SAFETY DATA SHEET

according to Regulation UK SI 2019/758 and UK SI 2020/1577 as amended

Creation Date 15-Apr-2010 **Revision Date** 20-Oct-2023 **Revision Number** 10

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

1.1. Product identifier

Product Description: **Aqualine™ Matrix K**
Cat No. : **K/2300R/08, K/2300R/15**

Unique Formula Identifier (UFI) **CUFQ-92AS-6X02-HW8S**

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

Recommended Use Laboratory chemicals.
Uses advised against All other uses

1.3. Details of the supplier of the safety data sheet

Company

UK entity/business name
Fisher Scientific UK
Bishop Meadow Road, Loughborough,
Leicestershire LE11 5RG, United Kingdom

EU entity/business name
Thermo Fisher Scientific
Janssen Pharmaceuticalaan 3a
2440 Geel, Belgium

E-mail address begel.sdsdesk@thermofisher.com

1.4. Emergency telephone number

Tel: 01509 231166
Chemtrec US: (800) 424-9300
Chemtrec EU: 001-703-527-3887

Poison Centre - Emergency information services

Ireland : National Poisons Information Centre (NPIC) -
01 809 2166 (8am-10pm, 7 days a week)
Malta : +356 2395 2000
Cyprus : +357 2240 5611

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567

Physical hazards

Flammable liquids	Category 3 (H226)

Health hazards

Acute oral toxicity	Category 4 (H302)
Acute dermal toxicity	Category 4 (H312)
Acute Inhalation Toxicity - Vapors	Category 3 (H331)
Skin Corrosion/Irritation	Category 2 (H315)
Serious Eye Damage/Eye Irritation	Category 2 (H319)
Carcinogenicity	Category 2 (H351)
Reproductive Toxicity	Category 2 (H361d)
Specific target organ toxicity - (single exposure)	Category 3 (H336)
Specific target organ toxicity - (repeated exposure)	Category 1 (H372)

Environmental hazards
Based on available data, the classification criteria are not met

Full text of Hazard Statements: see section 16

2.2. Label elements

Signal Word **Danger**

Hazard Statements
H226 - Flammable liquid and vapor
H331 - Toxic if inhaled
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H336 - May cause drowsiness or dizziness
H351 - Suspected of causing cancer
H361d - Suspected of damaging the unborn child
H372 - Causes damage to organs through prolonged or repeated exposure
H302 + H312 - Harmful if swallowed or in contact with skin

Precautionary Statements
P264 - Wash face, hands and any exposed skin thoroughly after handling
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P311 - Call a POISON CENTER or doctor/physician
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

Additional EU labelling
For use in industrial installations only

2.3. Other hazards

PBT :-
This preparation contains no substance considered to be persistent, bioaccumulating nor toxic (PBT)

vPvB :-
This preparation contains no substance considered to be very persistent nor very bioaccumulating (vPvB)

Toxic to terrestrial vertebrates
This product does not contain any known or suspected endocrine disruptors

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

Component	CAS No	EC No	Weight %	CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567
Chloroform	67-66-3	200-663-8	50-70	Acute Tox. 4 (H302) Acute Tox. 3 (H331) Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) STOT SE 3 (H336) Carc. 2 (H351) Repr. 2 (H361d) STOT RE 1 (H372)
2-Butoxyethanol	111-76-2	EEC No. 203-905-0	10 - 20	Acute Tox. 4 (H302) Acute Tox. 3 (H331) Skin Irrit. 2 (H315) Eye Irrit. 2 (H319)
Ethyl alcohol	64-17-5	200-578-6	5 - 10	Flam. Liq. 2 (H225) Eye Irrit. 2 (H319)
Ethylene glycol	107-21-1	EEC No. 203-473-3	5 - 10	Acute Tox. 4 (H302)

Component	Specific concentration limits (SCL's)	M-Factor	Component notes
Chloroform	STOT RE 2 : C ≥ 5 %	-	-
Ethyl alcohol	Eye Irrit. 2 :: C>=50%	-	-

Component	ECHA (RAC) ATE (Oral)	ECHA (RAC) ATE (Dermal)	ECHA (RAC) ATE (Inhalation)
2-Butoxyethanol	ATE = 1200 mg/kg bw	-	ATE = 3 mg/L (vapour)

Components	Reach Registration Number	
Chloroform	01-2119486657-20	
2-Butoxyethanol	01-2119475108-36	
Ethanol	01-2119457610-43	
Ethylene glycol	01-2119456816-28	

Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General Advice Inhalation may cause anesthesia. Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. If skin irritation persists, call a physician.

