TEST REPORT

20260304_1 EN

Customer	ZENYTH PHARMACEUTICALS SRL	**Date of production**	03.11.2025
		Expiry date	02.11.2027
		Sample reception date	17.02.2026
		Start of analysis	18.02.2026
		End of analysis	03.03.3026
Sample name	Magnesium bisglycinate 11,5% powder	**Test report date**	04.03.2026
Batch	20251103360	**Analysis ID**	A459B

Scope of analysis

Determination of degree of chelation, determination of nitrogen and magnesium content, examination of purity and determination of identity of impurities.

Summary of analysis

All results confirm the high purity of the tested sample.

FT-IR and NMR spectra indicate effective chelation of magnesium by glycine, while the good solubility of the product confirms proper synthesis.

In addition, no free glycine was detected in the product. The obtained results are in close agreement with the theoretical values.

Initial evaluation of the sample

Color: white with no impurities visible

Smell: No distinctive odor was present

Qualitative and quantitative analysis of soluble/insoluble fraction

Weight analysis (NA)²

Results:

The sample was highly soluble in water (1-10 w/w%) and insoluble in water and acetone. After some time, a typical magnesium carbonate precipitate appeared by reacting with carbon dioxide from the air.

Comments :

Magnesium bisglycinate should be soluble in water. The result indicates the absence of insoluble forms of magnesium such as oxide, hydroxide or carbonate. The results obtained do not indicate the presence of any additional water insoluble substances in the sample.

Magnesium content analysis

Complexometric titration (NA)[2]

Results:

%Mg = 11,58% +/- 0.29

%Mg = 13.92% +/- 0.34 (calculated on dry masses)

Comments :

The magnesium content in magnesium bisglycinate, calculated based on molar mass, is 11.67% for the dihydrate form and 14.10% for the anhydrous form. The result obtained for the analyzed sample is slightly lower than the theoretical value.

Additionally, a loss on drying (LOD) test was performed, yielding a value of 16.677%. The theoretical water content of magnesium bisglycinate dihydrate is 17.22%. The close agreement between the experimental and theoretical values indicates that the tested material predominantly corresponds to the dihydrate form and no evidence of additional non-crystallized (free) water.

Glycine content analysis

Kjeldah method (A)[1] (EX)[2]

Results:

%N = 13.47 +/- 1.08

%N = 16.18 +/- 1.30 (calculated on dry masses)

Comments :

The nitrogen content in magnesium bisglycinate, calculated based on molar mass, is 16.25% for the anhydrous form and 13.44% for the dihydrate form. The nitrogen content is close accrued to the theoretical value for the dihydrate salt as well as for the anhydrous form.

This result, showing a close correlation to the nitrogen theoretical excludes the presence of free glycine in the product.

Confirmation of identity and chelation degree

FT-IR spectroscopy (NA)[2]

Results:

The spectrum analysis concludes:

1) The identity of magnesium bisglycinate is confirmed.

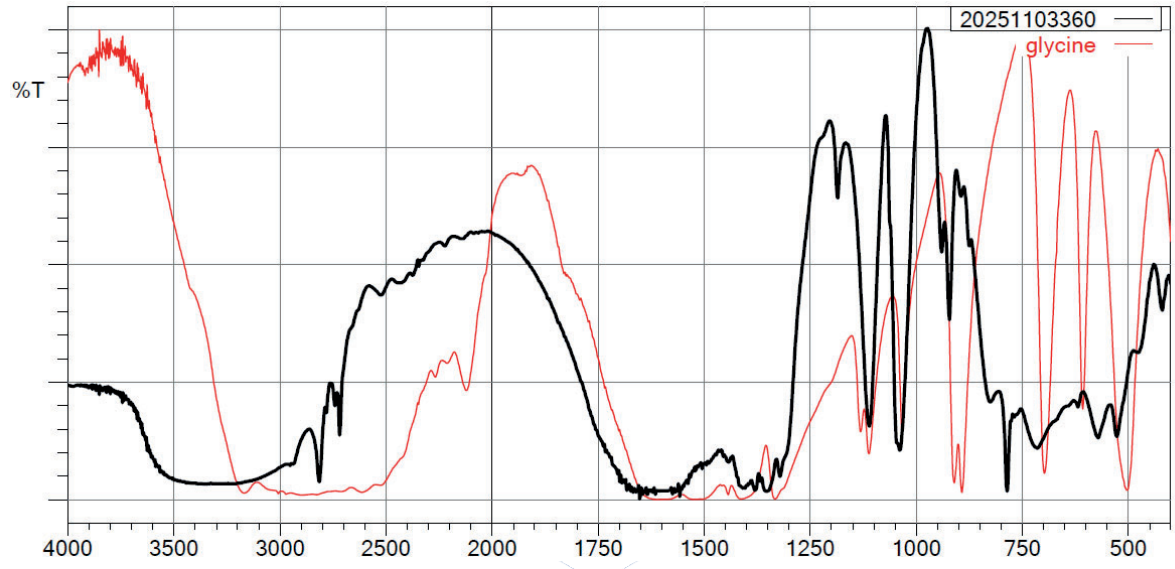
2) The absence of additional bands indicates no impurities present.

