

## MATERIAL SAFETY DATA SHEET

prepared in accordance with 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 on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (Official Journal of the European Union No L 203, 26/06/2020)

### SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND IDENTIFICATION ENTERPRISES

#### 1.1 Product ID

**NANO FOAM LCD spray**

**UFI number: Y020-K0U3-G00R-1UTJ**

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

Identified uses: Product for cleaning LED and LCD monitor screens.

Uses advised against: None known.

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

**Supplier:**

**Micro Chip Electronic Barbara Kaczmarczyk ul.**

Kochanowskiego 9

40-035 Katowice

Phone +48 503 017 712

E-mail of the person responsible for the safety data sheet: [info@micro-chip.pl](mailto:info@micro-chip.pl)

#### 1.4 Emergency telephone number

**Emergency number in Poland (open 9:00-15:00): + 48 503 017 712**

Date of preparation: 14/02/2024

### SECTION 2: HAZARD IDENTIFICATION

#### 2.1 Classification of the substance or mixture

**Classification according to Regulation (EC) No 1272/2008 as amended:**

**Aerosol products, hazard category 1 (Aerosol 1)**

Extremely flammable aerosol (H222)

**Health hazards:**

In case of significant concentrations of vapors or direct contact of the product with the eyes, irritation, redness, tearing may occur. Contamination of the skin with a large amount of the product may cause temporary redness and itching. Inhalation of vapors in high concentrations may cause irritation of the respiratory system. After ingestion may cause irritation of the gastrointestinal mucosa, nausea, vomiting and diarrhea. The product contains ethanol, in case of drinking a very large amount may occur symptoms of alcohol intoxication, impaired coordination of movement, dizziness.

**Effects on the environment:**

When used properly, it does not pose a threat to the environment.

## MATERIAL SAFETY DATA SHEET

*prepared in accordance with 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 on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (Official Journal of the European Union No L 203, 26/06/2020)*

### Effects related to physicochemical properties:

Product vapors are heavier than air, they can create explosive mixtures with air. They accumulate near the ground and in the lower parts of rooms. Containers exposed to fire or high temperatures may explode.

## 2.2 Labeling elements

### Pictograms:



### Signal Word: **Danger**

### Hazard statements:

H222 – Extremely flammable aerosol.  
H229 – Pressurized container: May burst if heated.

### Precautionary statements:

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
  
P211 - Do not spray on an open flame or other ignition source.  
P251 - Do not pierce or burn, even after use.  
P410 + P412 - Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122°F .

### In case of use by consumers, additionally:

P101 - If medical advice is needed, have product container or label at hand.  
P102 - Keep out of reach of children.

## 2.3 Other threats

The mixture does not meet the PBT and vPvB criteria. It does not contain any ingredients considered to be endocrine disrupting according to Article 57(f) of the REACH Regulation or Regulation (EU) 2017/2100 or Regulation (EU) 2018/605 at a concentration of 0.1% or higher.

## SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

### 3.2 Mixtures

Product ID: *NANO FOAM LCD spray*

### Ingredients of the mixture:

Name of the substance	index number	CAS No.	EC No.	ul. mass in %	Hazard classes and Category Codes	Return codes indicating type threats
Butane	601-004-00-0	106-97-8	203-448-7	6 - 13	Flame Gas 1 Press Gas	H220

## MATERIAL SAFETY DATA SHEET

*prepared in accordance with 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 on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (Official Journal of the European Union No L 203,*

*26/06/2020)*

Propane	601-003-00-5	74-98-6	200-827-9	5 - 10	Flame Gas1 Press Gas	H220
Carbon dioxide	lack	124-38-9	204-696-9	2 - 5	lack	lack
3-methoxy-3-methylbutan-1-ol Registration number: 01-2119976333-33-XXXX	lack	56539-66-3	260-252-4	2.1 - 3.5	Eye Irrit.2	H319
Isobutane	601-004-00-0	75-28-5	200-857-2	1 - 3	Flame Gas 1 Press Gas	H220
Propan-2-ol Registration number: 01-2119457558-25-XXXX	603-117-00-0	67-63-0	200-661-7	<0.7	Flam. Liq. 2 Eye Irrit. 2 STOT SE 3	H225 H319 H336
Ethanol Registration number: 01-2119457610-43-XXXX	603-002-00-5	64-17-5	200-578-6	<0.7	Flam. Liq. 2 Eye Irrit. 2	H225 H319 Specific concentration limit: Eye Irrit. 2; H319: C y 50%
2-Butoxyethanol Registration number: 01-2119475108-36-XXXX	603-014-00-0	111-76-2	203-905-0	<0.7	Acute Tox. 3 Acute Tox. 4 Eye Irrit. 2 Skin Irrit. 2	H331 H302 H319 H315 Inhalation - vapors: ATE = 3 mg/l Alimentary tract: ATE = 1200 mg/kg body weight
Silver*	lack	7440-22-4	231-131-3	<0.006	lack	lack

\* Silver in the form of nanoparticles with an average size of 50nm in the plane and several atoms thick.

The full text of H phrases and the acronyms of symbols, hazard classes and category codes are given in Section 16 of the Safety Data Sheet.

