



Mikromol™



Certificate of Analysis

ISO 9001

Reference Material

Product name

2,3-O-(1-Methylethylidene)-β-D-fructopyranose 1-Sulfamate

Product code

MM1348.02

CAS number

106881-41-8

Molecular weight

299.30

Molecular formula

C₉H₁₇NO₈S

Lot number

1029638

Appearance

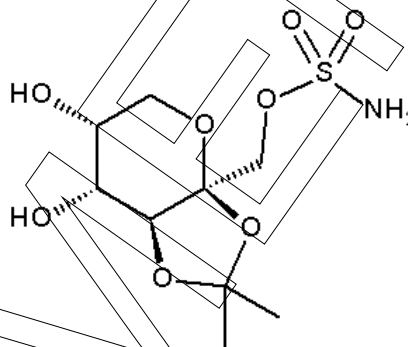
white solid

Melting point

116 °C (dec)

Long-term storage

-18 °C, dark



Assay "as is"
99.9 %

Date of shipment:

13 Sep 2019

Producer confirms that this reference material (RM) meets the specification detailed on this Certificate of Analysis for **one year** from the date of shipment, provided the substance is stored under the recommended conditions unopened in the original container.

| | | | |
|---------------------|--------------------------|--|-----------------|
| Release by: | Date of Release: | | Product Release |
| Dr. Sabine Schröder | Luckenwalde, 03 Sep 2019 | | |



MikromolTM

Product information

For laboratory use only. Not suitable for human or animal consumption.

Before usage of the RM, it should be allowed to warm to room temperature. No drying required, as the certified value is already corrected for the content of water and other volatile materials.

The product quality is controlled by regularly performed quality control tests (retests).

