


SAFETY DATA SHEET

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II, as amended by UK REACH Regulation SI 2019/758

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

1.1 Product identifier

Product name	BioProcess storage and delivery solution, 20 vol% Ethanol	
Catalogue Number	BIOPR_SYS	
Product description	Ethanol solution (Ethyl alcohol solution)	
Product type	Liquid.	
Other means of identification	Not available.	

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

- ☒ Laboratory chemicals
- ☒ Liquid chromatography.
- ☒ Scientific research and development
- ☒ Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier	Cytiva Amersham Place Little Chalfont Buckinghamshire HP7 9NA United Kingdom +44 1494 508000	Hours of operation 08.30 - 17.00
Person who prepared the SDS : sds_author@cytiva.com		

1.4 Emergency telephone number

United Kingdom (UK)	Cytiva UK Amersham Place Little Chalfont Buckinghamshire HP7 9NA t: 0870 606 1921	Call INFOTRAC 24 Hour number: 001-352-323-3500 (Call Collect).
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National advisory body/Poison Centre

United Kingdom (UK)	Health professionals should contact the National Poisons Information Service (NPIS) by telephone, or use TOXBASE www.toxbase.org . NPIS http://www.npis.org/ advise that others seeking specific information on poisons should contact: In England and Wales: NHS Direct - 0845 4647 or 111 In Scotland: NHS 24 - 08454 24 24 24 In N Ireland: Contact your local GP or pharmacist during normal hours; click here (www.gpoutofhours.hscni.net/) for GP services Out-of-Hours.
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SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definitionMixture

Classification according to UK CLP/GHS

Flam. Liq. 3, H226

The product is classified as hazardous according to UK CLP Regulation SI 2019/720 as amended.

Ingredients of unknown toxicity 6.5 percent of the mixture consists of component(s) of unknown acute dermal toxicity

See Section 16 for the full text of the H statements declared above.
See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms



Signal wordWarning

Hazard statementsFlammable liquid and vapour.

Precautionary statements

- GeneralNot applicable.
- PreventionKeep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- ResponseNot applicable.
- StorageNot applicable.
- DisposalDispose of contents and container in accordance with all local, regional, national and international regulations.
- Supplemental label elementsNot applicable.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articlesNot applicable.

Special packaging requirements

- Containers to be fitted with child-resistant fasteningsNot applicable.
- Tactile warning of dangerNot applicable.

2.3 Other hazards

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

Other hazards which do not result in classificationNone known.

SECTION 3: Composition/information on ingredients

3.2 MixturesMixture

Product/ingredient name	Identifiers	%	Classification	Type
ethanol	REACH #: 01-2119457610-43 EC: 200-578-6 CAS: 64-17-5 Index: 603-002-00-5	14 - 19	Flam. Liq. 2, H225	[1] [2]

See Section 16 for the full text of the H statements declared above.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

Type



[1] Substance classified with a physical, health or environmental hazard

[2] Substance with a workplace exposure limit

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Skin contact	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Ingestion	Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel.
Protection of first-aiders	No action shall be taken involving any personal risk or without suitable training.

4.2 Most important symptoms and effects, both acute and delayed

Over-exposure signs/symptoms

Eye contact	No specific data.
Inhalation	No specific data.
Skin contact	No specific data.
Ingestion	No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media Use dry chemical, CO₂, water spray (fog) or foam.

Unsuitable extinguishing media Do not use water jet.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture	Flammable liquid and vapour. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.
Hazardous combustion products	Decomposition products may include the following materials: carbon dioxide carbon monoxide

5.3 Advice for firefighters

Special precautions for fire-fighters	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
Special protective equipment for fire-fighters	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to British standard BS EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Put on appropriate personal protective equipment.
For emergency responders	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions

Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 Methods and material for containment and cleaning up

Small spill	Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
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Large spill	Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations.
6.4 Reference to other sections	See Section 1 for emergency contact information. See Section 8 for information on appropriate personal protective equipment. See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling

Protective measures	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by earthing and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.
Advice on general occupational hygiene	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Store between the following temperatures: 4 to 30°C (39.2 to 86°F). Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Eliminate all ignition sources. Separate from oxidising materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Seveso Directive - Reporting thresholds

Danger criteria

Category	Notification and MAPP threshold	Safety report threshold
P5c	5000 tonnes	50000 tonnes

7.3 Specific end use(s)

Recommendations	Analytical chemistry. Liquid chromatography. Scientific research and development.
Industrial sector specific solutions	Not available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
Ethanol	EH40/2005 WELs (United Kingdom (UK), 1/2020) TWA 8 hours: 1000 ppm. TWA 8 hours: 1920 mg/m³.

