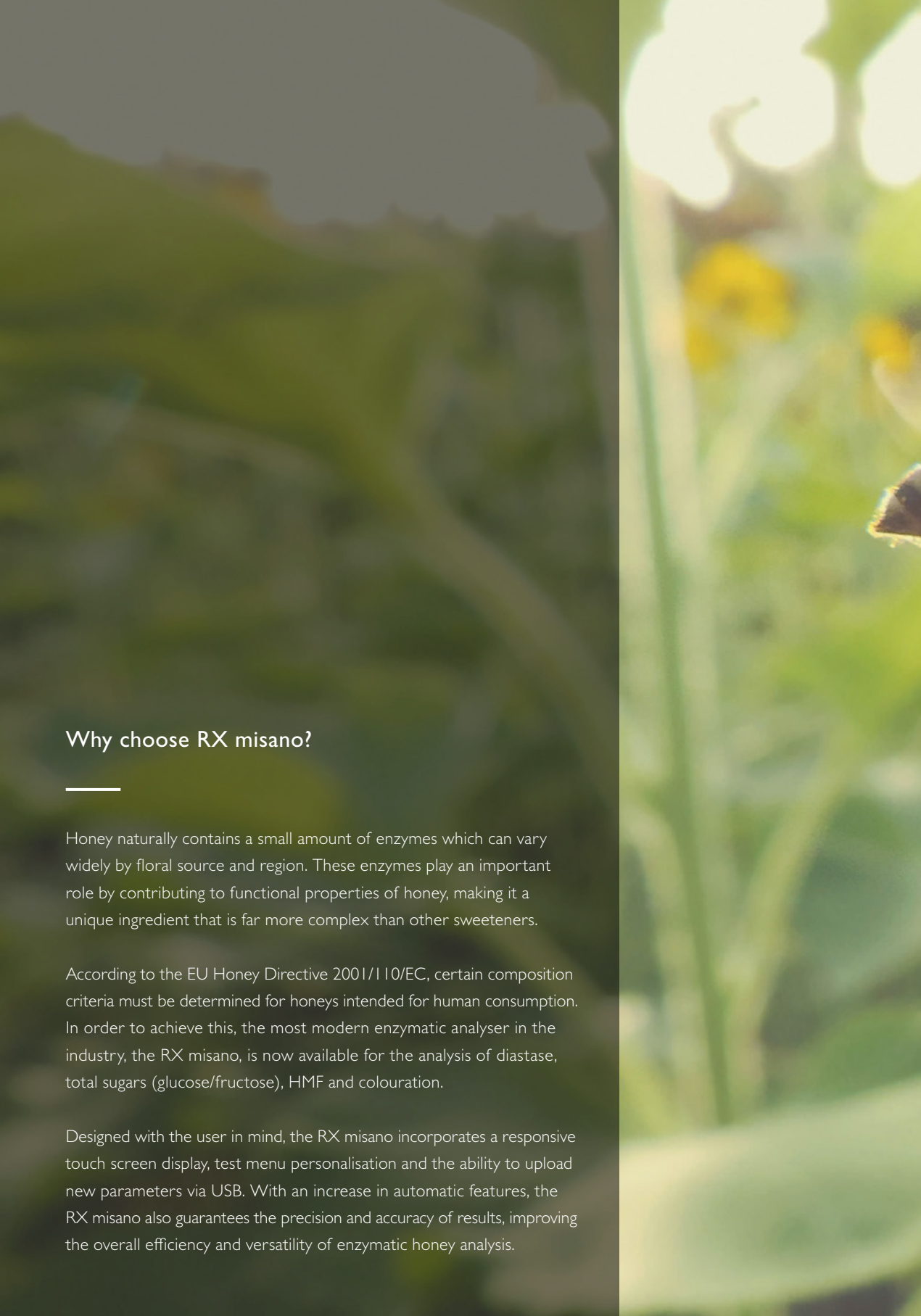
RANDOX
FOOD DIAGNOSTICS

RX misano for Honey Analysis

Randox Honey



Why choose RX misano?

Honey naturally contains a small amount of enzymes which can vary widely by floral source and region. These enzymes play an important role by contributing to functional properties of honey, making it a unique ingredient that is far more complex than other sweeteners.

According to the EU Honey Directive 2001/110/EC, certain composition criteria must be determined for honeys intended for human consumption. In order to achieve this, the most modern enzymatic analyser in the industry, the RX misano, is now available for the analysis of diastase, total sugars (glucose/fructose), HMF and colouration.

Designed with the user in mind, the RX misano incorporates a responsive touch screen display, test menu personalisation and the ability to upload new parameters via USB. With an increase in automatic features, the RX misano also guarantees the precision and accuracy of results, improving the overall efficiency and versatility of enzymatic honey analysis.