3) **The changes in the bands described below provide evidence of glycine fully chelating to the magnesium ion.**

Comments:

This method enables the analysis and verification of identity and content for a variety of organic and some inorganic compounds. It is a standard procedure used to detect the presence of a compound in a sample by studying the occurrence of bands that are characteristic of that compound. The absence of additional bands suggests that there are no organic impurities present. Chelation is indicated by visible bands observed during this analysis.

The mathematical correlation to pure glycine is only 57.5 % which confirms the chelation of magnesium.



Purity and identity testing

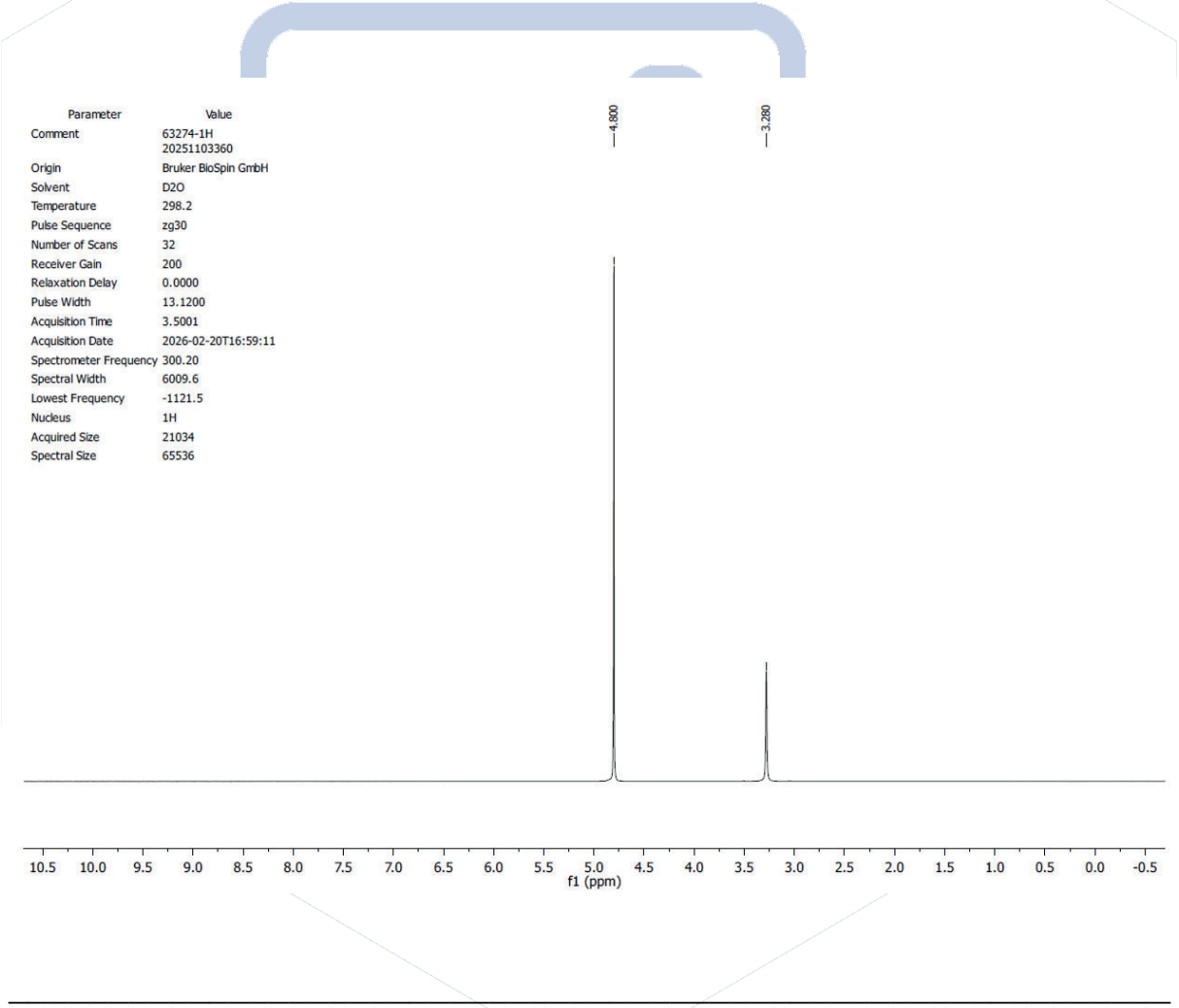
H¹- NMR spectroscopy (NA)² (EX)³

Results:

No organic impurities were found

Comments:

Analysis of the NMR spectrum confirms the identity of the tested compounds and identifies potential impurities. The spectrum verifies the presence of glycine ions and excludes other organic compounds. There are four signals on the spectrum shown: one from glycine (3.280) and one from water as hydrate present in salt (4.800). Analysis of the spectrum indicates the high purity of the test sample and none of organic impurities added.



EX¹-external laboratory subcontracting

A²-accredited method

NA³-non accredited method

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END OF REPORT