SAFETY DATA SHEET
(SDS)

This safety data sheet complies with the requirements of:
Regulation (EC) No. 1907/2006 and Regulation (EC) No. 1272/2008, (EU) No. 2015/830

Revision Date 09-Aug-2023 **WAI2 - EGHS - EUROPEAN** **Revision Number** 3

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

1.1. Product Identifier

Product Name PerpHect Buffer 4.01

Product No 910425
Unique Formula Identifier (UFI) Not applicable

REACH registration number Not applicable

Pure substance/mixture Mixture

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

Recommended Use Use as laboratory reagent

Uses advised against No Information available

1.3. Details of the supplier of the safety data sheet

Manufacturer, Importer, Supplier
Thermo Fisher Scientific©
Water and Lab Products
22 Alpha Road
Chelmsford, MA 01824, USA
1-978-232-6000

E-mail address wlp.techsupport@thermofisher.com

Made in USA

1.4. Emergency telephone number

24 Hour Emergency Phone Number
CHEMTREC®
Within USA and Canada: 1-800-424-9300
Outside USA and Canada: 1-703-527-3887
(collect calls accepted)

SECTION 2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification - Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [GHS]

2.2. Label elements

Signal Word
None

Precautionary Statements

2.3. Other hazards

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

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Component	EC No	CAS No	Weight %	CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567	REACH Reg. No
Water	EEC No. 231-791-2	7732-18-5	90 - 100%	Not classified	No information available
Potassium Hydrogen Phthalate	EEC No. 212-889-4	877-24-7	0 - 10%	-	No information available
Potassium Hydroxide	EEC No. 215-181-3	1310-58-3	<0.1	Acute Tox. 4 (H302) Skin Corr. 1A (H314)	No information available
Amaranth Red No. 27	EEC No. 213-022-2	915-67-3	0 - 10%		No information available

Component	CAS No	Specific concentration limits (SCL's)	M-Factor	Component notes
Water	7732-18-5	-	-	-
Potassium Hydrogen Phthalate	877-24-7	-	-	-
Potassium Hydroxide	1310-58-3	Eye Irrit. 2 (H319) :: 0.5%<=C<2% Skin Corr. 1A (H314) :: C>=5% Skin Corr. 1B (H314) :: 2%<=C<5% Skin Irrit. 2 (H315) :: 0.5%<=C<2%	-	-
Amaranth Red No. 27	915-67-3	-	-	-

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General Advice Use first aid treatment according to the nature of the injury. For further assistance, contact your local Poison Control Center. Show this safety data sheet to the doctor in attendance.

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 plenty of water for at least 15 minutes. Get medical attention immediately if symptoms occur.

Inhalation Remove to fresh air. Get medical attention immediately if symptoms occur.

Ingestion Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.

Self-Protection of the First Aider No special precautions required.

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

Most important symptoms and effects None reasonably foreseeable

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

Notes to Physician Treat symptomatically

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media
No information available

5.2. Special hazards arising from the substance or mixture

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

5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment as required.

6.2. Environmental precautions

Environmental Precautions Should not be released into the environment. See Section 12 for additional Ecological Information. Vapors may accumulate to form explosive concentrations.

6.3. Methods and material for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for Cleaning Up Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.

Reference to Other Sections
Refer to protective measures listed in Sections 7 and 8
See Section 8 for information on appropriate personal protective equipment
See Section 12 for additional Ecological Information
See Section 13 for additional waste treatment information

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Advice on safe handling
Wear personal protective equipment/face protection. Ensure adequate ventilation. Avoid contact with skin, eyes or clothing. Avoid ingestion and inhalation.

General hygiene considerations
Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions
Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Protect from direct sunlight.

7.3. Specific end use(s)

Specific Use(s)
Use as laboratory reagent

Risk Management Methods (RMM)
The information required is contained in this Safety Data Sheet.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limits
List source(s): **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	European Union	The United Kingdom	France	Belgium	Spain
Potassium Hydroxide		STEL: 2 mg/m³ 15 min	STEL / VLCT: 2 mg/m³.		STEL / VLA-EC: 2 mg/m³ (15 minutos).