### SECTION 4: FIRST AID MEASURES

#### 4.1 Description of first aid measures

half-sitting or sitting position, ensure calmness, protect against heat loss. If breathing difficulties occur, apply artificial respiration. If symptoms persist, call a doctor.	Remove or carry the injured person from the place of exposure, place them in a comfortable position. Inhalation: If symptoms persist, call a doctor.
Skin contact:	Pour cold water over the frostbitten body part, then remove contaminated clothing, rings, bracelets, watches, etc. If the clothing is stuck to the skin, do not remove it. Warm up the frostbitten body part slowly.
Eye contact:	Cover with a sterile dressing. Do not use ointments or creams. Note: soak contaminated clothing with water before removing. Rinse immediately with plenty of lukewarm water, preferably running water, for at least 15 minutes. Remove contact lenses. Avoid strong water jets due to the risk of mechanical damage to the cornea. In case of burns, seek immediate medical attention.

**MATERIAL SAFETY DATA SHEET**

prepared in accordance with 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 on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (Official Journal of the European Union No L 203, 26/06/2020)

Digestive tract: This is an unlikely route of exposure. Do not induce vomiting. Rinse mouth with water, then drink plenty of water. Consult a physician if necessary.

**4.2 Most important acute and delayed symptoms and effects of exposure**

In case of significant concentrations of vapors or direct contact of the product with the eyes, irritation, redness, tearing, burning, conjunctivitis may occur. Contamination of the skin with a large amount of the product may cause redness, itching and dryness of the skin. Inhalation of vapors in high concentrations causes headache and dizziness, nausea, shortness of breath, respiratory disorders, impaired consciousness, loss of consciousness. Through the alimentary tract (when swallowed in large quantities) it causes nausea, vomiting, abdominal pain, diarrhea and the occurrence of narcotic symptoms, as in inhalation poisoning. As with all liquefied gases, contact with rapidly evaporating liquid may cause burns (frostbite) of the skin and eyes.

**4.3 Indications of any immediate medical attention and special treatment for the injured person**

In case of contact with the product in liquid form, proceed as in the case of frostbite. Do not give anything by mouth to an unconscious person and do not induce vomiting. Give the attending physician the safety data sheet.

**SECTION 5: FIREFIGHTING MEASURES****5.1 Extinguishing media**

Suitable extinguishing media:

Foam, carbon dioxide, extinguishing powders, water – dispersed currents.

Inappropriate extinguishing media:

Do not use dense streams of water on the surface of the liquid.

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

Carbon monoxide and carbon dioxide may be formed in a fire. Aerosols may explode when heated to temperatures above 50°C.

**5.3 Information for the fire brigade**

Extremely flammable aerosol. Vapours form explosive mixtures with air, are heavier than air and accumulate near the ground and in lower parts of rooms. Cool containers exposed to fire from a safe distance with a sprayed water jet (explosion hazard); if possible, remove them from the endangered area. Gas-tight clothing in antistatic version, insulating respiratory protective equipment.

**SECTION 6: MEASURES IN THE EVENT OF ACCIDENTAL ENVIRONMENTAL RELEASES****6.1 Personal precautions, protective equipment and emergency procedures**

Remove all sources of ignition - extinguish open flames, announce a ban on smoking and use of sparking tools, protect containers from heating (explosion hazard). Do not enter the endangered area.

Do not breathe the gas/mist/vapours/spray. Provide adequate ventilation. Wear protective clothing and equipment (see section 8).

CAUTION: Potentially explosive area. Gas is heavier than air and can travel along the floor/ground to distant ignition sources and create a flashback hazard. To ensure safe working conditions, check gas levels before allowing personnel to enter.

## MATERIAL SAFETY DATA SHEET

prepared in accordance with 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 on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (Official Journal of the European Union No L 203, 26/06/2020)

Inform the surroundings about the failure; remove from the danger area all persons not involved in eliminating the failure, if necessary order an evacuation; call rescue teams.

### 6.2 Environmental precautions

Protect against penetration into sewage systems, surface and ground waters and soil, as well as all places (e.g. land depressions) where accumulation may occur.

### 6.3 Methods and materials for containment and cleaning up

Secure drains. If possible, eliminate leaks (close liquid supply, seal).

Place damaged packaging in a replacement container. Dilute vapors with a dispersed stream of water.

Eliminate sources of ignition (extinguish open flames, announce a ban on smoking and the use of sparking tools). Product absorb in a chemically inert binding material (sand, diatomaceous earth), transfer to tightly closed containers and send for disposal. Rinse the contaminated surface with plenty of water.

### 6.4 References to other sections

Dispose of in accordance with the recommendations in section 13.

## SECTION 7: HANDLING AND REMEDIES OF SUBSTANCES AND MIXTURES STORAGE

### 7.1 Precautions for safe handling

Provide adequate general and local ventilation. Keep away from sources of high temperature and sources of ignition. Do not spray on an open flame or any incandescent material. Do not puncture or burn aerosol containers, even empty, after use of the mixture. It is advisable to take precautions to avoid contact with skin and eyes when working with the mixture. Do not breathe gas/mist/vapours/spray.

Prevent entry into sewage, surface and ground water and soil. Do not eat, drink or smoke during use. Wash hands during breaks and after work. Remove contaminated clothing, wash before re-wearing.

