Safety Data Sheet

According to Annex II to REACH - Regulation 2020/878 and to Annex II to UK REACH

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

1.1. Product identifier

Code	HI70641
Product name	Cleaning and Disinfection Solution for Dairy Products

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

Intended use	Electrode Cleaning Solution for Applications with Dairy Products

1.3. Details of the supplier of the safety data sheet

Name	Hanna Instruments S.R.L.
Full address	str. Hanna Nr 1
District and Country	457260 loc. Nusfalau (Salaj) Romania
	Tel. +40 260607700
	Fax +40 260607700
e-mail address of the competent person responsible for the Safety Data Sheet	msds@hanna.ro

1.4. Emergency telephone number

For urgent inquiries refer to	International: +1 7035273887 - UK, London: +44 2038073798 - CHEMTREC 24 hours/365 days

SECTION 2. Hazards identification

2.1. Classification of the substance or mixture

The product is classified as hazardous pursuant to the provisions set forth in (EC) Regulation 1272/2008 (CLP) (and subsequent amendments and supplements). The product thus requires a safety datasheet that complies with the provisions of (EU) Regulation 2020/878.
Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

Hazard classification and indication:

Eye irritation, category 2	H319	Causes serious eye irritation.

2.2. Label elements

Hazard labelling pursuant to EC Regulation 1272/2008 (CLP) and subsequent amendments and supplements.

Hazard pictograms:



Signal words:	Warning

Hazard statements:

H319	Causes serious eye irritation.

Precautionary statements:

P280	Wear protective gloves / face protection.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313	If eye irritation persists: Get medical advice / attention.

SECTION 2. Hazards identification ... / >>

2.3. Other hazards

On the basis of available data, the product does not contain any PBT or vPvB in percentage ≥ than 0,1%.

The product does not contain substances with endocrine disrupting properties in concentration ≥ 0.1%.

SECTION 3. Composition/information on ingredients

3.2. Mixtures

Contains:

Identification		x = Conc. %	Classification (EC) 1272/2008 (CLP)
BUTANOL			
INDEX	603-004-00-6	1 ≤ x < 3	Flam. Liq. 3 H226, Acute Tox. 4 H302, Eye Dam. 1 H318, Skin Irrit. 2 H315, STOT SE 3 H335, STOT SE 3 H336
EC	200-751-6		LD50 Oral: 790 mg/kg
CAS	71-36-3		
REACH Reg.	01-2119484630-38		
ETHANEDIOL			
INDEX	603-027-00-1	0,5 ≤ x < 1	Acute Tox. 4 H302, STOT RE 2 H373
EC	203-473-3		STA Oral: 500 mg/kg
CAS	107-21-1		
REACH Reg.	01-2119456816-28		
BENZALKONIUM CHLORIDE			
INDEX	612-140-00-5	0 ≤ x < 0,5	Acute Tox. 4 H302, Acute Tox. 4 H312, Skin Corr. 1B H314, Eye Dam. 1 H318, Aquatic Acute 1 H400 M=1
EC	264-151-6		STA Oral: 500 mg/kg, STA Dermal: 1100 mg/kg
CAS	63449-41-2		

The full wording of hazard (H) phrases is given in section 16 of the sheet.

SECTION 4. First aid measures

4.1. Description of first aid measures

EYES: Remove contact lenses, if present. Wash immediately with plenty of water for at least 15 minutes, opening the eyelids fully. If problem persists, seek medical advice.
SKIN: Remove contaminated clothing. Rinse skin with a shower immediately. Wash contaminated clothing before using it again.
INHALATION: Remove to open air. If the subject stops breathing, administer artificial respiration. Get medical advice/attention immediately.
INGESTION: Get medical advice/attention immediately. Do not induce vomiting. Do not administer anything not explicitly authorised by a doctor.

4.2. Most important symptoms and effects, both acute and delayed

Specific information on symptoms and effects caused by the product are unknown.

ETHANEDIOL
Unconsciousness, agitation, Nausea, Vomiting, Tiredness, ataxia (impaired locomotor coordination), CNS disorders.

BENZALKONIUM CHLORIDE
Irritation and corrosion, Cough, Shortness of breath, Risk of blindness!.

BUTANOL
Risk of serious damage to eyes. Irritation and corrosion, somnolence, Drowsiness, Cough, Shortness of breath, CNS disorders, cardiovascular disorders, Nausea, Vomiting, inebriation, Dizziness, narcosis, depressed respiration.