Ingestion Do NOT induce vomiting. Drink 1 or 2 glasses of water. Call a physician or poison control center immediately.

Inhalation Remove to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.

Self-Protection of the First Aider Use personal protective equipment as required.

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

Difficulty in breathing. May cause cardiac arrhythmia. Symptoms of overexposure are dizziness, headache, tiredness, nausea, unconsciousness, cessation of breathing: May cause decreases in blood pressure and other cardiac effects

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

Notes to Physician Treat symptomatically. Signs of overdose include stupor and respiratory depression. Symptoms may be delayed.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media
Water spray, carbon dioxide (CO2), dry chemical, alcohol-resistant foam. Water mist may be used to cool closed containers.

Extinguishing media which must not be used for safety reasons
No information available.

5.2. Special hazards arising from the substance or mixture

Flammable. Containers may explode when heated. Vapors may travel to source of ignition and flash back. Vapors may form explosive mixtures with air.

Hazardous Combustion Products
Carbon monoxide (CO), Carbon dioxide (CO_2), Phosgene, Hydrogen chloride gas.

5.3. Advice for firefighters

Thermal decomposition can lead to release of irritating gases and vapors.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment as required. Remove all sources of ignition. Take precautionary measures against static discharges.

6.2. Environmental precautions

Should not be released into the environment. Do not flush into surface water or sanitary sewer system. See Section 12 for additional Ecological Information.

6.3. Methods and material for containment and cleaning up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use

spark-proof tools and explosion-proof equipment.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Use only under a chemical fume hood. Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Use spark-proof tools and explosion-proof equipment. Take precautionary measures against static discharges.

Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Flammables area. Keep away from heat, sparks and flame. Protect from direct sunlight. Keep away from acids.

Technical Rules for Hazardous Substances (TRGS) 510 Storage Class (LGK) (Germany) Class 3

7.3. Specific end use(s)

Use in laboratories

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limits
List source(s): **EU** - Commission Directive (EU) 2019/1831 of 24 October 2019 establishing a fifth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC and amending Commission Directive 2000/39/EC **UK** - EH40/2005 Work Exposure Limits, Fourth edition. Published 2020. **IRE -** 2021 Code of Practice for the Chemical Agents Regulations, Schedule 1. Published by the Health and Safety Authority

Component	The United Kingdom	European Union	Ireland
Chloroform	TWA: 2 ppm TWA: 9.9 mg/m³ STEL: 6 ppm STEL: 29.7 mg/m³	TWA: 2 ppm 8 hr TWA: 10 mg/m³ 8 hr Possibility of significant uptake through the skin	TWA: 2 ppm 8 hr. TWA: 9.8 mg/m³ 8 hr. STEL: 6 ppm 15 min STEL: 29.4 mg/m³ 15 min Skin
2-Butoxyethanol	STEL: 50 ppm 15 min STEL: 246 mg/m³ 15 min TWA: 25 ppm 8 hr TWA: 123 mg/m³ 8 hr Skin	TWA: 20 ppm (8h) TWA: 98 mg/m³ (8h) STEL: 50 ppm (15min) STEL: 246 mg/m³ (15min) Skin	TWA: 20 ppm 8 hr. TWA: 98 mg/m³ 8 hr. STEL: 50 ppm 15 min STEL: 246 mg/m³ 15 min Skin
Ethyl alcohol	TWA: 1000 ppm TWA; 1920 mg/m³ TWA WEL - STEL: 3000 ppm STEL; 5760 mg/m³ STEL		STEL: 1000 ppm 15 min
Ethylene glycol	STEL: 40 ppm 15 min STEL: 104 mg/m³ 15 min STEL: 30 mg/m³ 15 min TWA: 10 mg/m³ 8 hr	TWA: 20 ppm (8h) TWA: 52 mg/m³ (8h) STEL: 40 ppm (15min) STEL: 104 mg/m³ (15min)	TWA: 20 ppm 8 hr. TWA: 52 mg/m³ 8 hr. STEL: 40 ppm 15 min STEL: 104 mg/m³ 15 min

	TWA: 20 ppm 8 hr TWA: 52 mg/m³ 8 hr Skin	Skin	Skin

Biological limit values

List source(s): **UK** - Biological Monitoring Guidance Values provided by the UK's Health and Safety Executive (HSE) Control of Substances Hazardous to Health Regulations (COSHH) 2002 (as amended) and EH40/2005.