Further content

Identity

Assay

Final result

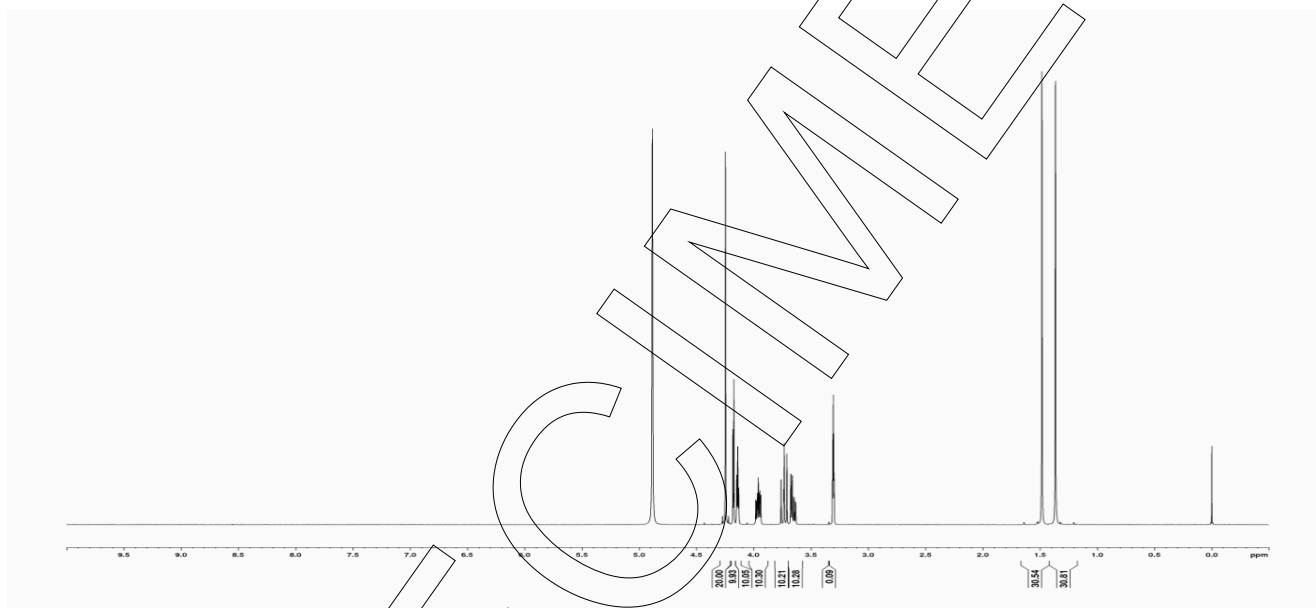
Revision table

SPECIMEN

Identity

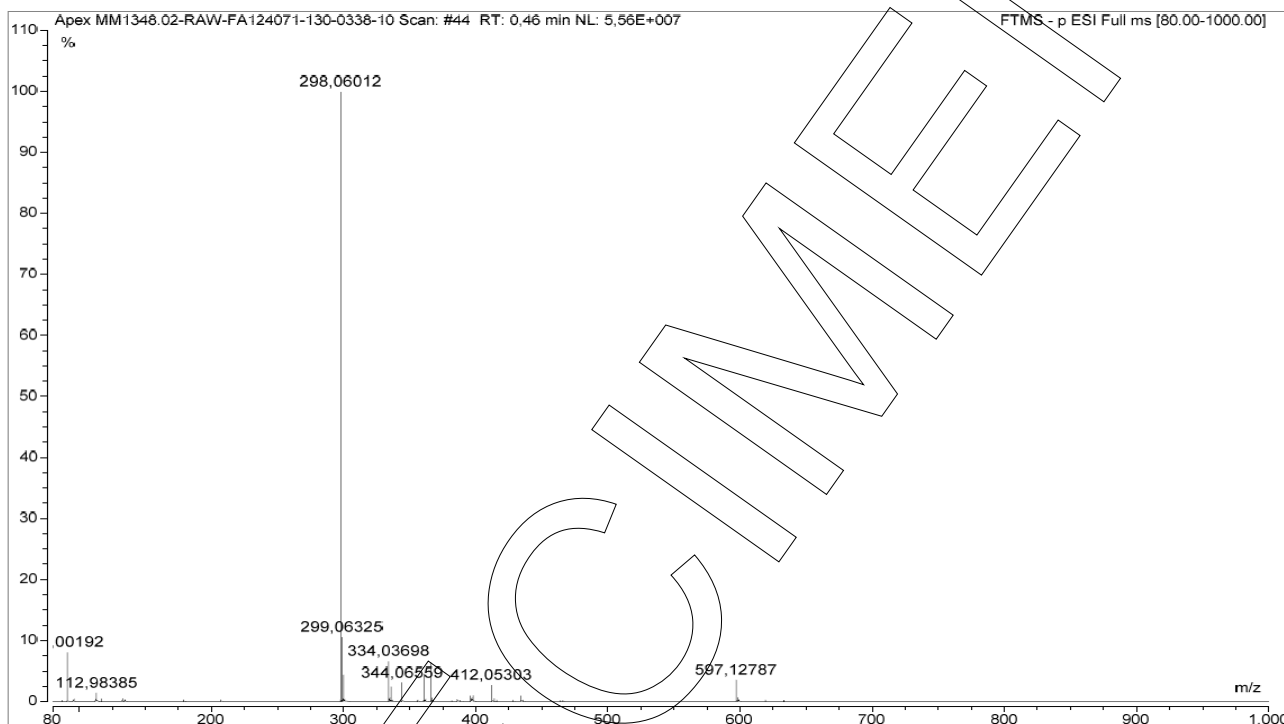
The identity of the reference material was established by following analyses.

| Method | Conditions | Result |
|--------------------|-----------------------------|---------------------|
| ¹ H-NMR | 400 MHz, CD ₃ OD | Structure confirmed |



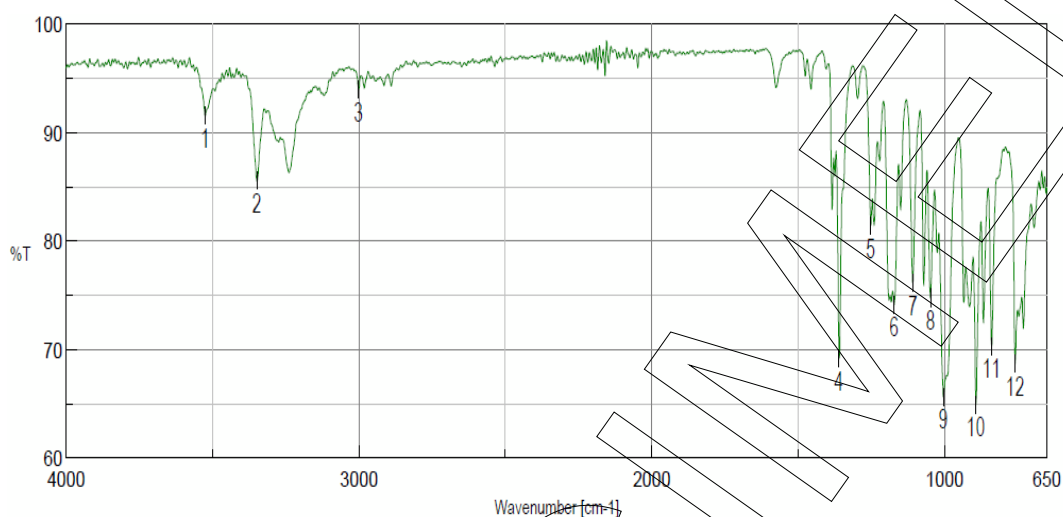


| Method | Conditions | Result |
|--------|----------------------------------------------------------------------------|---------------------|
| MS | 3.2 kV ESI-; capillary temperature: 269 °C Theoretical value: 298.06021 | Structure confirmed |





