.e. (Journal of Laws 2022, items 699, 1250).
7. Law dated 13 June 2013 on package and waste management (i.e. Journal of Laws 2020, item 1114, 2361, 2021, item 2151).
8. Regulation of the Minister of Climate of 2 January 2020 on the waste catalog (Journal of Laws 2020, item 10).
9. Regulation (EU) 2016/425 of the European Parliament and of the Council of 9 March 2016 on the personal protective equipment and repealing the Council Directive 89/686/EEC.
10. Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives, as amended.
11. Announcement of the Speaker of the Sejm of the Republic of Poland dated 19 March 2021 on the announcement of the consolidated text of the Law on Transportation of Hazardous Goods (Journal of Laws 2021, item 756).
12. ADR Agreement 2021 - Government Statement of 18 February 2019 on the entry into force of the amendments to Annexes A and B to the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), done at Geneva on 30 September 1957 (Journal Laws 2021, item 874).
13. Ordinance of the Minister of Labor and Social Policy dated 12 June 2018 on permissible concentrations and strengths of compounds / substances harmful for health in the work environment (Journal of Laws, item 1286 as amended).
14. Ordinance of the Minister of Health dated 30 December 2004 on safety and hygiene of work related to existence of chemical agents at the work environment (i.e. (Journal of Laws 2016, item 1488)
15. Ordinance of the Minister of Health dated 9 December 2003 on substances which pose serious hazard for the environment (Journal of Laws No. 217, item 2172).

15.2. Assessment of the chemical safety

A chemical safety assessment was conducted for the substance.

Appendix XIV to the Regulation REACH – List of substances subject of the permit procedure: not applicable

SVHC - Substance of very high concern waiting for permit: Not applicable

Appendix XVII to the Regulation REACH – Restrictions concerning production, entering into the market and application of some of hazardous substances: not applicable

Sulphuric acid is listed in Annex I to the Regulation (EU) 2019/1148 on the marketing and use of explosives precursors. Acquisition, introduction, possession or use by average users is subject to restrictions. All suspicious transactions and significant cases of loss and theft must be reported to the National Contact Point within 24 hours of recognition or discovery.

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SECTION 16: Other Information**H statements:****H314** Causes severe skin burns and eye damage**H315** Causes skin irritation**H319** Causes serious eye irritation**Description of applied abbreviations, acronyms and symbols:****Skin Corr. 1B** – Caustic for skin 1A.**Skin Irrit. 2** – skin irritating, cat. 2**Eye Irrit. 2-** Eye irritation cat. 2**NDS** - the highest permissible concentration**NDSP** - the highest permissible threshold**NDSch** - the highest temporary concentration**LC50 - (lethal concentration)** - median lethal concentration, a statistically determined concentration of a substance, after exposure to which 50 percent of the organisms (exposed to the substance) can be expected to die during the exposure or during a specified contractual post-exposure period.**LD50 - (lethal dose)** - medial lethal dose, the statistically determined size of a single dose of a substance, after administration of which 50% of exposed test organisms can be expected to die.**EC50/10 (effective concentration)** – medial effective concentration, statistically calculated concentration which induces, in an environmental medium, effect for 50% (10%) of tested organisms under defined conditions.**NOEC (no observed effects concentration)** – the largest concentration for which no significant growth in frequency of effects or intensification of effects take place in relation to a test sample.**NOAEC (no observed adverse effects concentration)** - the highest concentration for which a dose-response relationship can be determined when there is no statistically or biologically significant increase in the frequency or severity of adverse effects of a substance in test organisms relative to a control sample.**vPvB** - very persistent and very bio-accumulative substance**PBT** - persistent, bioaccumulative and toxic substances**ADR** – European agreement on the road transport of hazardous goods.**RID** – Regulations Concerning the International Carriage of Dangerous Goods by Rail**IMDG – International Maritime Dangerous Goods Code****IATA** – Regulation on the transport of dangerous goods issued by the International Air Transport Association**Trainings:**

Before commence of work with the product an employee must take part in an obligatory OHS training since chemical agents are involved. Perform, document and familiarize employees with the results of risk assessment in the workplace with reference to the presence of chemical agents.

RESOURCES

Annex to Regulation (EU) 2020/878 dated 18 June 2020.

Legal regulations referred to in section 15 of the MSDS.

Information of the Office for Chemical Substances.

Information contained in the MSDS concern exclusively the product named in the title. The data contained in the data sheet should be considered only as an aid to the safe use of the product. Since conditions of storage and transport are beyond our control, we cannot give legal guarantees. Each time follow statutory regulations as well as regulations stipulated by potential third parties. The MSDS does not comprise an assessment of hazard at job. The product should not be used for purposes other than those laid down in the Section 1 without prior consultation with **TOMCHEM F.H.U.**

Developed at SPIN-DORADZTWO www.spin-doradztwo.pl for **TOMCHEM F.H.U.**