Component	United Kingdom	European Union
2-Butoxyethanol	Butoxyacetic acid: 240 mmol/mol creatinine urine post shift	

Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)

Chloroform; See table for values

Component	Acute effects local (Oral)	Acute effects systemic (Oral)	Chronic effects local (Oral)	Chronic effects systemic (Oral)
Ethyl alcohol 64-17-5 (5 - 10)		DNEL = 87 mg/kg bw/d		

Component	Acute effects local (Dermal)	Acute effects systemic (Dermal)	Chronic effects local (Dermal)	Chronic effects systemic (Dermal)
Chloroform 67-66-3 (50-70)				DNEL = 0.94mg/kg bw/day
2-Butoxyethanol 111-76-2 (10 - 20)		DNEL = 89mg/kg bw/day		DNEL = 125mg/kg bw/day
Ethyl alcohol 64-17-5 (5 - 10)				DNEL = 343mg/kg bw/day
Ethylene glycol 107-21-1 (5 - 10)				DNEL = 106mg/kg bw/day

Component	Acute effects local (Inhalation)	Acute effects systemic (Inhalation)	Chronic effects local (Inhalation)	Chronic effects systemic (Inhalation)
Chloroform 67-66-3 (50-70)		DNEL = 333mg/m³	DNEL = 2.5mg/m³	DNEL = 2.5mg/m³
2-Butoxyethanol 111-76-2 (10 - 20)	DNEL = 246mg/m³	DNEL = 1091mg/m³		DNEL = 98mg/m³
Ethyl alcohol 64-17-5 (5 - 10)	DNEL = 1900mg/m³			DNEL = 950mg/m³
Ethylene glycol 107-21-1 (5 - 10)			DNEL = 35mg/m³	DNEL = 70mg/m³

Predicted No Effect Concentration (PNEC)

See values below. Chloroform.

Component	Fresh water	Fresh water sediment	Water Intermittent	Microorganisms in sewage treatment	Soil (Agriculture)
Chloroform 67-66-3 (50-70)	PNEC = 0.146mg/L	PNEC = 0.45mg/kg sediment dw	PNEC = 0.133mg/L	PNEC = 0.048mg/L	PNEC = 0.56mg/kg soil dw
2-Butoxyethanol 111-76-2 (10 - 20)	PNEC = 8.8mg/L	PNEC = 34.6mg/kg sediment dw	PNEC = 26.4mg/L	PNEC = 463mg/L	PNEC = 2.33mg/kg soil dw
Ethylene glycol 107-21-1 (5 - 10)	PNEC = 10mg/L	PNEC = 20.9 mg/kg sediment dw	PNEC = 10mg/L	PNEC = 199.5mg/L	PNEC = 1.53mg/kg soil dw

Component	Marine water	Marine water sediment	Marine water intermittent	Food chain	Air
Chloroform 67-66-3 (50-70)	PNEC = 0.015mg/L	PNEC = 0.09mg/kg sediment dw			
2-Butoxyethanol	PNEC = 0.88mg/L	PNEC = 3.46mg/kg		PNEC = 0.02g/kg	

111-76-2 (10 - 20)		sediment dw		food	
Ethylene glycol 107-21-1 (5 - 10)	PNEC = 1mg/L	PNEC = 3.7mg/kg sediment dw PNEC = 31.2mg/kg sediment dw PNEC = 31.7mg/kg sediment dw	PNEC = 10mg/L		

8.2. Exposure controls

Engineering Measures
Use only under a chemical fume hood. Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting equipment.
Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment

Eye Protection Goggles (European standard - EN 166)

Hand Protection Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Viton (R)	> 480 minutes	-	Level 6 EN 374	As tested under EN374-3 Determination of Resistance to Permeation by Chemicals
Neoprene	< 25 minutes	0.45 mm		
Butyl rubber	< 15 minutes	0.35 mm		

Skin and body protection Long sleeved clothing.