| Method | Conditions | Result |
|--------|--------------------------------------------------------------------------------|---------------------|
| IR | Attenuated Total Reflection Fourier Transform Infrared (ATR-FTIR) Spectroscopy | Structure confirmed |



| Results of Peak Find | | |
|----------------------|----------|-----------|
| No. | Position | Intensity |
| 1 | 3525.24 | 91.5158 |
| 2 | 3348.78 | 85.5059 |
| 3 | 3000.69 | 93.9055 |
| 4 | 1359.57 | 69.165 |
| 5 | 1251.58 | 81.392 |
| 6 | 1171.54 | 74.1207 |
| 7 | 1107.9 | 76.1078 |
| 8 | 1047.16 | 74.7707 |
| 9 | 1003.77 | 65.6213 |
| 10 | 891.916 | 64.9283 |
| 11 | 838.883 | 70.3168 |
| 12 | 757.888 | 68.6727 |

Volatile content

| Water content | |
|----------------|------------------------|
| Method | Karl Fischer titration |
| Result (n = 3) | 0.07 %; SD = 0.01 % |

| Residual solvents | |
|-------------------|-----------------------------------------------------------------------|
| Method | ¹ H-NMR |
| Result (n = 1) | No significant amounts of residual solvents were detected (< 0.05 %). |



Final result

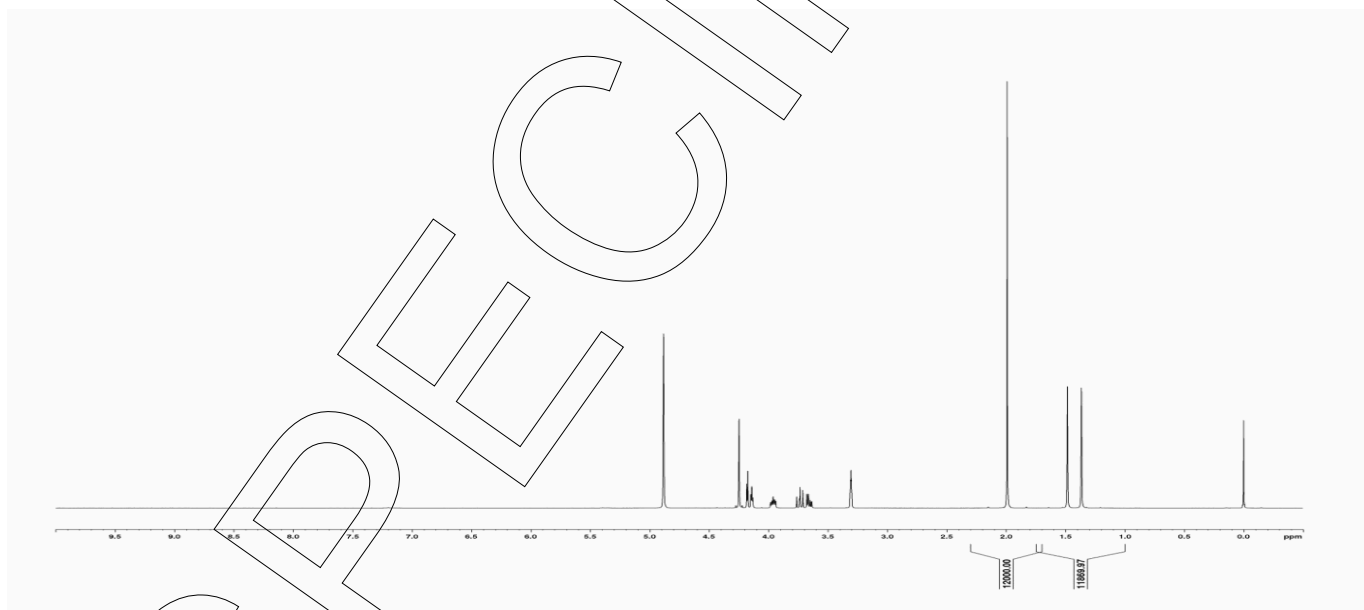
Assay "as is": **99.92 %**

The assay "as is" is assessed by quantitative NMR spectroscopy and is equivalent to the assay based on the not anhydrous and not dried substance respectively.

Method: Value assigning technique - quantitative NMR spectroscopy

| | |
|-------------------------------|------------------------------------------------------------------------|
| Conditions | 400 MHz, CD ₃ OD |
| Internal standard | Duroquinone (certified reference material), signal 1.7 - 2.3 ppm, 12 H |
| Result (mass fraction, n = 3) | 99.92 %; SD = 0.02 % |

Quantitative NMR spectrum





MikromolTM

Revision table

| Revision | Date | Reason for revision |
|----------|-------------|----------------------------------------------------------|
| 00 | 03 Sep 2019 | Release of the Certificate of Analysis - initial version |

Product warranties for the RM are set out in the terms and conditions of purchase.

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