Benefits at a Glance

User friendly

7" responsive touch screen display, favourites menu, on screen prompts, the ability to export data into excel and import new menus.

Semi-automated

With the ability to automatically calculate results, the RX misano leaves less chance for human error.

Customisable test menus

As the RX misano for honey test menu continues to grow, users can simply upload new parameters to the machine via USB.

Accurate

Results are quantitative and produced within +/- 1% of UKAS accredited reference materials, boasting increased accuracy compared to alternative methods.

Reduced foot print

With a smaller footprint than standard spectrophotometers, the RX misano is suitable for laboratories of all sizes.

Excellent thermal performance

The RX misano heats to 37°C in less than 30 seconds and cools from 37°C to 25°C in less than 1 minute.

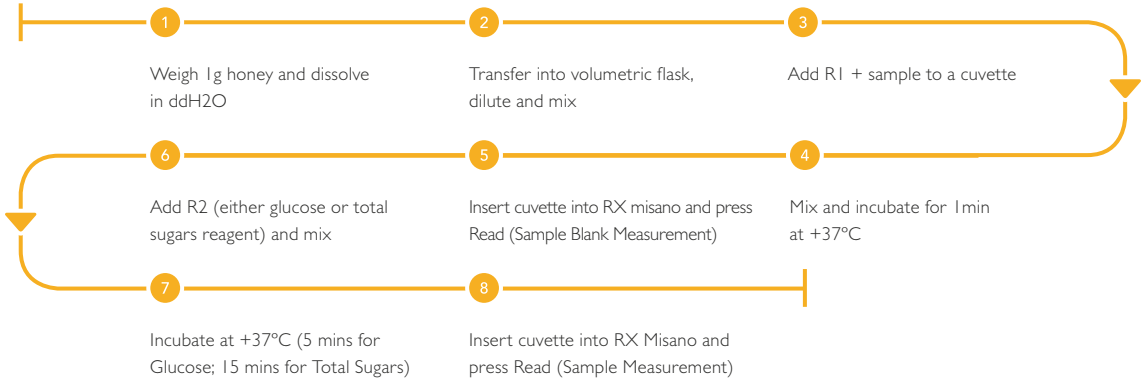
Glucose/Fructose Analysis

(GF2635)

The sugar composition of honey is responsible for some of its key functional properties. The determination of glucose/fructose ratios are parameters which are used to help predict the tendency of honey to crystallise.

Individual analysis of sugars can show valuable information about source and floral origin. Randox offers a simple and fast method for the determination of glucose/fructose content in honey.

Sample Preparation/Assay Protocol



Calculation of Result

Fructose content = Total sugars – Glucose content (Work out second value as a percentage of total value)
Results are calculated in g/100g.

Optimum glucose/fructose content is **> 70% of total honey constituents**

Product	Time to result
Glucose	6 minutes
Fructose	22 minutes
Total Sugars	16 minutes

Linearity	Sensitivity	Precision	
		Intra Assay	Inter Assay
7.5g/l	**0.3g/l**	<5%	<7.5%

HMF (Hydroxymethylfurfural) Honey Test

(HMF6000)

Hydroxymethylfurfural (5-hydroxymethyl-2-furaldehyde, HMF) is an organic compound that is produced by acid-catalyzed dehydration of sugars, primarily fructose and its measurement is crucial to evaluate the conformity of honey for daily use according to government legislation. Elevated concentrations of HMF in honey provide an indication of overheating, poor storage conditions, possible adulteration with other sugars or syrups and/or higher age of the honey.

The use of the HMF value alone is enough to provide all of the information required to estimate the total heat exposure of all honey, making it one of the most common honey quality tests.

Sample Preparation/Assay Protocol

Calculation of Result

The test is linear to HMF concentration of 100 mg/kg. Dilute samples above this concentration, i.e. 1+ 3 with ddIH2O. Multiply the result by 4.

The Codex quotes the following: The HMF content of honey after processing and/or blending must not be higher than 80 mg/kg. The European Union (EU Directive 110/2001) has fixed a HMF limit in honey of 40 mg/kg with the following exceptions: 80 mg/kg for honey coming from Countries or Regions with tropical temperatures, 15 mg/kg for honey with low enzymatic level (8-3 Schade Units).