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

Information not available

SECTION 5. Firefighting measures

5.1. Extinguishing media

SUITABLE EXTINGUISHING EQUIPMENT
The extinguishing equipment should be of the conventional kind: carbon dioxide, foam, powder and water spray.
UNSUITABLE EXTINGUISHING EQUIPMENT

SECTION 5. Firefighting measures ... / >>

None in particular.

5.2. Special hazards arising from the substance or mixture

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE
Do not breathe combustion products.

ETHANEDIOL
Combustible. Vapours are heavier than air and may spread along floors. Forms explosive mixtures with air on intense heating. Development of hazardous combustion gases or vapours possible in the event of fire.

BENZALKONIUM CHLORIDE
Combustible. Vapours are heavier than air and may spread along floors. Development of hazardous combustion gases or vapours possible in the event of fire. Fire may cause evolution of: Hydrogen chloride gas, nitrogen oxides.

BUTANOL
Combustible. Vapours are heavier than air and may spread along floors. Forms explosive mixtures with air at elevated temperatures. Development of hazardous combustion gases or vapours possible in the event of fire.

5.3. Advice for firefighters

GENERAL INFORMATION
Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.
SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS
Normal fire fighting clothing i.e. fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

SECTION 6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Block the leakage if there is no hazard.
Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. These indications apply for both processing staff and those involved in emergency procedures.

6.2. Environmental precautions

The product must not penetrate into the sewer system or come into contact with surface water or ground water.

6.3. Methods and material for containment and cleaning up

Collect the leaked product into a suitable container. Evaluate the compatibility of the container to be used, by checking section 10. Absorb the remainder with inert absorbent material.
Make sure the leakage site is well aired. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

6.4. Reference to other sections

Any information on personal protection and disposal is given in sections 8 and 13.

SECTION 7. Handling and storage

7.1. Precautions for safe handling

Keep away from heat, sparks and naked flames; do not smoke or use matches or lighters. Without adequate ventilation, vapours may accumulate at ground level and, if ignited, catch fire even at a distance, with the danger of backfire. Avoid bunching of electrostatic charges. Do not eat, drink or smoke during use. Remove any contaminated clothes and personal protective equipment before entering places in which people eat. Avoid leakage of the product into the environment.

7.2. Conditions for safe storage, including any incompatibilities

Store only in the original container. Store in a cool and well ventilated place, keep far away from sources of heat, naked flames and sparks and other sources of ignition. Keep containers away from any incompatible materials, see section 10 for details.

7.3. Specific end use(s)

Information not available

SECTION 8. Exposure controls/personal protection

8.1. Control parameters

Regulatory References:

