

Safety Data Sheet (SDS)

1. Identification

Product Name	Electro Cell Fusion Buffer
Cat No.	ECFB0100
Synonyms	No information available
Recommended Use	For laboratory use only.
Restriction on Use	Not for food, drug, pesticide or biological product use. Not for human or animal drug use.
Company	Bulldog Bio, Inc.
Company Address	One New Hampshire Ave Suite 125 Portsmouth, NH 03801
Emergency Telephone Number	603-570-4248
Email	info@bulldog-bio.com

2. Hazard Identification

Classification

This substance is not hazardous according to EU regulation (EC) No 1272/2008, and it does not contain any hazardous substance at more than 1 % by weight. US Export Control Classification Number (ECCN) – EAR99 – The substance does not require license.

According to OSHA 29 CFR 1910.1200 HCS

Hazards not other classified (HNOC)	None Identified
Emergency Overview	Aqueous solution. Toxicological properties of components have not been fully investigated
Health Effects	None classified
Inhalation	Not known to present an inhalation hazard under normal use
Skin	Causes skin irritation
Eyes	Causes serious eye irritation
Ingestion	May be harmful if swallowed
Chronic Effects/Target Organ Effects	None Known
Medical Conditions	None known
Aggravated by Exposure	
Environmental Effects	None known

3. Composition/ Information on Ingredients

Component	CAS-No	Weight (%)
DNase/RNase/Protease Free Water	7732-18-5	> 90
Magnesium Chloride	7786-30-3	< 5.0 %
Mannitol	69-65-8	< 5.0 %
Calcium chloride	10035-04-8	< 5.0 %
Bovine Serum Albumin	9048-46-8	< 5.0 %

4. First-aid Measures

General Comments

The appearance is a colorless liquid. Wash thoroughly after use.

CAUTION! May cause eye, skin and respiratory tract irritation. This is expected to be a low hazard for usual laboratory or industrial handling. Good laboratory practices are recommended when handling this solution. The use of personal protection equipment's (PPE's), such as appropriate gloves, cotton lab-coat and protective eye-gear are required.

Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. Get medical attention immediately if the symptoms (irritation, pain or discomfort) occur.
Inhalation	Move to fresh open air. Get medical attention immediately.
Ingestion	Clean mouth with plenty of water and drink plenty of water afterwards. Get medicinal attention if the symptoms (irritation, pain or discomfort) occur
Most important symptoms and affects	Irritation, nausea, headache, shortness of breath
Notes to Physician	Treat symptomatically
Self protection of first aider	Wear protective gloves

5. Fire-fighting measures

Suitable Extinguishing Media	Use extinguishing media appropriate to surrounding fire conditions
Unsuitable Extinguishing Media	No information available
Flash Point Method -	No information available
Autoignition Temperature	No information available
Upper	No data available
Lower	No data available
Sensitivity to Mechanical Impact	Not sensitive.
Sensitivity to Static Discharge	Not sensitive.

Specific Hazard Arising from the Chemical	Keep product and empty container away from heat and sources of ignition.
Hazardous Combustion Products	None known.
Protective Equipment and Precautions for Firefighters	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

NFPA

Health	Flammability	Instability	Physical Hazards
1	0	0	N/A

6. Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures	Avoid any contact with skin, eyes and clothing. Use personal protective equipment. Ensure adequate ventilation
Environmental Precautions	The solution should not be released into the environment. See section 12 for additional ecological information.
Methods for Containment and Clean Up	Absorb with sand or vermiculite. Pick up and transfer to properly labeled containers. Ventilate area and wash spill site after material pickup is complete. Alternatively, you may sweep up or vacuum up spillage and collect in a suitable container for disposal. Put up appropriate signs to maintain a 2-meter diameter around the spillage to ensure minimal contamination to personal in vicinity.

7. Handling and Storage

Precautions for Safe Handling	Wear personal protective equipment (PPE): appropriate gloves, cotton lab-coat and protective eye-gear. Avoid contact with skin, eyes and clothing. Avoid ingestion and inhalation of the solution Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink, and smoke in work areas. Thoroughly wash hands after use. Remove contaminated clothing and protective equipment before entering eating areas.
Conditions for Safe Storage	Store at -20 C in the dark. Once thawed, keep at 4 C in the dark. Transportation: at room temperature for up to 3 weeks. Avoid prolonged exposure to light.
Incompatible Products	No information available.

8. Exposure Controls/ Personal Protection

Exposure Guidelines	Avoid contact with skin, eyes and clothing. Avoid ingestion and inhalation of the solution
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	Handle in accordance with good industrial hygiene and safety practice.
Engineering Measures	Showers Eye wash station Ventilation systems
<u>Personal Protective Equipment:</u>	
Eye/face Protection	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin and Body Protection	Wear appropriate protective gloves and clothing to prevent skin exposure.
Respiratory Protection	Work in fume hood with usual precautions If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with local regulations.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practices.
Environmental exposure controls	Do not drain into sewage system

9. Physical and Chemical Properties

Physical State	Liquid
Appearance	Colorless and clear
Odor	No information available
Odor Threshold	No information available
pH	7.5 at 20 °C
Melting Point/Range	No data available
Boiling Point/ Range	No data available
Flash Point	No information available
Evaporation Rate	No information available
Flammability (solid, gas)	Not applicable
Flammability or explosive limit	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	No information available
Specific Gravity	No information available
Solubility	Miscible
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available

Viscosity No information available

10. Stability and Reactivity

Reactive Hazard None known, based on information available.
Stability Stable under recommended normal conditions.
Conditions to Avoid Direct sunlight. Extremely high or low temperatures
Incompatible Materials Strong oxidizing agents. Strong bases. Metals
Hazardous Decomposition Products None under normal use conditions
Hazardous Polymerization Hazardous polymerization has not been reported
Hazardous Reactions None under normal processing.

