# Safety Data Sheet

## Product Basic Information

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| **Product Name** | Recombinant Protein, Liquid |
| **Recommended Use** | For research use only. |

## 1. Chemical Product and Company Identification

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| **1.1 Product Name** | Recombinant Protein, Liquid |
| **1.2 Synonyms** | None |
| **1.3 CAS No.** | None |
| **1.4 Molecular Formula / Molecular Weight** | Formula: derived from amino acid sequence \| Molecular weight: not available |
| **1.5 Company Name** | AREX Biosciences Ltd. |
| **1.6 Company Website** | www.arexbio.com |
| **1.7 Emergency Telephone** | 400-886-0853 |
| **1.8 Email** | info@arexbio.com |
| **1.9 Use** | For research use only. |

## 2. Hazard Identification

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| **2.1 Hazard Classification** | Not classified as a hazardous chemical. |
| **2.2 Routes of Exposure** | Inhalation, skin contact, eye contact, ingestion. |
| **2.3 Health Hazards** | No acute hazard is expected under normal handling. Inhalation may cause mild respiratory irritation; skin or eye contact may cause transient discomfort such as itching or redness; ingestion may cause gastrointestinal discomfort such as nausea or vomiting. |
| **2.4 Environmental Hazards** | No obvious hazard to aquatic organisms. |
| **2.5 Fire and Explosion Hazards** | Not readily flammable or explosive. |
| **2.6 Other Warnings** | For research or industrial use only. Not for human injection, clinical treatment, or food processing. |

## 3. Composition / Information on Ingredients

| Component | Content | CAS No. |
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| Recombinant Protein, Liquid | > 97% | None |
| Sodium dihydrogen phosphate monohydrate | Buffer salt | 10049-21-5 |
| Disodium hydrogen phosphate dodecahydrate | Buffer salt | 10039-32-4 |
| Mannitol | Lyophilization protectant | 69-65-8 |

Other information: This product does not contain pathogenic microorganisms or toxic/harmful substances. Purity has been verified by SDS-PAGE and HPLC.

## 4. First Aid Measures

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| **4.1 Skin Contact** | Immediately rinse the affected area with plenty of running water for 15-20 minutes. Seek medical attention if itching, redness, or other discomfort occurs. |
| **4.2 Eye Contact** | Immediately hold eyelids open and rinse with plenty of running water or physiological saline for 15-20 minutes. Avoid rubbing the eyes. Seek medical attention if blurred vision, pain, or other discomfort occurs. |
| **4.3 Inhalation** | Move the affected person to fresh air promptly and keep the airway clear. Seek medical attention if coughing, chest tightness, or other discomfort occurs. |
| **4.4 Ingestion** | Drink plenty of warm water and induce vomiting, except in persons for whom vomiting is contraindicated. Seek medical attention and inform the physician that the material is a recombinant protein preparation with excipients. |
| **4.5 Notes to First-Aid Personnel** | Wear disposable gloves and a mask, avoid direct contact with contaminated material, and bring this SDS when seeking medical help. |

## 5. Firefighting Measures

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| **5.1 Suitable Extinguishing Media** | This product is not readily flammable. In case of fire, use dry powder, carbon dioxide, or water-based extinguishers. |
| **5.2 Fire Hazards** | Combustion is not expected to generate toxic or harmful smoke. Excipients, if burned, may produce irritating fumes. |
| **5.3 Advice for Firefighters** | Wear protective gloves and, if excipients are burning, respiratory protection. Fight the fire from upwind. Avoid directly striking product containers with a strong water jet to prevent leakage from damaged containers. |

## 6. Accidental Release Measures

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| **6.1 Personal Precautions** | Avoid inhalation of vapors, aerosols, or gases. Wear suitable personal protective equipment. |
| **6.2 Environmental Precautions** | Prevent large quantities of product from entering sewers or waterways. |
| **6.3 Methods for Cleaning Up** | Absorb spills with suitable inert material or collect in an appropriate waste container. Decontaminate the affected area as required and dispose of waste according to applicable procedures. |

## 7. Handling and Storage

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| **7.1 Handling Precautions** | Wear disposable gloves, mask, and lab coat during handling. Avoid direct contact with the product and spills.<br>Keep the operating area well ventilated and avoid dust or aerosol formation. For dry powder recombinant proteins, avoid inhalation.<br>Use aseptic technique when taking the product to avoid contaminating the product or the operating environment.<br>Wash hands and laboratory equipment after handling. Do not eat, drink, or smoke in the operating area. |
| **7.2 Storage Precautions** | Store frozen at -20°C, or at -80°C for long-term storage. Short-term storage at 4°C is acceptable. Keep sealed, protected from light, dry, and away from heat, ignition sources, and oxidizing agents. Avoid contact with strong acids and strong bases.<br>Aliquot into small volumes when possible to avoid repeated freeze-thaw cycles and loss of protein activity.<br>Shelf life: 12 months at -20°C.<br>Label as a research reagent; not for consumption or injection. Store separately from food, medicines, and cosmetics. |

## 8. Exposure Controls / Personal Protection

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| **8.1 Occupational Exposure Limits** | No national occupational exposure limit is established. Minimize exposure during handling and avoid long-term or large-volume contact. |
| **8.2 Engineering Controls** | Provide ventilation in the operating area, such as a ventilation hood, and maintain air circulation. Provide spill collection equipment. |
| **8.3 Personal Protective Equipment** | Respiratory protection: wear a disposable medical mask for routine operations; for dry powder protein, wear a dust mask.<br>Eye protection: wear protective goggles to avoid eye contact.<br>Body protection: wear a lab coat or disposable protective clothing for large-scale handling or spill cleanup.<br>Hand protection: wear disposable latex or nitrile gloves; replace gloves and wash hands after handling. |
| **8.4 PPE Maintenance** | Clean or replace protective equipment promptly after use. Dispose of discarded PPE according to applicable requirements. |