AUS	Österreich	Gesamte Rechtsvorschrift für Grenzwerteverordnung 2021 , Fassung vom 17.06.2021
BEL	Belgique	Liste de valeurs limites d'exposition aux agents chimiques, livre VI du code du bien-être au travail
BGR	България	НАРЕДБА № 13 ОТ 30 ДЕКЕМВРИ 2003 Г. ЗА ЗАЩИТА НА РАБОТЕЩИТЕ ОТ РИСКОВЕ, СВЪРЗАНИ С ЕКСПОЗИЦИЯ НА ХИМИЧНИ АГЕНТИ ПРИ РАБОТА (изм. ДВ. бр.5 от 17 Януари 2020г.)
CHE	Suisse / Schweiz	Valeurs limites d'exposition aux postes de travail: VME/VLE (SUVA). Grenzwerte am Arbeitsplatz: MAK (SUVA)
CYP	Κύπρος	Οι πεπί Αζθάλειαρ και Υγείαρ ζηην Δπγαζία (Φημικοί Παπάγονηερ) (Τποποποιηηικοί) Κανονιζμοί ηος 2019. Οι περί Ασφάλειας και Υγείας στην Εργασία (Καρκινογόνοι και Μεταλλαξιογόνοι Παράγοντες) (Τροποποιητικοί) Κανονισμοί του 2020
CZE	Česká Republika	Nařízení vlády č. 41/2020 Sb. Nařízení vlády, kterým se mění nařízení vlády č. 361/2007 Sb., kterým se stanoví podmínky ochrany zdraví při práci, ve znění pozdějších předpisů
DEU	Deutschland	Technischen Regeln für Gefahrstoffe (TRGS 900) - Liste der Arbeitsplatzgrenzwerte und Kurzzeitwerte. MAK- und BAT-Werte-Liste 2020, Ständige Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe, Mitteilung 56
DNK	Danmark	Bekendtgørelse om grænseværdier for stoffer og materialer - BEK nr 1458 af 13/12/2019
ESP	España	Límites de exposición profesional para agentes químicos en España 2021
EST	Eesti	Ohtlike kemikaalide ja neid sisaldavate materjalide kasutamise töötervishoiu ja tööohutuse nõuded ning töökeskkonna keemiliste ohutegurite piirnormid [RT I, 17.10.2019, 1 - jõust. 17.01.2020]
FRA	France	Valeurs limites d'exposition professionnelle aux agents chimiques en France. ED 984 - INRS
FIN	Suomi	HTP-VÄRDEN 2020. Koncentrationer som befunnits skadliga. SOCIAL - OCH HÄLSOVÅRDSMINISTERIETS PUBLIKATIONER 2020:25
GRC	Ελλάδα	Π.Δ. 26/2020 (ΦΕΚ 50/Α` 6.3.2020) Εναρμόνιση της ελληνικής νομοθεσίας προς τις διατάξεις των οδηγιών 2017/2398/ΕΕ, 2019/130/ΕΕ και 2019/983/ΕΕ «για την τροποποίηση της οδηγίας 2004/37/ΕΚ ''σχετικά με την προστασία των εργαζομένων από τους κινδύνους που συνδέονται με την έκθεση σε καρκινογόνους ή μεταλλαξιγόνους παράγοντες κατά την εργασία''»
HUN	Magyarország	Az innovációért és technológiáért felelős miniszter 5/2020. (II. 6.) ITM rendelete a kémiai kóroki tényezők hatásának kitett munkavállalók egészségének és biztonságának védelméről
HRV	Hrvatska	Pravilnik o izmjenama i dopunama Pravilnika o zaštiti radnika od izloženosti opasnimkemikalijama na radu, graničnim vrijednostima izloženosti i biološkim graničnim vrijednostima (NN 1/2021)
ITA	Italia	Decreto Legislativo 9 Aprile 2008, n.81
IRL	Éire	2020 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations (2001-2015) and the Safety, Health and Welfare at Work (Carcinogens) Regulations (2001-2019)
LTU	Lietuva	Jsakymas dėl lietuvos higienos normos hn 23:2011 „cheminių medžiagų profesinio poveikio ribiniai dydžiai. Matavimo ir poveikio vertinimo bendrieji reikalavimai“ patvirtinimo
LVA	Latvija	Grozījumi Ministru kabineta 2007. gada 15. maija noteikumos Nr. 325 "Darba aizsardzības prasības saskarē ar ķīmiskajām vielām darba vietās" (prot. Nr. 32 18. §; prot. Nr. 1 22. §)
NOR	Norge	Forskrift om endring i forskrift om tiltaksverdier og grenseverdier for fysiske og kjemiske faktorer i arbeidsmiljøet samt smitterisikogrupper for biologiske faktorer (forskrift om tiltaks- og grenseverdier), 21. august 2018 nr. 1255
NLD	Nederland	Arbeidsomstandighedenregeling. Lijst van wettelijke grenswaarden op grond van de artikelen 4.3, eerste lid, en 4.16, eerste lid, van het Arbeidsomstandighedenbesluit
POL	Polska	Rozporządzenie ministra rozwoju, pracy i technologii z dnia 18 lutego 2021 r. Zmieniające rozporządzenie w sprawie najwyższych dopuszczalnych stężeń i natężeń czynników szkodliwych dla zdrowia w środowisku pracy
ROU	România	Hotărârea nr. 53/2021 pentru modificarea hotărârii guvernului nr. 1.218/2006, precum și pentru modificarea și completarea hotărârii guvernului nr. 1.093/2006
SWE	Sverige	Hygieniska gränsvärden, Arbetsmiljöverkets föreskrifter och allmänna råd om hygieniska gränsvärden (AFS 2018:1)
SVK	Slovensko	NARIADENIE VLÁDY Slovenskej republiky z 12. augusta 2020, ktorým sa mení a dopĺňa nariadenie vlády Slovenskej republiky č. 356/2006 Z. z. o ochrane zdravia zamestnancov pred rizikami súvisiacimi s expozíciou karcinogénnym a mutagénnym faktorom pri práci v znení neskorších predpisov
SVN	Slovenija	Pravilnik o varovanju delavcev pred tveganji zaradi izpostavljenosti kemičnim snovem pri delu (Uradni list RS, št. 100/01, 39/05, 53/07, 102/10, 43/11 – ZVZD-1, 38/15, 78/18 in 78/19)
TUR	Türkiye	Kimyasal Maddelerle Çalışmalarda Sağlık ve Güvenlik Önlemleri Hakkında Yönetmelik 12.08.2013 / 28733
GBR	United Kingdom	EH40/2005 Workplace exposure limits (Fourth Edition 2020)
EU	OEL EU	Directive (EU) 2022/431; Directive (EU) 2019/1831; Directive (EU) 2019/130; Directive (EU) 2019/983; Directive (EU) 2017/2398; Directive (EU) 2017/164; Directive 2009/161/EU; Directive 2006/15/EC; Directive 2004/37/EC; Directive 2000/39/EC; Directive 98/24/EC; Directive 91/322/EEC.

