



Frontier BioPharm

LLC

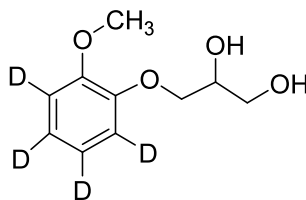
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CERTIFICATE OF ANALYSIS

Guaifenesin-D₄ 0.105 mg/mL in Methanol

Product Number: GD-2551
Lot No.: 1015064

Chemical Identity: Chemical Name: 3-(2-methoxy-phenoxy-d₄) - 1,2-propanediol
Molecular Formula: C₁₀H₁₀D₄O₄. FW: 202.24 g/mol Unlabeled FW 198.22 g/mol
Solvent: Methanol
Volume per Ampule: 1 mL
Storage Condition: Protect from light, freeze
Melting Point: 84-85 °C
Residual Solvents: None detected (¹H-NMR)
Isotopic Purity: >99% D₄, 0% D₀
Chemical Purity: >99.5% by HPLC/UV
Date of Analysis (solution): April 06, 2011
Expiration/Re-Analysis Date: April 06, 2013



<u>Purity (HPLC)</u>	<u>Prepared Concentration*</u>	<u>Analyzed Concentration**</u>
>99.5%	0.105 mg/mL (±0.004 mg/mL)	N/A

Concentrations are reported as the free base.

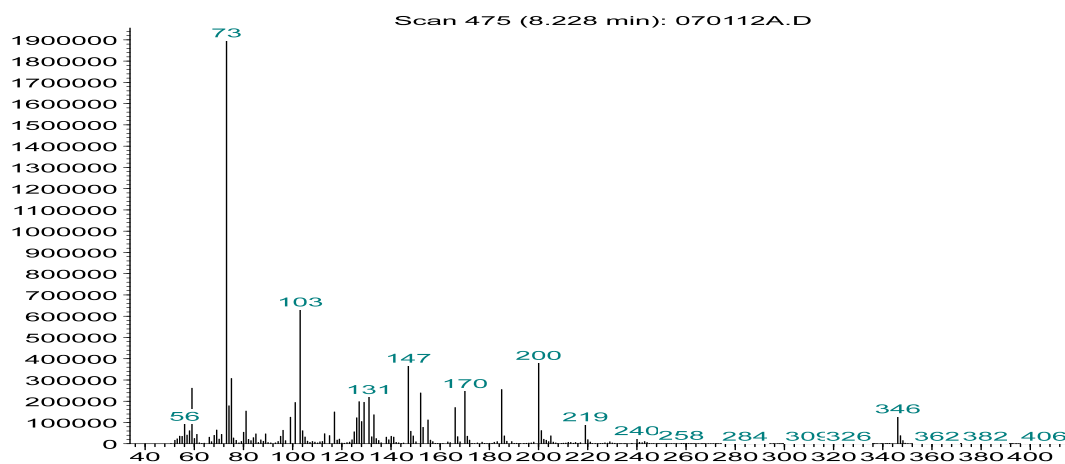
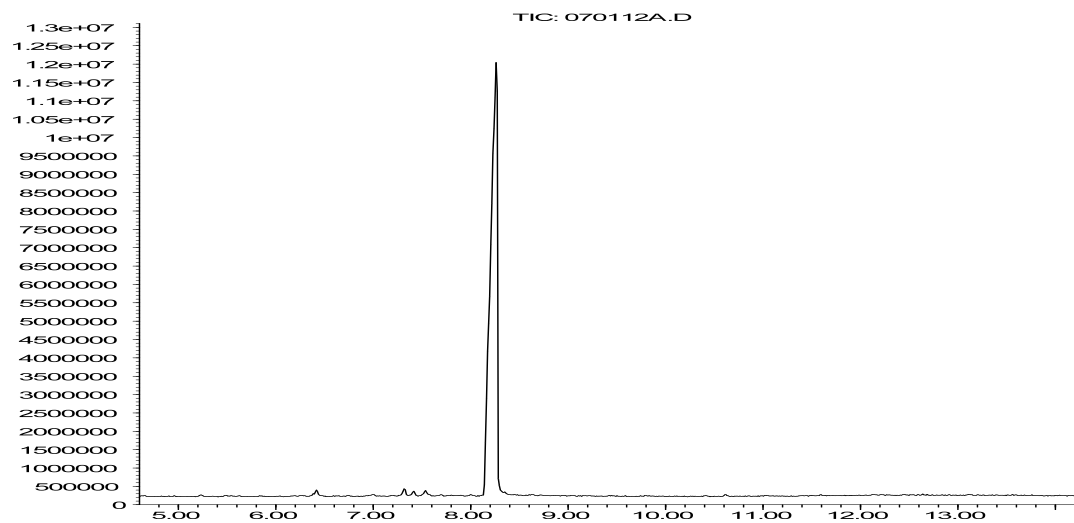
* Masses are determined using balances calibrated with NIST traceable weights. The prepared concentration is corrected for residual solvents, and chromatographic purity. The compound has not been sufficiently characterized for use as a quantitative standard. It is suitable for use as an internal standard.