## 9. Physical and Chemical Properties

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| **9.1 Appearance** | Colorless liquid. |
| **9.2 Odor** | Odorless or slight buffer odor. |
| **9.3 pH** | 7.0-7.5, buffer system pH. |
| **9.4 Melting Point** | No defined melting point. |
| **9.5 Boiling Point** | No defined boiling point. |
| **9.6 Solubility** | Soluble in water and PBS buffer; insoluble in organic solvents such as ethanol and acetone. |
| **9.7 Stability** | Stable when stored frozen at -20°C. Repeated freeze-thaw may cause loss of activity. Short-term stability is expected at 4°C; denaturation may occur at room temperature. |

## 10. Stability and Reactivity

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| **10.1 Stability** | Stable under the specified storage conditions. Heat, light, strong acids, strong bases, and oxidizing agents may cause denaturation and loss of activity. This product is expressed in E. coli and has no animal-origin contamination risk. |
| **10.2 Conditions to Avoid** | High temperature, strong light, moisture, strong acids, strong bases, and oxidizing agents. |
| **10.3 Incompatible Materials** | Strong acids, strong bases, oxidizing agents, and organic solvents such as ethanol and acetone. |
| **10.4 Hazardous Polymerization** | Hazardous polymerization will not occur. |
| **10.5 Decomposition Products** | Thermal decomposition may produce amino acid fragments. No toxic or harmful decomposition products are expected. |

## 11. Toxicological Information

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| **11.1 Acute Toxicity** | None known. |
| **11.2 Skin Irritation** | If absorbed through the skin, discomfort may occur. Skin irritation is possible. |
| **11.3 Eye Irritation** | May cause eye irritation. |

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| **11.4 Inhalation Toxicity** | No clear inhalation toxicity data are available. Long-term inhalation may cause mild respiratory discomfort. |
| **11.5 Mutagenicity** | No mutagenicity is known; no damage to chromosomes or DNA has been found. |
| **11.6 Carcinogenicity** | No carcinogenicity is known; no toxicity associated with cancer has been found. |
| **11.7 Other Toxicological Information** | Endotoxin content: no numerical range could be extracted from the provided source document. |

## 12. Ecological Information

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| **12.1 Ecotoxicity** | No obvious toxicity to aquatic organisms such as fish or algae; no obvious toxicity to terrestrial organisms. |
| **12.2 Biodegradability** | Can be rapidly degraded and utilized by microorganisms; no environmental hazard is expected. |
| **12.3 Abiotic Degradation** | May be actively degraded by non-biological processes in the natural environment, such as ultraviolet exposure. |
| **12.4 Environmental Mobility** | None. |
| **12.5 Other Ecological Information** | No relevant data available. |

## 13. Disposal Considerations

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| **13.1 Disposal Principles** | Dispose of according to applicable standards for hazardous waste storage and landfill pollution control, including GB 18597-2001 and GB 18598-2019. Do not discard or dump casually. |
| **13.2 Disposal Methods** | Small quantities: collect waste recombinant protein and contaminated labware, such as gloves and tubes, in a designated hazardous waste container labeled as waste recombinant protein, and submit to a qualified hazardous waste disposal organization.<br>Large quantities: contact a qualified hazardous waste disposal organization and follow its requirements for packaging, transportation, and disposal. Provide this SDS for reference. |
| **13.3 Disposal Precautions** | Wear protective equipment during disposal. Avoid leakage, skin contact, or inhalation. Do not allow waste to enter drains, rivers, or soil, to prevent environmental pollution. |

## 14. Transport Information

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| **14.1 ADR/RID** | Not regulated as dangerous goods. |
| **14.2 IMDG** | Not regulated as dangerous goods. |
| **14.3 IATA** | Not regulated as dangerous goods. |

## 15. Regulatory Information

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| **15.1 Applicable Chinese Regulations** | Work Safety Law of the People's Republic of China<br>Environmental Protection Law of the People's Republic of China<br>Safety Data Sheet for Chemical Products - Content and Order of Sections (GB/T 16483-2008)<br>Guidance on the Compilation of Safety Data Sheets for Chemical Products (GB/T 17519-2013)<br>Standard for Pollution Control on Hazardous Waste Storage (GB 18597-2001)<br>Standard for Pollution Control on the Hazardous Waste Landfill (GB 18598-2019) |
| **15.2 Other Regulations** | If this product is used for scientific research, comply with General Biosafety Requirements for Laboratories (GB 19489-2008). It is prohibited for human injection, clinical treatment, or food processing. Violations of relevant laws and regulations shall bear corresponding responsibility. |

## 16. Other Information

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| **16.1 Preparation Date** | April 09, 2025 |
| **16.2 Revision Date** | None |
| **16.3 Revision Description** | None |
| **16.4 Disclaimer** | This SDS is prepared according to Chinese standards and the actual characteristics of the product. The information is believed to be accurate and reliable, but no claim is made that it includes all information. The information is based on current knowledge. Appropriate safety precautions should be taken during use. The product is for research-use reference only. The company assumes no responsibility for losses caused by improper use, improper storage, or violation of relevant regulations. |
| **16.5 Other Supplementary Information** | Expression system: E. coli. Endotoxin content: no numerical range could be extracted from the provided source document. Purity: > 97%. |