11. Toxicological Information

Acute Toxicity

Product Information Irritating to the eye, skin and respiratory system.
Oral LD50 Based on ATE data, the classification criteria are not met.
 ATE > 2000 mg/ kg
Dermal LD50 Based on ATE data, the classification criteria are not met.
 ATE > 2000 mg/ kg
Vapor LC50 Based on ATE data, the classification criteria are not met.
 ATE > 20 mg/ L

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Calcium chloride	Not listed	Not listed	Not listed
Magnesium Chloride	LD50 = 2800 mg/kg (Rat)	Not listed	Not listed
Mannitol	Not listed	Not listed	Not listed
Bovine serum albumin	Not listed	Not listed	Not listed

No information available

Toxicologically Synergistic Products

Delayed and Immediate Effects as well as Chronic Effects from Short and Long-term Exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredients as a carcinogen.

Component	CAS-No.	IARC	NTP	ACGIH	OSHA	Mexico
Calcium chloride	10035-04-8	Not listed	Not listed	Not listed	Not listed	Not listed
Magnesium Chloride	7786-30-3	Not listed	Not listed	Not listed	Not listed	Not listed

Mannitol	69-65-8	Not listed	Not listed	Not listed	Not listed	Not listed
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Mutagenic Effects	No information available.
Reproductive Effects	No information available.
Developmental Effects	No information available.
Teratogenicity	No information available.
STOT – single exposure	None known
STOT – repeated exposure	None known
Aspiration Hazard	No information available.
Symptoms/ effects (both acute and delayed)	No information available.
Endocrine Disruptor Information	No information available.
Other Adverse Effects	The toxicological properties have not been fully investigated

12. Ecological Information

Ecotoxicity

Components	CAS-No.	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Magnesium Chloride	7786-30-3	EC50: 2200 mg/L/72 h	<i>Pimephales promelas</i> : EC50: 2.12g/L: 96H	EC50 <i>Pseudomonas putida</i> : EC50:26.14 g/L/h <i>Photobacterium phosphoreum</i> : EC50: 36.3 mg/L/30 min <i>Photobacterium phosphoreum</i> : EC50: 77.2 mg/L/24 h	EC50: 1400 mg/L/24h
Calcium chloride	10035-04-8	EC50: > 4,000 mg/l/ 72 h	<i>Pimephales promelas</i> : LC50: 4630 mg/L /96h	Not listed	Not listed

Persistence and Degradability	Miscible with water. Persistence is unlikely based on information available
Bioaccumulation / Accumulation	No information available
Mobility	Will likely be mobile in the environment due to its water solubility

13. Disposal Considerations

Waste Disposal Methods	Chemical waste generators must determine whether a discarded chemical or contaminated packaging is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3.
RCRA P-Series	None listed.
RCRA U-Series	None listed.
Contaminated Packaging	Dispose of in accordance with all federal, state and local regulations

14. Transport Information

DOT	Not regulated.
TDG	Not regulated.
IATA	Not regulated.
IMDG/IMO	Not regulated.
Proper shipping name	No dangerous good in sense of these transport regulations
Hazard class	None
Subsidiary class	None
Packing group	None
UN-No	None

15. Regulator Information

All of the components in the product are on the following inventory lists: X = listed

International Inventories

Component	CA S-No.	TS CA	DS L	ND SL	EINEC S	ELI NCS	N L P	PIC CS	EN CS	AIC S	IEC SC	KE CL
DNase/RNase/ Protease Free Water	773 2-18-5	X	X	-	231-791-2	-		X	-	X	X	X
Mannitol	77-86-1	X	X	X	X	X	X	X	X	X	X	X
Magnesium Chloride	778 6-30-3	X	X	-	232-094-6	-		X	X	X	X	X
Calcium chloride	100 35-04-8	X	X	X	X	X	X	X	X	X	X	X

Legend:

X Listed

- E Indicates a substance that is the subject of a Section 5(e) Consent under order under TSCA.
- F Indicates a substance that is the subject of Section 5(f) Rule under TSCA.
- N Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
- P Indicates a commenced PMN substance
- R Indicates a substance that is the subject of a Section 6 risk management rule under TSCA
- S Indicates a substance that is identified in a proposed or final Significant New Use Rule
- T Indicates a substance that is the subject of a Section 4 test rule under TSCA

U.S. Federal Regulations

- TSCA** Not applicable.
- SARA** Not applicable.
- SARA 311/312 Hazard Categories** See Section 2 for more information
- CWA** Not applicable.
- Clean Air Act** Not applicable.
- OSHA** Not applicable.
- CERCLA** Not applicable.
- California Proposition 65** This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Water	-	-	X	-	-

U.S. Department of Transportation

- Reportable Quantity (RQ):** N
- DOT Marine Pollutant** N
- DOT Severe Marine Pollutant** N

U.S. Department of Homeland Security

This product does not contain any DHS chemicals.

Other International Regulations

- Mexico - Grade** No information available

Canadian Regulations:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and it contains the information required by the CPR.
 This product meets WHMIS classification D2B.
 Components of this product are listed on the DSL.

16. Other Information	
Prepared By	XXX

Email

Creation Date

March 20, 2022

Print Date

March 20, 2022

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 provided in this document cannot be taken in exclusion of the rest of the document and must be taken in its entirety. The information that is 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 processes, unless specified in the text. In no event shall XXX be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if XXX has been advised of the possibility of such damages.

End of SDS