SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006, as amended by Commission Regulation (EU) 2020/878

Issue Date 08-18-2005 **Revision Date** 23-Mar-2026 **Print Date** 23-Mar-2026 **Version** 4.6

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

Obsolete Item Statement: This product is Obsolete and is no longer manufactured

1.1. Product identifier

Product Code(s) 2227095

Product Name Buffer Powder Pillows pH 7.00 ± 0.02 @ 25°C

Unique Formula Identifier (UFI) */*

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

Recommended Use Laboratory Reagent. Buffer.

Uses advised against Consumer use

1.3. Details of the supplier of the safety data sheet

Supplier
HACH LANGE GmbH
Willstätterstr. 11
D-40549 Düsseldorf
Tel: +49 (0)211 5288-383
sds@hach.com

Responsible country contact:

HACH UK
Laser House
Ground Floor, Suite B
Waterfront Quay, Salford Quays
GB - Manchester, M50 3XW
Tel. +44 (0) 161 872 1487
info-uk@hach.com

HACH Ireland
Unit 34 GB Business Park
Little Island
IRL-Co. Cork
T45 H681
Tel. +353 (0)146 02 522
info-ie@hach.com

1.4. Emergency telephone number

UK: Chemtrec: +44 20 3807 3798
IE: National Poisons Information Centre (NPIC) 01 809 2566 (24/7)

Section 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

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

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

2.2. Label elements

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

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

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

2.3. Other hazards
No information available.

PBT & vPvB
This mixture contains no substance considered to be persistent, bioaccumulating or toxic (PBT)
This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB)

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

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Not applicable

3.2 Mixtures

Chemical name	CAS No. EC No. Index No.	Weight-%	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Specific concentration limit (SCL)	M-Factor	M-Factor (long-term)
2,4-Dinitrophenol	51-28-5 200-087-7 609-041-00-4	<1%	Acute Tox. 2 - H300 Acute Tox. 3 - H311 Acute Tox. 3 - H331 STOT RE 1 - H372 Aquatic Acute 1 - H400 Aquatic Chronic 1 - H410		-	-

Full text of H- and EUH-phrases: see section 16

Acute Toxicity Estimate

Section 4: FIRST AID MEASURES

4.1. Description of first aid measures

General advice Show this safety data sheet to the doctor in attendance.

Inhalation Remove to fresh air.

Eye contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a doctor.

Skin contact Wash skin with soap and water. In the case of skin irritation or allergic reactions see a doctor.

Ingestion Rinse mouth.

Self-protection of the first aider Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8). Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

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

Symptoms No information available.

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

Note to doctors 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

Specific hazards arising from the chemical Thermal decomposition can lead to release of irritating and toxic gases and vapours.

Hazardous combustion products Phosphorus oxides.

5.3. Advice for firefighters

Special protective equipment and precautions for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protective equipment.

Additional information Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

Section 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Evacuate personnel to safe areas.

For emergency responders Use personal protection recommended in Section 8.

6.2. Environmental precautions

Environmental precautions Should not be released into the environment. See Section 12 for additional Ecological Information.

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 Avoid creating dust. Take up mechanically, placing in appropriate containers for disposal.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Reference to other sections See section 8 for more information. See section 13 for more information.

Section 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Advice on safe handling Ensure adequate ventilation. Do not eat, drink or smoke when using this product.

General hygiene considerations Avoid creating dust. 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.

7.3. Specific end use(s)

Specific use(s) Analytical 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

Derived No Effect Level (DNEL) - Workers

Chemical name	Oral	Dermal	Inhalation
Phosphoric acid, potassium salt (1:1) 7778-77-0	-	-	14.82 mg/m³ [4] [6]
2,4-Dinitrophenol	-	0.017 mg/kg bw/day [4] [6]	0.117 mg/m³ [4] [6]

Chemical name	Oral	Dermal	Inhalation
51-28-5		0.2 mg/kg bw/day [4] [7]	0.02 mg/m³ [4] [7]

Notes
[4] Systemic health effects
[6] Long term
[7] Short term

Predicted No Effect Concentration (PNEC)

Chemical name	Freshwater	Freshwater (intermittent release)	Marine water	Marine water (intermittent release)	Air
Phosphoric acid, disodium salt 7558-79-4	0.05 mg/L	0.5 mg/L	0.005 mg/L	-	-
2,4-Dinitrophenol 51-28-5	4 µg/L	-	0.94 µg/L	-	-

Chemical name	Freshwater sediment	Marine sediment	Sewage treatment	Soil	Food chain
Phosphoric acid, disodium salt 7558-79-4	-	-	50 mg/L	-	-
2,4-Dinitrophenol 51-28-5	4.2 µg/kg sediment dw	0.99 µg/kg sediment dw	0.4 mg/L	0.2 µg/kg soil dw	-

8.2. Exposure controls

Engineering controls Technical measures and appropriate working operations should be given priority over the use of personal protective equipment. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Personal protective equipment
Eye/face protection Wear safety glasses with side shields (or goggles).