SECTION 8. Exposure controls/personal protection ... / >>

TLV-ACGIH ACGIH 2021

ETHANEDIOL

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
MAK	AUS	26	10	52	20	SKIN
TLV	BGR	52		104		SKIN
MAK	CHE	26	10	52	20	SKIN
TLV	CYP	52	20	104	40	SKIN
TLV	CZE	50		100		SKIN
AGW	DEU	26	10	52	20	SKIN
MAK	DEU	26	10	52	20	SKIN
TLV	DNK	26	10			SKIN
VLA	ESP	52	20	104	40	SKIN
TLV	EST	52	20	104	40	SKIN
VLEP	FRA	52	20	104	40	SKIN
HTP	FIN	50	20	100	40	SKIN
TLV	GRC	125	50	125	50	
AK	HUN	52		104		
GVI/KGVI	HRV	52	20	104	40	SKIN
VLEP	ITA	52	20	104	40	SKIN
OELV	IRL	52	20	104	40	SKIN
RD	LTU	25	10	50	20	SKIN
RV	LVA	52	20	104	40	SKIN
TLV	NOR		25			SKIN
TGG	NLD	52		104		SKIN
NDS/NDSCh	POL	15		20		
TLV	ROU	52	20	104	40	SKIN
NGV/KGV	SWE	25	10	50	20	SKIN
NPEL	SVK	52	20	104		SKIN
ESD	TUR	52	20	104	40	SKIN
WEL	GBR	52	20	104	40	
OEL	EU	52	20	104	40	SKIN
TLV-ACGIH				100 (C)		

Predicted no-effect concentration - PNEC

Normal value in fresh water	10	mg/l
Normal value in marine water	1	mg/l
Normal value for fresh water sediment	37	mg/kg/d
Normal value for marine water sediment	3,7	mg/kg/d
Normal value for water, intermittent release	10	mg/l
Normal value of STP microorganisms	199	mg/l
Normal value for the terrestrial compartment	1,53	mg/kg/d

Health - Derived no-effect level - DNEL / DMEL

	Effects on consumers				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Inhalation			7 mg/m3	VND			35 mg/m3	VND
Skin			VND	53 mg/kg bw/d			VND	106 mg/kg bw/d

SECTION 8. Exposure controls/personal protection ... / >>

BUTANOL

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
MAK	AUS	150	50	600	200	
VLEP	BEL	62	20			
MAK	CHE	150	50	150	50	
VME/VLE	CHE	150	50	150	50	
TLV	CZE	300		600		SKIN
AGW	DEU	310	100	310	100	
MAK	DEU	310	100	310	100	
TLV	DNK	150	50			SKIN
VLA	ESP	61	20	154	50	
TLV	EST	45	15	90 (C)	30 (C)	SKIN
VLEP	FRA			150	50	
TLV	GRC	300	100	300	100	
AK	HUN	45		90		
GVI/KGVI	HRV			154	50	SKIN
OELV	IRL		20			SKIN
RD	LTU	45	15	90 (C)	30 (C)	SKIN
RV	LVA	10				
TGG	NLD			45		
NDS/NDSCh	POL	50		150		
TLV	ROU	100	33	200	66	
NGV/KGV	SWE	45	15	90	30	SKIN
NPEL	SVK	310	100	310		
MV	SVN	310	100	310	100	
WEL	GBR			154	50	SKIN
TLV-ACGIH		61	20			

