

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

CLEANSER PCC 15 SPRAY

UFI number: 4G10-J0PQ-N00S-2TA5

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

Identified uses: Preparation for cleaning printed circuits.

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

1.4 Emergency telephone number

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

Date of preparation: 29/05/2023

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)

Serious eye damage/eye irritation, hazard category 2 (Eye Irrit. 2)

Causes serious eye irritation. (H319)

Reproductive toxicity, hazard category 2 (Repr. 2)

Suspected of damaging fertility. (H361f)

Specific target organ toxicity – single exposure, hazard category 3, narcotic effects (STOT SE 3)

May cause drowsiness or dizziness. (H336)

Posing a hazard to the aquatic environment – chronic hazard, category 3 (Aquatic Chronic 3)

Harmful to aquatic life with long lasting effects. (H412)

Health hazards:

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 pain and dizziness.

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headaches, nausea, shortness of breath, respiratory problems, impaired consciousness, loss of consciousness. Ingestion (when swallowed in large quantities) causes nausea, vomiting, abdominal pain, diarrhea and narcotic symptoms, as in inhalation poisoning. It is suspected of being harmful to fertility. As with all liquefied gases, contact with rapidly evaporating liquid may cause burns (frostbite) of the skin and eyes.

Effects on the environment:

Harmful to aquatic life with long lasting effects.

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.
 H319 - Causes serious eye irritation.
 H336 - May cause drowsiness or dizziness.
 H361f - Suspected of damaging fertility.
 H412 - Harmful to aquatic life with long lasting effects.

Precautionary statements:

P102 – Keep out of reach of children.
 P308+P313 - IF exposed or concerned: Get medical advice/attention.
 P261 - Avoid breathing mist/vapours/spray.
 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 o C.

Additional labeling requirements:

Contains: Propan-2-ol; 1-methoxypropan-2-ol; n-hexane.

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.

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SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.2 Mixtures

Product ID: CLEANSER PCC 15 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
Propan-2-ol	603-117-00-0	67-63-0	200-661-7	<30	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	<21	Flam. Liq. 2 Eye Irrit. 2	H225 H319 <i>Specific</i> <i>concentration limit:</i> Eye Irrit. 2; H319: C ý 50%
Dimethoxymethane Registration number: 01-2119664781-31-XXXX	lack	109-87-5	203-714-2	7	Flam. Liq. 2	H225
Butane	601-004-00-0	106-97-8	203-448-7	6 - 13	Flame Gas 1 Press Gas	H220
Propane	601-003-00-5	74-98-6	200-827-9	5 - 10	Flame Gas 1 Press Gas	H220
1-methoxypropan-2-ol Registration number: 01-2119457435-35-XXXX	603-064-00-3	107-98-2	203-539-1	< 6	Flam. Liq. 3 STOT SE 3	H226 H336
3-methoxy-3-methylbutan-1-ol Registration number: 01-2119976333-33-XXXX	lack	56539-66-3	260-252-4	<3,5	Eye Irrit. 2	H319
n-Hexane Registration number: 01-2119480412-44-XXXX	601-037-00-0	110-54-3	203-777-6	<3,5	Flam. Liq. 2 Repr. 2 Asp. Tox. 1 Skin Irrit. 2 STOT SE 3 STOT RE 2 Aquatic Chronic 2	H225 H361f H304 H315 H336 H373 H411 <i>Specific</i> <i>concentration limit:</i> STOT RE 2; H373: C ý 5%
Carbon dioxide	lack	124-38-9	204-696-9	2 - 5	lack	lack
Isobutane	601-004-00-0	75-28-5	200-857-2	1 - 3	Flame Gas 1 Press Gas	H220
Butan-2-one Registration number: 01-2119457290-43-XXXX	606-002-00-3	78-93-3	201-159-0	<1,5	Flam. Liq. 2 Eye Irrit. 2 STOT SE 3	H225 H319 H336 EUH066

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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**

- Inhalation: Remove the injured person from the place of exposure, place them in a comfortable half-sitting or sitting position, ensure calmness, protect against heat loss. If breathing difficulties occur, apply artificial respiration. If symptoms persist, call 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. Cover with a sterile dressing. Do not use ointments or creams. Note: soak contaminated clothing with water before removing.
- Eye contact: Rinse immediately with plenty of water, preferably running, 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.
- Digestive tract: This is an unlikely route of exposure because the product is in a sealed container. Do not induce vomiting. Rinse mouth with water and 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 vapours 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 vapours 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. It is suspected of being harmful to fertility. 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.