### 7.2 Conditions for safe storage, including information on any mutual inconsistency

Product vapors with air may form explosive mixtures. Vapours are heavier than air and accumulate near the floor or ground surface. Store in original, properly labeled, tightly closed containers, in a cool, dry, well-ventilated storage room, equipped with explosion-proof electrical and ventilation installations. Pressurized containers: protect from sunlight, do not expose to temperatures above 50°C. Store away from sources of high temperature, sources of ignition, oxidizers. Protect from sunlight.

### 7.3 Specific end use(s)

No information on uses other than those mentioned in section 1.2.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameters

Legal basis: \_\_\_\_\_

Regulation of the Minister of Family, Labor and Social Policy of June 12, 2018 on the maximum permissible concentrations and intensities of harmful health factors in the work environment (Journal of Laws, item 1286, 2018); Regulation of the Minister of Family, Labor and Social Policy of January 9, 2020 amending the regulation

## MATERIAL SAFETY DATA SHEET

*prepared in accordance with 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 on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (Official Journal of the European Union No L 203, 26/06/2020)*

on the maximum permissible concentrations and intensities of factors harmful to health in the work environment (Journal of Laws, item 61, 2020);

Regulation of the Minister of Development, Labour and Technology of 18 February 2021 amending the regulation on the maximum permissible concentrations and intensities of factors harmful to health in the work environment (Journal of Laws, item 325, 2021).

Regulation of the Minister of Family and Social Policy of 18 August 2023 amending the regulation on the maximum permissible concentrations and intensities of factors harmful to health in the work environment (Journal of Laws, item 1661, 2023).

<u>Substance name</u>	<u>CAS</u>	<u>Standard</u>	<u>value</u>	<u>unit</u>
Propan-2-ol	No. 67-63-0	NDS	900	mg/m3
		NDSch	1200	mg/m3
		NDSP	not determined	
Ethanol	64-17-5	(skin) NDS	1900	mg/m3
		NDSch	not designated	
		NDSP	not designated	
2-Butoxyethanol	111-76-2	NDS	98	mg/m3
		NDSch	200	mg/m3
		NDSP	not designated	
Propane	74-98-6	(skin) NDS	1800	mg/m3
		NDSch and NDSP	not determined	
Butane	106-97-8	NDS	1900	mg/m3
		NDSch	3000	mg/m3
		NDSP	Not specified	
Carbon dioxide	124-38-9	NDS	9000	mg/m3
		NDSch	27000	mg/m3
		NDSP	Not specified	
Silver - inhalable fraction	7440-22-4	NDS	0.05	mg/m3
		NDSch	Not specified	
		NDSP	Not specified	

The skin notation indicates that absorption of the substance through the skin may be as important as inhalation exposure.

### Propan-2-ol:

DNEL values spicy for employees:

888 mg/kg (skin) - local

Long-term DNEL values for workers:

500 mg/m3 (inhalation) – local DNEL values for  
the general public: spicy

319 mg/kg (skin) - local

Long-term DNEL values for the general public:

89 mg/m3 (respiratory) - local PNEC values:

140.9 mg/l (freshwater)

140.9 mg/l (sea water)

552 mg/kg (sediment - fresh and marine water)

28 mg/kg (soil)

### Ethanol:

Long-term DNEL values for workers:

380 mg/m3 (respiratory tract) – systemic

Long-term DNEL values for the general public:

## MATERIAL SAFETY DATA SHEET

*prepared in accordance with 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 on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (Official Journal of the European Union No L 203 of 26.06.2020)*

114 mg/m<sup>3</sup> (respiratory) - systemic PNEC values: 0.96 mg/l  
(freshwater) 0.79 mg/l

l (marine water) 580 mg/l

(sewage treatment plant) 3.6

mg/kg (sediment - freshwater) 2.9 mg/kg

(sediment - marine water) 0.38 g/kg

(secondary poisoning)

### 2-Butoxyethanol:

DNELworker (dermal, acute toxicity, systemic effects) 89 mg/kg DNELworker (inhalation,

acute toxicity, systemic effects) 663 mg/m<sup>3</sup> DNELworker (inhalation, acute toxicity, local effects)

246 mg/m<sup>3</sup> DNELworker (dermal, chronic toxicity, systemic effects) 75 mg/kg DNELworker

(inhalation, chronic toxicity, systemic effects) 98 mg/m<sup>3</sup> DNELconsumer (dermal, acute toxicity)

44.5 mg/kg DNELconsumer (inhalation, acute toxicity, systemic effects) 426 mg/m<sup>3</sup> DNELconsumer (oral,

acute toxicity, systemic effects) 13.4 mg/kg DNELconsumer

(inhalation, acute toxicity, local effects) 123 mg/m<sup>3</sup> DNELconsumer (dermal, chronic toxicity,

systemic effects) 38 mg/kg DNELconsumer (inhalation, chronic toxicity, systemic effects) 49 mg/

m<sup>3</sup> DNELconsumer (oral, chronic toxicity, systemic effects) 3.2 mg/kg PNEC 8.8 mg/l

(freshwater) 0.88 mg/l (marine water) 34.6 mg/kg (freshwater sediment) 2.8 mg/kg (soil) 3.46 mg/

kg (marine water sediment) 9.1 mg/l (intermittent release) 463 mg/l (sewage treatment plant) **3-methoxy-3-**