Predicted no-effect concentration - PNEC

Normal value in fresh water	0,082	mg/l
Normal value in marine water	0,008	mg/l
Normal value for fresh water sediment	0,324	mg/kg/d
Normal value for marine water sediment	0,032	mg/kg/d
Normal value of STP microorganisms	2,476	mg/l
Normal value for the terrestrial compartment	0,017	mg/kg/d

Health - Derived no-effect level - DNEL / DMEL

	Effects on consumers				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Inhalation			310 mg/m3					

Legend:
(C) = CEILING ; INHAL = Inhalable Fraction ; RESP = Respirable Fraction ; THORA = Thoracic Fraction.
VND = hazard identified but no DNEL/PNEC available ; NEA = no exposure expected ; NPI = no hazard identified ; LOW = low hazard ; MED = medium hazard ; HIGH = high hazard.

8.2. Exposure controls

As the use of adequate technical equipment must always take priority over personal protective equipment, make sure that the workplace is well aired through effective local aspiration.
When choosing personal protective equipment, ask your chemical substance supplier for advice.
Personal protective equipment must be CE marked, showing that it complies with applicable standards.
Provide an emergency shower with face and eye wash station.
HAND PROTECTION
Protect hands with category III work gloves (see standard EN 374).
The following should be considered when choosing work glove material: compatibility, degradation, failure time and permeability.
The work gloves' resistance to chemical agents should be checked before use, as it can be unpredictable. The gloves' wear time depends on the duration and type of use.
SKIN PROTECTION
Wear category I professional long-sleeved overalls and safety footwear (see Regulation 2016/425 and standard EN ISO 20344). Wash body with soap and water after removing protective clothing.
EYE PROTECTION
Wear airtight protective goggles (see standard EN 166).
RESPIRATORY PROTECTION
If the threshold value (e.g. TLV-TWA) is exceeded for the substance or one of the substances present in the product, wear a mask with a type AX filter, whose limit of use will be defined by the manufacturer (see standard EN 14387). In the presence of gases or vapours of various kinds and/or gases or vapours containing particulate (aerosol sprays, fumes, mists, etc.) combined filters are required.
Respiratory protection devices must be used if the technical measures adopted are not suitable for restricting the worker's exposure to the

SECTION 8. Exposure controls/personal protection ... / >>

threshold values considered. The protection provided by masks is in any case limited.
If the substance considered is odourless or its olfactory threshold is higher than the corresponding TLV-TWA and in the case of an emergency, wear open-circuit compressed air breathing apparatus (in compliance with standard EN 137) or external air-intake breathing apparatus (in compliance with standard EN 138). For a correct choice of respiratory protection device, see standard EN 529.

ENVIRONMENTAL EXPOSURE CONTROLS
The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.

SECTION 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Properties		Value	Information
Appearance		liquid	
Colour		colourless	
Odour		Alcohol	
Melting point / freezing point		not available	
Initial boiling point	>	35 °C	
Flammability		not available	
Lower explosive limit		not available	
Upper explosive limit		not available	
Flash point	>	100 °C	Method:ASTM D92-18
Auto-ignition temperature		not available	
Decomposition temperature		not available	
pH		4,9	Method:ASTM D1293-18 Temperature: 25 °C
Kinematic viscosity		not available	
Solubility		soluble in water	
Partition coefficient: n-octanol/water		not available	
Vapour pressure		not available	
Density and/or relative density		1	
Relative vapour density		not available	
Particle characteristics		not applicable	

9.2. Other information

9.2.1. Information with regard to physical hazard classes

Information not available

9.2.2. Other safety characteristics

Total solids (250°C / 482°F)	1,16 %		
VOC (Directive 2010/75/EU)	1,50 %	- 14,98	g/litre
VOC (volatile carbon)	0,97 %	- 9,70	g/litre
Explosive properties	not applicable		
Oxidising properties	not applicable		

SECTION 10. Stability and reactivity

10.1. Reactivity

There are no particular risks of reaction with other substances in normal conditions of use.

ETHANEDIOL
Can absorb atmospheric humidity up to twice its own weight. Decomposes at temperatures over 200°C/392°F.

BENZALKONIUM CHLORIDE
Attacks carbon steel, copper, aluminium and their alloys.