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5.2 Special hazards arising from the substance or mixture

Carbon oxides are released in a fire environment. 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 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.

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

Prevent entry into sewage systems, surface and ground waters, soil and all places (e.g. ground depressions) where accumulation may occur.

6.3 Methods and materials for containment and cleaning up

Secure drains. Place damaged packaging in a replacement container. Dilute vapors with a dispersed stream of water. Remove sources of ignition (extinguish open flames, announce a ban on smoking and the use of sparking tools). Absorb the product in a chemically inert binding material (sand, diatomaceous earth), transfer to tightly closed containers and send for disposal. Rinse the contaminated surface with a large amount 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.

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7.2 Conditions for safe storage, including information on any incompatibilities

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 factors harmful to health in the work environment (Journal of Laws, item 1286, 2018) and Regulation of the Minister of Family, Labor and Social Policy of January 9, 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) and 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)

<u>Name of the substance</u>	<u>CAS No.</u>	<u>Standard</u>	<u>value</u>	<u>unit</u>
Propan-2-ol	67-63-0	NDS	900	mg/m3
		NDSch	1200	mg/m3
		NDSP	not determined	
Ethanol	64-17-5	(skin) NDS	1900	mg/m3
		NDSch and NDSP	not determined	
Dimethoxymethane	109-87-5	NDS	1000	mg/m3
		NDSch	3500	mg/m3
		NDSP	not specified	
1-Methoxypropan-2-ol	107-98-2	NDS	180	mg/m3
		NDSch	360	mg/m3
		NDSP	not specified	
Hexane	110-54-3	(skin) NDS	72	mg/m3
		NDSch and NDSP	not determined	
Butan-2-one	78-93-3	(skin) NDS	450	mg/m3
		NDSch	900	mg/m3
		NDSP	not specified	
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	

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Carbon dioxide	124-38-9	NDS	9000	mg/m3
		NDSCh	27000	mg/m3
		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 workers: 888 mg/

kg (skin) – local DNEL long-term

values for workers: 500 mg/m3 (inhalation) – local

DNEL values 319 mg/kg (skin) – local DNEL

long-term values ^{spicy} for the general public:

for the general public: 89 mg/m3

(inhalation) – local PNEC values: 140.9 mg/l (freshwater) 140.9

mg/l (marine water) 552 mg/kg (sediment -

freshwater and

marine water) 28 mg/kg (soil)

Ethanol:

Long-term DNEL values for workers: 380 mg/m3 (inhalation)

- systemic Long-term DNEL values for the general public: 114

mg/m3 (inhalation) - systemic PNEC values: 0.96 mg/l (freshwater) –

0.79 mg/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)

Dimethoxymethane:

DNEL long-term values for workers: 126.6 mg/m3

(inhalation) - systemic DNEL long-term values for workers:

17.9 mg/kg (skin) - systemic DNEL long-term values for

the general public: 31.5 mg/m3 (inhalation) -

systemic DNEL long-term values for the general public: 18.1 mg/

kg (skin and oral) - systemic PNEC values: 15.577 mg/l

(freshwater) 1.477 mg/l (marine water) 10 g/l (sewage treatment

plant) 13.135 mg/kg (sediment - freshwater) 1.313 mg/kg (sediment -

marine water) 4.654

mg/kg (soil) **1-methoxypropan-2-**

ol: Long-term DNEL values for

workers: 369 mg/m3 (inhalation) -

systemic DNEL values for workers:

_____ ^{spicy} _____

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553.5 mg/m³ (respiratory tract) – systemic and local

Long-term DNEL values for workers: 183 mg/kg (skin)

- systemic

Long-term DNEL values for general population: 43.9 mg/m³

(inhalation) – systemic

Long-term DNEL values for general population: 78 mg/kg (skin)

- systemic

Long-term DNEL values for general population: 33 mg/kg (oral)