Hand protection Barrier creams may help to protect the exposed areas of skin. Gloves must be inspected prior to use. The selected protective gloves have to satisfy the specifications of EU Directive 2016/425 and the standard EN 374-1:2016 derived from it. Chemical resistant gloves made of butyl rubber or nitrile rubber category III according to EN 374-1:2016.

Gloves			
Duration of contact	PPE - Glove material	Glove thickness	Break through time
Short term	Wear protective nitrile rubber gloves	0,20 mm	>30 minutes
Long term (repeated)	Wear protective Viton™ gloves	0,70 mm	>480 minutes

Skin and body protection Avoid contact with eyes, skin and clothing.

Respiratory protection Ensure adequate ventilation. Wear breathing apparatus if exposed to vapours/dusts/aerosols.

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

Environmental exposure controls Do not allow into any sewer, on the ground or into any body of water.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state	Solid
Colour	light yellow
Odour	Odourless.

Property	Values	Remarks • Method
Melting point / freezing point	~ 160 °C	
Initial boiling point and boiling range	No data available	
Flammability	No data available	
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Flash point	No data available	
Autoignition temperature	No data available	
Decomposition temperature	No data available	
pH	7	15.8% Solution
Kinematic viscosity	No data available	
Dynamic viscosity	No data available	
Partition coefficient	0	
Vapour pressure		
Relative density	2.40 g/cm³	

Relative vapor density	No data available
Particle characteristics	
Particle Size	No information available
Particle Size Distribution	No information available

Solubility(ies)

Water solubility

Water solubility classification	Water solubility	Water Solubility Temperature
Soluble	> 1000 mg/L	25 °C / 77 °F

Solubility in other solvents

Chemical Name	Solubility classification	Solubility	Solubility Temperature
None reported	No information available	No data available	No information available

9.2. Other information

9.2.1. Information with regards to physical hazard classes

Corrosive to metals

Steel Corrosion Rate	No data available
Aluminum Corrosion Rate	No data available

9.2.2. Other safety characteristics No information available

Section 10: STABILITY AND REACTIVITY

10.1. Reactivity

Reactivity No information available.

10.2. Chemical stability

Stability Stable under normal conditions.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

Hazardous polymerisation Hazardous polymerisation does not occur.

10.4. Conditions to avoid

Conditions to avoid None known based on information supplied.

10.5. Incompatible materials

Incompatible materials Strong acids. Strong bases. Strong oxidising agents.

10.6. Hazardous decomposition products

Hazardous Decomposition Products Phosphorus oxides.

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

Mixture No data available.

Substance Test data reported below.

Oral Exposure Route:

Dermal Exposure Route:

Inhalation (Dust/Mist) Exposure Route:

Acute Toxicity Estimate (ATE) Not applicable

ATEmix (oral)	5,010.00 mg/kg
ATEmix (inhalation-dust/mist)	501.000 mg/L

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

Skin corrosion/irritation
Based on available data, the classification criteria are not met.

Mixture No data available.

Substance Test data reported below.

Chemical name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
2,4-Dinitrophenol	Draize Test	Rabbit	300 mg	4 weeks	Mild skin irritant	RTECS

Serious eye damage/eye irritation
Based on available data, the classification criteria are not met.

Mixture No data available.

Substance No data available.

Respiratory or skin sensitisation
Based on available data, the classification criteria are not met.

Mixture No data available.

Substance No data available.

STOT - single exposure
Based on available data, the classification criteria are not met.

Mixture No data available.

Substance Test data reported below.

Oral Exposure Route:

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
2,4-Dinitrophenol	Human LD_{Lo}	36 mg/kg	None reported	**Behavioral** Coma **Cardiac** Pulse rate increase without fall in BP **Nutritional and Gross Metabolic** Hyperthermia	RTECS

Dermal Exposure Route:

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
2,4-Dinitrophenol	Guinea pig TD_{Lo}	700 mg/kg	None reported	None reported	RTECS

STOT - repeated exposure
Based on available data, the classification criteria are not met.

Mixture No data available.

Substance Test data reported below.

