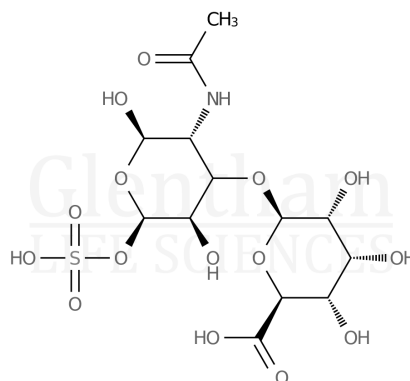


Certificate of Analysis

| | |
|---------------|--|
| Product Name | Chondroitin sulfate, from bovine origin, USP grade |
| Glentham Code | GC3554 |
| CAS Number | 9007-28-7 |
| EINECS | 232-696-9 |
| MDL Number | MFCD00146419 |
| Batch Number | 760DGZ |

| | |
|-------------------|------------------------|
| Molecular Weight | 463.37 |
| Molecular Formula | $C_{13}H_{21}NO_{15}S$ |
| Storage Temp. | +20°C |



| Property | Specification | Batch 760DGZ |
|--------------------------------|--------------------------------|-------------------|
| Physical Description | White to off-white powder | Conforms |
| Identification | A, B according to USP | Conforms |
| Clarity of Solution | ≤ 0.35 (5% in water, at 420nm) | Conforms |
| pH (1% in water) | 5.5 - 7.0 | 6.6 |
| Specific Optical Rotation | -20.0 - -30.0 ° | -22.4° |
| Loss on Drying | ≤ 10.0% (105°C, 4h) | 9.8% |
| Residue on Ignition | 20.0 - 30.0 % | 24.5% |
| Total Plate Count | ≤ 1000CFU/g | Conforms |
| E. Coli | Negative | Conforms |
| Salmonella | Negative | Conforms |
| Chloride | ≤ 0.50% | Conforms |
| Sulphate | ≤ 0.24% | Conforms |
| Heavy Metals | ≤ 20ppm | ≤ 10ppm |
| Protein | ≤ 6.0% (dried basis) | 4.10% |
| Assay | 90.0 - 100.5 % (dried basis) | 90.80% |
| Pharmacopoeia Specification(s) | USP | Conforms to USP38 |

| | |
|-----------------------|------------|
| Specification Version | v1.0 |
| Manufacture Date | 2017-08-24 |
| Re-Test Date | 2027-11-10 |

Glentham Life Sciences confirm that the above referenced product conformed to the information displayed in this document on the quality release date. Please check www.glentham.com or contact us using the details above for the current version of this document.

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