– systemic

PNEC values: 10

mg/l (freshwater) 1 mg/l

(marine water) 100 mg/l

(sewage treatment plant) 52.3 mg/kg

(sediment - freshwater) 5.2 mg/kg

(sediment - marine water) 4.59 mg/kg

(soil) **3-methoxy-3-methylbutan-1-ol:**

Long-term DNEL values for workers: 80 mg/m³

(respiratory) - systemic

Long-term DNEL values for workers: 6.25 mg/kg (skin)

- systemic

Long-term DNEL values for general public: 40 mg/m³ (inhalation)

– systemic

Long-term DNEL values for general population: 3.1 mg/kg (skin)

– systemic

Long-term DNEL values for general public: 2.5 mg/kg (oral) –

systemic **n-Hexane:**

Long-term DNEL values for workers: 75 mg/m³

(respiratory) - systemic

Long-term DNEL values for workers: 11 mg/kg (skin) -

systemic

Long-term DNEL values for general population: 16 mg/m³

(inhalation) – systemic

Long-term DNEL values for general population: 5.3 mg/kg (skin)

– systemic

Long-term DNEL values for general population: 4 mg/kg (oral) –

systemic

Butan-2-one:

Long-term DNEL values for workers: 600 mg/m³

(respiratory) - systemic

DNEL values for workers: 900 mg/m³

(respiratory) - systemic

Long-term DNEL values for workers: 1161 mg/kg (skin)

- systemic

Long-term DNEL values for general population: 106 mg/m³

(inhalation) – systemic

DNEL values 450 spicy for the general public:

mg/m³ (respiratory) - systemic

Long-term DNEL values for general population: 412 mg/kg (skin)

– systemic

Long-term DNEL values for general population: 31 mg/kg (oral)

– systemic

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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. Do not use near sources of high temperature and sources of ignition. In the event of insufficient ventilation, use respiratory protection.

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 fibres, protective gloves; for prolonged and repeated contact, use nitrile or leather protective gloves in accordance with the PN-EN ISO 374 and PN-EN ISO 21420 standards. The 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 propane/butane/isobutane/carbon dioxide.
- b) Colour
Colourless.
- c) Alcohol
Smell.
- d) Melting/freezing point
No data available.
- e) Boiling point or initial boiling point and boiling range
No data available.
- f) Flammability of materials
Inflammable mixture.
- g) Lower and upper explosive limits
Explosion limits for propan-2-ol:
Top: 12% vol.
Bottom: 2% vol.
- h) Flash point
No data available.

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i) Autoignition temperature No data available. j)

Decomposition temperature
No data

available. k) pH No

data available. l) Kinematic viscosity
No data available. m)

Solubility Soluble in

water. n) Partition coefficient
n-octanol/water (log coefficient value)

No data available. o) Vapour
pressure No data

available. p) Density or
relative density No data available.

q) Relative vapor density

No data available. r) Particle
characterization Not applicable.

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 explode 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 mixtures: 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: Not applicable. i) gas group: No data. j) redox potential: No data. k) radical formation potential: No data. l) photocatalytic properties: No data.

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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

High temperature, ignition sources, open flames.

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 67-98-2

skin rabbit CL50 – respiratory tract rat DL50 – oral tract rat DL50 – skin rabbit CL50 – respiratory tract rat DL50 – oral tract DL50 – skin CL50 – respiratory tract rat DL50 – oral tract rat DL50 – skin rabbit CL50 – respiratory tract rat DL50 – oral tract rat DL50 – skin rat	value	unit.
	>5000	mg/kg
	>5000	mg/kg
	>5	mg/l
Ethanol 64-17-5	7060	mg/kg
	>20000	mg/kg
	>8000	mg/l (4h)
1-methoxypropan-2-ol 107-98-2	>2000-5000	mg/kg
	>2000	mg/kg
	>25	mg/l
n-Hexane 110-54-3	16000	mg/kg
	>3350	mg/kg
	>259	g/m ³ (4h)
Butan-2-one 78-93-3	>2000	mg/kg
	>2000	mg/kg

Skin corrosion/irritation:

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

Serious eye damage/eye irritation:

Irritating to eyes.

Respiratory or skin sensitisation:

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:

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

Reproductive toxicity: _____

Suspected of damaging fertility.

Specific target organ toxicity – single exposure: _____

May cause drowsiness or dizziness.

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

Harmful to aquatic life with long lasting effects.

