



## Certificate of Analysis

Waitemata Honey Co. Ltd  
 8 Te Kea Place, Rosedale  
 Auckland  
 Attention: Paul McKenzie  
 Phone: 09 415 5931  
 Email: orders@whoney.co.nz

Lab Reference: 20-09007  
 Submitted by: Chris  
 Date Received: 3/03/2020  
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 Order Number: 093377  
 Reference: Waitemata Honey

### Report Comments

Samples were collected by yourselves (or your agent) and analysed as received at Analytica Laboratories. Samples were in acceptable condition unless otherwise noted on this report.

### Results Summary

#### 3in1

Laboratory ID	Sample ID	Dihydroxyacetone (DHA)	Methylglyoxal (MG)	Non-Peroxide Activity* (NPA)	Hydroxymethylfurfural (HMF)
	<i>Units Reporting Limit</i>	mg/kg 40	mg/kg 8	%w/v phenol eq. 1.3	mg/kg 1
20-09007-2	UMF520	379	147	7.0	15

#### 3in1 Approver:

Jacob Jaime, Ph.D.  
 R&D Scientist

### Method Summary

**3in1** Determination of Dihydroxyacetone (DHA), Methylglyoxal (MG) and Hydroxymethylfurfural (HMF) by aqueous extraction, derivatisation, and UPLC analysis in accordance with in-house procedures.

**NPA** Non-Peroxide Activity (NPA) values are not directly measured by the laboratory, but are calculated from the measured methylglyoxal concentration in the honey according to the requirements of the client. The calculation is based on published data<sup>(†)</sup> comparing the NPA and methylglyoxal concentration measured in a range of honey samples. These calculated values are not accredited by IANZ and do not imply that the honey is or is not manuka honey. NPA values less than 5 are an estimate based on extrapolation of the relationship between methylglyoxal and NPA

*(†) Isolation by HPLC and characterisation of the bioactive fraction of New Zealand manuka (Leptospermum scoparium) honey. C. J. Adams, et al. Carbohydrate Research 343 (2008) 651-659. And, Corrigendum to "Isolation by HPLC and characterization of the bioactive fraction of New Zealand manuka (Leptospermum scoparium) honey" [Carbohydr. Res. 343 (2008) 651]. Carbohydrate Research 344 (2009) 2609. C. J. Adams, et al.*