Oral Exposure Route:

Chemical name	Endpoint	Reported	Exposure	Toxicological effects	Key literature references and

	type	dose	time		sources for data
2,4-Dinitrophenol	Rat TD_{Lo}	540 mg/kg	18 days	**Behavioral** Somnolence (general depressed activity) Convulsions or effect on seizure threshold Death	RTECS

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

***Mixture invitro* Data** No data available.

***Substance invitro* Data** Test data reported below.

Chemical name	Test	Cell Strain	Reported dose	Exposure time	Results	Key literature references and sources for data
2,4-Dinitrophenol	DNA damage	Rat liver	0.1 mmol/L	None reported	Positive test result for mutagenicity	RTECS

***Mixture invivo* Data** No data available.

***Substance invivo* Data** Test data reported below.

Oral Exposure Route:

Chemical name	Test	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
2,4-Dinitrophenol	DNA damage	Mouse	50 mg/L	3 hours	Positive test result for mutagenicity	RTECS

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

Mixture No data available.

Substance No data available.

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

Mixture No data available.

Substance Test data reported below.

Oral Exposure Route:

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
2,4-Dinitrophenol	Rat TD_{Lo}	2040 mg/kg	21 days	**Effects on Newborn** Stillbirth Weaning or lactation index (e.g. # alive at weaning per # alive at day 4)	RTECS

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

11.2. Information on other hazards

Other dangerous properties can not be excluded. Handle in accordance with good industrial hygiene and safety practice.

11.2.1. Endocrine disrupting properties
This product does not contain any known or suspected endocrine disruptors.

11.2.2. Other information
Other adverse effects No information available.

Section 12: ECOLOGICAL INFORMATION

12.1. Toxicity

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

Unknown aquatic toxicity Contains 0 % of components with unknown hazards to the aquatic environment.

Mixture

Acute aquatic toxicity: No data available.

Aquatic Chronic Toxicity: No data available.

Substance

Acute aquatic toxicity: Test data reported below.

Fish:

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
2,4-Dinitrophenol	96 hours	None reported	LC_{50}	0.39 mg/L	RTECS

Algae:

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
2,4-Dinitrophenol	96 hours	None reported	EC_{50}	10.9 mg/L	RTECS

Aquatic Chronic Toxicity: No data available.

12.2. Persistence and degradability

Mixture No data available.

12.3. Bioaccumulative potential

Mixture: No data available.

Partition coefficient log K_{ow} ~ 0

12.4. Mobility in soil

Soil Organic Carbon-Water Partition Coefficient log K_{oc} ~ 0

12.5. Results of PBT and vPvB assessment

The components in this formulation do not meet the criteria for classification as PBT or vPvB.

Chemical name	PBT and vPvB assessment
2,4-Dinitrophenol	Not PBT/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

No information available.

Ozone: Not applicable

Ozone depletion potential (ODP): No information available

Section 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Advice on Disposal

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Waste disposal number (residues/unused products)

160506* WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals; hazardous waste.

Waste disposal number (used product)

160506* WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals; hazardous waste.

Contaminated packaging Dispose of contents/containers in accordance with local regulations.

Other Information Waste codes should be assigned by the user based on the application for which the product was used.

Section 14: TRANSPORT INFORMATION

ADR

14.1 UN number or ID 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
14.5 Environmental hazards Not applicable
14.6 Special precautions for user
Special Provisions None

IATA

14.1 UN number or ID 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
14.5 Environmental hazards Not applicable

14.6 Special precautions for user
Special Provisions None

IMDG
14.1 UN number or ID 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
14.5 Environmental hazards Not applicable
14.6 Special precautions for user
Special Provisions None
14.7 Maritime transport in bulk according to IMO instruments No information available

Additional information
If the item is part of a reagent set or kit the classification would change to the following:
UN3316 Chemical Kit, Hazard Class 9, Packing Group II or III.
If the item is not regulated, the Chemical Kit classification does not apply.

Section 15: REGULATORY INFORMATION

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

National regulations

European Union

Authorisations and/or restrictions on use:
This product contains one or more substance(s) subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

Chemical name	Restricted substance per REACH Annex XVII	Substance subject to authorisation per REACH Annex XIV
2,4-Dinitrophenol - 51-28-5	75	

Persistent Organic Pollutants Not applicable

Dangerous substance category per Seveso Directive (2012/18/EU) Non-controlled

Ozone-depleting substances (ODS) regulation (EC) 1005/2009 Not applicable

Germany
Water hazard class (WGK) slightly hazardous to water (WGK 1)

France
Occupational Illnesses (R-463-3, France)

Chemical name	French RG number	Title
2,4-Dinitrophenol 51-28-5	RG 14	-

10. Rozporządzenie Komisji (UE) 2020/878 z dnia 18 czerwca 2020 r. zmieniające załącznik II dorozporządzenia (WE)

nr1907/2006 Parlamentu Europejskiego i Rady w sprawie rejestracji, oceny, udzielaniazezwoleń i stosowanych ograniczeń wzakresie chemikaliów (REACH).