BUTANOL
Attacks various types of plastic materials.

10.2. Chemical stability

The product is stable in normal conditions of use and storage.

10.3. Possibility of hazardous reactions

SECTION 10. Stability and reactivity ... / >>

The vapours may also form explosive mixtures with the air.

ETHANEDIOL
Risk of explosion on contact with: perchloric acid. Can react dangerously with: chlorosulphuric acid, sodium hydroxide, sulphuric acid, phosphorus pentasulphide, chromium (III) oxide, chromyl chloride, potassium perchlorate, potassium dichromate, sodium peroxide, aluminium. Forms explosive mixtures with the air.

BUTANOL
Reacts violently developing heat on contact with: aluminium,strong oxidising agents,strong reducing agents,hydrochloric acid.Forms explosive mixtures with: air.

10.4. Conditions to avoid

Avoid overheating. Avoid bunching of electrostatic charges. Avoid all sources of ignition.

ETHANEDIOL
Avoid exposure to sources of heat and naked flames.

BUTANOL
Avoid exposure to: sources of heat,naked flames.

10.5. Incompatible materials

Information not available

10.6. Hazardous decomposition products

In the event of thermal decomposition or fire, gases and vapours that are potentially dangerous to health may be released.

ETHANEDIOL
Hydroxyacetaldehyde, glyoxal, acetaldehyde, methane, carbon monoxide, hydrogen.

SECTION 11. Toxicological information

In the absence of experimental data for the product itself, health hazards are evaluated according to the properties of the substances it contains, using the criteria specified in the applicable regulation for classification.
It is therefore necessary to take into account the concentration of the individual hazardous substances indicated in section 3, to evaluate the toxicological effects of exposure to the product.

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

ETHANEDIOL
Following ingestion it initially stimulates the CNS; later on depression results. Renal damage with anuria and uremia may occur. Symptoms of over exposure are: vomiting, somnolence, difficulty in breathing, convulsions. The lethal dose in man is approximately 1,4 l/kg. The way of entry is inhalation and ingestion.

BENZALKONIUM CHLORIDE
Acute oral toxicity, Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach. absorption - Acute inhalation toxicity, Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages: damage of respiratory tract - Skin irritation, Mixture causes burns - Eye irritation, Mixture causes serious eye damage. Risk of blindness!

BUTANOL
Acute oral toxicity, Symptoms: Nausea, Vomiting, Risk of aspiration upon vomiting., Pulmonary failure possible after aspiration of vomit - Acute inhalation toxicity, Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract - Acute dermal toxicity, Skin irritation, Causes skin irritation - Eye irritation, Causes serious eye damage - Specific target organ toxicity - single exposure, May cause respiratory irritation. May cause drowsiness or dizziness.

Metabolism, toxicokinetics, mechanism of action and other information

Information not available

Information on likely routes of exposure

Information not available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Information not available

Interactive effects

SECTION 11. Toxicological information ... / >>

Information not available

ACUTE TOXICITY

ATE (Inhalation) of the mixture:	Not classified (no significant component)
ATE (Oral) of the mixture:	>2000 mg/kg
ATE (Dermal) of the mixture:	Not classified (no significant component)

ETHANEDIOL

LD50 (Dermal):	9530 mg/kg Rabbit
LD50 (Oral):	> 2000 mg/kg Rat

BUTANOL

LD50 (Dermal):	3400 mg/kg Rabbit
LD50 (Oral):	790 mg/kg Rat
LC50 (Inhalation vapours):	8000 ppm/4h Rat

SKIN CORROSION / IRRITATION

Does not meet the classification criteria for this hazard class

SERIOUS EYE DAMAGE / IRRITATION

Causes serious eye irritation

RESPIRATORY OR SKIN SENSITISATION

Does not meet the classification criteria for this hazard class

GERM CELL MUTAGENICITY

Does not meet the classification criteria for this hazard class

CARCINOGENICITY

Does not meet the classification criteria for this hazard class

REPRODUCTIVE TOXICITY

Does not meet the classification criteria for this hazard class

STOT - SINGLE EXPOSURE

Does not meet the classification criteria for this hazard class

STOT - REPEATED EXPOSURE

Does not meet the classification criteria for this hazard class

ASPIRATION HAZARD

Does not meet the classification criteria for this hazard class

11.2. Information on other hazards

Based on the available data, the product does not contain substances listed in the main European lists of potential or suspected endocrine disruptors with human health effects under evaluation.