Product	Time to result	Sensitivity
HMF	<25min	**2mg/kg**

*Quartz cuvette required for test (not included)

Additional extra - Sodium Sulfite - *Sigma Aldrich (13438)*

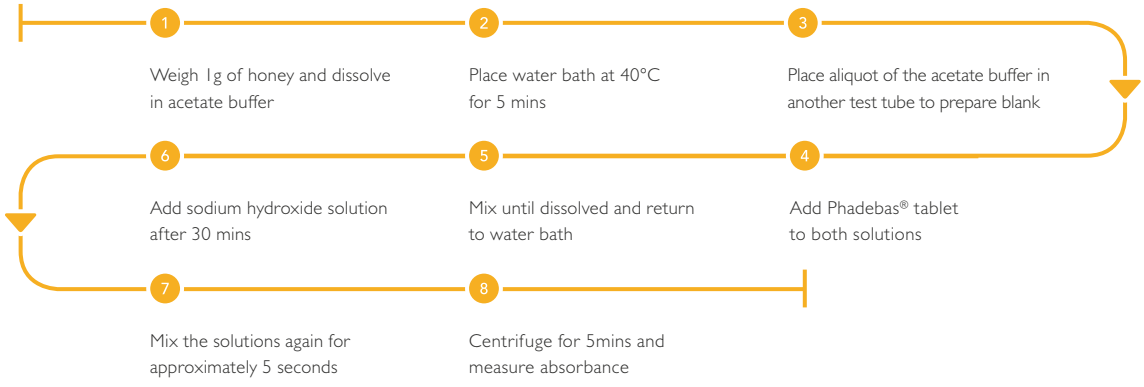
Phadebas® Honey Diastase Test

(1321 or 1322)

Diastase in honey converts starch to short-chain sugars and the enzyme activity hints at heating and/ or poor storage conditions. Heating the honey degrades the enzyme, which is why restrictions are enforced by the EU. One official method of determining the Diastase Number (DN) in honey is the Phadebas® test, as recommended by the International Honey Council.

Phadebas® Honey Diastase Test is a method for the quantitative analysis of α-amylase in all honey types.

Sample Preparation/Assay Protocol



Calculation of Results

The absorbance of the blank is subtracted from that of the sample solution (ΔA620). If the absorbance is higher than 1.0, dilute the sample with water and retest.

The codex quotes the following: The diastase activity of honey, determined after processing and/or blending, in general not less than **8 Schade units** and in the case of honeys with low natural enzyme content not less than **3 Schade units.**

Product	Time to result
Diastase	40 minutes

Honey Colour Test

Colour grading has been used by the honey industry for many years.

In natural condition honey can adopt a continuous range of colours related to mineral content and floral source. In addition, there is a connection with flavour as lighter coloured honey has a mild taste whereas darker types have a stronger taste.

*Included with the analyser and no kits required

Sample Preparation/Assay Protocol

1. Sample is added to the sample cuvette
2. Select honey colour from Rx misano test menu and the sample will be read
3. Record absorbance to classify honey colour

Calculation of Results

A simple measurement of absorbance at 578nm* enables a colour classification for honey to be established, as indicated in the table below.

Colour Names (Honey)	Pfund Scale (mm)	Mid Range Absorbance
Water White	<8	0.0945
Extra White	9-17	0.189
White	18-34	0.378
Extra Light Amber	35-50	0.595
Light Amber	51-85	1.389
Amber	86-114	3.008
Dark Amber	>114	>3.1

*Instrument algorithm in place for 560nm determination

Benefits of Kits

- ✓ Ability to run batches of 10 samples in less than 1 hour (with added incubator)
- ✓ Increased number of tests - 157 tests per glucose/fructose kit
- ✓ Individual results available for glucose and fructose - 78 tests per kit
- ✓ Simple sample preparation
- ✓ Phadebas® - Gold standard method reported in Schade units
- ✓ Hydroxymethylfurfural (HMF) is a unique test on the RX misano
- ✓ Colour test available at no extra charge
- ✓ Sucrose coming in 2018

How To Order

Starter Package (RX6022)*

Product	Cat. No.
RX misano	RX6017
Incubator (6 samples per run)	A702-496
Cuvettes (pack of 500 - single use)	RFD8346
5-50µl Pipette	RFD8314
20-200µl Pipette	RFD8315
200-1000µl Pipette	RFD8316
On-site Training	Comp
1 Free Kit of your choice	Comp

*Denotes entire package listed

Kits

Product	Product Type	Cat. No.
Glucose / Fructose (157 tests)	Reagent	GF2635
Phadebas® Honey Diastase Test (50 tablets)	Reagent	1321
Phadebas® Honey Diastase Test (5x100 tablets)	Reagent	1322
HMF (Hydroxymethylfurfural) (100 tests)	Reagent	HMF6000
Colouration	No kit required	N/A

Local Engineers. Global Coverage

Randox Food Diagnostics provide customers with an unrivalled support service. A team of highly trained specialists are on-hand to deal with any technical and service issues you may have.

Technical Distributors

We have official Randox Food Diagnostics technical distributors in over 100 countries

50 Specialists

Randox Food has 50 engineers and tech support specialists placed around the world to ensure an efficient response to customer requests

350

Scientists

Randox Food has 350 scientists placed around the world, dedicated to providing a quality product offering

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We have 25 international offices acting as direct points of contact for customers

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We offer the ultimate after-care support with tailored service packages to suit your available budget

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