Component	Italy	Germany	Portugal	The Netherlands	Finland
Potassium Hydroxide			Ceiling: 2 mg/m³		Ceiling: 2 mg/m³

Component	Austria	Denmark	Switzerland	Poland	Norway
Potassium Hydroxide	MAK-TMW: 2 mg/m³ 8 Stunden	STEL: 2 mg/m³ 15 minutter	TWA: 2 mg/m³ 8 Stunden	STEL: 1 mg/m³ 15 minutach TWA: 0.5 mg/m³ 8 godzinach	Ceiling: 2 mg/m³

Component	Bulgaria	Croatia	Ireland	Cyprus	Czech Republic
Potassium Hydroxide	TWA: 2.0 mg/m³	STEL-KGVI: 2 mg/m³ 15 minutama.	STEL: 2 mg/m³ 15 min		TWA: 1 mg/m³ 8 hodinách. Ceiling: 2 mg/m³

Component	Estonia	Gibraltar	Greece	Hungary	Iceland

Potassium Hydroxide	TWA: 2 mg/m³ 8 tundides.		STEL: 2 mg/m³ TWA: 2 mg/m³	STEL: 2 mg/m³ 15 percekben. CK TWA: 2 mg/m³ 8 órában. AK	STEL: 2 mg/m³

Component	Russia	Slovak Republic	Slovenia	Sweden	Turkey
Potassium Hydroxide				Binding STEL: 2 mg/m³ 15 minuter TLV: 1 mg/m³ 8 timmar. NGV	

Biological limit values
This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

Monitoring methods
BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

Derived No Effect Level (DNEL)
See table for values

Component	Acute effects local (Inhalation)	Acute effects systemic (Inhalation)	Chronic effects local (Inhalation)	Chronic effects systemic (Inhalation)
Potassium Hydroxide 1310-58-3 (<0.1)			DNEL = 1mg/m³	

Predicted No Effect Concentration (PNEC)
No information available.

8.2. Exposure controls

Engineering Measures None under normal use conditions

Personal protective equipment

Eye/face Protection Wear chemical splash goggles and face shield. If splashes are likely to occur:. Goggles.

Skin and body protection Wear protective gloves/protective clothing.

Respiratory Protection No protective equipment is needed under normal use conditions.
Recommended Filter type: Particle filter.

Environmental exposure controls No information available

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties
Physical State Liquid

Appearance	Light red
Odor	Odorless
Odor Threshold	No information available
pH	4.01
PH Range	No information available

Property	**Values**	**Remarks • Method**
Melting point/freezing point	No information available	
Boiling Point/Range	~ 100 °C / 212 °F	
Flash Point (High in °C)	No information available	
Evaporation Rate	No information available	
Flammability (solid, gas)	No information available	
Flammability Limit in Air		
Upper flammability limit:	No information available	
Lower flammability limit:	No information available	
Vapor pressure	No information available	
Vapor Density	No information available	
Specific Gravity	No information available	
Water Solubility	Soluble	
Solubility in other solvents	No information available	
Partition coefficient	No information available	
Autoignition Temperature	-	
Decomposition Temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
Explosive Properties	No information available	
Oxidizing Properties	No information available	

9.2. Other information

Softening Point	No information available
Molecular Weight	No information available
VOC Content(%)	0
Density	No Information available
Bulk Density	No information available

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity
No information available

10.2. Chemical stability
Stable under normal conditions

Explosion Data

Sensitivity to Mechanical Impact	None
Sensitivity to Static Discharge	None

10.3. Possibility of hazardous reactions
None under normal processing

10.4. Conditions to avoid
Extremes of temperature and direct sunlight

10.5. Incompatible materials
No information available

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

SECTION 11: TOXICOLOGICAL INFORMATION

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

Product Information

Acute Toxicity
Unknown Acute Toxicity 0 % of the mixture consists of ingredient(s) of unknown toxicity.

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Water	LD50 > 90 mL/kg (Rat)		
Potassium Hydrogen Phthalate	LD50 > 3200 mg/kg (Rat)		
Potassium Hydroxide	LD50 = 284 mg/kg (Rat)		
Amaranth Red No. 27	LD50 = 6 g/kg (Rat)		

Skin Corrosion/Irritation No information available

Serious eye damage/eye irritation No information available

Sensitization No information available

Mutagenic Effects No information available

Carcinogenic effects No information available

Reproductive Effects No information available

(h) STOT-single exposure; No data available

(i) STOT-repeated exposure; No data available

Target Organs None known.

Aspiration hazard No information available

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 .

1.01% of the mixture consists of components(s) of unknown hazards to the aquatic environment

Component	Freshwater Algae	Freshwater Fish	Water Flea
Potassium Hydroxide	-	LC50: = 80 mg/L, 96hr static (Gambusia affinis)	-

12.2. Persistence and degradability
Persistence Soluble in water, Persistence is unlikely, based on information available.

12.3. Bioaccumulative potential Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
Potassium Hydrogen Phthalate	-3.9	No data available
Potassium Hydroxide	0.83	No data available
Amaranth Red No. 27	-5.13	No data available

12.4. Mobility in soil
Highly mobile in soils

Mobility
Will likely be mobile in the environment due to its water solubility

Component	log Pow
Potassium Hydrogen Phthalate 877-24-7 (0 - 10%)	-3.9
Potassium Hydroxide 1310-58-3 (<0.1)	0.83
Amaranth Red No. 27 915-67-3 (0 - 10%)	-5.13

12.5. Results of PBT and vPvB assessment
No information available

12.6. Endocrine disrupting properties
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 Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated Packaging Improper disposal or reuse of this container may be dangerous and illegal.