Approved: Rodney L. Eisenberg, Ph.D.
Director

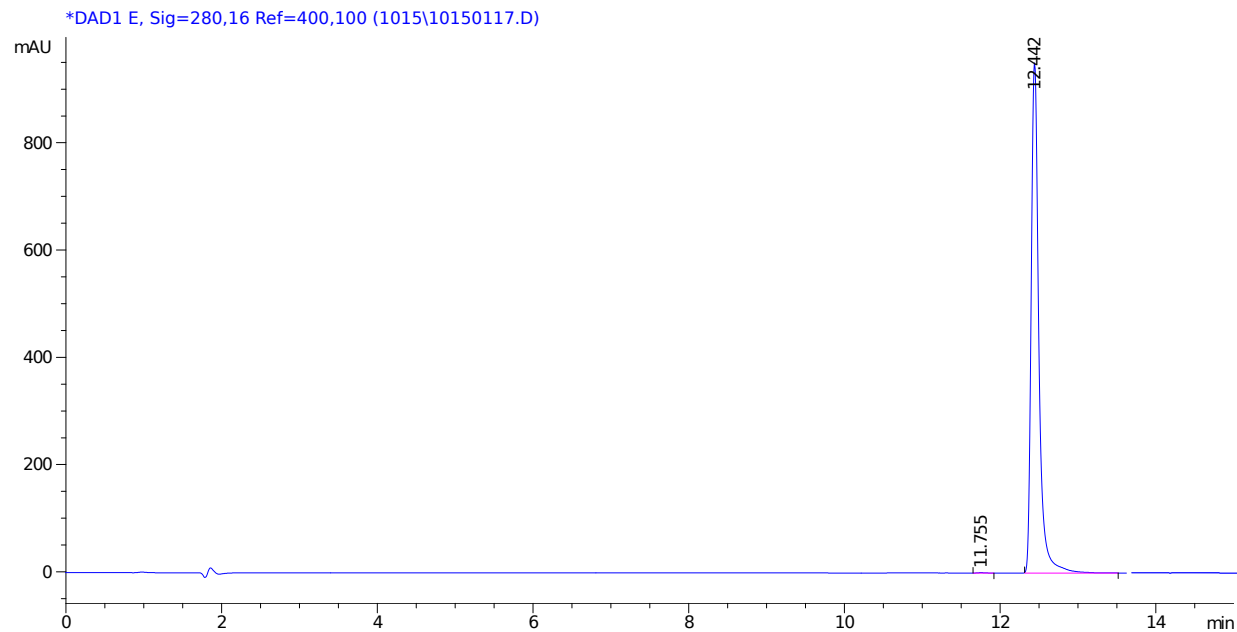
04-06-2011
Date

Spectral and Physical Data

GC/MS data: Bis TMS derivative. Expected MW 346.



HPLC UV(280 NM)



Signal 1: DAD1 E, Sig=280,16 Ref=400,100

Sample Name: 1015-64-1

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	11.755	BB	0.0894	4.29936	7.44100e-1	0.0673
2	12.442	BB	0.1023	6380.57080	951.20013	99.9327

Totals : 6384.87016 951.94423

¹H-NMR. Conforms to structure.