Biological exposure indices

No exposure indices known.

Recommended monitoring procedures

Reference should be made to monitoring standards, such as the following: British Standard BS EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) British Standard BS EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) British Standard BS EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

Product/ingredient name	Result
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SECTION 9: Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

9.1 Information on basic physical and chemical properties

Appearance			
Physical state	Liquid.		
Colour	Colourless.		
Odour	Alcohol-like. [Slight]		
Odour threshold	180 ppm		
pH	Not available.		
Melting point/freezing point	Not available.		
Initial boiling point and boiling range	Not available.		
Flammability (solid, gas)	Not available.		
Upper/lower flammability or explosive limits	Not available.		
Flash point	Closed cup: 38 to 43°C		
Auto-ignition temperature	Not available.		
Ingredient name	°C	Method	
ethanol	455	DIN 51794	
Decomposition temperature	Not available.		
Viscosity	Dynamic (room temperature): Not available. Kinematic (room temperature): Not available. Kinematic (40°C): Not available.		
Solubility(ies)			
Media	Result		
Cold water	Easily soluble		
hot water	Easily soluble		
Solubility in water	Not available.		
Miscible with water	Yes.		
Partition coefficient: n-octanol/ water	Not applicable.		
Vapour pressure	Not available.		
	Vapour Pressure at 20°C		Vapour pressure at 50°C
Ingredient name	mm Hg	kPa	Method
ethanol	42.94865	5.7	
water	17.5	2.3	
Evaporation rate	Not available.		
Relative density	Not available.		
Vapour density	Not available.		
Explosive properties	Not available.		
Oxidising properties	Not available.		
Particle characteristics			
Median particle size	Not applicable.		
9.2 Other information			
Not available.			
Burning time	Not applicable.		
Burning rate	Not applicable.		
Solubility in water	Not available.		

SECTION 10: Stability and reactivity

10.1 Reactivity	No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	The product is stable.
10.3 Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid	Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
10.5 Incompatible materials	Reactive or incompatible with the following materials: oxidising materials
10.6 Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result
ethanol	Rat - Oral - LD50 7060 mg/kg <u>Toxic effects:</u> Lung, Thorax, or Respiration - Other changes Rat - Inhalation - LC50 Vapour 124700 mg/m³ [4 hours]
Conclusion/Summary [Product]	Not available.

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
ethanol	7000	N/A	N/A	124.7	N/A

Skin corrosion/irritation

Not available.	
Conclusion/Summary [Product]	Repeated exposure may cause skin dryness or cracking.

Serious eye damage/eye irritation

Not available.
Conclusion/Summary [Product] Not available.

Respiratory corrosion/irritation

Not available.
Conclusion/Summary [Product] Not available.

Respiratory or skin sensitization

Not available.
Skin
Conclusion/Summary [Product] Not available.

Respiratory

Conclusion/Summary [Product]	Not available.
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Germ cell mutagenicity

Not available.
Conclusion/Summary [Product] Not available.

Carcinogenicity

Not available.

Conclusion/Summary [Product] Not available.

Reproductive toxicity

Not available.

Conclusion/Summary [Product] Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on likely routes of exposure ☒ Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

Potential acute health effects

- Inhalation** ☒ No known significant effects or critical hazards.
- Ingestion** ☒ No known significant effects or critical hazards.
- Skin contact** ☒ No known significant effects or critical hazards.
- Eye contact** ☒ No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

- Inhalation** ☒ No specific data.
- Ingestion** ☒ No specific data.
- Skin contact** ☒ No specific data.
- Eye contact** ☒ No specific data.

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

Short term exposure

Potential immediate effects Not available.

Potential delayed effects Not available.

Long term exposure

Potential immediate effects Not available.

Potential delayed effects Not available.

Potential chronic health effects

Not available.

Conclusion/Summary [Product] Not available.