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

14.1 UN-No Not Regulated
14.2 Proper Shipping Name Not Regulated
14.3 Hazard Class Not Regulated
14.4 Packing Group Not Regulated
14.5 Marine Pollutant Not Applicable
14.6 Special Provisions None
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code No information available

ADR

14.1. UN number Not Regulated

14.2. UN proper shipping name Not Regulated
14.3. Transport hazard class(es) Not Regulated
14.4. Packing group Not Regulated

ICAO

14.1 UN-No Not Regulated
14.2 Proper Shipping Name Not Regulated
14.3 Hazard Class Not Regulated
14.4 Packing Group Not Regulated
14.5 Environmental hazard Not Applicable
14.6 Special Provisions None

IATA

14.1 UN-No Not Regulated
14.2 Proper Shipping Name Not Regulated
14.3 Hazard Class Not Regulated
14.4 Packing Group Not Regulated
14.5 Environmental hazard Not Applicable
14.6 Special Provisions None

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), U.S.A. (TSCA).

Component	CAS No	EINECS	ELINCS	NLP	IECSC	TCSI	KECL	ENCS	ISHL
Water	7732-18-5	231-791-2	-	-	X	X	KE-35400	X	-
Potassium Hydrogen Phthalate	877-24-7	212-889-4	-	-	X	X	KE-02310	X	X
Potassium Hydroxide	1310-58-3	215-181-3	-	-	X	X	KE-29139	X	X
Amaranth Red No. 27	915-67-3	213-022-2	-	-	X	X	KE-20344	X	X

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
Water	7732-18-5	X	ACTIVE	X	-	X	X	X
Potassium Hydrogen Phthalate	877-24-7	X	ACTIVE	X	-	X	X	X
Potassium Hydroxide	1310-58-3	X	ACTIVE	X	-	X	X	X
Amaranth Red No. 27	915-67-3	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)

European Union

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)
Water	7732-18-5	-	-	-
Potassium Hydrogen Phthalate	877-24-7	-	-	-
Potassium Hydroxide	1310-58-3	-	Use restricted. See item 75.	-

			(see link for restriction details)	
Amaranth Red No. 27	915-67-3	-	Use restricted. See item 75. (see link for restriction details)	-

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

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
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

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)
Potassium Hydroxide 1310-58-3 (<0.1)	WGK1

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
Potassium Hydrogen Phthalate 877-24-7 (0 - 10%)	Prohibited and Restricted Substances		
Potassium Hydroxide 1310-58-3 (<0.1)	Prohibited and Restricted Substances		

15.2. Chemical safety assessment

A Chemical safety assessment according to regulation (EC) No. 1907/2006 is not required

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3
H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage

Key or legend to abbreviations and acronyms used in the safety data sheet

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 TLV: American Conference of Governmental Industrial Hygienists - Threshold Limit Value
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
TWA TWA (time-weighted average)
Ceiling Maximum limit value

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association
MARPOL - International Convention for the Prevention of Pollution from Ships
ATE - Acute Toxicity Estimate
0
STEL STEL (Short Term Exposure Limit)

Key literature references and sources for data
https://echa.europa.eu/information-on-chemicals
Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Prepared By	Regulatory Affairs
Prepared For	Thermo Fisher Scientific Inc.
Issue Date	No information available
Revision Date	09-Aug-2023
Reason for revision	SDS sections updated.
Training Advice	Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

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

Disclaimer
IMPORTANT: The information contained in this SDS is correct to the best of our knowledge as of the issue date (or subsequent revision date, if any), and is to be used only as a guide. This SDS does not constitute a guarantee (express or implied) of any kind and we make no warranties of any kind as to the accuracy or completeness of the information contained herein or the merchantability or fitness of the product or this information for a particular purpose. It is the responsibility of each individual buyer/user to determine the suitability of this information and the product for its intended purposes. Product sales are subject to Thermo Fisher Scientifics standard terms and conditions of sale. This information relates only to the designated product as shipped and may not be valid if the product is used in combination with any other materials or is not used in accordance with our instructions, or is altered in any way. It is the responsibility of the buyer/user to ensure that its activities comply with all applicable government requirements. Since conditions of use of the product are not under direct control of Thermo Fisher Scientific, it is the duty of the buyer/user to determine the necessary conditions for the safe use of the product. Thermo Fisher Scientific will not be liable for any injuries or damages resulting from handling, use, misuse or contact with the product.

End of Safety Data Sheet