**methylbutan-1-ol:** Long-term DNEL values for workers: 80 mg/m<sup>3</sup> (inhalation) - systemic DNEL values

long-

term for workers: 6.25 mg/kg

(skin) – systemic DNEL values

long-term for the general public: 40 mg/m<sup>3</sup>

(inhalation) – systemic

DNEL values long-term for the general public:

3.1 mg/kg (skin) – systemic DNEL values

long-term for the general public: 2.5 mg/kg

(oral) – systemic **Silver:** DNEL worker

(inhalation, long-term exposure) - 0.1 mg/m<sup>3</sup> DNEL

consumer (inhalation, long-term exposure) - 0.04 mg/m<sup>3</sup>

DNEL consumer (oral, long-term exposure) - 1.2 mg/kg

PNEC fresh water 0.04 mg/L PNEC marine

water - 0.86 mg/l PNEC fresh water sediment - 438.13 mg/kg

PNEC marine water sediment - 438.13 mg/kg PNEC soil -

1.41 mg/kg

**MATERIAL SAFETY DATA SHEET**

prepared in accordance with 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 on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (Official Journal of the European Union No L 203, 26/06/2020)

**8.2 Exposure Control****8.2.1 Appropriate technical control measures**

Local exhaust ventilation to remove vapors from their emission points and general room ventilation are required. Local ventilation intake openings at the work surface or below. General ventilation exhausts at the top of the room and at the floor. Ventilation systems must meet the conditions established with regard to the risk of fire or explosion. Do not use near sources of high temperature and sources of ignition. In the event of insufficient ventilation, use respiratory protection. Provide an eyewash station.

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

**Respiratory tract:** If the permissible concentrations of product vapours are exceeded, respiratory protection with a particle filter marked in white and the symbol P2 and a vapour filter marked in brown and the letter A should be used. AP combination filters may be used.

**Hands and skin:** Use protective clothing made of natural materials (cotton) or synthetic fibers. For prolonged and repeated contact, use nitrile or leather protective gloves, compliant with PN-EN ISO 374 and PN-EN ISO 21420.

Gloves should remain flexible at temperatures below the boiling point of gas at atmospheric pressure.

**Eyes:** When performing activities that may result in contact with the face, wear goggles, a mask, and safety glasses with side shields.

**Occupational hygiene:** General industrial hygiene regulations apply. Do not exceed permissible normative concentrations in the workplace environment. After finishing work, remove contaminated clothing. Before breaks in work, wash hands and face. After work, wash the whole body thoroughly. Do not eat, drink, or smoke while working.

**8.2.3 Environmental exposure control**

Prevent entry into watercourses.

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES****9.1 Information on basic physical and chemical properties**

- a) State of matter  
Liquid atomized with propellant.
- b) Color  
White.
- c) Odor  
Characteristic of the fragrance composition used.
- d) Melting/freezing point  
No data available.
- e) Boiling point or initial boiling point and boiling range  
82 °C (DIN 53 171) (without propellant).
- f) Flammability of materials  
Extremely flammable aerosol.
- g) Lower and upper explosive limits  
Bottom: 1.5% vol.  
Top: 9.5% vol.
- h) Flash point  
12 °C (DIN 51 758) (without propellant).
- i) Auto-ignition temperature

## MATERIAL SAFETY DATA SHEET

*prepared in accordance with 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 on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (Official Journal of the European Union No L 203 of 26.06.2020)*

> 350 °C (DIN 51 794) (without propellant). j)  
 Decomposition temperature  
 No data available. k) pH No  
 data  
 available.  
 l) Kinematic viscosity  
 No data available. m)  
 Solubility In water: 1000  
 g/l (without propellant). n) Partition coefficient  
 n-octanol/water (log coefficient value)  
 No data available. o) Vapour  
 pressure 48  
 mbar (20 °C). p)  
 Density or relative density 0.862  
 (DIN 51 757) (without propellant) (water = 1). q) Relative  
 vapour density  
 No data available. r) Particle  
 characterization Contains  
 nanosilver with an average particle size of 50nm in the plane and several atoms thick.

### 9.2 Other information

**9.2.1. Information on physical hazard classes** a) Explosives: Not applicable. b) Flammable gases: Not applicable. c) Aerosols: Aerosol 1; Extremely flammable aerosol. Pressurized container: May burst if heated. d) Oxidizing gases: Not applicable. e) Gases under pressure: Not applicable. f) Flammable liquids: Not applicable. g) Flammable solids: Not applicable. h) Self-reactive substances and mixtures: Not applicable. i) Pyrophoric liquids: Not applicable. j) Pyrophoric solids: Not applicable. k) Self-heating substances and mixtures: Not applicable. l) Substances and mixtures which in contact with water emit flammable gases: Not applicable. m) Oxidizing liquids: Not applicable. n) Oxidizing solids: Not applicable. o) Organic peroxides: Not applicable. p) Corrosive to metals: Not applicable. q) Desensitized explosives: Not applicable.