Inspect gloves before use.
Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)
Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.
Remove gloves with care avoiding skin contamination.

Respiratory Protection When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

Large scale/emergency use Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced
Recommended Filter type: low boiling organic solvent Type AX Brown conforming to EN371

Small scale/Laboratory use Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Recommended half mask:- Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141
When RPE is used a face piece Fit Test should be conducted

Environmental exposure controls Prevent product from entering drains. Do not allow material to contaminate ground water system.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical State	Liquid	
Appearance	Clear Colorless	
Odor	Characteristic	
Odor Threshold	No data available	
Melting Point/Range	No data available	
Softening Point	No data available	
Boiling Point/Range	No information available	
Flammability (liquid)	Flammable	On basis of test data
Flammability (solid,gas)	Not applicable	Liquid
Explosion Limits	No data available	
Flash Point	> 36.1 °C / > 97 °F	**Method -** No information available
Autoignition Temperature	No data available	
Decomposition Temperature	No data available	
pH	No information available	
Viscosity	No data available	
Water Solubility	Partially soluble	
Solubility in other solvents	No information available	

Partition Coefficient (n-octanol/water)

Component	**log Pow**
Chloroform	2
2-Butoxyethanol	0.81
Ethyl alcohol	-0.32
Ethylene glycol	-1.36

Vapor Pressure	No data available	
Density / Specific Gravity	1.22	
Bulk Density	Not applicable	Liquid
Vapor Density	> 1.0	(Air = 1.0)
Particle characteristics	Not applicable (liquid)	

9.2. Other information

Explosive Properties explosive air/vapour mixtures possible

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

Sensitivity to light Moisture sensitive.

10.2. Chemical stability

Stable under normal conditions. UNSTABLE (REACTIVE) UPON DEPLETION OF INHIBITOR. Light sensitive.

10.3. Possibility of hazardous reactions

Hazardous Polymerization Hazardous polymerization does not occur.
Hazardous Reactions No information available.

10.4. Conditions to avoid

Incompatible products. Heat, flames and sparks. Excess heat. Exposure to light. Protect from moisture. Keep away from open flames, hot surfaces and sources of ignition.

10.5. Incompatible materials

Strong oxidizing agents. Alkali metals. Aluminium. Acetone.

10.6. Hazardous decomposition products

Carbon monoxide (CO). Carbon dioxide (CO_2). Phosgene. Hydrogen chloride gas.

SECTION 11: TOXICOLOGICAL INFORMATION

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

Product Information

(a) acute toxicity;

Oral	Category 4
Dermal	Category 4
Inhalation	Category 3

Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Chloroform	LD50 = 908 mg/kg (rat) LD50 = 695 mg/kg (Rat) LD50 = 450 mg/kg (Rat)	LD50 > 20 g/kg (Rabbit)	LC50 = 10.5 mg/L (Rat) 4 h
2-Butoxyethanol	1746 mg/kg (Rat)	LD50 > 2000 mg/kg (Guinea pig) OCED 402	LC50 = 450 ppm (Rat) 4 h LC50 = 486 ppm (Rat) 4 h
Ethyl alcohol	LD50 = 10470 mg/kg OECD 401 (Rat) 3450 mg/kg (Mouse)	-	LC50 = 117-125 mg/l (4h) OECD 403 (rat) 20000 ppm/10H (rat)
Ethylene glycol	LD50 = 4700 mg/kg (Rat)	LD50 = 10600 mg/kg (Rat)	LC50 > 2.5 mg/L (Rat) 6 h

Component	ECHA (RAC) ATE (Oral)	ECHA (RAC) ATE (Dermal)	ECHA (RAC) ATE (Inhalation)
2-Butoxyethanol	ATE = 1200 mg/kg bw	-	ATE = 3 mg/L (vapour)

(b) skin corrosion/irritation; Category 2

(c) serious eye damage/irritation; Category 2

(d) respiratory or skin sensitization;

Respiratory	No data available
Skin	No data available

Component	Test method	Test species	Study result
2-Butoxyethanol 111-76-2 (10 - 20)	Guinea Pig Maximisation Test (GPMT)	guinea pig	- non-sensitising
Ethyl alcohol 64-17-5 (5 - 10)	Mouse Ear Swelling Test (MEST) --- OECD Test Guideline 429 Local Lymph Node Assay	mouse --- mouse	non-sensitising --- non-sensitising