- General** ☒ No known significant effects or critical hazards.
- Carcinogenicity** ☒ No known significant effects or critical hazards.
- Mutagenicity** ☒ No known significant effects or critical hazards.
- Reproductive toxicity** ☒ No known significant effects or critical hazards.
- Other information** Not available.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result
<div><div></div>ethanol</div>	Acute - LC50 - Marine water Fish - Bleak - <i>Alburnus alburnus</i> <u>Size</u> : 8 to 10 cm 11 g/l [96 hours] <u>Effect</u> : Mortality Chronic - NOEC - Marine water Algae - Green algae - <i>Ulva pertusa</i> 4.995 mg/l [96 hours] <u>Effect</u> : Reproduction Acute - EC50 - Fresh water Crustaceans - Ostracod - <i>Cypris subglobosa</i> 1074 mg/l [48 hours] <u>Effect</u> : Intoxication Chronic - NOEC - Fresh water Daphnia - Water flea - <i>Daphnia magna</i> - Neonate <u>Age</u> : <24 hours 100 µl/l [21 days] <u>Effect</u> : Mortality Acute - EC50 - Marine water Algae - Green algae - <i>Ulva pertusa</i> <u>Size</u> : 9.4 mm 3306 mg/l [96 hours] <u>Effect</u> : Reproduction

Conclusion/Summary [Product] Not available.

12.2 Persistence and degradability

Product/ingredient name	Result
<div><div></div>ethanol</div>	Aerobic 100% [20 days] - Readily

Conclusion/Summary [Product] Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
<div><div></div>ethanol</div>	-	-	Readily

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
<div><div></div>10 - ≤25</div>	-0.35	0.66	Low

12.4 Mobility in soil

Soil/water partition coefficient Not available.

Mobility Not available.

12.5 Results of PBT and vPvB assessment

<div><div></div>ethanol</div>	No	N/A	No	No	No	N/A	No
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12.6 Other adverse effects

No known significant effects or critical hazards.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product	
Methods of disposal	<div><div></div>The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.</div>
Hazardous waste	<div><div></div>Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 2008/98/EC.</div>
Waste catalogue	

Waste code	Waste designation
07 07 99	wastes not otherwise specified

Packaging

- Methods of disposal
- Special precautions
- The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.
- This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapour from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.
14.2 UN proper shipping name	-	-	-	-
14.3 Transport hazard class(es)	-	-	-	-
14.4 Packing group	-	-	-	-
14.5 Environmental hazards	No.	No.	No.	No.
Additional information	Remarks ADR - Special Provision 144: An aqueous solution containing not more than 24% alcohol by volume is not subject to the requirements of ADR.	Remarks ADN - Special Provision 144: An aqueous solution containing not more than 24% alcohol by volume is not subject to the requirements of ADN.	Special provisions SPECIAL PROVISION 144	Remarks IATA Special Provision A 58 - Aqueous solutions containing 24% or less alcohol by volume is not subject to these regulations.

- 14.6 Special precautions for user
- 14.7 Transport in bulk according to IMO instruments
- Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.
- Not available.

SECTION 15: Regulatory information

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

UK (GB)/REACH

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Ozone depleting substances

Not listed.

Prior Informed Consent (PIC)

Not listed.

Persistent Organic Pollutants

Not listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Product/ingredient name	%	Designation [Usage]
BioProcess storage and delivery solution, 20 vol% EtOH	≥90	3



Labelling ☒ Not applicable.

Seveso Directive

☒ This product is controlled under the Seveso Directive.

EU regulations

**Industrial emissions
(integrated pollution
prevention and control) - Air** Not listed

**Industrial emissions
(integrated pollution
prevention and control) -
Water** Not listed

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

United States ☒ All components are active or exempted.

Canada inventory All components are listed or exempted.

China All components are listed or exempted.

Japan **Japan inventory (CSCL):** All components are listed or exempted.
Japan inventory (ISHL): Not determined.

15.2 Chemical safety assessment ☒ This product contains substances for which Chemical Safety Assessments are still required.

SECTION 16: Other information

☒ Indicates information that has changed from previously issued version.

Abbreviations and acronyms

ATE = Acute Toxicity Estimate
GB CLP = UK CLP (EC No 1272/2008) on the Classification, Labelling and Packaging of Substances and Mixtures as amended by (EU Exit) Regulations 2019 No. 720 and amendments
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EUH statement = GB CLP-specific Hazard statement
N/A = Not available
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number
SGG = Segregation Group
vPvB = Very Persistent and Very Bioaccumulative

Procedure used to derive the classification

Classification	Justification
<input checked="" type="checkbox"/> Flam. Liq. 3, H226	On basis of test data

Full text of abbreviated H statements ☒ H225 Highly flammable liquid and vapour.
H226 Flammable liquid and vapour.

Full text of classifications ☒ Flam. Liq. 2 FLAMMABLE LIQUIDS - Category 2
Flam. Liq. 3 FLAMMABLE LIQUIDS - Category 3

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Version 1

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