SECTION 12. Ecological information

Use this product according to good working practices. Avoid littering. Inform the competent authorities, should the product reach waterways or contaminate soil or vegetation.

12.1. Toxicity

ETHANEDIOL

EC50 - for Crustacea	> 100 mg/l/48h Daphnia magna

SECTION 12. Ecological information ... / >>

BENZALKONIUM CHLORIDE
LC50 - for Fish 0,3 mg/l/96h

12.2. Persistence and degradability

ETHANEDIOL
Solubility in water 1000 - 10000 mg/l
Rapidly degradable

BENZALKONIUM CHLORIDE
NOT rapidly degradable

BUTANOL
Solubility in water 1000 - 10000 mg/l
Rapidly degradable

12.3. Bioaccumulative potential

ETHANEDIOL
Partition coefficient: n-octanol/water -1,36

BENZALKONIUM CHLORIDE
Partition coefficient: n-octanol/water 0,9 Log Kow

BUTANOL
Partition coefficient: n-octanol/water 1
BCF 3,16

12.4. Mobility in soil

BUTANOL
Partition coefficient: soil/water 0,388

12.5. Results of PBT and vPvB assessment

On the basis of available data, the product does not contain any PBT or vPvB in percentage ≥ than 0,1%.

12.6. Endocrine disrupting properties

Based on the available data, the product does not contain substances listed in the main European lists of potential or suspected endocrine disruptors with environmental effects under evaluation.

12.7. Other adverse effects

Information not available

SECTION 13. Disposal considerations

13.1. Waste treatment methods

Reuse, when possible. Product residues should be considered special hazardous waste. The hazard level of waste containing this product should be evaluated according to applicable regulations.
Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.
CONTAMINATED PACKAGING
Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

SECTION 14. Transport information

The product is not dangerous under current provisions of the Code of International Carriage of Dangerous Goods by Road (ADR) and by Rail (RID), of the International Maritime Dangerous Goods Code (IMDG), and of the International Air Transport Association (IATA) regulations.

14.1. UN number or ID number

not applicable

SECTION 14. Transport information ... / >>

14.2. UN proper shipping name

not applicable

14.3. Transport hazard class(es)

not applicable

14.4. Packing group

not applicable

14.5. Environmental hazards

not applicable

14.6. Special precautions for user

not applicable

14.7. Maritime transport in bulk according to IMO instruments

Information not relevant

SECTION 15. Regulatory information

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

Seveso Category - Directive 2012/18/EU: None

Restrictions relating to the product or contained substances pursuant to Annex XVII to EC Regulation 1907/2006

Product
Point 3 - 40

Contained substance
Point 75

Regulation (EU) 2019/1148 - on the marketing and use of explosives precursors
not applicable

Substances in Candidate List (Art. 59 REACH)
On the basis of available data, the product does not contain any SVHC in percentage ≥ than 0,1%.

Substances subject to authorisation (Annex XIV REACH)
None

Substances subject to exportation reporting pursuant to Regulation (EU) 649/2012:
None

Substances subject to the Rotterdam Convention:
None

Substances subject to the Stockholm Convention:
None

Healthcare controls
Workers exposed to this chemical agent must not undergo health checks, provided that available risk-assessment data prove that the risks related to the workers' health and safety are modest and that the 98/24/EC directive is respected.

German regulation on the classification of substances hazardous to water (AwSV, vom 18. April 2017)
WGK 1: Low hazard to waters

15.2. Chemical safety assessment

A chemical safety assessment has not been performed for the preparation/for the substances indicated in section 3.

SECTION 16. Other information

Text of hazard (H) indications mentioned in section 2-3 of the sheet:

Flam. Liq. 3	Flammable liquid, category 3
Acute Tox. 4	Acute toxicity, category 4
STOT RE 2	Specific target organ toxicity - repeated exposure, category 2
Skin Corr. 1B	Skin corrosion, category 1B
Eye Dam. 1	Serious eye damage, category 1
Eye Irrit. 2	Eye irritation, category 2
Skin Irrit. 2	Skin irritation, category 2
STOT SE 3	Specific target organ toxicity - single exposure, category 3
Aquatic Acute 1	Hazardous to the aquatic environment, acute toxicity, category 1
H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H373	May cause damage to organs through prolonged or repeated exposure.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H315	Causes skin irritation.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H400	Very toxic to aquatic life.