Component	CAS-No.	Dose value unit.	
Propan-2-ol	67-63-0	CL50 – fish (<i>Pimephales promelas</i>)	9640-11130 mg/l (96h)
		CL50 – fish (<i>Carassius auratus</i>)	> 5000 mg/l (24h)
		CL50 – 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)
		CE50 – bacteria (<i>Pseudomonas putida</i>)	1050 mg/l (16h)
Ethanol	64-17-5	EC50 – protozoa (<i>Entosiphon sulcatum</i>)	4930 mg/l (72h)
		CL50 – fish	8140 mg/l (48h)
		EC50 – invertebrates (<i>Daphnia magna</i>)	> 7800 mg/l (48h)
Dimethoxymethane	109-87-5	EC50 – invertebrates (<i>Daphnia magna</i>)	> 1200 mg/l (48h)
		1-methoxypropan-2-ol	107-98-2
		CL50 – fish (<i>Pimephales promelas</i>)	20800 mg/l (96h)
3-methoxy-3-methylbutan-1-ol	56539-66-3	CL50 – fish (<i>Oncorhynchus mykiss</i>)	1000 mg/l (96h)
		CL50 – fish (<i>Leuciscus idus melanotus</i>)	6812 mg/l (96h)
		CL50 – invertebrates (<i>Daphnia magna</i>)	21100-25900 mg/l (48h)
		CEr50 – algae (<i>Pseudokirchneriella subspitata</i>)	1000 mg/l (7 days)
		CL50 – fish (<i>Oryzias latipes</i>)	>100 mg/l (96h)
		CE50 – invertebrates (<i>Daphnia magna</i>)	> 10000 mg/l (48h)
n-Hexane	110-54-3	NOEC – invertebrates (<i>Daphnia magna</i>)	100 mg/l (21 days)
		NOEC – algae (<i>Pseudokirchneriella subspitata</i>)	1000 mg/l (72h)
		CEr50 – algae (<i>Pseudokirchneriella subspitata</i>)	>1000 mg/l (72h)
		CE50 – microorganisms	>1000 mg/l (3h)
		CE50 – protozoa (<i>Entosiphon sulcatum</i>)	4930 mg/l (72h)
		NOELR – fish (<i>Oncorhynchus mykiss</i>)	2.8 mg/l (28 days)
NOELR – invertebrates (<i>Daphnia magna</i>)	4,888 mg/l (21 days)		
LL50 – algae	12.51 mg/l (96h)		

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		LE50 – invertebrates (<i>Daphnia magna</i>)	21.85	mg/l (48h)
		LE50 – algae	9.285	mg/l (72h)
Butan-2-one	78-93-3	CL50 - fish (<i>Leuciscus idus</i>)	>100	mg/l (48h)
		CE50 – invertebrates (<i>Daphnia magna</i>)	> 100	mg/l (48h)
		CE50 – algae (<i>Desmodesmus subspicatus</i>)	> 100	mg/l (7 days)

12.2 Persistence and degradability

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

Ethanol: readily biodegradable 1-

methoxypropan-2-ol: readily biodegradable (96% after 28 days)

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

n-hexane: easily biodegradable

Butan-2-one: readily biodegradable

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)

1-methoxypropan-2-ol: 0.37 (not expected to bioaccumulate)

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

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

12.4 Mobility in soil

No data available.

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

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"

HP 4 "Irritating"

HP 5 "Specific Target Organ Toxicity (STOT)"

HP 10 "Toxic to reproduction"

*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).

Special precautions: _____

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Dispose of the product and its packaging safely. Use caution 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 they have been thoroughly cleaned.

Legal basis:

Announcement of the Speaker of the Sejm of the Republic of Poland of 3 March 2022 on the announcement of the consolidated text of the Act on Waste (Journal of Laws, item 699, 2022).

Announcement of the Speaker of the Sejm of the Republic of Poland of 1 December 2022 on the announcement of the uniform text of the act on the management of packaging and packaging waste (Journal of Laws, item 160, 2023)

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.

14.6 Special precautions for users

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

14.7 Bulk sea transport in accordance with IMO instruments

Not applicable – the product is transported in sealed packaging.

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) with subsequent amendments (adaptations to technical progress 1 - 18 ATP).