**9.2.2. Other safety properties** a) mechanical sensitivity: No data. b) self-accelerating polymerization temperature: No data. c) formation of explosive dust/air mixture: Not applicable. d) acid/base reserve: No data. e) evaporation rate: No data. f) miscibility: miscible with water. g) conductivity: No data. h) corrosive action: No data. i) gas group: Not applicable. j) redox potential: No data. k) radical formation potential: No data. l) photocatalytic properties; No data.

## MATERIAL SAFETY DATA SHEET

prepared in accordance with 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 on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (Official Journal of the European Union No L 203, 26/06/2020)

### SECTION 10: STABILITY AND REACTIVITY

#### 10.1 Reactivity

When stored and handled as intended – no reactivity.

#### 10.2 Chemical stability

Under normal conditions of use and storage the product is stable.

#### 10.3 Possibility of hazardous reactions

The container contains gas under increased pressure - it should be protected from sunlight, the temperature should not exceed 50 °C. Vapours form explosive mixtures with air.

#### 10.4 Conditions to avoid

Ignition sources, open flames, heat, direct sunlight.

#### 10.5 Incompatible Materials

Strong oxidizers.

#### 10.6 Hazardous decomposition products

They are not known.

### SECTION 11: TOXICOLOGICAL INFORMATION

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

##### Acute toxicity:

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

Ingredient Dose Propan-2-ol CAS 50-42-3

67-63-5	oral rat LD50 - skin	value	unit.
rabbit LC50 - respiratory tract rat LD50 - oral rat LD50 - skin rabbit LC50 - respiratory tract	rat LD50 - oral rat LC50	>5000	mg/kg
Ethanol	64-17-5	>5000	mg/kg
	- inhalation rat LC50 - inhalation mouse	>5	mg/l
	LD50 - oral rat	7060	mg/kg
		>20000	mg/kg
		>8000	mg/l (4h)

2-Butoxyethanol 111-76-2

3-methoxy-3-methylbutan-1-ol  
56539-66-3

Silver 7440-22-4

LD50 – rat skin

LD50 - oral mouse

LD50 - oral rat)

LC50 - inhalation rat

LD50 - rat skin

LD50 - guinea pig skin

	value	unit.
	>5000	mg/kg
	>5000	mg/kg
	>5	mg/l
	7060	mg/kg
	>20000	mg/kg
	>8000	mg/l (4h)
	470	mg/kg
	2900	mg/m3
	700	ppm
	4400	mg/kg
		(OECD401)
	>2000	mg/kg
	1027	mg/kg bw
	3731	mg/kg bw
	> 5.16	mg/l
	> 2,000	mg/kg
	< 348	mg/kg bw

##### Skin corrosion/irritation:

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

##### Serious eye damage/eye irritation:

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

##### Respiratory or skin sensitisation:

## MATERIAL SAFETY DATA SHEET

prepared in accordance with 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 on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (Official Journal of the European Union No L 203,

26/06/2020)

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

Mutagenic effect on germ cells: \_\_\_\_\_

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

Carcinogenicity: \_\_\_\_\_

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

Reproductive toxicity: \_\_\_\_\_

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

Specific target organ toxicity – single exposure: \_\_\_\_\_

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

Specific target organ toxicity – repeated exposure: \_\_\_\_\_

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

Aspiration hazard: \_\_\_\_\_

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

### 11.2 Information about other threats

#### 11.2.1. Endocrine disrupting properties

Does not contain ingredients that are considered to disrupt the functioning of the endocrine system in accordance with Art. 57(f) of the REACH Regulation or Regulation (EU) 2017/2100 or Regulation (EU) 2018/605 at a concentration of 0.1% or higher.

#### 11.2.2. Other information

No data available.

## SECTION 12: ECOLOGICAL INFORMATION

### 12.1 Toxicity

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

Ingredient	CAS-No.	Dose	value unit.
Propan-2-ol	67-63-0	LC50 – fish ( <i>Pimephales promelas</i> )	9640-11130 mg/l (96h)
		LC50 – fish ( <i>Carassius auratus</i> )	> 5000 mg/l (24h)
		LC50 – fish ( <i>Leuciscus idus melanotus</i> )	8970-9280 mg/l (48h)
		EC50 – invertebrates ( <i>Daphnia magna</i> )	> 10000 mg/l (24h)
		EC50 – algae ( <i>Scenedesmus subspicatus</i> )	> 1000 mg/l (72h)
		EC50 – bacteria ( <i>Pseudomonas putida</i> )	1050 mg/l (16h)
Ethanol	64-17-5	EC50 – protozoa ( <i>Entosiphon sulcatum</i> )	4930 mg/l (72h)
		LC50 – fish	8140 mg/l (48h)
		EC50 – invertebrates ( <i>Daphnia magna</i> )	> 7800 mg/l (48h)
2-Butoxyethanol	111-76-2	EC50 – algae	5000 mg/l (72h)
		LC50 – fish ( <i>Poecilla reticulata</i> )	983 mg/l (7 days)
		LC50 – fish ( <i>Lepomis macrochirus</i> )	1490-2950 mg/l (96h)
		EC0 – invertebrates ( <i>Daphnia magna</i> )	1283 mg/l (24h)
3-methoxy-3-methylbutan-1-ol	56539-66-3	LC50 – fish ( <i>Oryzias latipes</i> )	>100 mg/l (96h)
		EC50 – invertebrates ( <i>Daphnia magna</i> )	> 10000 mg/l (48h)
		NOEC – invertebrates ( <i>Daphnia magna</i> )	100 mg/l (21 days)
		NOEC – algae ( <i>Pseudokirchneriella subspitata</i> ) 1000	mg/l (72h)
		ErC50 – algae ( <i>Pseudokirchneriella subspitata</i> ) >1000	mg/l (72h)
		EC50 – microorganisms >1000	mg/l (3h)
		EC50 – protozoa ( <i>Entosiphon sulcatum</i> ) 4930	mg/l (72h)