(e) germ cell mutagenicity; No data available

Component	Test method	Test species	Study result
Ethyl alcohol 64-17-5 (5 - 10)	AMES test OECD Test Guideline 471 --- Gene cell mutation OECD Test Guideline 476	in vitro Bacteria --- in vitro Mammalian	negative --- negative

(f) carcinogenicity; Category 2

The table below indicates whether each agency has listed any ingredient as a carcinogen

Component	EU	UK	Germany	IARC
Chloroform				Group 2B

(g) reproductive toxicity; Category 2

Component	Test method	Test species / Duration	Study result
Ethyl alcohol 64-17-5 (5 - 10)	OECD Test Guideline 416 --- OECD Test Guideline 414	Oral / mouse 2 Generation --- Inhalation / Rat	NOAEL = 13.8 g/kg/day --- NOAEC = 16000 ppm

Developmental Effects Developmental effects have occurred in experimental animals.

(h) STOT-single exposure; Category 3

Results / Target organs Central nervous system (CNS).

(i) STOT-repeated exposure; Category 1

Study result LOAEL = 15 mg/kg bw/day
NOAEC = 25 mg/m^3

Target Organs Liver, Kidney, Nasal Cavities.

(j) aspiration hazard; Based on available data, the classification criteria are not met

Symptoms / effects,both acute and delayed Symptoms of overexposure are dizziness, headache, tiredness, nausea, unconsciousness, cessation of breathing. May cause decreases in blood pressure and other cardiac effects.

11.2. Information on other hazards

Endocrine Disrupting Properties Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity effects Contains no substances known to be hazardous to the environment or that are not degradable in waste water treatment plants.

Component	Freshwater Fish	Water Flea	Freshwater Algae
Chloroform	LC50: = 300 mg/L, 96h static (Poecilia reticulata) LC50: = 18 mg/L, 96h flow-through (Lepomis macrochirus) LC50: = 18 mg/L, 96h flow-through (Oncorhynchus mykiss) LC50: = 71 mg/L, 96h flow-through (Pimephales promelas)	EC50 = 28.9 mg/L/48h	EC50 = 560 mg/L/48h
2-Butoxyethanol	1490 mg/L LC50 96 h 2950 mg/L LC50 96 h	1550 mg/l EC50 48 hr >1000 mg/L EC50 48 h 1698 - 1940 mg/L EC50 24 h	1840 mg/l EC50 72 hr
Ethyl alcohol	Fathead minnow (Pimephales promelas) LC50 = 14200 mg/l/96h	EC50 = 9268 mg/L/48h EC50 = 10800 mg/L/24h	EC50 (72h) = 275 mg/l (Chlorella vulgaris)
Ethylene glycol	LC50: = 41000 mg/L, 96h	EC50: = 46300 mg/L, 48h	EC50: 6500 - 13000 mg/L, 96h

	(Oncorhynchus mykiss) LC50: = 27540 mg/L, 96h static (Lepomis macrochirus) LC50: 14 - 18 mL/L, 96h static (Oncorhynchus mykiss) LC50: = 40761 mg/L, 96h static (Oncorhynchus mykiss) LC50: 40000 - 60000 mg/L, 96h static (Pimephales promelas) LC50: = 16000 mg/L, 96h static (Poecilia reticulata)	(Daphnia magna)	(Pseudokirchneriella subcapitata)

Component	Microtox	M-Factor
Chloroform	Photobacterium phosphoreum: EC50 = 520 mg/L/5 min Photobacterium phosphoreum: EC50 = 670 mg/L/15 min Photobacterium phosphoreum: EC50 = 670 mg/L/30min	
Ethyl alcohol	Photobacterium phosphoreum:EC50 = 34634 mg/L/30 min Photobacterium phosphoreum:EC50 = 35470 mg/L/5 min	
Ethylene glycol	EC50 = 10000 mg/L 16 h EC50 = 620 mg/L 30 min EC50 = 620.0 mg/L 30 min	

12.2. Persistence and degradability No data is available on the product itself

Component	Degradability
2-Butoxyethanol 111-76-2 (10 - 20)	90% (28d) OECD 301B
Ethyl alcohol 64-17-5 (5 - 10)	OECD 301E = 94%

12.3. Bioaccumulative potential There is no data for this product

Component	log Pow	Bioconcentration factor (BCF)
Chloroform	2	1.4 - 13 dimensionless
2-Butoxyethanol	0.81	No data available
Ethyl alcohol	-0.32	No data available
Ethylene glycol	-1.36	No data available

12.4. Mobility in soil The product contains volatile organic compounds (VOC) which will evaporate easily from all surfaces .