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26/06/2020)

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 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, LABOUR AND SOCIAL POLICY of 9 January 2020 amending the regulation on the maximum permissible concentrations and intensities of harmful factors for 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).

NOTICE 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 26 July 2005 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) concluded in Geneva on 30 September 1957 (Journal of Laws No. 178, item 1481, 2005 with subsequent amendments).

Announcement of the Speaker of the Sejm of the Republic of Poland of 3 March 2022 on the announcement of the consolidated text of the Act on Waste (Journal of Laws, item 699, 2022).

Announcement of the Speaker of the Sejm of the Republic of Poland of 1 December 2022 on the announcement of the uniform text of the act on the management of packaging and packaging waste (Journal of Laws, item 160, 2023)

REGULATION OF THE MINISTER OF CLIMATE of 2 January 2020 on the waste catalogue (Journal of Laws, item 10, 2020).

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC (Official Journal of the European Union, series L, No 396 of 30 December 2006, as amended).

Regulation (EC) No 273/2004 of the European Parliament and of the Council of 11 February 2004 on drug precursors with subsequent amendments (OJ L 47, 18.2.2004, p. 1-10, special Polish edition: Chapter 15 Volume 008 P. 46 – 56).

NOTICE 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)

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 **ȳukasiewicz Research Network - the Institute of Industrial Chemistry named after Professor Ignacy Moȳcicki 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.

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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 - Butan-2-one (CAS 78-93-3): category 3

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), Dimethoxymethane (CAS 109-87-5), 1-methoxypropan-2-ol (CAS 107-98-2), Butan-2-one (CAS 78-93-3): category P5a, P5b, P5c (increased-risk establishment – 10 tonnes/year for P5a; 50 tonnes/year for P5b; 5000 tonnes/year for P5c; high-risk establishment – 50 tonnes/year for P5a; 200 tonnes/year for P5b; 50000 tonnes/year for P5c)

n-Hexane (CAS 110-54-3): category P5a, P5b, P5c (increased-risk establishment – 10 tons/year for P5a; 50 tons/year for P5b; 5000 tons/year for P5c; high-risk establishment – 50 tons/year for P5a; 200 tons/year for P5b; 50000 tons/year for P5c) category E2 (increased-risk establishment – 200 tons/year; high-risk establishment – 500 tons/year)

Butane (CAS 106-97-8), Propane (CAS 74-98-6), Isobutane (CAS 75-28-5): category P1 (increased-risk establishment – 10 tons/year; high-risk establishment – 50 tons/year)

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

H220	Extremely flammable gas
H225	Highly flammable liquid and vapour.
H304	May be fatal if swallowed and enters airway.
H315	Irritating to skin.
H319	Irritating to eyes.
H336	May cause drowsiness or dizziness.
H361f	Suspected of damaging fertility.
H373	May cause damage to organs through prolonged or repeated exposure.
H411	Toxic to aquatic life with long lasting effects.
EUH066	Repeated exposure may cause skin dryness or cracking.
Flam. Gas. 1	Flammable gases, hazard category 1.
Flam. Liq. 2	Flammable liquids, hazard category 2.
Asp. Tox. 1	Aspiration Hazard Category 1.
Skin Irrit. 2	Skin corrosion/irritation, hazard category 2.
Eye Irrit. 2	Serious eye damage/eye irritation, hazard category 2.
STOT SE 3	Specific target organ toxicity – single exposure, hazard category 3, narcotic effect.
Repr. 2	Reproductive toxicity, hazard category 2.
STOT RE 2	Specific target organ toxicity – repeated exposure, hazard category 2.
Aquatic Chronic 2	Posing a hazard to the aquatic environment – chronic hazard, category 2.

Classification method:

Aerosol 1; H222 – based on the content of flammable components and combustion heat

Eye Irrit. 2; H319 – additive method

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Repr. 2; H361f - based on generic concentration limit
STOT SE 3; H336 - based on generic concentration limit
Aquatic Chronic 3; H412 - method of summing the concentrations of classified ingredients

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

DL50 - Lethal dose - a dose at which 50% of the tested animals die within a specified time period.

CL50 - Lethal concentration - concentration at which 50% of the tested animals die within a specified time period.

CE50 - Effective concentration - effective concentration of a substance causing a response 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

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

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