## MATERIAL SAFETY DATA SHEET

*prepared in accordance with 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 on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (Official Journal of the European Union No L 203, 26/06/2020)*

Silver	7440-22-4 LC50 (acute toxicity, fish, <i>Pimephales promelas</i> , 96 h)	1.2 $\mu$ g Ag/L solution
	LC50 (acute toxicity, fish, <i>Oryzias latipes</i> , 96 h)	139 $\mu$ g Ag/L solution
	LC50 (acute toxicity, invertebrates, <i>Daphnia magna</i> , 48 h)	0.22 $\mu$ g Ag/L solution
	NOEC (chronic toxicity, fish, <i>Menidia berylline</i> , 28 days)	130 $\mu$ g Ag/L solution
	NOEC (chronic toxicity, fish, <i>Pimephales promelas</i> , 32 days)	0.351 $\mu$ g Ag/L solution
	EC10 (chronic toxicity, fish, <i>Pimephales promelas</i> , 32 days)	0.44 $\mu$ g Ag/L solution
	EC10 (toxicity to algae, <i>Nostoc muscorum</i> , 15 days)	0.16 $\mu$ g Ag/L solution
	EC10 (toxicity to aquatic plants, <i>Salvinia natans</i> , 3 weeks)	1 - 4.8 $\mu$ g Ag/L solution

### 12.2 Persistence and degradability

Propan-2-ol: readily biodegradable (> 70 % after 10 days; > 95 % after 28 days, OECD 301 E).

Ethanol: easily biodegradable

2-Butoxyethanol: readily biodegradable (> 60 % after 28 days under aerobic conditions; OECD 301 B).

3-methoxy-3-methylbutan-1-ol: readily biodegradable (100% after 28 days OECD302C; 78.9% after 28 days, OECD 310).

The surfactants contained in this product meet the biodegradability requirements of Regulation (EC) No 648/2004.

Alcohols C16-18, ethoxylated: readily biodegradable (> 60 % after 28 days; OECD 301 F).

Alcohols C10, ethoxylated: readily biodegradable (> 71.9 % after 28 days; OECD 301 F).

### 12.3 Bioaccumulative potential

Octanol/water partition coefficient (log Ko/w): No data available for the mixture.

Propan-2-ol: 0.05 (low bioaccumulation potential)

Ethanol: 0.32 (non-bioaccumulative)

2-Butoxyethanol: not expected to accumulate in organisms (LogPow=0.81)

3-methoxy-3-methylbutan-1-ol: 0.18

Bioconcentration factor (BCF): No data available for the mixture.

2-Butoxyethanol: 3.2

Alcohols C10, ethoxylated: < 500

### 12.4 Mobility in soil

No data available for the mixture.

2-Butoxyethanol: KOC = 67 (estimated).

### 12.5 Results of PBT and vPvB assessment

The mixture does not meet the PBT and vPvB criteria.

### 12.6 Endocrine disrupting properties

Does not contain ingredients that are considered to disrupt the functioning of the endocrine system in accordance with Art. 57(f) of the REACH Regulation or Regulation (EU) 2017/2100 or Regulation (EU) 2018/605 at a concentration of 0.1% or higher.

### 12.7 Other harmful effects

No data available.

## MATERIAL SAFETY DATA SHEET

prepared in accordance with 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 on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (Official Journal of the European Union No L 203, 26/06/2020)

### SECTION 13: WASTE CONSIDERATIONS

#### 13.1 Waste disposal methods

Do not dispose of the product together with municipal waste, do not introduce it into the sewage system. Do not allow contamination of ground and surface water.

Hazardous waste\*:

**HP 3 "Flammable"**

\*COMMISSION REGULATION (EU) No 1357/2014 of 18 December 2014 replacing Annex III to Directive 2008/98/EC of the European Parliament and of the Council on waste and repealing certain Directives (Official Journal of the EU, L.365, December 2014).

Empty used packaging thoroughly. Disposable packaging (after thorough cleaning) should be sent for recycling.

Special precautions:

Dispose of the product and its packaging safely. Be careful when handling empty containers that have not been thoroughly cleaned. Vapours from product residues may create a flammable or explosive atmosphere inside the container. Do not cut or weld used containers unless have been thoroughly cleaned.

Legal basis:

Announcement of the Speaker of the Sejm of the Republic of Poland of 7 July 2023 regarding the announcement of the consolidated text of the Act on Waste (Journal of Laws 2023, item 1587).

Announcement of the Marshal of the Sejm of the Republic of Poland of 7 July 2023 on the announcement of the uniform text of the Act on the management of packaging and packaging waste (Journal of Laws 2023, item 1658).