International Inventories

EINECS/ELINCS	Complies
TSCA	Complies
DSL/NDSL	Complies
ENCS	Complies
IECSC	Complies
KECI	Complies
PICCS	Complies
AICS	Complies

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

15.2. Chemical safety assessment

Chemical Safety Report Chemical safety assessments for substances in this mixture were not carried out.

Section 16: OTHER INFORMATION

Issue Date 08-18-2005

Revision Date 23-Mar-2026

Revision Note updated SDS sections:
2
4
6
7
8
13

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

Legend

**	Hazard Designation
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieure
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
CAS	Chemical Abstracts Service Number
Ceiling	Maximum limit value
CLP	Classification, Labelling and Packaging of substances and mixtures [Regulation (EC) No. 1272/2008]
DNEL	Derived No Effect Level (DNEL)
EC	European Community
ECHA	ECHA (The European Chemicals Agency)
EC50	Effective Concentration to 50% of a test population
EEC	European Economic Community
EN	European Standard

IMDG	International Maritime Dangerous Goods (IMDG)
IATA	International Air Transport Association (IATA)
IATA-DGR	International Air Transport Association - Dangerous Goods Regulations
ICAO	International Civil Aviation Organisation
ICAO-TI	International Civil Aviation Organization - Technical Instructions
IUCLID	IUCLID (The International Uniform Chemical Information Database)
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
LOAEL	Lowest observed adverse effect level
LOAEC	Lowest observed adverse effect concentration
LC50	Lethal Concentration to 50% of a test population
LD50	Lethal Dose to 50% of a test population (Median Lethal Dose)
LOLI	LOLI (List of Lists - An International Chemical Regulatory Database)
MAK	Maximale Arbeitsplatz-Konzentration, a German expression corresponding to threshold limit value, which relates to safe daily exposure levels to chemical substances
NOAEL	No Observed Adverse Effect Level
NOAEC	No observed adverse effect concentration
OSHA	Occupational Safety and Health Administration of the US Department of Labour
PEC	Predicted Effect Concentration
PNEC	Predicted No Effect Concentration (PNEC)
PBT	Persistent, Bioaccumulative, and Toxic (PBT) Chemicals
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals [Regulation (EC) No. 1907/2006])
RTECS	RTECS (Registry of Toxic Effects of Chemical Substances)
TWA	TWA (time-weighted average)
SKN*	Skin designation
SKN+	Skin sensitisation
STEL	STEL (Short Term Exposure Limit)
STOT	Specific Target Organ Toxicity
STOT RE	Specific target organ toxicity (repeated exposure)
STOT SE	Specific target organ toxicity (single exposure)
SVHC	Substances of Very High Concern
TLV	Threshold Limit Value
TRGS	Technical rules for hazardous substances, Germany
TSCA	Toxic Substances Control Act
UN	United Nations
vPvB	very persistent and very bioaccumulative
VOC	Volatile organic compounds
AwSV	Administrative regulation of water polluting substances, Germany

Key literature references and sources for data
See Section 11: TOXICOLOGICAL INFORMATION
See Section 12: ECOLOGICAL INFORMATION

Classification procedure

Classification according to Regulation (EC) No. 1272/2008 [CLP]	**Method Used**
Acute oral toxicity	Calculation method
Acute dermal toxicity	Calculation method
Acute inhalation toxicity - gas	Calculation method
Acute inhalation toxicity - Vapour	Calculation method
Acute inhalation toxicity - dust/mist	Calculation method
Skin corrosion/irritation	Calculation method
Serious eye damage/eye irritation	Calculation method
Respiratory sensitisation	Calculation method
Skin sensitisation	Calculation method
Mutagenicity	Calculation method
Carcinogenicity	Calculation method
Reproductive toxicity	Calculation method
STOT - single exposure	Calculation method
STOT - repeated exposure	Calculation method

Acute aquatic toxicity	Calculation method
Chronic aquatic toxicity	Calculation method
Aspiration toxicity	Calculation method
Ozone	Calculation method

Full text of H-Statements referred to under section 3
H300 - Fatal if swallowed
H311 - Toxic in contact with skin
H331 - Toxic if inhaled
H372 - Causes damage to organs through prolonged or repeated exposure
H400 - Very toxic to aquatic life

Training Advice 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

Prepared By Hach Product Compliance Department

Restrictions on use For Laboratory Use Only.

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006
Regulation (EC) No. 1907/2006 as amended by Regulation (EU) No. 2020/878, and Regulation (EC) No. 1272/2008

End of Safety Data Sheet