

## Certificate of Analysis

|                          |                              |
|--------------------------|------------------------------|
| Date of Testing:         | 2024-04-16 15:32:56          |
| Date of Next Testing:    | 2027-04-16 15:32:56          |
| Product Name:            | <b>Poly(ethylene glycol)</b> |
| CAS Number:              | 25322-68-3                   |
| Specifications & Purity: | Ultrapure BioReagent, 35,000 |
| Lot #:                   | D2410350                     |
| SKU #                    | <b>P432425</b>               |
| Version                  | <b>1</b>                     |
| Analysis #:              | <b>336540</b>                |

| Parameter                                      | Limit Values        | Result            |
|--|---------------------|-------------------|
| Melting point                                  | 64-66 (°C)          | 64.00000 °C       |
| Water by Karl Fischer                          | 0-1 (%)             | 1.00 %            |
| Sulfated Ash                                   | 0-0.2 (%)           | 0.10000 %         |
| Viscosity(50% in H <sub>2</sub> O , 20°C)      | 11000-14000 (mPa·S) | 11700.00000 mPa·S |
| Molecular mass(calculated from hydroxyl value) | 25000-45000         | 34006.00000       |
| Hydroxyl value                                 | 2.5-4.5 (mgKOH/g)   | 3.30 mgKOH/g      |
| pH(1.5g in 30ml H <sub>2</sub> O)              | 5.5-7               | 6.00000           |
| UV-ABS.at 260 nm                               | 0-0.12              | 0.05000           |
| UV-ABS.at 280 nm                               | 0-0.12              | 0.10000           |
| Aluminium(Al)                                  | 0-5 (ppm)           | 4.80000 ppm       |
| Barium(Ba)                                     | 0-5 (ppm)           | 4.00 ppm          |
| Bismuth(Bi)                                    | 0-5 (ppm)           | 4.20 ppm          |
| Calcium(Ca)                                    | 0-10 (ppm)          | 9.60 ppm          |
| Cadmium(Cd)                                    | 0-5 (ppm)           | 3.90 ppm          |
| Cobalt(Co)                                     | 0-5 (ppm)           | 4.70 ppm          |
| Chromium(Cr)                                   | 0-5 (ppm)           | 4.00 ppm          |
| Copper(Cu)                                     | 0-5 (ppm)           | 4.20 ppm          |
| Iron(Fe)                                       | 0-5 (ppm)           | 3.70 ppm          |
| Potassium(K)                                   | 0-200 (ppm)         | 186.00 ppm        |
| Lithium(Li)                                    | 0-5 (ppm)           | 4.80 ppm          |
| Magnesium(Mg)                                  | 0-5 (ppm)           | 2.60 ppm          |
| Manganese(Mn)                                  | 0-5 (ppm)           | 4.60 ppm          |
| Molybdenum(Mo)                                 | 0-5 (ppm)           | 4.55 ppm          |
| Sodium(Na)                                     | 0-200 (ppm)         | 191.00 ppm        |
| Nickel(Ni)                                     | 0-5 (ppm)           | 4.00 ppm          |

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| Parameter                 | Limit Values                                       | Result   |
|---------------------------|--|--|
| Lead(Pb)                  | 0-5 (ppm)  | 4.10 ppm   |
| Strontium(Sr)             | 0-5 (ppm)  | 1.60 ppm   |
| Zinc(Zn)                  | 0-5 (ppm)  | 3.80 ppm   |
| Arsenic traces(MHS-AAS)   | 0-0.1 (ppm)  | 0.10 ppm   |
| Total sulfur as SO4 (ICP) | 0-50 (ppm)   | 44.00 ppm  |
| Chloride (Cl-)            | 0-50 (ppm)   | 39.00 ppm  |
| traces peroxide (as H2O2) | 0-50 (ppm)   | 29.00000 ppm                                       |
| Appearance(P432425)       | Colorless or White Powder or Crystals<br>or Flakes | Colorless or White Powder or Crystals<br>or Flakes |
| Infrared spectrum         | Conforms to Structure                              | Conforms to Structure                              |
| Residue (filter test)     | no residue   | no residue   |

John Su  
QA & QC Manager