HK12

NIR– Laboratory measurement device
for liquids of different consistencies

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Description:

The HK12 is an NIR- (Near- Infrared) laboratory measurement device with state- of- the- art technology. Which can measure all organic components in liquids of different consistencies.

With only one measurement you can measure simultaneously all valuable components like fat, protein, lactose, water, etc.

Through the simple sample preparation, the light and compact construction of the HK12, it is ideally suitable for laboratory operation.

With the easy to use calibration function, our customer can take spectra's at the device and read the internal stored spectra with the calibration software.

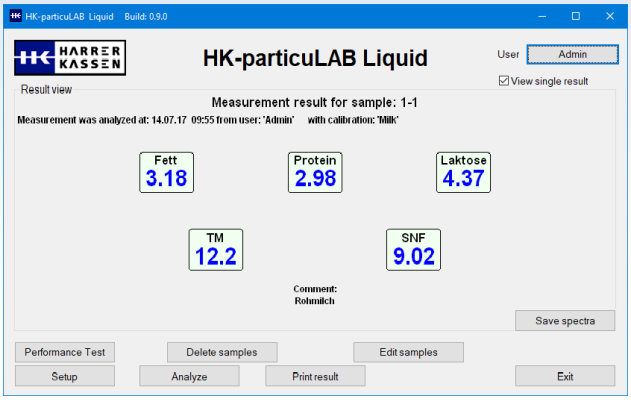
Due to this function, our customers can expand independent or with our help an existing calibrations or create new calibrations.

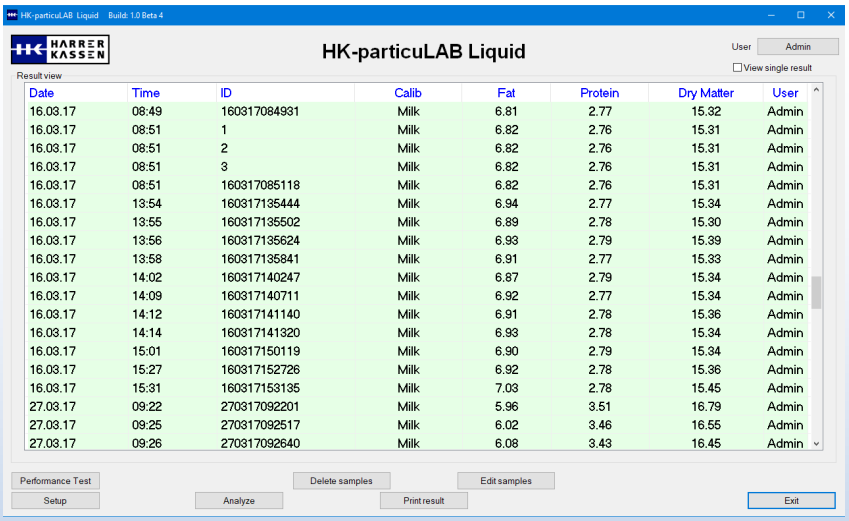
Operating software

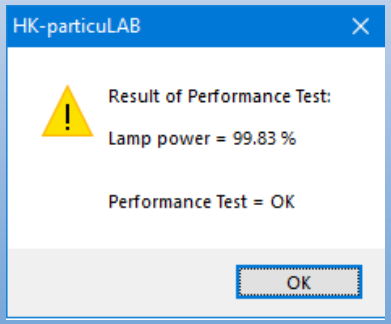
With the operating software HK- particuLAB Liquid, it is possible to measure simultaneously up to **10 organic components** and calculate **5 further** out of the measured components e.g. **protein content without connective tissue**.

It is possible to display the measurements as a single result (right picture) or all results listed (lower picture).

You can print the measurements as last result, today's results or weekly results. All measurements are also stored in a csv. file, which can be opened with Excel.



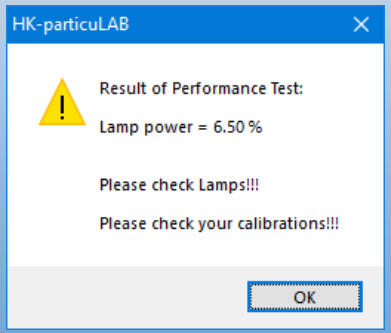




To check the performance of the laboratory device it is possible to make a performance test with a reference plate.

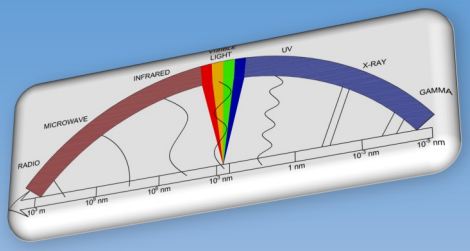
As long as everything is working well, the performance test show the **Lamp power** and **Performance Test = OK** (left picture).