Act of 13 July 2023 amending the Act on the management of packaging and packaging waste and certain other acts (Journal of Laws 2023, item 1852).

Regulation of the Minister of Climate of 2 January 2020 on the waste catalogue (Journal of Laws item 10, 2020).

### SECTION 14: TRANSPORT INFORMATION

ADR/RID, IMDG, IATA

#### 14.1 UN number or ID number

1950

#### 14.2 UN proper shipping name

Flammable AEROSOLS.

#### 14.3 Transport hazard class(es)

2

#### 14.4 Packing group

Lack.

#### 14.5 Environmental hazards

The product does not pose a hazard to the environment according to the criteria of the UN Model Regulations.

## MATERIAL SAFETY DATA SHEET

prepared in accordance with 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 on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (Official Journal of the European Union No L 203, 26/06/2020)

### 14.6 Special precautions for users

Always transport in closed containers that are upright and properly secured. Make sure that those transporting the product know what to do in the event of a failure or spill.

### 14.7 Bulk sea transport in accordance with IMO instruments

Not applicable.

## SECTION 15: REGULATORY INFORMATION

### 15.1 Safety, health and environmental protection regulations specific to mixtures

Announcement of the Marshal of the Sejm of the Republic of Poland of 22 July 2022 on the announcement of the uniform text of the Act on chemical substances and their mixtures (Journal of Laws, item 1816, 29/08/2022);

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 (Official Journal of the European Union, Series L No 353 of 31 December 2008) including its subsequent amendments (adaptations to technical progress 1 - 18 ATP);

Regulation (EU) 2016/425 of the European Parliament and of the Council of 9 March 2016 on personal protective equipment and repealing Council Directive 89/686/EEC (Official Journal of the EU, series L/81 of 31.03.2016);

Regulation of the Minister of Family, Labor and Social Policy of 12 June 2018 on the maximum permissible concentrations and intensities of factors harmful to health in the work environment (Journal of Laws, item 1286, 2018);

Regulation of the Minister of Family, Labor and Social Policy of 9 January 2020 amending the regulation on the maximum permissible concentrations and intensities of factors harmful to health in the work environment (Journal of Laws, item 61, 2020);

Regulation of the Minister of Development, Labor and Technology of February 18, 2021 amending the regulation on the maximum permissible concentrations and intensities of factors harmful to health in the work environment (Journal of Laws, item 325, 2021);

Regulation of the Minister of Family, Labor and Social Policy of August 18, 2023 amending the regulation on the maximum permissible concentrations and intensities of factors harmful to health in the work environment (Journal of Laws, item 1661, 2023);

Announcement of the Minister of Health of February 6, 2023 on the announcement of the uniform text of the regulation of the Minister of Health on tests and measurements of factors harmful to health in the work environment (Journal of Laws, item 419, 2023);

Announcement of the Minister of Health of 9 September 2016 on the announcement of a uniform text of the regulation of the Minister of Health on occupational health and safety related to the presence of chemical factors in the workplace (Journal of Laws, item 1488, 2016);

Government Statement of 13 March 2023 on the entry into force of amendments to Annexes A and B to the Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), done at Geneva on 30 September 1957 on the entry into force of amendments to Annexes A and B of the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) done at Geneva on 30 September 1957 (Journal of Laws, item 891, 2023);

Announcement of the Speaker of the Sejm of the Republic of Poland of 7 July 2023 on the announcement of the consolidated text of the Act on Waste (Journal of Laws 2023, item 1587);

Announcement of the Marshal of the Sejm of the Republic of Poland of 7 July 2023 on the announcement of the uniform text of the Act on the management of packaging and packaging waste (Journal of Laws 2023, item 1658);

## MATERIAL SAFETY DATA SHEET

*prepared in accordance with 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 on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (Official Journal of the European Union No L 203, 26/06/2020)*

Act of 13 July 2023 amending the Act on the management of packaging and packaging waste and certain other acts (Journal of Laws 2023, item 1852);

Regulation of the Minister of Climate of 2 January 2020 on the waste catalogue (Journal of Laws item 10, 2020);

Announcement of the Minister of Entrepreneurship and Technology of April 15, 2019 on the announcement of the uniform text of the regulation of the Minister of Economy on detailed requirements for aerosol products (Journal of Laws, item 975, 2019);

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 on 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 (Official Journal of the European Union series L no. 396 of December 30, 2006, as amended).

Regulation (EC) No 648/2004 of the European Parliament and of the Council of 31 March 2004 on detergents (Official Journal of the European Union, series L No 104 of 8 April 2004, as amended).

### 15.2 Chemical safety assessment

The supplier did not perform a chemical safety assessment of the mixture.

## SECTION 16: OTHER INFORMATION

The card was developed in the **Yukasiewicz Research Network - the Institute of Industrial Chemistry named after Professor Ignacy Mościcki in Warsaw** based on the recipe and ingredient safety data sheets.

The information provided in the safety data sheet is intended to describe the product only from the point of view of safety requirements. The user is responsible for creating conditions for safe use of the product and it is the user who takes responsibility for the consequences resulting from improper use of this product.

