

C4 Screening test



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ALS Analytica offers a low cost screening test for C4 Sugar in honey, as well as the current reference method test which meets the requirements of AOAC 998.12.

The Screening Test is a cost effective option suited to testing honey at extraction, when buying or selling, and prior to blending. The Reference Method Test, which fully conforms to the AOAC 998.12 standard, continues to be available with an improved level of accuracy. It will be preferred by those needing a higher level of precision and/or a test certificate based on this internationally recognised method.

What is the C4 Sugar Test?

The test has been used for a number of years around the world. It is used to detect honey that has been adulterated by adding cane sugar or high fructose corn syrup. The internationally accepted method is AOAC 998.12 (AOAC stands for American Organisation of Analytical Chemists), and typically uses an instrument called an Isotope Ratio Mass Spectrometer (IR-MS).

Honey with a result of greater than 7% C4 Sugar is at risk of being rejected by buyers in a number of countries.

More information about the test and how it works can be found in the article published in the NZ Beekeeper Magazine in July 2015 (available from Analytica on request, or at www.analytica.co.nz).

Limitations of the C4 Sugar Test

In general, the test works well for most floral varieties of honey.

However Manuka honey, particularly honey with high levels of DHA and MG, tends to return higher C4 Sugar test results. What is more, those test results can increase over time as the honey matures, despite the fact that no sugar is added to the honey. Research to date suggest that some sort of interaction between MG and proteins found in the honey may be affecting C4 Sugar test results.

The AOAC 998.12 C4 Sugar test has an inherently high level of uncertainty. Historically, if a test gave a result of 7%, a retest of the same honey could give a result anywhere between 6% and 8% (an uncertainty of +/-1%). This needs to be taken into account when making decisions based on C4 Sugar test results.

Analytica's two testing options

Analytica initially launched the C4 Sugar Reference Method Test based on the AOAC 998.12 method with a 3-5 day turn around time, this test has received strong uptake around New Zealand. The C4 Sugar Screening Test has been recently

developed in response to customer requests for a lower priced option.

The C4 Sugar Reference Method Test

- ▶ Follows the AOAC 998.12 method, and will soon be the first IANZ/ISO 17025 accredited C4 Sugar test available from a NZ laboratory.
- ▶ Has an improved uncertainty of +/- 0.6%
- ▶ Recommended use: Testing of final production batches of honey, especially for product being sent to markets that are sensitive to C4 Sugar test results. And testing of any honey where the customer values an accredited and more repeatable test result.

The C4 Sugar Screening Test

Uses the same equipment as the Reference Method C4 Sugar test, with a method modified to increase throughput and improve efficiency.

- ▶ Has an uncertainty of +/-1.5%.
- ▶ Recommended use: Testing of drums or batches of honey at extraction, when being bought or sold, and prior to blending of production batches.