12.5. Results of PBT and vPvB assessment PBT :-. This preparation contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).
vPvB :-. This preparation contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

12.6. Endocrine disrupting properties
Endocrine Disruptor Information This product does not contain any known or suspected endocrine disruptors

12.7. Other adverse effects
Persistent Organic Pollutant This product does not contain any known or suspected substance
Ozone Depletion Potential This product does not contain any known or suspected substance

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from Residues/Unused Products	Waste is classified as hazardous. Dispose of in accordance with local regulations.
Contaminated Packaging	Dispose of this container to hazardous or special waste collection point. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and empty container away from heat and sources of ignition.
European Waste Catalogue (EWC)	According to the European Waste Catalog, Waste Codes are not product specific, but application specific.
Other Information	Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Can be landfilled or incinerated, when in compliance with local regulations.

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

14.1. UN number	UN1992
14.2. UN proper shipping name	Flammable liquid, toxic, n.o.s.
Technical Shipping Name	Contains ethanol, chloroform
14.3. Transport hazard class(es)	3
Subsidiary Hazard Class	6.1
14.4. Packing group	III

ADR

14.1. UN number	UN1992
14.2. UN proper shipping name	Flammable liquid, toxic, n.o.s.
Technical Shipping Name	Contains ethanol, chloroform
14.3. Transport hazard class(es)	3
Subsidiary Hazard Class	6.1
14.4. Packing group	III

IATA

14.1. UN number	UN1992
14.2. UN proper shipping name	Flammable liquid, toxic, n.o.s.
Technical Shipping Name	Contains ethanol, chloroform
14.3. Transport hazard class(es)	3
Subsidiary Hazard Class	6.1
14.4. Packing group	III

14.5. Environmental hazards	No hazards identified
14.6. Special precautions for user	No special precautions required.
14.7. Maritime transport in bulk according to IMO instruments	Not applicable, packaged goods

SECTION 15: REGULATORY INFORMATION

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

International Inventories

Europe (EINECS/ELINCS/NLP), China (IECSC), Taiwan (TCSI), Korea (KECL), Japan (ENCS), Japan (ISHL), Canada (DSL/NDSL), Australia (AICS), New Zealand (NZIoC), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

Component	CAS No	EINECS	ELINCS	NLP	IECSC	TCSI	KECL	ENCS	ISHL
Chloroform	67-66-3	200-663-8	-	-	X	X	X	X	X
2-Butoxyethanol	111-76-2	203-905-0	-	-	X	X	KE-04134	X	X
Ethyl alcohol	64-17-5	200-578-6	-	-	X	X	KE-13217	X	X
Ethylene glycol	107-21-1	203-473-3	-	-	X	X	KE-13169	X	X

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
Chloroform	67-66-3	X	ACTIVE	X	-	X	X	X
2-Butoxyethanol	111-76-2	X	ACTIVE	X	-	X	X	X
Ethyl alcohol	64-17-5	X	ACTIVE	X	-	X	X	X
Ethylene glycol	107-21-1	X	ACTIVE	X	-	X	X	X

Legend: X - Listed '-' - Not Listed **KECL** - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Chloroform	67-66-3	-	Use restricted. See item 32. (see *http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32006R1907:EN:NOT* for restriction details)	-
2-Butoxyethanol	111-76-2	-	Use restricted. See item 75. (see link for restriction details)	-
Ethyl alcohol	64-17-5	-	-	-
Ethylene glycol	107-21-1	-	-	-

REACH links

https://echa.europa.eu/substances-restricted-under-reach

Seveso III Directive (2012/18/EC)

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements
Chloroform	67-66-3	Not applicable	Not applicable
2-Butoxyethanol	111-76-2	Not applicable	Not applicable
Ethyl alcohol	64-17-5	Not applicable	Not applicable
Ethylene glycol	107-21-1	Not applicable	Not applicable

Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals

Component	ANNEX I - PART 1 List of chemicals subject to	ANNEX I - PART 2 List of chemicals qualifying for	ANNEX I - PART 3 List of chemicals subject to the

	export notification procedure (referred to in Article 8)	PIC notification (referred to in Article 11)	PIC procedure (referred to in Articles 13 and 14)
Chloroform 67-66-3 (50-70)	b — ban (for the category or categories concerned) b — ban (for the category or categories concerned) i(2) — industrial chemical for public	-	-

https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32012R0649&qid=1604065742303.