#### Other recipes:

Regulation 649/2012/EU concerning the export and import of hazardous chemicals (PIC) as amended - none of the ingredients are listed

Regulation 1005/2009/EC on substances that deplete the ozone layer - none of the ingredients are listed

Regulation 2010/75/EC on persistent organic pollutants (POPs) as amended - none of the ingredients are listed.

List of substances subject to authorisation (REACH, Annex XIV)/SVHC-candidate list - none of the ingredients are listed.

List of restricted substances (REACH, Annex XVII) - none of the ingredients are listed.

Regulation 273/2004 on drug precursors as amended - none of the ingredients are listed.

Regulation of the Minister of Development of 29 January 2016 on the types and quantities of hazardous substances present in a plant, which determine whether the plant is classified as one with an increased or high risk of a serious industrial accident (Journal of Laws, 2016, item 138):

Propan-2-ol (CAS 67-63-0); Ethanol (CAS 64-17-5): category P5a, P5b, P5c (increased risk establishment – 10 tonnes/year for P5a; 50 tonnes/year for P5b; 5000 tonnes/year for P5c; upper-risk establishment – 50 tonnes/year for P5a; 200 tonnes/year for P5b; 50000 tonnes/year for P5c); 2-Butoxyethanol: category H2 (increased-risk establishment – 50 tonnes/year, upper-risk establishment – 200 tonnes/year); Propane, butane, isobutane: category P2 (increased-risk establishment – 10 tonnes/year, upper-risk establishment – 50 tonnes/year).

**H phrases** and acronyms of symbols, hazard classes and category codes **used in Section 3. Safety data sheets:**

## MATERIAL SAFETY DATA SHEET

*prepared in accordance with 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 on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (Official Journal of the European Union No L 203, 26/06/2020)*

H220	Extremely flammable gas
H225	Highly flammable liquid and vapour.
H302	Harmful if swallowed.
H315	Irritating to skin.
H319	Irritating to eyes.
H331	Toxic if inhaled.
H336	May cause drowsiness or dizziness.
Flam. Gas 1	Flammable gases, hazard category 1.
Press. Gas	Pressurized gas
Flam. Liq. 2	Flammable liquids, hazard category 2.
Skin Irrit. 2	Skin corrosion/irritation, hazard category 2.
Eye Irrit. 2	Serious eye damage/eye irritation, hazard category 2.
Acute Tox. 3	Acute toxicity, hazard category 3 (inhalation).
Acute Tox. 4	Acute toxicity, hazard category 4 (oral).
STOT SE 3	Specific target organ toxicity – single exposure, hazard category 3, narcotic effect.

Abbreviations:

OEL - The highest permissible concentration at the workplace - the highest permissible weighted average concentration, the impact of which on an employee during an 8-hour working time, throughout his entire professional activity, should not cause any changes in his health or in the health of his future generations  
 OELCh - Maximum allowable momentary concentration - the highest allowable momentary concentration established as average value that should not cause negative changes in the health of the employee or his future generations if it is maintained in the work environment for no longer than 30 minutes during a work shift

NDSP - concentration value which cannot be exceeded at any time in the work environment due to a threat to the health or life of an employee

vPvB - Very persistent and very bioaccumulative substance

PBT - Persistent, Bioaccumulative and Toxic

LD50 – Lethal dose – a dose at which 50% of the tested animals die within a specified time period.

LC50 – Lethal concentration - concentration at which 50% of the tested animals die within a specified time period.

EC50 – Effective concentration – effective concentration of a substance causing a response at the level of 50% of the maximum value

ATE – Acute toxicity estimate.

DNEL - No Harmful Effect Level for Human Health - exposure level substances that do not cause harmful effects on human health

PNEC - Predicted No Effect Concentration - the concentration of a substance below which no harmful effects on the environment are expected

OECD - Organisation for Economic Co-operation and

Development BCF - Bioconcentration factor (bioconcentration) - the ratio of the concentration of a substance in an organism to its concentration in water at equilibrium

ADR - European agreement concerning the international carriage of dangerous goods by road (English)  
*Agreement on Dangerous Goods by Road*

RID – Regulations *Concerning the International Transport of Dangerous Goods by Rail*

IMDG – International *Maritime Dangerous Goods Code*

IATA - International Air Transport Association *International Air Transport Association*)

IMO - International Maritime Organization

CAS – the number assigned to a chemical substance in the *Chemical Abstracts Service* inventory

## MATERIAL SAFETY DATA SHEET

prepared in accordance with 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 on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (Official Journal of the European Union No L 203, 26/06/2020)

EC - reference number used in the European Union to identify dangerous substances, in particular those registered in the European Inventory of Existing Commercial Chemical Substances (EINECS – European Inventory of Existing Chemical Substances), or in the European List of Notified Chemical Substances ELINCS, or list of chemicals mentioned in the publication "No-longer polymers" UN number – a four-digit identification number of a material in the UN Hazardous Materials Inventory, derived from the UN Model Regulations, to which an individual material, mixture or article is classified

*This safety data sheet is the property of **Micro Chip Elektronic Barbara Kaczmarczyk** and is protected under the Act of 4 February 1994, as amended, on copyright and related rights. Copying, adapting, transforming or modifying the safety data sheet or its fragments without the prior consent of the owner and **the yukasiewicz Research Network - Industrial Chemistry Institute in Warsaw** is prohibited.*

