

## CERTIFICATE OF ANALYSIS

Thermo Fisher Scientific's Quality System has been found to conform to Quality Management System Standard ISO9001:2015 by Intertek. Certificate Number. 2317548

|                           |                                |
|---------------------------|--------------------------------|
| Catalogue Number          | 41121                          |
| Lot Number                | A0482551                       |
| Description               | Heparin sodium                 |
| CAS Number                | 9041-08-1                      |
| Quality Test/Release Date | 04/May/2026                    |
| Suggested retest date     | 04/May/2031                    |
| Country of Origin         | BRAZIL                         |
| Declaration of Origin     | porcine                        |
| BSE/TSE                   | from porcine intestinal mucosa |

| Result Name            | Units | Specifications  | Test Value                                  |
|------------------------|-------|---|---|
| Appearance (Color)     |       | White to almost white                                 | White                                       |
| Appearance (Form)      |       | Powder  | Powder                                      |
| Appearance of solution |       | (500mg in 10ml water) Clear colorless to faint yellow | (500mg in 10ml water) Clear colorless       |
| Appearance of solution |       |   |   |
| Infrared spectrum      |       | Conforms  | Conforms                                    |
| Assay                  | IU/mg | >=180 (dried substance)                               | 195.1 (dried substance)                     |
| Loss on drying         | %     | =<8.0 (1 g, 60°C, 3 h) (P2O5)                         | 3.4 (1 g, 60°C, 3 h) (P2O5)                 |
| pH                     |       | 5.5 to 8.0 (0.1g in 10ml water)                       | 7.3 (0.1g in 10ml water)                    |
| Protein                | %     | =<0.5 (dried substance)                               | =<0.5 (dried substance)                     |
| UV                     |       | (40mg in 10ml water) Nucleotidic impurities           | (40mg in 10ml water) Nucleotidic impurities |
| UV                     |       | at 260 nm A: =<0.15                                   | at 260 nm A:0.052                           |
| NMR (1H-NMR)           |       | Chondroitin sulfate (over-sulfated): Absent           | Chondroitin sulfate (over-sulfated): Absent |

Geert Torfs  
Supervisor, QC

Products are processed under ISO 9001:2015 quality management systems and samples are tested for conformance to the noted specifications. Certain data may have been supplied by third parties. We disclaim the implied warranties of merchantability and fitness for a particular purpose, and the accuracy of third-party data or information associated with the product. Products are for research and development use only. Products are not for direct administration to humans or animals. It is the responsibility of the final formulator or end user to determine suitability, and to qualify and/or validate each product for its intended use.

Note: The data listed is valid for all package sizes of this lot of this product, expressed as an extension of the catalogue number listed above.