If something does not working correctly, the performance test show the **Lamp power**, **Please check Lamps!** and **Please check your calibration!** (right picture).
If this happens, please contact your contact person.



No moving parts in the optic:

The Harrer & Kassen GmbH uses in his laboratory measurement devices an NIR (Near- Infrared) Diode- Array detector (Spectrometer) with thermoelectrically cooling, this is necessary for an optimum Signal-to-Noise ration, even under rugged application conditions.

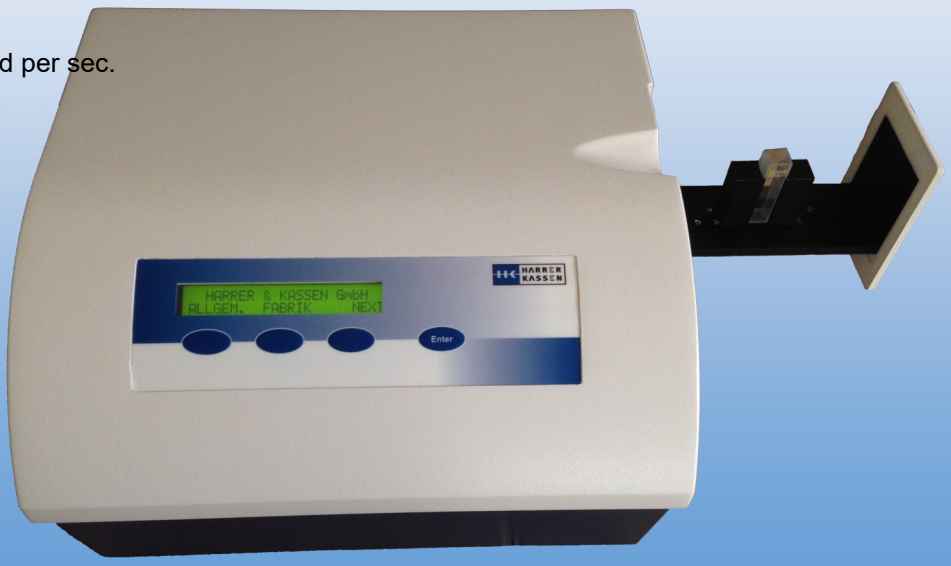


The product will be irradiated with a special developed Halogen lamp. The resulting diffuse reflection (the diffuse reflection contains the necessary information of the constituents) is transmitted via a fibre optic to the spectrometer. The spectrometer split the spectra in 256 support points.

Through the splitting of the spectrums, can we select with our calibration software the optimum wavelength rang for each component.

Advantage:

- Stat–of–the–art NIR- Technology
- No moving parts in the optic, like filter wheel
- No expensive cleaning agents
- Archiving of the measured values in a csv file (can be opened with Excel)
- With 6 kg is the HK12 a lightweight under the laboratory devices
- Easy to use software:
  - for laboratory operation
  - for calibrations
- Open system:
  - existing calibration can be expanded
  - new calibrations can be created independent
- Fast result (approx. 20sec.)
- Can be connected to an existing laboratory PC
- Simultaneous measurement of up to 10 organic components
- Additionally is it possible to calculate 5 further components out of the measured components
- 10 Spectra's are evaluated per sec.



Measurement data:

Analysis time:	approx. 20 sec. (adjustable)
Sample temperature:	+40°C ±2°C (with cuvette warmer)
Measuring equipment:	Quartz glass cuvettes Typ:6030– OG or one way cuvettes
Sample volumes:	approx. 3ml
Cleaning:	only quartz glass cuvettes
Reference measurement:	Reference cuvette

PC– requirement:

- 300 MHz clock speed (at least) recommended Pentium III- Processor (or faster)
- Windows 7 (32 und 64 Bit) or higher
- 512 MB RAM (or higher)
- USB interface

Technical data:

Housing:	ABS plastic / Aluminum
Size:	H x W x D 190 x 310 x 270 mm
Weight:	approx. 6 kg
Protection Type:	IP32
Power supply:	100 - 240 V/AC – 50/60 Hz – max. 200mA
Environmental temperature:	-20°C - +30°C
Operation:	4 in membrane keypad integrated soft keys
Display:	2x24 Sign LCD, LED– backlight
PC– Interface:	USB

Scope of supply:

The HK12 is supplied with software, cable and is connected to an existing PC or laptop.

At the commissioning, the operating personal gets a device instruction / training.

Directives:

The HK12 is CE- conform, according to the followings directives:

- EMC directives 2014/30/EU:
  - generic standards EN 61000-6-2
  - generic standards EN 61000-6-4
- Low- voltage directives 2014/35/EU
- RoHS directives 2011/65/EU