LEGEND:
- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- ATE: Acute Toxicity Estimate
- CAS: Chemical Abstract Service Number
- CE50: Effective concentration (required to induce a 50% effect)
- CE: Identifier in ESIS (European archive of existing substances)
- CLP: Regulation (EC) 1272/2008
- DNEL: Derived No Effect Level
- EmS: Emergency Schedule
- GHS: Globally Harmonized System of classification and labeling of chemicals
- IATA DGR: International Air Transport Association Dangerous Goods Regulation
- IC50: Immobilization Concentration 50%
- IMDG: International Maritime Code for dangerous goods
- IMO: International Maritime Organization
- INDEX: Identifier in Annex VI of CLP
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PBT: Persistent bioaccumulative and toxic as REACH Regulation
- PEC: Predicted environmental Concentration
- PEL: Predicted exposure level
- PNEC: Predicted no effect concentration
- REACH: Regulation (EC) 1907/2006
- RID: Regulation concerning the international transport of dangerous goods by train
- TLV: Threshold Limit Value
- TLV CEILING: Concentration that should not be exceeded during any time of occupational exposure.
- TWA: Time-weighted average exposure limit
- TWA STEL: Short-term exposure limit
- VOC: Volatile organic Compounds
- vPvB: Very Persistent and very Bioaccumulative as for REACH Regulation
- WGK: Water hazard classes (German).

GENERAL BIBLIOGRAPHY
1. Regulation (EC) 1907/2006 (REACH) of the European Parliament
2. Regulation (EC) 1272/2008 (CLP) of the European Parliament
3. Regulation (EU) 2020/878 (II Annex of REACH Regulation)
4. Regulation (EC) 790/2009 (I Atp. CLP) of the European Parliament
5. Regulation (EU) 286/2011 (II Atp. CLP) of the European Parliament
6. Regulation (EU) 618/2012 (III Atp. CLP) of the European Parliament
7. Regulation (EU) 487/2013 (IV Atp. CLP) of the European Parliament
8. Regulation (EU) 944/2013 (V Atp. CLP) of the European Parliament
9. Regulation (EU) 605/2014 (VI Atp. CLP) of the European Parliament
10. Regulation (EU) 2015/1221 (VII Atp. CLP) of the European Parliament

SECTION 16. Other information ... / >>

11. Regulation (EU) 2016/918 (VIII Atp. CLP) of the European Parliament
12. Regulation (EU) 2016/1179 (IX Atp. CLP)
13. Regulation (EU) 2017/776 (X Atp. CLP)
14. Regulation (EU) 2018/669 (XI Atp. CLP)
15. Regulation (EU) 2019/521 (XII Atp. CLP)
16. Delegated Regulation (UE) 2018/1480 (XIII Atp. CLP)
17. Regulation (EU) 2019/1148
18. Delegated Regulation (UE) 2020/217 (XIV Atp. CLP)
19. Delegated Regulation (UE) 2020/1182 (XV Atp. CLP)
20. Delegated Regulation (UE) 2021/643 (XVI Atp. CLP)
21. Delegated Regulation (UE) 2021/849 (XVII Atp. CLP)
22. Delegated Regulation (UE) 2022/692 (XVIII Atp. CLP)

- The Merck Index. - 10th Edition
- Handling Chemical Safety
- INRS - Fiche Toxicologique (toxicological sheet)
- Patty - Industrial Hygiene and Toxicology
- N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
- IFA GESTIS website
- ECHA website
- Database of SDS models for chemicals - Ministry of Health and ISS (Istituto Superiore di Sanità) - Italy

Note for users:
The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product.
This document must not be regarded as a guarantee on any specific product property.
The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.
Provide appointed staff with adequate training on how to use chemical products.

CALCULATION METHODS FOR CLASSIFICATION
Chemical and physical hazards: Product classification derives from criteria established by the CLP Regulation, Annex I, Part 2. The data for evaluation of chemical-physical properties are reported in section 9.
Health hazards: Product classification is based on calculation methods as per Annex I of CLP, Part 3, unless determined otherwise in Section 11.
Environmental hazards: Product classification is based on calculation methods as per Annex I of CLP, Part 4, unless determined otherwise in Section 12.

Changes to previous review:
The following sections were modified:
03 / 08 / 09 / 12.