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?
Not applicable

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .
Take note of Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values
Take note of Directive 94/33/EC on the protection of young people at work
Take note of Dir 92/85/EC on the protection of pregnant and breastfeeding women at work

National Regulations

UK - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

WGK Classification Water endangering class = 3 (self classification)

Component	Germany - Water Classification (AwSV)	Germany - TA-Luft Class
Chloroform	WGK 3	Class I : 20 mg/m³ (Massenkonzentration)
2-Butoxyethanol	WGK1	
Ethyl alcohol	WGK1	
Ethylene glycol	WGK1	

Component	France - INRS (Tables of occupational diseases)
Chloroform	Tableaux des maladies professionnelles (TMP) - RG 12
2-Butoxyethanol	Tableaux des maladies professionnelles (TMP) - RG 84
Ethyl alcohol	Tableaux des maladies professionnelles (TMP) - RG 84
Ethylene glycol	Tableaux des maladies professionnelles (TMP) - RG 84

Component	Switzerland - Ordinance on the Reduction of Risk from handling of hazardous substances preparation (SR 814.81)	Switzerland - Ordinance on Incentive Taxes on Volatile Organic Compounds (OVOC)	Switzerland - Ordinance of the Rotterdam Convention on the Prior Informed Consent Procedure
Chloroform 67-66-3 (50-70)	Prohibited and Restricted Substances		Annex I - industrial chemical
2-Butoxyethanol 111-76-2 (10 - 20)		Group I	
Ethyl alcohol 64-17-5 (5 - 10)		Group I	
Ethylene glycol 107-21-1 (5 - 10)	Prohibited and Restricted Substances		

15.2. Chemical safety assessment

Chemical Safety Assessment/Reports (CSA/CSR) are not required for mixtures

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3

H302 - Harmful if swallowed
H331 - Toxic if inhaled
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H336 - May cause drowsiness or dizziness
H351 - Suspected of causing cancer
H361d - Suspected of damaging the unborn child
H372 - Causes damage to organs through prolonged or repeated exposure
H225 - Highly flammable liquid and vapor
H312 - Harmful in contact with skin
H332 - Harmful if inhaled

Legend

CAS - Chemical Abstracts Service

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

IECSC - Chinese Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

ENCS - Japanese Existing and New Chemical Substances

AICS - Australian Inventory of Chemical Substances

NZIoC - New Zealand Inventory of Chemicals

WEL - Workplace Exposure Limit

ACGIH - American Conference of Governmental Industrial Hygienists

DNEL - Derived No Effect Level

RPE - Respiratory Protective Equipment

LC50 - Lethal Concentration 50%

NOEC - No Observed Effect Concentration

PBT - Persistent, Bioaccumulative, Toxic

TWA - Time Weighted Average

IARC - International Agency for Research on Cancer

Predicted No Effect Concentration (PNEC)

LD50 - Lethal Dose 50%

EC50 - Effective Concentration 50%

POW - Partition coefficient Octanol:Water

vPvB - very Persistent, very Bioaccumulative

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road

IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code

OECD - Organisation for Economic Co-operation and Development

BCF - Bioconcentration factor

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association

MARPOL - International Convention for the Prevention of Pollution from Ships

ATE - Acute Toxicity Estimate

VOC - (Volatile Organic Compound)

Key literature references and sources for data

https://echa.europa.eu/information-on-chemicals
Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Physical hazards	On basis of test data
Health Hazards	Calculation method
Environmental hazards	Calculation method

Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.
Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.
First aid for chemical exposure, including the use of eye wash and safety showers.
Chemical incident response training.

Creation Date	15-Apr-2010
Revision Date	20-Oct-2023
Revision Summary	Not applicable.

This safety data sheet complies with Regulation UK SI 2019/758 and UK SI 2020/1577 as amended.

.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet